

Hitachi Ops Center Analyzer

10.8.2

REST API Reference Guide

This manual describes how to use the Hitachi Ops Center Analyzer REST API.

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Contents

Preface.....	15
Intended audience.....	15
Product version.....	15
Release notes.....	15
Document conventions.....	15
Conventions for storage capacity values.....	17
Referenced documents.....	18
Accessing product documentation.....	18
Getting help.....	18
Comments.....	19
Chapter 1: Overview.....	20
API architecture.....	20
Common specifications of the API functions.....	20
Communication protocols and port numbers.....	21
Execution permission.....	21
Security and authentication.....	22
Request and response formats.....	23
Request format of the API.....	23
URI format.....	23
Supported HTTP methods.....	25
Request Line format description.....	25
Information in the request header.....	26
Response format of the API.....	27
Status description.....	27
Response headers descriptions.....	28
Response body description.....	28
HTTP status codes description.....	28
Error information for errors in API requests.....	30
Query parameters in the API.....	30
Query parameter for all APIs.....	30
Query parameters for some APIs.....	30
HQL syntax relationships and operators.....	32
Domain object format.....	34

Resources managed through the API.....	36
API request list.....	38
List of enumerators.....	66
Chapter 2: Performing operations related to the rules for automatically assigning resources.....	96
Getting a list of automatic resource assignment rules.....	96
Creating automatic resource assignment rule.....	100
Getting specific automatic resource assignment rule information.....	104
Updating specific automatic resource assignment rule.....	107
Deleting specific automatic resource assignment rule.....	111
Getting a list of operations for information about automatic resource assignment rules.....	113
Preparing to obtain a list of condition information for automatic resource assignment rules.....	116
Getting a list of condition information for automatic resource assignment rules.....	118
Preparing to update a condition information for automatic resource assignment rules.....	125
Updating condition information for automatic resource assignment rules.....	129
Getting a list of operations for automatic resource assignment rules.....	136
Preparing to change the priority of automatic resource assignment rules.....	139
Changing the priority of automatic resource assignment rules.....	142
Preparing to assign resources.....	146
Assigning resources.....	150
Preparing to obtain the results of automatic host distribution.....	154
Getting the results of automatic host distribution.....	159
Preparing to obtain the results of automatic virtual machine distribution.....	166
Getting the results of automatic virtual machine distribution.....	171
Preparing to obtain the results of automatic volume distribution.....	178
Getting the results of automatic volume distribution.....	183
Chapter 3: Performing operations related to the history of changes made to the configuration.....	190
Getting a list of configuration change histories.....	190
Getting specific history of configuration changes.....	196
Getting a list of operations for specific history of configuration changes.....	199
Preparing to obtain the number of configuration changes.....	202
Getting the number of configuration changes.....	205
Preparing to obtain a trend in the number of configuration changes.....	210
Getting trend in the number of configuration changes.....	213
Chapter 4: Performing operations related to executing actions.....	219
Getting a list of operations for execute action functions.....	219

Preparing to obtain a list of actions that can be executed by the execute action function.....	223
Getting a list of actions that can be executed by the execute action function.	226
Preparing to obtain a detailed information about emails that can be sent by the execute action function.....	231
Getting detailed information about emails that can be sent by the execute action function.....	233
Preparing to obtain a detailed information about commands that can be sent by the execute action function.....	237
Getting detailed information about commands that can be executed by the execute action function.....	240
Preparing to execute commands that can be executed by the execute action function.....	244
Executing commands that can be executed by the execute action function...	247
Preparing to reload a list of actions that can be executed by the execute action function.....	251
Reloading a list of actions that can be executed by the execute action function.....	253
Preparing to get a list of the actions that can be executed by using the execute action function of the target resources.....	257
Getting a list of the actions that can be executed by using the execute action function of the target resources.....	259
Preparing to get detailed information about the commands that can be executed by using the execute action function of the target resource.....	264
Getting detailed information about the commands that can be executed by using the execute action function of the target resource.....	267
Preparing to execute a command using the execute action function of the target resource.....	271
Executing a command using the execute action function of the target resource.....	274
Getting information needed to get details about an Ops Center Automator service that is executable by the execute action function.....	278
Getting details about an Ops Center Automator service that is executable by the execute action function.....	281
Chapter 5: Getting a list of resources.....	286
Getting a list of resources.....	286
Chapter 6: Performing operations related to resource information in E2E View.....	292
Getting a list of resources that are displayed in the E2E view.....	292
Preparing to obtain topology data for resources that are displayed in the E2E view.....	297
Getting topology data for resources that are displayed in the E2E view.....	299
Preparing to obtain details about resources that are displayed in the E2E view.....	327

Getting details about resources that are displayed in the E2E view.....	329
Preparing to obtain a query parameters used to display the E2E view.....	352
Getting query parameters used to display the E2E view.....	354
Preparing to obtain a list of resources related to the E2E view.....	357
Getting a list of resources related to the E2E views.....	360
Preparing to obtain a query parameters used to display resources in the E2E view.....	367
Getting query parameters used to display resources in the E2E view.....	370
Preparing to get resource information.....	374
Getting resource information.....	376
Chapter 7: Setting up a mail server.....	382
Getting a list of email server settings.....	382
Uploading specific email server settings.....	385
Getting a list of operations for email server settings.....	389
Preparing to send a test mail.....	391
Sending a test mail.....	395
Chapter 8: Performing operations related to event information.....	400
Getting a list of events.....	400
Getting specific event information.....	405
Getting a list of operations for events.....	408
Preparing to obtain number of events.....	411
Getting a number of events.....	414
Chapter 9: Getting information about a consumer grade.....	418
Getting a list of grades.....	418
Chapter 10: Performing operations related to consumers.....	422
Getting a list of consumers.....	422
Creating consumer.....	426
Getting specific consumer information.....	430
Updating consumer.....	434
Deleting a specific consumer.....	439
Getting a list of operations for specific consumers.....	440
Preparing to assign a consumer.....	443
Assigning a specific consumer.....	445
Chapter 11: Performing operations related to consumer auto creation.....	450
Getting information to generate a consumer definition.....	450
Generate a consumer definition.....	453
Getting information to preview a consumer definition.....	457
Preview a consumer definition.....	459

Getting information to submit a consumer auto creation task.....	463
Submit a consumer auto creation task.....	466
Getting information to export a consumer definition file.....	469
Export a consumer definition file.....	471
Getting information to register a consumer definition file.....	473
Register a consumer definition file.....	475
Chapter 12: Connecting to the Analyzer detail view server.....	478
Getting a list of Analyzer detail view server connection settings.....	478
Updating specific Analyzer detail view server connection settings.....	481
Getting specific Analyzer detail view server connection settings.....	484
Getting a list of operations for configuring the connection settings of the Analyzer detail view server.....	487
Preparing to get the URL of the Analyzer detail view server.....	490
Getting the URL of the Analyzer detail view server.....	492
Getting a list of operations for configuring Analyzer detail view server connection settings.....	496
Preparing to check the connection to Analyzer detail view server.....	499
Checking the connection to Analyzer detail view server.....	502
Chapter 13: Performing operations related to Storage I/O control settings.....	508
Getting a list of tasks related to Storage I/O control settings.....	508
Getting information about a specific Storage I/O control settings task.....	512
Getting a list of actions related to Storage I/O control configuration task history.....	514
Getting the parameter used to update the status of a Storage I/O control settings task.....	517
Updating the status of a Storage I/O control settings task.....	520
Getting a list of actions related to Storage I/O control settings.....	523
Getting the parameters used to configure Storage I/O control settings.....	526
Configuring Storage I/O control settings.....	529
Chapter 14: Performing operations related to sessions that use HSSO tokens.....	534
Getting a list of operations for sessions of the HSSO token.....	534
Preparing to extend the valid period of a session of the HSSO token.....	537
Extending the valid period of a session of the HSSO token.....	539
Chapter 15: Performing operations related to email addresses.....	543
Getting a list of mail addresses.....	543
Creating a mail address.....	546
Getting specific mail address information.....	549
Updating specific mail address.....	551

Deleting specific mail address.....	554
Getting a list of operations for specific email address information.....	555
Preparing to assign a notification profile.....	558
Assigning a notification profile.....	561
Getting a list of operations for mail addresses.....	564
Preparing to change the status of email addresses.....	567
Changing the status of email addresses.....	570
Chapter 16: Performing operations related to notification profiles.....	574
Getting a list of notification profiles.....	574
Creating notification profile.....	577
Getting specific notification profile information.....	581
Updating notification profile.....	583
Deleting specific notification profile.....	587
Getting a list of operations for specific notification profile configuration information.....	588
Preparing to assign notification-destination email addresses.....	591
Assigning notification-destination email addresses.....	594
Getting a list of operations for notification profiles.....	598
Preparing to obtain a list of notification target categories for notification profiles.....	600
Getting a list of notification target categories for notification profiles.....	602
Chapter 17: Performing operations related to resource information and metric information.....	606
Getting specific metric information.....	606
Getting a list of operations for specific metrics.....	608
Preparing to obtain performance graph data for specific metrics.....	611
Getting performance graph data for specific metrics.....	615
Getting a list of operations for resources.....	624
Preparing to obtain a list of metrics related to resources.....	627
Getting a list of metrics related to resources.....	629
Getting a list of metrics for components.....	633
Chapter 18: Getting a list of metrics.....	640
Getting a list of operations for performance information.....	640
Preparing to obtain performance information for metrics.....	643
Getting performance information for metrics.....	647
Preparing to obtain metric information.....	658
Getting metric information.....	661
Getting a list of metrics for devices.....	666
Getting a list of metrics for virtual machines.....	672
Getting a list of metrics for volumes.....	677

Chapter 19: Performing operations related to predictive histories.....	684
Getting a list of task histories for a predictive operation.....	684
Getting predictive history information.....	690
Deleting a predictive history.....	696
Getting a list of predictive history actions.....	697
Getting the parameter used to obtain predictive results.....	699
Getting predictive results.....	701
Getting the parameter used to get metrics for the predictive result.....	716
Getting metrics for the predictive result.....	723
Chapter 20: Getting the license status of the Predictive Analytics feature.....	729
Getting the license status of the Predictive Analytics feature.....	729
Chapter 21: Performing operations related to analytics engines.....	732
Getting a list of analytics engines.....	732
Getting information about an analytics engine.....	735
Chapter 22: Executing a predictive operation.....	739
Getting a list of predictive tasks.....	739
Getting information about a predictive task.....	741
Getting a list of predictive-related operations.....	742
Preparing to predict a result.....	744
Predicting a result.....	747
Preparing to cancel a predictive operation.....	751
Canceling a predictive operation.....	753
Chapter 23: Performing operations related to predictive profiles.....	756
Getting a list of predictive profiles.....	756
Creating a new predictive profile.....	759
Getting information about a predictive profile.....	764
Updating a predictive profile.....	766
Deleting a predictive profile.....	771
Chapter 24: Performing operations related to predictive reports.....	773
Getting a list of predictive reports.....	773
Creating a new predictive report.....	776
Getting information about a predictive report.....	779
Updating a predictive report.....	781
Deleting a predictive report.....	785
Chapter 25: Getting a list of the recovery action history.....	787
Getting a list of recovery action history.....	787

Chapter 26: Performing operations related to recovery action.....	791
Creating a new recovery action history.....	791
Getting information about recovery action history.....	795
Updating recovery action history.....	798
Deleting recovery action history.....	802
Chapter 27: Getting information about storage systems.....	804
Getting a list of storage system models.....	804
Getting a list of storage system pools.....	807
Chapter 28: Performing operations related to suggestions.....	811
Getting a list of operations related to suggestions.....	811
Preparing to obtain the suggestions.....	814
Getting suggestions for resolving performance problems.....	820
Chapter 29: Getting information about the system.....	830
Getting system information.....	830
Chapter 30: Performing operations related to system summary information.....	833
Getting a list of system summary informations.....	833
Preparing to obtain a system summary information.....	836
Getting system summary information.....	838
Chapter 31: Getting the information needed to calculate dynamic thresholds.....	846
Getting margin information used for dynamic threshold calculations.....	846
Chapter 32: Performing operations related to threshold properties files.....	850
Getting a list of threshold profiles.....	850
Creating threshold profile.....	858
Getting specific threshold profile information.....	869
Updating specific threshold profile.....	877
Deleting specific threshold profile.....	888
Getting a list of operations for specific threshold profiles.....	890
Preparing to assign specific threshold profile.....	893
Assigning specific threshold profile.....	895
Preparing to obtain a threshold information with profiles and resources specified.....	899
Getting a list of threshold informations with profiles and resources specified.....	901
Preparing to set dynamic thresholds with profiles and resources specified....	906
Setting dynamic thresholds with profiles and resources specified.....	908

Chapter 33: Performing operations related to user resources.....	913
Getting a list of operations for user resources.....	913
Preparing to obtain the number of user resources counted for each metric and for each status.....	916
Getting the number of user resources counted for each metric and for each status.....	919
Chapter 34: Performing operations related to user information.....	924
Getting a list of users.....	924
Creating a user.....	928
Getting specific user information.....	932
Updating specific user information.....	935
Deleting specific user.....	940
Chapter 35: Performing operations related to virtual machines.....	942
Getting a list of virtual machines.....	942
Chapter 36: Performing operations related to volumes.....	948
Getting a list of volumes.....	948
Chapter 37: Accessing RAID Agent.....	956
Notes on using API functions that access RAID Agent.....	956
Maximum number of concurrent API requests that can access RAID Agent.....	956
Common specifications of the API functions that access RAID Agent.....	957
Transmission in compressed format.....	957
Common objects.....	958
Collection object.....	958
Error object.....	958
Action object.....	959
PrimitiveValue object.....	959
API resources and requests for accessing RAID Agent.....	959
Obtaining the RAID Agent list parameter when the manual refresh process is executed.....	967
Manually refreshing the RAID Agent list.....	969
Obtaining a list of RAID Agent instances.....	971
Obtaining a list of RAID Agent instances.....	974
Obtaining performance data.....	977
Obtaining a list of RAID Agent administrative actions.....	987
Obtaining the detailed version information of the API.....	989
Obtaining metadata.....	991

Appendix A: Supplemental information on performance data collected by RAID Agent using APIs..... 994

Format of record explanations.....	994
List of common key fields.....	995
List of data types.....	996
Delta.....	997
Notes on collecting records.....	998
Types of performance information that can be acquired depending on the Access Type.....	998
Notes on values acquired from VSP N series.....	999
Restrictions regarding volumes, ports and parity group for mainframe systems.....	1000
Whether performance information is collectible when using a storage system management program.....	1005
Collectability of performance data when using VMware VVol.....	1007
Whether performance data is collectible when using global-active device.....	1008
Whether performance information is collectible when using Compatible PAV or Compatible Hyper PAV.....	1011
Record creation results when data cannot be obtained.....	1011
Capacity monitoring of pools.....	1012
Retention periods for records.....	1013
RAID Agent records (collection via the command device).....	1014
PD.....	1015
PD_CLPC.....	1016
PD_ELC.....	1017
PD_LDC.....	1018
PD_LSEC.....	1024
PD_PEFF.....	1026
PD_PLC.....	1030
PD_PLF.....	1040
PD_PLR.....	1042
PD_PLTC.....	1044
PD_PLTR.....	1048
PD_PLTS.....	1050
PD_PTC.....	1052
PD_RGC.....	1054
PD_SEFF.....	1056
PD_UMS.....	1059
PD_VVC.....	1061
PD_VVF.....	1065
PD_VVTC.....	1067
PI.....	1069

PI_CHS.....	1072
PI_CLMS.....	1073
PI_CLPS.....	1075
PI_JNLS.....	1077
PI_LDA.....	1078
PI_LDE.....	1081
PI_LDS.....	1083
PI_PLS.....	1087
PI_PLTI.....	1089
PI_PRCs.....	1091
PI_PTS.....	1093
PI_RGS.....	1098
PI_VVTI	1103
RAID Agent records (collection via the SVP by using a TCP/IP connection).	1105
PD_PDX.....	1105
PD_UMSX.....	1106
PI_CBMB.....	1108
PI_CCMS.....	1109
PI_CHAC.....	1111
PI_CHDR.....	1112
PI_CLMX.....	1113
PI_CPS.....	1116
PI_DBMB.....	1117
PI_DKAC.....	1118
PI_DKDR.....	1120
PI_ELDS.....	1121
PI_EVGS.....	1122
PI_HBAS.....	1124
PI_HWSP.....	1125
PI_JNLX.....	1126
PI_LDSX.....	1129
PI_LDTC.....	1132
PI_LDU.....	1135
PI_LDUR.....	1136
PI_LSP.....	1138
PI_LTSP.....	1141
PI_LUSP.....	1144
PI_MBDR.....	1146
PI_MPCS.....	1147
PI_MPS.....	1149
PI_MPTS.....	1151

PI_PTSX.....	1153
PI_RGSX.....	1156
PI_RGU.....	1160
PI_SCPS.....	1161
PI_SCS.....	1164

Preface

This manual describes how to use the Hitachi Ops Center Analyzer REST API.

Intended audience

This document is intended for those who want to use the supplied REST (representational state transfer) API to manage resources and to integrate management operations with existing infrastructure management systems and applications.

To use the API, you should be familiar with the Hitachi Ops Center Analyzer concepts, terminology, and functionality. You should also have a basic understanding of web services and prerequisite knowledge of:

- XML
- JSON
- REST
- Programming language you will use for the application development or integration

Product version

This document revision applies to Hitachi Ops Center Analyzer 10.8.2 or later.

Release notes


Read the release notes before installing and using this product. They may contain requirements or restrictions that are not fully described in this document or updates or corrections to this document. Release notes are available on the Hitachi Vantara Support Website: <https://knowledge.hitachivantara.com/Documents>.






Document conventions

This document uses the following typographic conventions:

Convention	Description
Bold	<ul style="list-style-type: none"> Indicates text in a window, including window titles, menus, menu options, buttons, fields, and labels. Example: Click OK. Indicates emphasized words in list items.
<i>Italic</i>	<ul style="list-style-type: none"> Indicates a document title or emphasized words in text. Indicates a variable, which is a placeholder for actual text provided by the user or for output by the system. Example: <code>pairedisplay -g group</code> <p>(For exceptions to this convention for variables, see the entry for angle brackets.)</p>
Monospace	Indicates text that is displayed on screen or entered by the user. Example: <code>pairedisplay -g oradb</code>
< > angle brackets	<p>Indicates variables in the following scenarios:</p> <ul style="list-style-type: none"> Variables are not clearly separated from the surrounding text or from other variables. Example: <code>Status-<report-name><file-version>.csv</code> Variables in headings.
[] square brackets	Indicates optional values. Example: [a b] indicates that you can choose a, b, or nothing.
{ } braces	Indicates required or expected values. Example: { a b } indicates that you must choose either a or b.
vertical bar	<p>Indicates that you have a choice between two or more options or arguments. Examples:</p> <p>[a b] indicates that you can choose a, b, or nothing.</p> <p>{ a b } indicates that you must choose either a or b.</p>

This document uses the following icons to draw attention to information:

Icon	Label	Description
	Note	Calls attention to additional information.

Icon	Label	Description
	Tip	Provides helpful information, guidelines, or suggestions for performing tasks more effectively.
	Important	Highlights information that is essential to the completion of a task.
	Caution	Warns the user of adverse conditions and/or consequences (for example, disruptive operations, data loss, or a system crash).
	CAUTION	Warns the user of a hazardous situation that, if not avoided, could result in major or minor injury.
	WARNING	Warns the user of a hazardous situation which, if not avoided, could result in death or serious injury.

Conventions for storage capacity values

Physical storage capacity values (for example, disk drive capacity) are calculated based on the following values:

Physical capacity unit	Value
1 kilobyte (KB)	1,000 (10^3) bytes
1 megabyte (MB)	1,000 KB or $1,000^2$ bytes
1 gigabyte (GB)	1,000 MB or $1,000^3$ bytes
1 terabyte (TB)	1,000 GB or $1,000^4$ bytes
1 petabyte (PB)	1,000 TB or $1,000^5$ bytes
1 exabyte (EB)	1,000 PB or $1,000^6$ bytes

Logical capacity values (for example, logical device capacity, cache memory capacity) are calculated based on the following values:

Logical capacity unit	Value
1 block	512 bytes
1 cylinder	Mainframe: 870 KB

Logical capacity unit	Value
	Open-systems: <ul style="list-style-type: none"> ▪ OPEN-V: 960 KB ▪ Others: 720 KB
1 KB	1,024 (2 ¹⁰) bytes
1 MB	1,024 KB or 1,024 ² bytes
1 GB	1,024 MB or 1,024 ³ bytes
1 TB	1,024 GB or 1,024 ⁴ bytes
1 PB	1,024 TB or 1,024 ⁵ bytes
1 EB	1,024 PB or 1,024 ⁶ bytes

Referenced documents

The following documents are referenced in this document.

- *Hitachi Ops Center Analyzer Installation and Configuration Guide*, MK-99ANA001
- *Hitachi Ops Center Analyzer Detail View REST API Reference Guide*, MK-99ANA004
- *Hitachi Command Suite Tuning Manager API Reference Guide*, MK-92HC218

Hitachi Vantara Support Connect, <https://knowledge.hitachivantara.com/Documents>

Accessing product documentation

Product user documentation is available on the Hitachi Vantara Support Website: <https://knowledge.hitachivantara.com/Documents>. Check this site for the most current documentation, including important updates that may have been made after the release of the product.

Getting help

The [Hitachi Vantara Support Website](https://support.hitachivantara.com/en_us/contact-us.html) is the destination for technical support of products and solutions sold by Hitachi Vantara. To contact technical support, log on to the Hitachi Vantara Support Website for contact information: https://support.hitachivantara.com/en_us/contact-us.html.

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Thank you!

Chapter 1: Overview

You can use the API functions provided by Ops Center Analyzer to manage and monitor IT management systems and application resources.

API architecture

The API functions enable you to use HTTP or HTTPS to collect various types of information such as information about devices monitored by Ops Center Analyzer.

The API functions of Ops Center Analyzer conform to the REST (Representational State Transfer) architecture style.

Compliance with the REST architecture style has the following benefits:

- Does not depend on the platform or language.
- Adheres to the standard HTTP interface. (The GET, PUT, POST, and DELETE methods are available.)
- Enables the use of security tools for HTTP.
- Returns standard HTTP status codes, making error processing easy.
- Uses a URI (Uniform Resource Identifier) for each resource, making it easy to access resources. The relationships between resources are easy to understand.

Common specifications of the API functions

The following specifications are common to the API functions provided by Ops Center Analyzer.

Communication protocols and port numbers

The following lists the communication protocols and port numbers that are used by APIs:

- Communication protocol

The HTTP and HTTPS are supported by APIs. An API uses a protocol that is used by Ops Center Analyzer for communicating with a Web browser. The supported version of HTTP or HTTPS is version 1.1. For details on communication protocols, see the following standards:

- **For the HTTP:** RFC 2616
- **For the HTTPS:** RFC 2818

- Port number

The default setting of the port number depends on the communication protocol.

- **For the HTTP:** 22015
- **For the HTTPS:** 22016

If you want to change the port number, see the section describing how to change the port number between Analyzer server and the web browser, in the *Hitachi Ops Center Analyzer Installation and Configuration Guide*.

Execution permission

There are four types of permissions.

- User Management

Users with User Management permissions can do operations related to managing user information. You can use this type of permission with other types of permissions.

- Admin

Users with Administrator permissions can use all API functions in Ops Center Analyzer except functions for managing user information and functions for modifying IO control settings.

- StorageOps

Users with StorageOps permissions can do operations related to modifying resources of storage systems. You can use this type of permission with other types of permissions.

- Modify

Users with Modify permissions can do all API functions in Ops Center Analyzer except those related to managing user information, setting up email server, and configuring the connection settings for the Analyzer detail view management server.

Security and authentication

User authentication is required in order to send an API request and receive the response. Ops Center Analyzer API functions use Basic authentication (Basic Access Authentication) and authentication by using the HSSO token or the Bearer token. Note that APIs that access RAID Agent can only use Basic authentication.

The HSSO token or the Bearer token is necessary for Single Sign-On. The HSSO token times out after 1,000 seconds. The Bearer token times out after 300 seconds.

In the request header, specify the authentication information to be used for user authentication.

Basic authentication requires you to specify the authentication header indicating "Basic" (authentication method) followed by a string consisting of the user name and password separated by a colon (ASCII: 0x3A), encoded with Base64 (referred to as "basic token").

Example for basic authentication:

```
Authorization: BasicΔc3lzdGVtOmlhbmFnZXI=
```

Legend: Δ: Single-byte space

The HSSO token authentication requires you to specify the authorization header indicating "HSSO" (authentication method) followed by an HSSO token.

Example for authentication using the HSSO token:

```
Authorization:HSSOΔ32bd25936120d68dceabcb49493079f8ef82a4_V0300
```

Legend: Δ: Single-byte space

The APIs use Bearer token with OpenID connect authentication when it works with the Hitachi Ops Center Common Services.

Example for authentication using the Bearer token:

```
Authorization:BearerΔbearer_token
```

Legend: Δ: Single-byte space

For unauthorized requests, Ops Center Analyzer servers return status code "401".

**Note:**

If you use Basic authentication or authentication using the HSSO token to connect to the Ops Center Analyzer server, WWW-Authenticate: HSSO *hssso token* is returned in the response header. If you want to reconnect with the Ops Center Analyzer server by using the same session to run an API function, specify the request header as follows:

```
Authorization:HSSOΔhssso_token
```

Legend: Δ: Single-byte space

Ops Center Analyzer servers return the status code "401" for unauthorized requests, and request user authentication.

Request and response formats

The JSON format is available as the data format for API requests and responses. Specify a data format in the request header. Use UTF-8 character encoding for the input and output format.

Example:

```
Accept:application/json
Content-Type:application/json
```

Request format of the API

A request format contains a URI, method, request line, and request header. The request formats to use Ops Center Analyzer's features through APIs are as follows:

URI format

Use URIs to specify resources for API functions. A URI contains a basic URI (from <schema> to <version>) and a relative URI (<domain> and followings). Resources are identified with the relative URI (starting from <domain>).

See the following example format and URI components list:

Format of a URI:

```
<scheme>//[<host>:<port>]/<application>/<version>/<domain>/<object-  
type>[?<query-string>]
```

or

```
<scheme>//[<host>:<port>]/<application>/<version>/<domain>/<object-  
type>/actions/[<action-identifier>[/invoke]]
```

In this manual, "<scheme>://<host>:<port>/<application>" may transcribe it into "baseURL".

The following list describes the URI components.

Item	Description
<scheme>	Protocol. Specify "HTTP" or "HTTPS".
<host>	Host name or IP address of the Ops Center Analyzer host accessed from an API client.
<port>	Port number of the Ops Center Analyzer host accessed from an API client. The default port number is 22015 for HTTP, and 22016 for HTTPS.
<application>	Name of the application that provides the API functions. Specify either "Analytics" or "Analytics/RAIDAgent", depending on the API function you are using.
<version>	Your version of the API functions. Specify "v1".
<domain>	Category of the resource specified for the API function.
<object-type>	Indicates the resource or service.
<query-string>	Query parameter that specifies a query parameter. This specifies a condition for reducing or sorting <object-type>. The available query parameters depend on resources. The query parameters can be in any order. For details, see HQL syntax relationships and operators (on page 32) .
<action-identifier>	This indicates the action for the resource.

The components and other details of URIs vary for each API function. For more information, see the descriptions of the applicable API function.

You can execute the REST API functions of Analyzer detail view via Ops Center Analyzer. The table below shows the URLs corresponding to the REST API functions of Analyzer detail view that can be executed via Ops Center Analyzer. For details, including the parameters to be specified for the REST API functions, see the *Hitachi Ops Center Analyzer Detail View REST API Reference Guide*.

URLs for REST API functions in Ops Center Analyzer	URLs for the corresponding REST API functions in Analyzer detail view
https://<host>:<port>/Analytics/v1/DbQuery/actions/dbapi?<query-string>	https://<IP-address-of-Analyzer-detail-view>:<port-number-of-Analyzer-detail-view>/dbapi.do?<query-string>

URLs for REST API functions in Ops Center Analyzer	URLs for the corresponding REST API functions in Analyzer detail view
https://<host>:<port>/Analytics/v1/DbQuery/actions/alertapi?<query-string>	https://<IP-address-of-Analyzer-detail-view>:<port-number-of-Analyzer-detail-view>/alertapi.do?<query-string>

To execute a REST API function of Analyzer detail view via Ops Center Analyzer, specify Ops Center Analyzer authentication information in the request header.

When executing a REST API function of Analyzer detail view, use the user shown in the following table according to the permissions set for the Ops Center Analyzer authentication information specified in the request header:

Ops Center Analyzer permission set for the Ops Center Analyzer authentication information	Analyzer detail view user used when the REST API function of Analyzer detail view is executed
Admin, Modify	HIAA_REST_Admin
Admin	HIAA_REST_Admin
Modify	HIAA_REST_Normal

Supported HTTP methods

Among the handling methods defined in HTTP, the GET, POST, PUT, and DELETE methods are supported.

The available methods depend on the resources. For details about the available methods, see the description for each API.

Request Line format description

The request line consists of the following items:

```
Method△Request Path (URI)△Query△HTTP Version
```

△: Single-byte space

Item	Description	Example
Method	Request method	GET
Request Path (URI)	Path for the resource	/Analytics/v1/objects/Groups
Query	Query parameters in the request	?\$query=instanceId eq 'group#0'

Item	Description	Example
		(Before URL encoding)
HTTP Version	String indicating the HTTP version	HTTP/1.1

A request line is limited to 8,190 or fewer bytes. For request lines larger than the maximum, the status code 414 (Request-URI Too Long) is returned.

**Note:**

When a request is made, internal processing might rewrite the request path and the query, and the request line might exceed the maximum length (8,190 bytes). In such a case, revise the request path and the query values, and then perform the request by dividing it into multiple actions.

Information in the request header

A request header includes a data format and the language code of the responses.

Header	Description	Specifiable value	Required or not
Host	The following host information: Host name or IP address: Host name or IP address of the Ops Center Analyzer server Port number: Port number API uses to connect with Ops Center Analyzer	Depends on the user's environments	Optional
Accept	Data format of the response data. If the Accept header is omitted, the system assumes that */* is specified, which allows data to be received in any format.	For APIs that obtain metadata: Specify both <code>application/json</code> and <code>application/schema+json</code> . For APIs that obtain performance data and some APIs: Specify both <code>application/json</code> and <code>text/csv</code> .	Optional

Header	Description	Specifiable value	Required or not
		For APIs other than the above: <code>application/json</code>	
Accept-Language	Language of the response data. Note that you do not need to specify this for APIs that access RAID Agent. Specify this if with the GET, POST, or PUT method.	<code>ja</code> : Japanese <code>en</code> : English	Required
Content-Type	Format of the request bodies for the POST or PUT method.	<code>application/json</code> or <code>multipart/form-data</code>	Required
Authorization	Authentication information.	Basic authentication: User information HSSO token: <code>hssso token</code>	Required
Content-Length	The request body size as a decimal number for the POST or PUT method.	Request body size (unit: bytes)	Required
Transfer-Encoding	Transfer encoding for the request body. Specify this when you specify the POST or PUT method for an API that accesses RAID Agent. In this case, you must specify Content-Length or Transfer-Encoding.	<code>chunked</code>	Required
Accept-Encoding	Specify this if you compress and transfer responses by using an API that accesses RAID Agent. For details, see the description of transmission in compressed format.	Depends on the user's environments	Optional

Response format of the API

A response for a request contains a status line, response header, and response body.

Status description

A status line contains the elements listed below.

Item	Description	Reference
Protocol	Displays the communication protocol used by the API.	--
Protocol version	Displays the version of the communication protocol used by the API.	--
Status code	Result of the request in a status code.	See the status codes of each API. For details, see HTTP status codes description (on page 28) .
Message	Displays the content of the status code	
--: Not applicable.		

Response headers descriptions

Header	Description
Cache-Control	Controls the response information in the cache for the API where the GET method was specified.
Content-Type	Data format of response data.
Language	Language code of response data.
WWW-Authenticate	Outputs the authenticated HSSO token.
Warning	When the API completes successfully but there is a problem with the status of the server, details display in U.S. English (only U.S. English is allowed in the HTTP standard specification).

Response body description

The response body includes the response data returned when an API function is called. The data format of the response data is defined in the request header. The format of the response data depends on the API function. See the description for each API function.

HTTP status codes description

Status code	Name	Description
200	OK	Request processed normally
201	Created	Returned instead of 200 when a resource is successfully created

Status code	Name	Description
204	No Content	Returned instead of 200 when a request was successful but there is no response to return
303	See Other	Returned instead of 200 if another URI processes the request
400	Bad Request	The request is invalid. This includes invalid values specified for the query parameter.
401	Unauthorized	Notifies you that access to the resource requires authentication. The authentication method is shown in the WWW-Authenticate header. If the request including the authorization header is already applied, this code indicates that the authentication for the user information or the HSSO token was rejected. Possible reasons include incorrect user information (user ID or password) incorrect HSSO token, and a lack of rights to use Ops Center Analyzer.
403	Forbidden	The user does not have the permissions required to do the operation.
404	Not found	The specified resource or operation was not found.
405	Method Not Allowed	A valid method was not available for the specified resource. Always list the available methods.
406	Not Acceptable	The specified response format is not supported.
409	Conflict	Conflicts with other data in the server prevent the request from completing.
412	Precondition Failed	The request was not accepted because of a failure in the preconditions.
414	Request-URI Too Long	The request line is too long.
415	Unsupported Media Type	The specified request format is not supported.
500	Server-Side Error	An error occurred in a server process.
503	Service Unavailable	An error occurred on the repository server.

For the status codes of 4XX and 5XX, a response body might be returned in "text/html" or "text/plain" form. In this case, "Content-Type: text/html" or "Content-Type: text/plain" is in a response header.

Responses provide more detailed contents of errors for which causes are hard to identify only with the status codes of 4XX and 5XX.

Whether to use these status codes depend on the APIs. See the description for each API.

Error information for errors in API requests

If an error occurs in an API request, the schema in the following table is returned as the response information. For details on the error information for API functions that access RAID Agent, see [Error object \(on page 958\)](#).

Attribute	Data type	Description
errorSource	string	API function for which the error occurred.
message	string	Message about the error.
messageID	string	Message ID of the error. If an error occurs in a request because of a reason such as incorrect JSON syntax, the message ID is "generic error."
application	string	Information about the application that provides the API function for which the error occurred (Analytics).

Query parameters in the API

If you add search conditions to a request by using query parameters, you can filter or sort the output results of the response. Note that the information provided here is not supported for APIs that access RAID Agent.

Query parameter for all APIs

Parameter	Description	Value	Default value
Alt	Specify input/output data format in the same way as the Content-Type header and Accept header in a request.	json	Not applicable.

Query parameters for some APIs

The following table lists the parameters you can specify in the requests to obtain a list of resources (for example, monitored profiles and virtual machines). The parameters depend on the APIs. See the description for each API.

Parameter	Description	Value [#]	Default value
\$query	Filters the output results by using the specified conditions.	See HQL syntax relationships and operators (on page 32) .	Not applicable.

Parameter	Description	Value [#]	Default value
\$order-by	Sorts the output results by the specified attribute.	<i>attribute</i> [{ASC DESC}](, <i>attribute</i> [{ASC DESC}]) ASC: Ascending order DESC: Descending order	ASC
\$offset	Specifies the position of the initial object of the range of information collection. Specify the maximum number of objects in a response with \$count. page is given priority over \$offset.	0 to 2147483647	0
\$count	Specifies the maximum number of objects in a response, starting from the initial object's position specified by \$offset. pageSize has priority over \$count. If the sum of \$count and \$offset exceeds 2,147,483,647, the IDs of the obtained objects range from the value of \$offset to 2,147,483,647.	1 to 2147483647	100
page	Gets information about a specific page when resources are divided into pages. You also need to specify pageSize. page has priority over \$offset.	1 to 2147483647	Not applicable.
pageSize	Specifies the maximum number of objects to be displayed on one page. pageSize has priority over \$count.	1 to 2147483647	Not applicable.

Parameter	Description	Value#	Default value
	<p>#: If you want to specify a character string that cannot be expressed as a URL, use UTF-8 encoding and encode the character string.</p> <p>pageSize refers to the maximum number of objects in one page. Page refers to the page number to display. If you set page and pageSize, the pagination object receives the total number of resources and pages. This value enables you to see whether there are any of the following pages:</p> <p>As shown in the expression below, page and pageSize are converted the values of \$offset.</p> <p>$\\$offset = \text{pageSize} * (\text{page} - 1)$</p> <p>The status code 400 (Bad Request) is returned if page and pageSize are out of the range of \$offset.</p>		

HQL syntax relationships and operators

HQL is a query language that can filter collections of data by using various query parameters, including \$query and supported operators.

Use UTF-8 encoding and encode characters and symbols that cannot be expressed as a URL.

Syntax

To define a collection of a resource request, use the following expressions:

```

expression ::= "(" expression ")" | binary-expression | expression
            junction expression
junction ::= ( "and" | "or" )

binary-expression ::= (compare-expression | tuple-expression)

compare-expression ::= name-expression compare-operation value-
                        expression
name-expression ::= property-name | "[" property-name "]"
compare-operation ::= ( "eq" | "=" | "ne" | "<>" | "!=" | "gt" | ">"
                        | "lt" | "<" | "ge" | ">=" | "le" | "<=" | "starts" | "ends" )
value-expression ::= ( string-expression | number-expression |
                        boolean-expression )

string-expression ::= "'" ([^'] | [']{2})* "'"
number-expression ::= ( "0" | "1" | "2" | "3" | "4" | "5" | "6" | "7"
                        | "8" | "9" )+
boolean-expression ::= "true" | "false" | "TRUE" | "FALSE"

tuple-expression ::= name-expression tuple-operation tuple-value-
                    expression
tuple-value-expression ::= "[" value-expression ("," value-

```

```
expression)* "]"
```

```
tuple-operation ::= ( "in" | "not in" )
```

property-name is an attribute defined in a resource.

value-expression displays a string expression, number expression, or Boolean expression. This value is different from the actual data type of the attribute defined in a resource. The "ISO8601String" type, for example, is dealt with as a string in ISO 8601 format. As a result, it displays as a *string-expression*.

The following table describes the relationship between the data types and expression formats:

Type	Expression
int/long/float	number-expression
enum	string-expression
String	string-expression
ISO8601String	string-expression
URLString	string-expression
boolean	boolean-expression

The following table lists and describes the operators supported by HQL in priority as indicated in the Priority column.

Operator	Description	Expression	Priority (1-3)
eq	Equal	number-expression, string-expression (string, enum), boolean-expression	1
ne	Not equal	number-expression, string-expression (string, enum), boolean-expression	1
gt	Greater than	number-expression, string-expression (string, enum),	1
lt	Smaller than	number-expression, string-expression (string, enum),	1

Operator	Description	Expression	Priority (1-3)
ge	Equal or greater than	number-expression, string-expression (string, enum),	1
le	Equal or smaller than	number-expression, string-expression (string, enum),	1
starts [#]	Start value	string-expression (string, excluding ISO8601String)	1
ends [#]	End value	string-expression (string, excluding ISO8601String)	1
likes [#]	Included	string-expression (string, excluding ISO8601String)	1
in	Included	number-expression, string-expression (string, enum), boolean-expression	1
not in	Not included	number-expression, string-expression (string, enum), boolean-expression	1
and	Both true	compare-expression, tuple-expression	2
or	Either of them true	compare-expression, tuple-expression	3
# The operator name is not case sensitive.			

Example:

Before URL encoding:

```
...?$query=instanceID in [1000,1001,1002] and status eq 'Warning'
```

After URL encoding:

```
...?$query=instanceID%20in%20%5b1000%2c1001%2c1002%5d%20and%20status%20eq%20%27Warning%27
```

Domain object format

A domain refers to the storage location supported by Ops Center Analyzer. A domain object refers to a resource.

Supported data type

The following table describes the supported data types.

Type	Description
boolean	True or false
float	Floating-point decimal
int	32-bit signed integer
long	64-bit signed integer
string	Text data
ISO8601String, URLString, and enum are extended expressions for the string type.	

Date and time format

To specify the date and time, use ISO 8601 format. In this format, you can omit all information except year (yyyy). If the date or time is omitted, the minimum value is automatically added. If the time zone is omitted, the time zone set for the Ops Center Analyzer server is the default.

Note, however, that you cannot omit the date and time if you use \$query to specify them. If you get time information in JSON format, the time is output in a format where a colon is not used for time zone information (for example, 2014-12-09T18:50:30.500+0900). To specify the time information in JSON format as an input for an API, add a colon in the time zone (for example, 2014-12-09T18:50:30.500+09:00). If you do not add a colon, an error occurs.

If the data type of an attribute is "ISO8601String," the year, month, date, time, and time zone display in the response body in the format shown in the following table:

Format	Example	Time processed by Ops Center Analyzer
yyyy-mm-ddThh:mm:ss.mmmTZD	2015-12-09T18:50:30.500+09:00	2015-12-09T18:50:30.500+09:00
yyyy-mm-ddThh:mm:ss.mmm	2015-12-09T18:50:30.500.000	2015-12-09T18:50:30.500.000[time-zone-of-the host-server]
yyyy-mm-ddThh:mm:ssTZD	2015-12-09T18:50:30+09:00	2015-12-09T18:50:30.000+09:00
yyyy-mm-ddThh:mmTZD	2015-12-09T18:50+09:00	2015-12-09T18:50:00.000+09:00
yyyy-mm-ddThhTZD	2015-12-09T18+09:00	2015-12-09T18:00:00.000+09:00

Format	Example	Time processed by Ops Center Analyzer
yyyy-mm-dd	2015-12-09	2015-12-09T00:00:00.000[time-zone-of-the host-server]
yyyy-mm	2015-12	2015-12-01T00:00:00.000[time-zone-of-the host-server]
yyyy	2015	2015-01-01T00:00:00.000[time-zone-of-the host-server]

Resources managed through the API

Ops Center Analyzer supports the following API resources:

Resource	Domain
AutoAssignFilters	objects
AutoAssignFilters	services
ChangeHistorys	objects
ChangeHistorys	services
CustomAction	services
DiscoveredResources	objects
E2EView	objects
E2EView	services
EmailServerSettings	objects
EmailServerSettings	services
Events	objects
Events	services
Grades	objects
GroupsDefinition	objects
GroupsDefinition	services
Groups	objects

Resource	Domain
HdcaSettings	objects
HdcaSettings	services
IoControlHistory	objects
IoControlHistory	services
IoControlSettings	services
KeepAlive	services
MailAddress	objects
MailAddress	services
NotificationProfile	objects
NotificationProfile	services
PerfComponents	objects
PerfComponents	services
PerformanceComponent	objects
PerformanceData	services
PerformanceNode	objects
PerformanceVirtualMachine	objects
PerformanceVolume	objects
PredictionHistory	objects
PredictionHistory	services
PredictionLicense	objects
PredictionModule	objects
PredictionTask	objects
PredictionTask	services
PredictiveProfile	objects
PredictiveReport	objects
RecoveryActionHistory	objects
RecoveryAction	objects
StorageSystemModels	objects

Resource	Domain
StorageSystemPools	objects
Suggestion	services
SystemProperties	objects
SystemSummary	services
ThresholdProfileMargins	objects
ThresholdProfiles	objects
UserResource	services
Users	objects
VirtualMachines	objects
Volumes	objects

API request list

The Ops Center Analyzer API supports the following requests and HTTP methods. (For details on the API requests that access RAID Agent, see "API resources and requests for accessing RAID Agent".)

AutoAssignFilters(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of automatic resource assignment rules	GET	/v1/objects/AutoAssignFilters	Admin, Modify
Creating automatic resource assignment rule	POST	/v1/objects/AutoAssignFilters	Admin, Modify
Getting specific automatic resource assignment rule information	GET	/v1/objects/AutoAssignFilters/{id}	Admin, Modify

Request	Method	URI	Execution permission
Updating specific automatic resource assignment rule	PUT	/v1/objects/AutoAssignFilters/{id}	Admin, Modify
Deleting specific automatic resource assignment rule	DELETE	/v1/objects/AutoAssignFilters/{id}	Admin, Modify
Getting a list of operations for information about automatic resource assignment rules	GET	/v1/objects/AutoAssignFilters/{id}/actions	Admin, Modify
Preparing to obtain a list of condition information for automatic resource assignment rules	GET	/v1/objects/AutoAssignFilters/{id}/actions/getFilterCondition	Admin, Modify
Getting a list of condition information for automatic resource assignment rules	POST	/v1/objects/AutoAssignFilters/{id}/actions/getFilterCondition/invoke	Admin, Modify
Preparing to update a condition information for automatic resource assignment rules	GET	/v1/objects/AutoAssignFilters/{id}/actions/updateFilterCondition	Admin, Modify
Updating condition information for automatic resource assignment rules	POST	/v1/objects/AutoAssignFilters/{id}/actions/updateFilterCondition/invoke	Admin, Modify

AutoAssignFilters(Domain : services)

Request	Method	URI	Execution permission
Getting a list of operations for automatic resource assignment rules	GET	/v1/services/AutoAssignFilters/actions	Admin, Modify

Request	Method	URI	Execution permission
Preparing to change the priority of automatic resource assignment rules	GET	/v1/services/AutoAssignFilters/actions/changeFilterPriority	Admin, Modify
Changing the priority of automatic resource assignment rules	POST	/v1/services/AutoAssignFilters/actions/changeFilterPriority/invoke	Admin, Modify
Preparing to assign resources	GET	/v1/services/AutoAssignFilters/actions/assignmentResource	Admin, Modify
Assigning resources	POST	/v1/services/AutoAssignFilters/actions/assignmentResource/invoke	Admin, Modify
Preparing to obtain the results of automatic host distribution	GET	/v1/services/AutoAssignFilters/actions/previewHost	Admin, Modify
Getting the results of automatic host distribution	POST	/v1/services/AutoAssignFilters/actions/previewHost/invoke	Admin, Modify
Preparing to obtain the results of automatic virtual machine distribution	GET	/v1/services/AutoAssignFilters/actions/previewVirtualMachine	Admin, Modify
Getting the results of automatic virtual machine distribution	POST	/v1/services/AutoAssignFilters/actions/previewVirtualMachine/invoke	Admin, Modify
Preparing to obtain the results of automatic volume distribution	GET	/v1/services/AutoAssignFilters/actions/previewVolume	Admin, Modify
Getting the results of automatic volume distribution	POST	/v1/services/AutoAssignFilters/actions/previewVolume/invoke	Admin, Modify

ChangeHistorys(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of configuration change histories	GET	/v1/objects/ChangeHistorys	Admin, Modify
Getting specific history of configuration changes	GET	/v1/objects/ChangeHistorys/{id}	Admin, Modify

ChangeHistorys(Domain : services)

Request	Method	URI	Execution permission
Getting a list of operations for specific history of configuration changes	GET	/v1/services/ChangeHistorys/actions	Admin, Modify
Preparing to obtain the number of configuration changes	GET	/v1/services/ChangeHistorys/actions/getCount	Admin, Modify
Getting the number of configuration changes	POST	/v1/services/ChangeHistorys/actions/getCount/invoke	Admin, Modify
Preparing to obtain a trend in the number of configuration changes	GET	/v1/services/ChangeHistorys/actions/getTrend	Admin, Modify
Getting trend in the number of configuration changes	POST	/v1/services/ChangeHistorys/actions/getTrend/invoke	Admin, Modify

CustomAction(Domain : services)

Request	Method	URI	Execution permission
Getting a list of operations for execute action functions	GET	/v1/services/CustomAction/actions	Admin, Modify
Preparing to obtain a list of actions that can be executed by the execute action function	GET	/v1/services/CustomAction/actions/getActionTemplateList	Admin, Modify
Getting a list of actions that can be executed by the execute action function	POST	/v1/services/CustomAction/actions/getActionTemplateList/invoke	Admin, Modify
Preparing to obtain a detailed information about emails that can be sent by the execute action function	GET	/v1/services/CustomAction/actions/getMailActionTemplateDetail	Admin, Modify
Getting detailed information about emails that can be sent by the execute action function	POST	/v1/services/CustomAction/actions/getMailActionTemplateDetail/invoke	Admin, Modify
Preparing to obtain a detailed information about commands that can be sent by the execute action function	GET	/v1/services/CustomAction/actions/getCommandActionTemplateDetail	Admin, Modify
Getting detailed information about commands that can be executed by the execute action function	POST	/v1/services/CustomAction/actions/getCommandActionTemplateDetail/invoke	Admin, Modify
Preparing to execute commands that can be executed by the execute action function	GET	/v1/services/CustomAction/actions/invokeCommandAction	Admin, Modify

Request	Method	URI	Execution permission
Executing commands that can be executed by the execute action function	POST	/v1/services/CustomAction/actions/invokeCommandAction/invoke	Admin, Modify
Preparing to reload a list of actions that can be executed by the execute action function	GET	/v1/services/CustomAction/actions/invokeReload	Admin, Modify
Reloading a list of actions that can be executed by the execute action function	POST	/v1/services/CustomAction/actions/invokeReload/invoke	Admin, Modify
Preparing to get a list of the actions that can be executed by using the execute action function of the target resources	GET	/v1/services/CustomAction/actions/getResourcesActionTemplateList	Admin, Modify
Getting a list of the actions that can be executed by using the execute action function of the target resources	POST	/v1/services/CustomAction/actions/getResourcesActionTemplateList/invoke	Admin, Modify
Preparing to get detailed information about the commands that can be executed by using the execute action function of the target resource	GET	/v1/services/CustomAction/actions/getResourcesCommandActionTemplateDetail	Admin, Modify
Getting detailed information about the commands that can be executed by using the execute action function of the target resource	POST	/v1/services/CustomAction/actions/getResourcesCommandActionTemplateDetail/invoke	Admin, Modify
Preparing to execute a command using the execute action function of the target resource	GET	/v1/services/CustomAction/actions/invokeResourcesCommandAction	Admin, Modify

Request	Method	URI	Execution permission
Executing a command using the execute action function of the target resource	POST	/v1/services/CustomAction/actions/invokeResourcesCommandAction/invoke	Admin, Modify
Getting information needed to get details about an Ops Center Automator service that is executable by the execute action function	GET	/v1/services/CustomAction/actions/getResourcesAutomationDirectorServiceActionTemplateDetail	Admin, Modify
Getting details about an Ops Center Automator service that is executable by the execute action function	POST	/v1/services/CustomAction/actions/getResourcesAutomationDirectorServiceActionTemplateDetail/invoke	Admin, Modify

DiscoveredResources(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of resources	GET	/v1/objects/DiscoveredResources	Admin, Modify

E2EView(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of resources that are displayed in the E2E view	GET	/v1/objects/E2EView	Admin, Modify

E2EView(Domain : services)

Request	Method	URI	Execution permission
Preparing to obtain topology data for resources that are displayed in the E2E view	GET	/v1/services/E2EView/actions/getTopologyData	Admin, Modify
Getting topology data for resources that are displayed in the E2E view	POST	/v1/services/E2EView/actions/getTopologyData/invoke	Admin, Modify
Preparing to obtain details about resources that are displayed in the E2E view	GET	/v1/services/E2EView/actions/getNodeDetail	Admin, Modify
Getting details about resources that are displayed in the E2E view	POST	/v1/services/E2EView/actions/getNodeDetail/invoke	Admin, Modify
Preparing to obtain a query parameters used to display the E2E view	GET	/v1/services/E2EView/actions/checkBasePointParam	Admin, Modify
Getting query parameters used to display the E2E view	POST	/v1/services/E2EView/actions/checkBasePointParam/invoke	Admin, Modify
Preparing to obtain a list of resources related to the E2E view	GET	/v1/services/E2EView/actions/getRelatedNodeList	Admin, Modify
Getting a list of resources related to the E2E views	POST	/v1/services/E2EView/actions/getRelatedNodeList/invoke	Admin, Modify
Preparing to obtain a query parameters used to display resources in the E2E view	GET	/v1/services/E2EView/actions/getNodeName	Admin, Modify
Getting query parameters used to display resources in the E2E view	POST	/v1/services/E2EView/actions/getNodeName/invoke	Admin, Modify

Request	Method	URI	Execution permission
Preparing to get resource information	GET	/v1/services/E2EView/actions/getNodeList	Admin, Modify
Getting resource information	POST	/v1/services/E2EView/actions/getNodeList/invoke	Admin, Modify

EmailServerSettings(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of email server settings	GET	/v1/objects/EmailServerSettings	Admin
Uploading specific email server settings	PUT	/v1/objects/EmailServerSettings/{id}	Admin

EmailServerSettings(Domain : services)

Request	Method	URI	Execution permission
Getting a list of operations for email server settings	GET	/v1/services/EmailServerSettings/actions	Admin
Preparing to send a test mail	GET	/v1/services/EmailServerSettings/actions/sendTestMail	Admin
Sending a test mail	POST	/v1/services/EmailServerSettings/actions/sendTestMail/invoke	Admin

Events(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of events	GET	/v1/objects/Events	Admin, Modify
Getting specific event information	GET	/v1/objects/Events/{id}	Admin, Modify

Events(Domain : services)

Request	Method	URI	Execution permission
Getting a list of operations for events	GET	/v1/services/Events/actions	Admin, Modify
Preparing to obtain number of events	GET	/v1/services/Events/actions/getEventCount	Admin, Modify
Getting a number of events	POST	/v1/services/Events/actions/getEventCount/invoke	Admin, Modify

Grades(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of grades	GET	/v1/objects/Grades	Admin, Modify

GroupsDefinition(Domain : objects)

Request	Method	URI	Execution permission
Getting information to preview a consumer definition	GET	/v1/objects/GroupsDefinition/{id}/actions/preview	Admin

Request	Method	URI	Execution permission
Preview a consumer definition	POST	/v1/objects/GroupsDefinition/{id}/actions/preview/invoke	Admin
Getting information to submit consumer auto creation	GET	/v1/objects/GroupsDefinition/{id}/actions/submit	Admin
Submit consumer auto creation	POST	/v1/objects/GroupsDefinition/{id}/actions/submit/invoke	Admin
Getting information to export a consumer definition file	GET	/v1/objects/GroupsDefinition/{id}/actions/export	Admin
Export a consumer definition file	POST	/v1/objects/GroupsDefinition/{id}/actions/export/invoke	Admin

GroupsDefinition(Domain : services)

Request	Method	URI	Execution permission
Getting information to generate a consumer definition	GET	/v1/services/GroupsDefinition/actions/generate	Admin
Generate a consumer definition	POST	/v1/services/GroupsDefinition/actions/generate/invoke	Admin
Getting information to register a consumer definition file	GET	/v1/services/GroupsDefinition/actions/register	Admin
Register a consumer definition file	POST	/v1/services/GroupsDefinition/actions/register/invoke	Admin

Groups(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of consumers	GET	/v1/objects/Groups	Admin, Modify
Creating consumer	POST	/v1/objects/Groups	Admin, Modify
Getting specific consumer information	GET	/v1/objects/Groups/{id}	Admin, Modify
Updating consumer	PUT	/v1/objects/Groups/{id}	Admin, Modify
Deleting a specific consumer	DELETE	/v1/objects/Groups/{id}	Admin, Modify
Getting a list of operations for specific consumers	GET	/v1/objects/Groups/{id}/actions	Admin, Modify
Preparing to assign a consumer	GET	/v1/objects/Groups/{id}/actions/updateTargetResource	Admin, Modify
Assigning a specific consumer	POST	/v1/objects/Groups/{id}/actions/updateTargetResource/invoke	Admin, Modify

HdcaSettings(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of Analyzer detail view server connection settings	GET	/v1/objects/HdcaSettings	Admin, Modify
Updating specific Analyzer detail view server connection settings	PUT	/v1/objects/HdcaSettings/{id}	Admin

Request	Method	URI	Execution permission
Getting specific Analyzer detail view server connection settings	GET	/v1/objects/HdcaSettings/{id}	Admin, Modify
Getting a list of operations for configuring the connection settings of the Analyzer detail view server	GET	/v1/objects/HdcaSettings/{id}/actions	Admin, Modify
Preparing to get the URL of the Analyzer detail view server	GET	/v1/objects/HdcaSettings/{id}/actions/getInContextLaunchUrl	Admin, Modify
Getting the URL of the Analyzer detail view server	POST	/v1/objects/HdcaSettings/{id}/actions/getInContextLaunchUrl/invoke	Admin, Modify

HdcaSettings(Domain : services)

Request	Method	URI	Execution permission
Getting a list of operations for configuring Analyzer detail view server connection settings	GET	/v1/services/HdcaSettings/actions	Admin
Preparing to check the connection to Analyzer detail view server	GET	/v1/services/HdcaSettings/actions/checkConnection	Admin
Checking the connection to Analyzer detail view server	POST	/v1/services/HdcaSettings/actions/checkConnection/invoke	Admin

IoControlHistory(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of tasks related to Storage I/O control settings	GET	/v1/objects/IoControlHistory	Admin, StorageOps, Modify
Getting information about a specific Storage I/O control settings task	GET	/v1/objects/IoControlHistory/{id}	Admin, StorageOps, Modify

IoControlHistory(Domain : services)

Request	Method	URI	Execution permission
Getting a list of actions related to Storage I/O control configuration task history	GET	/v1/services/IoControlHistory/actions	Admin, StorageOps, Modify
Getting the parameter used to update the status of a Storage I/O control settings task	GET	/v1/services/IoControlHistory/actions/updateStatus	Admin, StorageOps, Modify
Updating the status of a Storage I/O control settings task	POST	/v1/services/IoControlHistory/actions/updateStatus/invoke	Admin, StorageOps, Modify

IoControlSettings(Domain : services)

Request	Method	URI	Execution permission
Getting a list of actions related to Storage I/O control settings	GET	/v1/services/IoControlSettings/actions	StorageOps

Request	Method	URI	Execution permission
Getting the parameters used to configure Storage I/O control settings	GET	/v1/services/loControlSettings/actions/submit	StorageOps
Configuring Storage I/O control settings	POST	/v1/services/loControlSettings/actions/submit/invoke	StorageOps

KeepAlive(Domain : services)

Request	Method	URI	Execution permission
Getting a list of operations for sessions of the HSSO token	GET	/v1/services/KeepAlive/actions	Admin, StorageOps, Modify, User Management
Preparing to extend the valid period of a session of the HSSO token	GET	/v1/services/KeepAlive/actions/submit	Admin, StorageOps, Modify, User Management
Extending the valid period of a session of the HSSO token	POST	/v1/services/KeepAlive/actions/submit/invoke	Admin, StorageOps, Modify, User Management

MailAddress(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of mail addresses	GET	/v1/objects/MailAddress	Admin, Modify
Creating a mail address	POST	/v1/objects/MailAddress	Admin, Modify
Getting specific mail address information	GET	/v1/objects/MailAddress/{id}	Admin, Modify
Updating specific mail address	PUT	/v1/objects/MailAddress/{id}	Admin, Modify
Deleting specific mail address	DELETE	/v1/objects/MailAddress/{id}	Admin, Modify
Getting a list of operations for specific email address information	GET	/v1/objects/MailAddress/{id}/actions	Admin, Modify
Preparing to assign a notification profile	GET	/v1/objects/MailAddress/{id}/actions/updateTargetNotificationProfile	Admin, Modify
Assigning a notification profile	POST	/v1/objects/MailAddress/{id}/actions/updateTargetNotificationProfile/invoke	Admin, Modify

MailAddress(Domain : services)

Request	Method	URI	Execution permission
Getting a list of operations for mail addresses	GET	/v1/services/MailAddress/actions	Admin, Modify
Preparing to change the status of email addresses	GET	/v1/services/MailAddress/actions/changeStatus	Admin, Modify
Changing the status of email addresses	POST	/v1/services/MailAddress/actions/changeStatus/invoke	Admin, Modify

NotificationProfile(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of notification profiles	GET	/v1/objects/NotificationProfile	Admin, Modify
Creating notification profile	POST	/v1/objects/NotificationProfile	Admin, Modify
Getting specific notification profile information	GET	/v1/objects/NotificationProfile/{id}	Admin, Modify
Updating notification profile	PUT	/v1/objects/NotificationProfile/{id}	Admin, Modify
Deleting specific notification profile	DELETE	/v1/objects/NotificationProfile/{id}	Admin, Modify
Getting a list of operations for specific notification profile configuration information	GET	/v1/objects/NotificationProfile/{id}/actions	Admin, Modify
Preparing to assign notification-destination email addresses	GET	/v1/objects/NotificationProfile/{id}/actions/updateTargetMailAddress	Admin, Modify
Assigning notification-destination email addresses	POST	/v1/objects/NotificationProfile/{id}/actions/updateTargetMailAddress/invoke	Admin, Modify

NotificationProfile(Domain : services)

Request	Method	URI	Execution permission
Getting a list of operations for notification profiles	GET	/v1/services/NotificationProfile/actions	Admin, Modify
Preparing to obtain a list of notification target categories for notification profiles	GET	/v1/services/NotificationProfile/actions/getTargetEventCategory	Admin, Modify

Request	Method	URI	Execution permission
Getting a list of notification target categories for notification profiles	POST	/v1/services/NotificationProfile/actions/getTargetEventCategory/invoke	Admin, Modify

PerfComponents(Domain : objects)

Request	Method	URI	Execution permission
Getting specific metric information	GET	/v1/objects/PerfComponents/{id}	Admin, Modify
Getting a list of operations for specific metrics	GET	/v1/objects/PerfComponents/{id}/actions	Admin, Modify
Preparing to obtain performance graph data for specific metrics	GET	/v1/objects/PerfComponents/{id}/actions/getGraphData	Admin, Modify
Getting performance graph data for specific metrics	POST	/v1/objects/PerfComponents/{id}/actions/getGraphData/invoke	Admin, Modify

PerfComponents(Domain : services)

Request	Method	URI	Execution permission
Getting a list of operations for resources	GET	/v1/services/PerfComponents/actions	Admin, Modify
Preparing to obtain a list of metrics related to resources	GET	/v1/services/PerfComponents/actions/getFromNode	Admin, Modify
Getting a list of metrics related to resources	POST	/v1/services/PerfComponents/actions/getFromNode/invoke	Admin, Modify

PerformanceComponent(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of metrics for components	GET	/v1/objects/PerformanceComponent	Admin, Modify

PerformanceData(Domain : services)

Request	Method	URI	Execution permission
Getting a list of operations for performance information	GET	/v1/services/PerformanceData/actions	Admin, Modify
Preparing to obtain performance information for metrics	GET	/v1/services/PerformanceData/actions/getPerformanceData	Admin, Modify
Getting performance information for metrics	POST	/v1/services/PerformanceData/actions/getPerformanceData/invoke	Admin, Modify
Preparing to obtain metric information	GET	/v1/services/PerformanceData/actions/getMetricData	Admin, Modify
Getting metric information	POST	/v1/services/PerformanceData/actions/getMetricData/invoke	Admin, Modify

PerformanceNode(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of metrics for devices	GET	/v1/objects/PerformanceNode	Admin, Modify

PerformanceVirtualMachine(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of metrics for virtual machines	GET	/v1/objects/PerformanceVirtualMachine	Admin, Modify

PerformanceVolume(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of metrics for volumes	GET	/v1/objects/PerformanceVolume	Admin, Modify

PredictionHistory(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of task histories for a predictive operation	GET	/v1/objects/PredictionHistory	Admin, Modify
Getting predictive history information	GET	/v1/objects/PredictionHistory/{id}	Admin, Modify
Deleting a predictive history	DELETE	/v1/objects/PredictionHistory/{id}	Admin, Modify

PredictionHistory(Domain : services)

Request	Method	URI	Execution permission
Getting a list of predictive history actions	GET	/v1/services/PredictionHistory/actions	Admin, Modify

Request	Method	URI	Execution permission
Getting the parameter used to obtain predictive results	GET	/v1/services/PredictionHistory/actions/getResult	Admin, Modify
Getting predictive results	POST	/v1/services/PredictionHistory/actions/getResult/invoke	Admin, Modify
Getting the parameter used to get metrics for the predictive result	GET	/v1/services/PredictionHistory/actions/getTargets	Admin, Modify
Getting metrics for the predictive result	POST	/v1/services/PredictionHistory/actions/getTargets/invoke	Admin, Modify

PredictionLicense(Domain : objects)

Request	Method	URI	Execution permission
Getting the license status of the Predictive Analytics feature	GET	/v1/objects/PredictionLicense	Admin, Modify

PredictionModule(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of analytics engines	GET	/v1/objects/PredictionModule	Admin, Modify
Getting information about an analytics engine	GET	/v1/objects/PredictionModule/{id}	Admin, Modify

PredictionTask(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of predictive tasks	GET	/v1/objects/PredictionTask	Admin, Modify
Getting information about a predictive task	GET	/v1/objects/PredictionTask/{id}	Admin, Modify

PredictionTask(Domain : services)

Request	Method	URI	Execution permission
Getting a list of predictive-related operations	GET	/v1/services/PredictionTask/actions	Admin, Modify
Preparing to predict a result	GET	/v1/services/PredictionTask/actions/execute	Admin, Modify
Predicting a result	POST	/v1/services/PredictionTask/actions/execute/invoke	Admin, Modify
Preparing to cancel a predictive operation	GET	/v1/services/PredictionTask/actions/cancel	Admin, Modify
Canceling a predictive operation	POST	/v1/services/PredictionTask/actions/cancel/invoke	Admin, Modify

PredictiveProfile(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of predictive profiles	GET	/v1/objects/PredictiveProfile	Admin, Modify
Creating a new predictive profile	POST	/v1/objects/PredictiveProfile	Admin, Modify

Request	Method	URI	Execution permission
Getting information about a predictive profile	GET	/v1/objects/PredictiveProfile/{id}	Admin, Modify
Updating a predictive profile	PUT	/v1/objects/PredictiveProfile/{id}	Admin, Modify
Deleting a predictive profile	DELETE	/v1/objects/PredictiveProfile/{id}	Admin, Modify

PredictiveReport(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of predictive reports	GET	/v1/objects/PredictiveReport	Admin, Modify
Creating a new predictive report	POST	/v1/objects/PredictiveReport	Admin, Modify
Getting information about a predictive report	GET	/v1/objects/PredictiveReport/{id}	Admin, Modify
Updating a predictive report	PUT	/v1/objects/PredictiveReport/{id}	Admin, Modify
Deleting a predictive report	DELETE	/v1/objects/PredictiveReport/{id}	Admin, Modify

RecoveryActionHistory(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of recovery action history	GET	/v1/objects/RecoveryActionHistory	Admin, Modify

RecoveryAction(Domain : objects)

Request	Method	URI	Execution permission
Creating a new recovery action history	POST	/v1/objects/RecoveryAction	Admin, Modify
Getting information about recovery action history	GET	/v1/objects/RecoveryAction/{id}	Admin, Modify
Updating recovery action history	PUT	/v1/objects/RecoveryAction/{id}	Admin, Modify
Deleting recovery action history	DELETE	/v1/objects/RecoveryAction/{id}	Admin, Modify

StorageSystemModels(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of storage system models	GET	/v1/objects/StorageSystemModels	Admin, Modify

StorageSystemPools(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of storage system pools	GET	/v1/objects/StorageSystemPools	Admin, Modify

Suggestion(Domain : services)

Request	Method	URI	Execution permission
Getting a list of operations related to suggestions	GET	/v1/services/Suggestion/actions	Admin, Modify
Preparing to obtain the suggestions	GET	/v1/services/Suggestion/actions/getSuggestion	Admin, Modify
Getting suggestions for resolving performance problems	POST	/v1/services/Suggestion/actions/getSuggestion/invoke	Admin, Modify

SystemProperties(Domain : objects)

Request	Method	URI	Execution permission
Getting system information	GET	/v1/objects/SystemProperties	Admin, Modify, User Management

SystemSummary(Domain : services)

Request	Method	URI	Execution permission
Getting a list of system summary informations	GET	/v1/services/SystemSummary/actions	Admin, Modify
Preparing to obtain a system summary information	GET	/v1/services/SystemSummary/actions/getSystemStatusSummary	Admin, Modify
Getting system summary information	POST	/v1/services/SystemSummary/actions/getSystemStatusSummary/invoke	Admin, Modify

ThresholdProfileMargins(Domain : objects)

Request	Method	URI	Execution permission
Getting margin information used for dynamic threshold calculations	GET	/v1/objects/ThresholdProfileMargins	Admin, Modify

ThresholdProfiles(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of threshold profiles	GET	/v1/objects/ThresholdProfiles	Admin, Modify
Creating threshold profile	POST	/v1/objects/ThresholdProfiles	Admin, Modify
Getting specific threshold profile information	GET	/v1/objects/ThresholdProfiles/{id}	Admin, Modify
Updating specific threshold profile	PUT	/v1/objects/ThresholdProfiles/{id}	Admin, Modify
Deleting specific threshold profile	DELETE	/v1/objects/ThresholdProfiles/{id}	Admin, Modify
Getting a list of operations for specific threshold profiles	GET	/v1/objects/ThresholdProfiles/{id}/actions	Admin, Modify
Preparing to assign specific threshold profile	GET	/v1/objects/ThresholdProfiles/{id}/actions/updateTargetResource	Admin, Modify
Assigning specific threshold profile	POST	/v1/objects/ThresholdProfiles/{id}/actions/updateTargetResource/invoke	Admin, Modify
Preparing to obtain a threshold information with profiles and resources specified	GET	/v1/objects/ThresholdProfiles/{id}/actions/getResourceThresholdValues	Admin, Modify

Request	Method	URI	Execution permission
Getting a list of threshold informations with profiles and resources specified	POST	/v1/objects/ThresholdProfiles/{id}/actions/getResourceThresholdValues/invoke	Admin, Modify
Preparing to set dynamic thresholds with profiles and resources specified	GET	/v1/objects/ThresholdProfiles/{id}/actions/updateDynamicThreshold	Admin, Modify
Setting dynamic thresholds with profiles and resources specified	POST	/v1/objects/ThresholdProfiles/{id}/actions/updateDynamicThreshold/invoke	Admin, Modify

UserResource(Domain : services)

Request	Method	URI	Execution permission
Getting a list of operations for user resources	GET	/v1/services/UserResource/actions	Admin, Modify
Preparing to obtain the number of user resources counted for each metric and for each status	GET	/v1/services/UserResource/actions/getComponentStatusCountByMetric	Admin, Modify
Getting the number of user resources counted for each metric and for each status	POST	/v1/services/UserResource/actions/getComponentStatusCountByMetric/invoke	Admin, Modify

Users(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of users	GET	/v1/objects/Users	User Management
Creating a user	POST	/v1/objects/Users	User Management
Getting specific user information	GET	/v1/objects/Users/{id}	User Management
Updating specific user information	PUT	/v1/objects/Users/{id}	User Management
Deleting specific user	DELETE	/v1/objects/Users/{id}	User Management

VirtualMachines(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of virtual machines	GET	/v1/objects/VirtualMachines	Admin, Modify

Volumes(Domain : objects)

Request	Method	URI	Execution permission
Getting a list of volumes	GET	/v1/objects/Volumes	Admin, Modify

List of enumerators

The following tables list the enumerators that can be specified for API functions.

NodeDisplayType

enumerator	Description
Unknown	Unknown
Server	Server
Storage	Storage
NetworkDevice	Network
Datastore	Datastore

ArgusNodeType

enumerator	Description
NA	Invalid value
UNKNOWN	Unknown
ANY	Any
SERVER_WINDOWS	Windows server
SERVER_LINUX	Linux server
SERVER_ESX	ESX server
SWITCH_FC	FC switch
STORAGE_HITACHI	Hitachi storage
STORAGE_OTHER	Non-Hitachi storage systems
SERVER_HYPERV	Hyper-V server
SERVER_VCENTER	vCenter server
DATASTORE	Datastore

ManagementLevelType

enumerator	Description
Manage	Resource is managed.
NA	NA

ComponentMonitorType

enumerator	Description
InUse	Resource is currently being monitored for performance.
NotMonitored	Resource is not monitored.

EventSeverityType

enumerator	Description
INFO	Information
WARNING	Warning
CRITICAL	Critical

EventCategoryType

enumerator	Description
PERFORMANCE	Event related to Performance
EVENT	Event related to Event function
SETTING	Event related to Ops Center Analyzer configuration

SecureConnectionType

enumerator	Description
SSL	SSL
TLS	SMTPS

enumerator	Description
Plain	None (not secure)
STARTTLS	STARTTLS

TemplateCreatorType

enumerator	Description
User	User Definition
Preset	Default(Preset)
Default	Default
NA	NA

PerfThresholdResourceType

enumerator	Description
User	Threshold profile for user resource
System	Threshold profile for system resource
Reserve	Reserved threshold profile

ComponentAttributeType

enumerator	Description
ADAPTER_NUMBER	Adapter number
CAPACITY	Capacity
DRIVE_NAME	Drive name
FIRMWARE_VERSION	Firmware version
IP_ADDRESS	IP address
MANUFACTURER	Name of the manufacturer
MODEL	Model
NAME	Node or Component Name

enumerator	Description
NODE_WWN	Device WWN
OS_NAME	OS name
PORT_NAME	Port name
PORT_NUMBER	Port number
PORT_SPEED	Port speed
PORT_TYPE	Port type
PORT_WWN	Port WWN
SIZE	Size
TOTAL_MEMORY	Total memory capacity
TYPE	Type
VIRTUALTYPE	Virtual type
NUM_OF_CPU_CORES	CPU core number
DRIVE_STATUS	Drive Status
USED_SPARE_DRIVE_COUNT	Used Spare Drive Count
BLOCK_SIZE	Block size
TOTAL_BLOCKS	Total blocks
VOLUME_LABEL	Volume Label

NodeStatusType

enumerator	Description
Normal	Node status is Normal.
Warning	Node status is Warning.
Critical	Node status is Critical.
Unknown	Node status is Unknown.

TableType

enumerator	Description
TAG	Consumer
NODE	Device
COMPONENT	Component

E2ENodeType

enumerator	Description
CLUSTER	Cluster
HYPERVERSOR	Hypervisor
VIRTUAL_MACHINE	Virtual machine
CPU	CPU
MEMORY	Memory
NIC	NIC
HBA	HBA
DISK	Disk
HOST	Host
DATASTORE	Datastore
FC_ZONE	Zone
FC_SWITCH	FC switch
STORAGE	Storage
STORAGE_VOLUME	Volume
STORAGE_PORT	Port
STORAGE_MP	Processor
STORAGE_CACHE	Cache
STORAGE_POOL	Pool
STORAGE_PG	Parity Group
STORAGE_OTHER	Others (Storage)

enumerator	Description
STORAGE_INTERNODE_PORT	Internode port
STORAGE_DRIVE	Drive

E2ENodeStatus

enumerator	Description
NORMAL	Normal
WARNING	Warning
CRITICAL	Critical
UNKNOWN	Unknown

E2ENodeDriveType

enumerator	Description
LOCAL	Local drive
NETWORK	Network drive
UNKNOWN	Unknown drive

E2EPoolType

enumerator	Description
HDP	HDP pool
HDT	HDT pool
NA	No information
Other	Other pools

E2EDriveType

enumerator	Description
BD	BD

enumerator	Description
FC	FC
FMD	FMD
FMD_SSD	FMD SSD
NA	NA
SAS	SAS
SATA	SATA
SSD	SSD
FMC	FMC
SCM	SCM

E2EChipType

enumerator	Description
MLC	MLC chip
NA	NA
SLC	SLC chip

ElementStatusType

enumerator	Description
Normal	Normal status
Warning	Warning status
Critical	Critical status
LinkDown	Linkdown status
Unknown	Unknown status
NA	NA
NotMonitored	Do not determine the status
NotCollected	NotCollected status
Info	Information status

PowerStatusType

enumerator	Description
NA	Not collected
POWER_OFF	Power off
POWER_ON	Power on
SUSPENDED	Suspend

SystemPropertyType

enumerator	Description
GroupDescriptionTemplate	Description of consumer
SystemTimeZone	Id of system timezone
SystemLocaleLanguage	Language of system locale
SystemOffset	Offset of system timezone
SystemInDaylightTime	Daylight-savings-time flag in system time zones
SparkLineDisplaySeriesNumber	Number of system arrays displayed in Sparkline View
SparkLineDisplayMaxBasePointNumber	Maximum number of base resources displayed in Sparkline View.
SparkLineDisplayMaxTotalGraph	Maximum number of graphs displayed in Sparkline View.
SparkLineDisplayMaxPerformanceDialogGraph	Maximum number of selectable graphs displayed in Performance Dialog.
BabcaDisplayMaxComponentNumber	Maximum number of select component resources displayed in BABCA.
PerformanceChartConnectionMaxIntervalTermBorder	Value that determines whether to use the values set for long-term charts or for short-term charts when a chart is displayed, when controlling the extent to which lines in the chart are connected over intervals that lack data
PerformanceChartConnectionMaxIntervalForLongTerm	Value that controls the extent to which lines in the chart are connected over intervals that lack data, when a long-term chart is displayed

enumerator	Description
PerformanceChartConnectionMaxIntervalForShortTerm	Value that controls the extent to which lines in the chart are connected over intervals that lack data, when a short-term chart is displayed
SuggestionDisplayEnable	optional value to enable display Suggestion
TopologyThresholdNumberOfResourcesWaitingAnimationEnabled	Threshold value that controls whether an animation is displayed while the user is waiting for the E2E View to load
SendingReportsEnabled	Value that shows whether dashboard reports can be sent

ChangeEventType

enumerator	Description
ADD	Add
MODIFY	Modify
REMOVE	Remove

MetricMonitorStatus

enumerator	Description
Monitor	Monitored the metric
MonitorOff	Not monitored the metric

MailRecipientType

enumerator	Description
TO	TO
CC	CC
BCC	BCC

FilterType

enumerator	Description
UserResourceThreshold	User Resource Threshold
Group	Group

FilterResourceType

enumerator	Description
VM	VM
Volume	Volume
Host	Host

FilterAttributeType

enumerator	Description
VMName	This item is set when rules for virtual machine and volume are set using VM Name.
ClusterName	This item is set when rules for volume are set using Cluster Name.
OSType	This item is set when rules for host are set using OS Type.
HostName	This item is set when rules for host and volume are set using Host Name.
ConsumerName	This item is set when rules are set using Consumer(Group) Name.
Label	This item is set when rules for volume are set using Label.
Pools	This item is set when rules for volume are set using Pools.
StorageSystems	This item is set when rules for volume are set using Storage Systems.
Model	This item is set when rules for volume are set using Model.

enumerator	Description
HostGroup	This item is set when rules for volume are set using Host Group.
ConsumerNameOfRelatedResources	This item is set when rules for volume are set using Consumer(Group) Name of Related Resources.
LUNOwnerName	This item is set when rules for volume are set using LUN Owner Name.
VolumeName	This item is set when rules for volume are set using Volume Name.
DatastoreName	This item is set when rules for datastore are set using Datastore Name.
NVMHostNickname	This item is set when rules for volume are set using NVM Host Nickname.

ConditionType

enumerator	Description
Equals	Equals
Start_With	Start With
End_With	End With
Contains	Contains
NotEquals	NotEquals
In	In
NotIn	NotIn

OsType

enumerator	Description
Linux	Linux
Windows	Windows

TemplateType

enumerator	Description
COMMAND	Command
MAIL	Mail
AUTOMATIONDIRECTOR_TEMPLATE_FILE_DEFINED	Ops Center Automator service which is defined by action template of Ops Center Analyzer
AUTOMATIONDIRECTOR	Ops Center Automator service

SystemSummaryStatus

enumerator	Description
CRITICAL	Critical
WARNING	Warning
NORMAL	Normal
INFORMATION	Information

PlanType

enumerator	Description
Base	Base plan
Schedule	User defined plan

MonitoringMode

enumerator	Description
OFF	Notmonitored
Static	Monitored by static threshold
Dynamic	Monitored by dynamic threshold

MetricPriorityType

enumerator	Description
Basic	Basic set
Advanced	Advanced metric

PerformanceResourceType

enumerator	Description
WINDOWS	Windows
LINUX	Linux
ESX	ESX
HYPERV	Hyper-V
BROCADE_FCSWITCH	Brocade FC Switch
CISCO_FCSWITCH	Cisco FC Switch
ESX_VM	ESX Virtual Machine
HYPERV_VM	Hyper-V Virtual Machine
RAID_VOLUME	Storage Volume
RAID_STORAGE	Storage System
DATASTORE	VMware Datastore
VSSB_STORAGE	VSSB Storage Cluster
VSSB_VOLUME	VSSB Volume

VolumeLocation

enumerator	Description
INTERNAL	Internal
EXTERNAL_HIGH	External (High)
EXTERNAL_MID	External (Mid)
EXTERNAL_LOW	External (Low)
EXTERNAL	External

IoControlSupportType

enumerator	Description
supported	Supported
unSupported	UnSupported

TaskStatus

enumerator	Description
Completed	Completed
NotCompleted	Not Completed
InProgress	In Progress
FailedToRequest	Failed To Request
Unknown	Unknwon
Executed	Executed

IoControlMetricType

enumerator	Description
TransferRate	TransferRate
IOPS	IOPS

LimitationMode

enumerator	Description
ON	ON
OFF	OFF

ExecutionType

enumerator	Description
AutomationDirector	Ops Center Automator

enumerator	Description
ExternalCommand	External Command

PredictionExecState

enumerator	Description
Searching	In seaching target resources.
Predicting	Executing prediction.
Succeeded	Task has succeeded.
Failed	Task has failed.
Canceled	Task was canceled.
Waiting	Task is waiting.

PredictionResultType

enumerator	Description
Graph	Graph data
Linear	Linear graph data

ThresholdProfileStatus

enumerator	Description
Monitoring	Resources which assinged to the profile are monitored properly
Modifying	The profile is modifying. Resources which assinged to the profile are not monitored.
ModificationFailed	Modification failed. Resources which assinged to the profile are not monitored.

BaseParameter

enumerator	Description
HostGroup	Host Group
VolumeLabel	Volume Label
NVMHostNickname	VM host nickname
VMName	vm name
HostName	host name
ClusterName	cluster name

GenerationPolicy

enumerator	Description
LeadingAlphabets	use leading alphabetic portion
PrecedeSeparator	use characters that precede separator
FirstNCharacters	use first N characters
EntireBaseParam	use entire base parameter

ConsumerExistenceType

enumerator	Description
New	new
Existing	existing

MetricType

enumerator	Description
ESX_H_CPUUSAGE	CPU Usage (VMware Host) for ESX (VMware)
ESX_H_CPUREADY	CPU Ready (VMware Host) for ESX (VMware)
ESX_H_MEMUSAGE	Memory Usage (VMware Host) for ESX (VMware)
ESX_CPU_CPUUSAGE	CPU Usage (VMware Host CPU) for ESX (VMware)

enumerator	Description
ESX_DISK_DISKREAD	Read KBps (VMware Host Disk) for ESX (VMware)
ESX_DISK_DISKWRITE	Write KBps (VMware Host Disk) for ESX (VMware)
ESX_DISK_DISKNUMBERREAD	Read Operations (VMware Host Disk) for ESX (VMware)
ESX_PN_NETPACKETSRX	Packets Rx (VMware Host NIC) for ESX (VMware)
ESX_PN_NETPACKETSTX	Packets Tx (VMware Host NIC) for ESX (VMware)
ESX_PN_NETRECEIVED	Received (VMware Host NIC) for ESX (VMware)
ESX_PN_NETTRANSMITTED	Transmitted (VMware Host NIC) for ESX (VMware)
BROCADE_FCSWITCH_FABBROCA DESWITCHPORT_FABPORTRX	RX Rate (Fabric Brocade Switch Port) for FC-SW (Brocade)
BROCADE_FCSWITCH_FABBROCA DESWITCHPORT_FABPORTTX	TX Rate (Fabric Brocade Switch Port) for FC-SW (Brocade)
BROCADE_FCSWITCH_FABBROCA DESWITCHPORT_FABPORTSEQUE NCEERRORS	Sequence Error Count (Fabric Brocade Switch Port) for FC-SW (Brocade)
RAID_STORAGE_RAIDPORT_TOTA LIOPS	Total IOPS (Port) for Storage
RAID_STORAGE_RAIDPORT_MAXI OPS	Max IOPS (Port) for Storage
RAID_STORAGE_RAIDPORT_TRAN SFERRATE	Transfer Rate (Port) for Storage
RAID_STORAGE_RAIDPORT_MAXT RANSFERRATE	Max Transfer Rate (Port) for Storage
RAID_STORAGE_RAIDCLPR_UTILIZ ATION	Utilization (CLPR) for Storage
RAID_STORAGE_RAIDCLPR_WRIT EPENDINGRATE	Write Pending Rate (CLPR) for Storage
RAID_STORAGE_RAIDCLPR_SIDEF ILEUSAGERATE	Side File Usage Rate (CLPR) for Storage
RAID_STORAGE_RAIDMP_UTILIZAT ION	Utilization (MP) for Storage

enumerator	Description
RAID_STORAGE_RAIDMPBCLPR_WRITEPENDINGRATE	Write Pending Rate (MPB CLPR) for Storage
ESX_VM_VM_CPUREADY	CPU Ready (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_CPUUSAGE	CPU Usage (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_CPUUSAGEMHZ	CPU Usage MHz (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_CPUCOSTOP	CPU Co-Stop (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_CPUSWAPWAIT	CPU Swap Wait (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_MEMACTIVE	Active Memory (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_MEMCONSUMED	Memory Consumed (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_MEMOVERHEAD	Memory Overhead (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_MEMSWAPINRATE	Memory Swap-in Rate (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_MEMSWAPOUTRATE	Memory Swap-out Rate (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_MEMUSAGE	Memory Usage (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_MEMVMMEMCTL	Control Driver Virtual Memory (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_MEMVMMEMCTLTARGET	Control Driver Virtual Memory Target (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_MEMSWAPPED	Memory Swapped (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_MEMCOMPRESSIONRATE	Memory Compression Rate (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_MEMDECOMPRESSIONRATE	Memory Decompression Rate (VMware Virtual Machine) for VM (VMware)

enumerator	Description
ESX_VM_VM_DISKREAD	Read KBps (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_DISKUSAGE	Usage KBps (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_DISKWRITE	Write KBps (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_NETRECEIVED	Received (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_NETTRANSMITTED	Transmitted (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_NETUSAGE	Network Usage (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_NETDROPPEDRX	Dropped Rx (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_NETDROPPEDTX	Dropped Tx (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_NETPACKETSRX	Packets Rx (VMware Virtual Machine) for VM (VMware)
ESX_VM_VM_NETPACKETSTX	Packets Tx (VMware Virtual Machine) for VM (VMware)
ESX_VM_VCPU_CPUREADY	CPU Ready (VMware Virtual CPU) for VM (VMware)
ESX_VM_VCPU_CPUUSAGEMHZ	CPU Usage MHz (VMware Virtual CPU) for VM (VMware)
ESX_VM_DISKPART_DISKBUSRESETS	Bus Resets (VMware Virtual Disk Partition) for VM (VMware)
ESX_VM_DISKPART_DISKCOMMANDSABORTED	Commands Aborted (VMware Virtual Disk Partition) for VM (VMware)
ESX_VM_DISKPART_DISKREAD	Read KBps (VMware Virtual Disk Partition) for VM (VMware)
ESX_VM_DISKPART_DISKWRITE	Write KBps (VMware Virtual Disk Partition) for VM (VMware)
ESX_VM_DISKPART_DISKNUMBERREAD	Read Operations (VMware Virtual Disk Partition) for VM (VMware)

enumerator	Description
ESX_VM_DISKPART_DISKNUMBERWRITE	Write Operations (VMware Virtual Disk Partition) for VM (VMware)
ESX_VM_VN_NETPACKETSRX	Packets Rx (VMware Virtual NIC) for VM (VMware)
ESX_VM_VN_NETPACKETSTX	Packets Tx (VMware Virtual NIC) for VM (VMware)
ESX_VM_VN_NETRECEIVED	Received (VMware Virtual NIC) for VM (VMware)
ESX_VM_VN_NETTRANSMITTED	Transmitted (VMware Virtual NIC) for VM (VMware)
ESX_VM_VDISK_VIRTUALDISKTOTALREADLATENCY	Virtual Disk Total Read Latency (Virtual Disk) for VM (VMware)
ESX_VM_VDISK_VIRTUALDISKTOTALWRITELATENCY	Virtual Disk Total Write Latency (Virtual Disk) for VM (VMware)
ESX_VM_VDISK_VIRTUALDISKNUMBERREADAVERAGED	Virtual Disk Number Read (Virtual Disk) for VM (VMware)
ESX_VM_VDISK_VIRTUALDISKNUMBERWRITEAVERAGED	Virtual Disk Number Write (Virtual Disk) for VM (VMware)
RAID_VOLUME_RAIDLDEV_TOTALIOPS	Total IOPS (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_READHIT	Read Hit (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_READHITCOUNT	Read Hit Count (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_WRITEHITCOUNT	Write Hit Count (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_WRITEHIT	Write Hit (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_READIOPS	Read IOPS (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_RANDOMREADHIT	Random Read Hit (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_RANDOMREADIOPS	Random Read IOPS (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_RANDOMWRITEIOPS	Random Write IOPS (LDEV) for Volume

enumerator	Description
RAID_VOLUME_RAIDLDEV_SEQREADHIT	Seq Read Hit (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_SEQREADIOPS	Seq Read IOPS (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_SEQWRITEIOPS	Seq Write IOPS (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_WRITEIOPS	Write IOPS (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_BACKENDTRANSFERS	Backend Transfers (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_CACHETO DRIVE TRANSFERS	Cache to Drive Transfers (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_RANDOM DRIVE TO CACHE TRANSFERS	Random Drive to Cache Transfers (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_SEQDRIVE TO CACHE TRANSFERS	Seq Drive to Cache Transfers (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_READTRANSFER RATE	Read Transfer Rate (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_TRANSFER RATE	Transfer Rate (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_WRITETRANSFER RATE	Write Transfer Rate (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_RANDOM READ TRANSFER RATE	Random Read Transfer Rate (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_RANDOM WRITE TRANSFER RATE	Random Write Transfer Rate (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_SEQREAD TRANSFER RATE	Seq Read Transfer Rate (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_SEQWRITE TRANSFER RATE	Seq Write Transfer Rate (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_READRESPONSE TIME	Read Response Time (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_TOTALRESPONSE TIME	Total Response Time (LDEV) for Volume

enumerator	Description
RAID_VOLUME_RAIDLDEV_WRITE RESPONSETIME	Write Response Time (LDEV) for Volume
RAID_VOLUME_RAIDLDEV_UTILIZA TION	Utilization (LDEV) for Volume
RAID_STORAGE_RAIDPOOL_SYN_ RAIDLDEV_TOTALIOPS	Total IOPS (Pool) for Storage
RAID_STORAGE_RAIDPG_SYN_RAI DLDEV_READHIT	Read Hit (Parity Group) for Storage
RAID_STORAGE_RAIDMPB_UTILIZ ATION	Utilization (MPB) for Storage
WINDOWS_WHOST_PERCENTCOM MITTEDBYTESINUSE	Committed Bytes In Use % (Windows Host) for Windows
WINDOWS_WHOST_AVAILABLEMB BYTES	Available MB (Windows Host) for Windows
WINDOWS_WHOST_PERCENTPRO CESSORTIME	Processor Time % (Windows Host) for Windows
WINDOWS_WLOGICALDISK_PERC ENTUSEDSPACE	Used Space % (Windows Logical Disk) for Windows
WINDOWS_WPHYSICALDISK_DISK READKBYESPERSEC	Disk Read KB/sec (Windows Host Disk) for Windows
WINDOWS_WPHYSICALDISK_DISK WRITEKBYESPERSEC	Disk Write KB/sec (Windows Host Disk) for Windows
WINDOWS_WPHYSICALDISK_DISK READPERSEC	Disk Reads/s (Windows Host Disk) for Windows
WINDOWS_WPHYSICALDISK_DISK WRITEPERSEC	Disk Writes/s (Windows Host Disk) for Windows
WINDOWS_WPHYSICALDISK_DISK TRANSFERPERSEC	Disk Transfers/s (Windows Host Disk) for Windows
WINDOWS_WPROCESSOR_PERCE NTIDLETIME	Idle Time % (Windows Processor) for Windows
WINDOWS_WPROCESSOR_PERCE NTPROCESSORTIME	Processor Time % (Windows Processor) for Windows
WINDOWS_WNETWORKADAPTER_ KBYTESRECEIVEDPERSEC	KB Received/sec (Windows Network Interface) for Windows

enumerator	Description
WINDOWS_WNETWORKADAPTER_KBYTESENTPERSEC	KB Sent/sec (Windows Network Interface) for Windows
WINDOWS_WNETWORKADAPTER_PACKETSRECEIVEDPERSEC	Packets Received/s (Windows Network Interface) for Windows
WINDOWS_WNETWORKADAPTER_PACKETSSENTPERSEC	Packets Sent/s (Windows Network Interface) for Windows
HYPERV_HVLOGICALPROCESSOR_PERCENTGUESTRUNTIME	Percent Guest Run Time (Hyper-V Host Logical Processor) for Hyper-V (Hyper-V)
HYPERV_HVLOGICALPROCESSOR_PERCENTHYPERVISORRUNTIME	Percent Hypervisor Run Time (Hyper-V Host Logical Processor) for Hyper-V (Hyper-V)
HYPERV_HVLOGICALPROCESSOR_PERCENTTOTALRUNTIME	Percent Total Run Time (Hyper-V Host Logical Processor) for Hyper-V (Hyper-V)
HYPERV_HVLOGICALPROCESSOR_PERCENTIDLETIME	Idle Time % (Hyper-V Host Logical Processor) for Hyper-V (Hyper-V)
HYPERV_WHOST_PERCENTCOMMITTEDBYTESINUSE	Committed Bytes In Use % (Hyper-V Host) for Hyper-V (Hyper-V)
HYPERV_WHOST_AVAILABLEBYTES	Available MB (Hyper-V Host) for Hyper-V (Hyper-V)
HYPERV_WHOST_PERCENTPROCESSORTIME	Processor Time % (Hyper-V Host) for Hyper-V (Hyper-V)
HYPERV_WLOGICALDISK_PERCENTUSEDSPACE	Used Space % (Hyper-V Host Logical Disk) for Hyper-V (Hyper-V)
HYPERV_WPHYSICALDISK_DISK_READKBBYTESPERSEC	Disk Read KB/sec (Hyper-V Host Physical Disk) for Hyper-V (Hyper-V)
HYPERV_WPHYSICALDISK_DISK_WRITEKBBYTESPERSEC	Disk Write KB/sec (Hyper-V Host Physical Disk) for Hyper-V (Hyper-V)
HYPERV_WPHYSICALDISK_DISK_READPERSEC	Disk Reads/s (Hyper-V Host Physical Disk) for Hyper-V (Hyper-V)
HYPERV_WPHYSICALDISK_DISK_WRITEPERSEC	Disk Writes/s (Hyper-V Host Physical Disk) for Hyper-V (Hyper-V)
HYPERV_WPHYSICALDISK_DISK_TRANSFERSPERSEC	Disk Transfers/s (Hyper-V Host Physical Disk) for Hyper-V (Hyper-V)
HYPERV_WNETWORKADAPTER_KBYTESRECEIVEDPERSEC	KB Received/sec (Hyper-V Host Network Interface) for Hyper-V (Hyper-V)

enumerator	Description
HYPERV_WNETWORKADAPTER_K BYTESENTPERSEC	KB Sent/sec (Hyper-V Host Network Interface) for Hyper-V (Hyper-V)
HYPERV_WNETWORKADAPTER_P ACKETSRECEIVEDPERSEC	Packets Received/s (Hyper-V Host Network Interface) for Hyper-V (Hyper-V)
HYPERV_WNETWORKADAPTER_P ACKETSSENTPERSEC	Packets Sent/s (Hyper-V Host Network Interface) for Hyper-V (Hyper-V)
CISCO_FCSWITCH_FABCISCOSWI TCHPORT_TXKBPS	TX Rate (Cisco Fabric Switch Port) for FC-SW (Cisco)
CISCO_FCSWITCH_FABCISCOSWI TCHPORT_RXKBPS	RX Rate (Cisco Fabric Switch Port) for FC-SW (Cisco)
CISCO_FCSWITCH_FABCISCOSWI TCHPORT_DISCARDEDFRAMESCO UNT	Discarded Frames Count (Cisco Fabric Switch Port) for FC-SW (Cisco)
HYPERV_VM_HVVHD_READKBYTE SPERSEC	Read KBytes Per Sec (Hyper-V Virtual Storage Device) for VM (Hyper-V)
HYPERV_VM_HVVHD_WRITEKBYT ESPERSEC	Write KBytes Per Sec (Hyper-V Virtual Storage Device) for VM (Hyper-V)
HYPERV_VM_HVVHD_READOPERA TIONSPERSEC	Read Operations Per Sec (Hyper-V Virtual Storage Device) for VM (Hyper-V)
HYPERV_VM_HVVHD_WRITEOPER ATIONSPERSEC	Write Operations Per Sec (Hyper-V Virtual Storage Device) for VM (Hyper-V)
HYPERV_VM_HVVIRTUALPROCES SOR_PERCENTGUESTRUNTIME	Percent Guest Run Time (Hyper-V Hypervisor Virtual Processor) for VM (Hyper-V)
HYPERV_VM_HVVIRTUALPROCES SOR_PERCENTHYPERVISORRunti ME	Percent Hypervisor Run Time (Hyper-V Hypervisor Virtual Processor) for VM (Hyper-V)
HYPERV_VM_HVVIRTUALPROCES SOR_PERCENTTOTALRUNTIME	Percent Total Run Time (Hyper-V Hypervisor Virtual Processor) for VM (Hyper-V)
HYPERV_VM_HVVIRTUALNETWOR KADAPTER_KBYTESENTPERSEC	KB Sent/sec (Hyper-V Virtual Network Adapter) for VM (Hyper-V)
HYPERV_VM_HVVIRTUALNETWOR KADAPTER_KBYTESRECEIVEDPER SEC	KB Received/sec (Hyper-V Virtual Network Adapter) for VM (Hyper-V)
HYPERV_VM_HVVIRTUALNETWOR KADAPTER_PACKETSENTPERSE C	Packets Sent Per Sec (Hyper-V Virtual Network Adapter) for VM (Hyper-V)

enumerator	Description
HYPERV_VM_HVVIRTUALNETWORKADAPTER_PACKETSRECEIVEDPERSEC	Packets Received Per Sec (Hyper-V Virtual Network Adapter) for VM (Hyper-V)
RAID_STORAGE_RAIDCHAESW_ACCESSPATHUSAGE	Access Path Usage (CHA ESW) for Storage
RAID_STORAGE_RAIDDKAESW_ACCESSPATHUSAGE	Access Path Usage (DKA ESW) for Storage
RAID_STORAGE_RAIDMPBESW_ACCESSPATHUSAGE	Access Path Usage (MPB ESW) for Storage
RAID_STORAGE_RAIDCACHEESW_ACCESSPATHUSAGE	Access Path Usage (Cache ESW) for Storage
RAID_STORAGE_RAIDMB_ACCESSPATHUSAGE	Access Path Usage (Cache Path) for Storage
RAID_STORAGE_RAIDPOOL_PERCENTUSAGERATE	Usage Rate (Pool) for Storage
RAID_STORAGE_RAIDPOOL_PHYSICALCAPACITYUSAGERATE	Physical Capacity Usage Rate (Pool) for Storage
LINUX_LHOST_L_MEMUSED	Memory Used % (Linux Host) for Linux
LINUX_LHOST_L_FREE	Available KB (Linux Host) for Linux
LINUX_LHOST_L_CPULOAD	Processor Time % (Linux Host) for Linux
LINUX_LHOSTFILESYSTEMDEVICE_USEDPERCENT	Used Space % (Linux Host FileSystem) for Linux
LINUX_LHOSTDISK_L_RKBPS	Disk Read KB/sec (Linux Host Disk) for Linux
LINUX_LHOSTDISK_L_WKBPS	Disk Write KB/sec (Linux Host Disk) for Linux
LINUX_LHOSTDISK_L_RPS	Disk Reads/s (Linux Host Disk) for Linux
LINUX_LHOSTDISK_L_WPS	Disk Write/s (Linux Host Disk) for Linux
LINUX_LHOSTDISK_L_DISKTRANSFERAVG	Disk Transfer MB/s (Linux Host Disk) for Linux
LINUX_LHOSTCPU_L_IDLE	Processor Time Idle % (Linux Host CPU) for Linux
LINUX_LHOSTCPU_L_USER	Processor Time User % (Linux Host CPU) for Linux
LINUX_LHOSTCPU_L_SYS	Processor Time System % (Linux Host CPU) for Linux

enumerator	Description
LINUX_LHOSTCPU_L_IOWAIT	Processor Time Waiting IO % (Linux Host CPU) for Linux
LINUX_LHOSTIFC_L_RXKBPS	KB Received/sec (Linux Host Network Interface) for Linux
LINUX_LHOSTIFC_L_TXKBPS	KB Sent/sec (Linux Host Network Interface) for Linux
LINUX_LHOSTIFC_L_RXPCKPS	Packets Received/s (Linux Host Network Interface) for Linux
LINUX_LHOSTIFC_L_TXPCKPS	Packets Sent/s (Linux Host Network Interface) for Linux
RAID_STORAGE_RAIDPOOL_POOL_SAVINGRATIO	Data Reduction Ratio of the whole Pool (N:1) (Pool) for Storage
DATASTORE_DS_FREESPACEGB	FreeSpace (GB) (VMware Datastore) for Datastore
RAID_STORAGE_RAIDPG_UTILIZATION	Utilization (Parity Group) for Storage
VSSB_VOLUME_VSSBVOLUME_READRESPONSETIME	Read Response Time (Volume)
VSSB_VOLUME_VSSBVOLUME_WRITERESPONSETIME	Write Response Time (Volume)
VSSB_VOLUME_VSSBVOLUME_READIOPS	Read IOPS (Volume)
VSSB_VOLUME_VSSBVOLUME_WRITEIOPS	Write IOPS (Volume)
VSSB_VOLUME_VSSBVOLUME_READTRANSFERRATEINMIB	Read Transfer Rate (Volume)
VSSB_VOLUME_VSSBVOLUME_WRITETRANSFERRATEINMIB	Write Transfer Rate (Volume)
VSSB_STORAGE_VSSBCLUSTER_CPUUTILIZATION	Average CPU Usage (VSSB Cluster)
VSSB_STORAGE_VSSBCLUSTER_SYN_VSSBCOMPUTEPORT_AVGTA RGETREADTRANSFERRATE	Average Read Transfer Rate (VSSB Cluster)
VSSB_STORAGE_VSSBCLUSTER_SYN_VSSBCOMPUTEPORT_AVGTA RGETWRITETRANSFERRATE	Average Write Transfer Rate (VSSB Cluster)

enumerator	Description
VSSB_STORAGE_VSSBCPU_CPUUTILIZATION	CPU Usage (VSSB CPU)
VSSB_STORAGE_VSSBCOMPUTEPORT_READIOPS	Read IOPS (VSSB Compute Port)
VSSB_STORAGE_VSSBCOMPUTEPORT_WRITEIOPS	Write IOPS (VSSB Compute Port)
VSSB_STORAGE_VSSBCOMPUTEPORT_READTRANSFERRATEINMIB	Read Transfer Rate (VSSB Compute Port)
VSSB_STORAGE_VSSBCOMPUTEPORT_WRITETRANSFERRATEINMIB	Write Transfer Rate (VSSB Compute Port)
VSSB_STORAGE_VSSBCOMPUTEPORT_RESPONSETIME	Response Time (VSSB Compute Port)
VSSB_STORAGE_VSSBINTERNODEPORT_RECEIVETRANSFERRATE	Receive Transfer Rate (VSSB Internode Port)
VSSB_STORAGE_VSSBINTERNODEPORT_SENDTRANSFERRATE	Send Transfer Rate (VSSB Internode Port)
VSSB_STORAGE_VSSBDRIVE_DRIVEUSAGE	Usage (VSSB Drive)
VSSB_STORAGE_VSSBDRIVE_DRIVE_RESPONSETIME	Response Time (VSSB Drive)
VSSB_STORAGE_VSSBDRIVE_DRIVE_READIOPS	Read IOPS (VSSB Drive)
VSSB_STORAGE_VSSBDRIVE_DRIVE_WRITEIOPS	Write IOPS (VSSB Drive)
VSSB_STORAGE_VSSBDRIVE_DRIVE_READTRANSFERRATEINMIB	Read Transfer Rate (VSSB Drive)
VSSB_STORAGE_VSSBDRIVE_DRIVE_WRITETRANSFERRATEINMIB	Write Transfer Rate (VSSB Drive)

ComponentType

enumerator	Description
CPU	CPU
MEMORY	Memory

enumerator	Description
LAN_PORT	NIC
INTERNAL_SCSI_DISK_CONTROLLER	Internal SCSI Disk Controller
FC_HBA_PORT	HBA
DISK_DRIVE	Disk
FILE_SYSTEM	Filesystem
FC_SWITCH_PORT	FC Network Port
STORAGE_CONTROLLER	Processor
STORAGE_FC_PORT	Port
STORAGE_DISK_DRIVE	Storage Disk Drive
STORAGE_POOL	PG
STORAGE_VOLUME	Volume
LUN	LUN
STORAGE_CACHE	Cache
VIRTUAL_MACHINE	VM
MANAGEMENT_CPU	Management CPU Used
HOST_GROUP	Host Group
PORT_GROUP	Port Group
VIRTUAL_DISK	Virtual Disk
USABLE_WWN	Usable WWN
VIRTUAL_NIC	Virtual NIC
VIRTUAL_SWITCH	Virtual Switch
HYPERVERSOR_CLUSTER	Cluster
DATASTORE	Datastore
NA	Invalid value
STORAGE_MPB	MPB
STORAGE_DP_POOL	Pool
STORAGE_DP_POOL_TIER	Pool tier

enumerator	Description
VIRTUAL_CPU	Virtual CPU
STORAGE_DKA_ESW	DKA-ESW
STORAGE_CACHE_ESW	Cache-ESW
STORAGE_MB	Main Blade
STORAGE_OTHER	Storage Other Component
VIRTUAL_DISKPARTITION	Virtual Disk Partition
LOGICAL_DISK_DRIVE	Logical Disk
STORAGE_CHA_ESW	Access Path between Channel Adapter and Cache Switch
STORAGE_MP	Processor
STORAGE_MPB_ESW	Access Path between MP Blade and Cache Switch
STORAGE_MPB_CLPR	Processor Cache

CertaintyLevel

enumerator	Description
Low	Low
Middle	Middle
High	High

TimeUnit

enumerator	Description
sec	Sec
min	Min
hour	Hour
day	Day
week	Week
month	Month

Qualifier

enumerator	Description
About	About
MoreThan	More Than
LessThan	Less Than

UndoabilityLevel

enumerator	Description
Possible	Possible
Impossible	Impossible
ConditionalImpossible	ConditionalImpossible

Chapter 2: Performing operations related to the rules for automatically assigning resources

You can create, update, or delete automatic resource assignment rules and update any condition information or priorities associated with the rules. In addition, you can assign resources and obtain the results of the assignment.

Getting a list of automatic resource assignment rules

You can obtain a list of automatic resource assignment rules.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/AutoAssignFilters
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of AutoAssignFilter objects. For details about AutoAssignFilter, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

AutoAssignFilter

```
{
  "instanceID": "...",
  "filterName": "...",
  "filterType": "...",
  "resourceType": "...",
  "priority": "...",
  "description": "...",
  "groupID": "...",
  "groupName": "...",
  "userResourceThresholdID": "...",
  "userResourceThresholdName": "...",
  "profileResourceType": "..."
}
```

AutoAssignFilter (Type: AutoAssignFilter)

Attribute	Type	Description
instanceID	string	ID of the assignment rule
filterName	string	Name of the assignment rule
filterType	enum	Type of the assignment rule

Attribute	Type	Description
		(For details about the valid values, see the table <i>FilterType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resources to which the assignment rule is to be applied (For details about the valid values, see the table <i>FilterResourceType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> VM Volume Host
priority	int	Priority of the assignment rule
description	string	Description of the assignment rule
groupID	string	ID of the assignment-destination consumer. This item is set only if the rule type is "Group".
groupName	string	Name of the assignment-destination consumer. This item is set only if the rule type is "Group".
userResourceThresh oldID	string	ID of the threshold profile to be assigned to the resource. This item is set only if the rule type is "UserResourceThreshold".
userResourceThresh oldName	string	Name of the threshold profile to be assigned to the resource. This item is set only if the rule type is "UserResourceThreshold".
profileResourceType	enum	Resource type of threshold profile. (For details about the valid values, see the table <i>PerformanceResourceType</i> in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.

Status code	Reason phrase	Description
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/AutoAssignFilters
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Fri, 12 Aug 2016 11:17:00 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
30f198fbc8b17b25ed2d623b761929ba5a56df2_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "instanceID" : "autoAssignFilter#86f40c58-4000-429d-a50c-d1acf7be73e5",
    "filterName" : "filterName-20160812201659091",
    "filterType" : "Group",
    "resourceType" : "VM",
    "priority" : 1,
    "description" : "Description 7 Consumer - Host",
    "groupID" : "group#d4b70260-a0d0-4961-9765-6f06b437163a",
    "groupName" : "GroupForAutoAssignFilterGetTest",
    "profileResourceType" : "INVALID_MEMBER"
  } ],
  "count" : 1
}
```

Creating automatic resource assignment rule

You can create a new automatic resource assignment rule.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/objects/AutoAssignFilters
```

Request body

The structure of the request body and the object attributes are as follows:

AutoAssignFilter

```
{
  "instanceID": "...",
  "filterName": "...",
  "filterType": "...",
  "resourceType": "...",
  "priority": "...",
  "description": "...",
  "groupID": "...",
  "groupName": "...",
  "userResourceThresholdID": "...",
  "userResourceThresholdName": "...",
  "profileResourceType": "..."
}
```

AutoAssignFilter (Type: AutoAssignFilter)

Attribute	Type	Description
instanceID	string	ID of the assignment rule
filterName	string	Name of the assignment rule
filterType	enum	Type of the assignment rule (For details about the valid values, see the table FilterType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resources to which the assignment rule is to be applied

Attribute	Type	Description
		(For details about the valid values, see the table FilterResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ VM ▪ Volume ▪ Host
priority	int	Priority of the assignment rule
description	string	Description of the assignment rule
groupID	string	ID of the assignment-destination consumer. This item is set only if the rule type is "Group".
groupName	string	Name of the assignment-destination consumer. This item is set only if the rule type is "Group".
userResourceThresholdID	string	ID of the threshold profile to be assigned to the resource. This item is set only if the rule type is "UserResourceThreshold".
userResourceThresholdName	string	Name of the threshold profile to be assigned to the resource. This item is set only if the rule type is "UserResourceThreshold".
profileResourceType	enum	Resource type of threshold profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

Response body

The structure of the response body and the object attributes is as follows:

AutoAssignFilter

```
{
  "instanceID": "...",
  "filterName": "...",
  "filterType": "...",
  "resourceType": "...",
  "priority": "...",
  "description": "...",
  "groupID": "...",
  "groupName": "...",
  "userResourceThresholdID": "...",
  "userResourceThresholdName": "...",
  "profileResourceType": "..."
}
```

AutoAssignFilter (Type: AutoAssignFilter)

Attribute	Type	Description
instanceID	string	ID of the assignment rule
filterName	string	Name of the assignment rule
filterType	enum	Type of the assignment rule (For details about the valid values, see the table FilterType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resources to which the assignment rule is to be applied (For details about the valid values, see the table FilterResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> VM Volume Host
priority	int	Priority of the assignment rule
description	string	Description of the assignment rule
groupID	string	ID of the assignment-destination consumer. This item is set only if the rule type is "Group".
groupName	string	Name of the assignment-destination consumer. This item is set only if the rule type is "Group".
userResourceThresholdID	string	ID of the threshold profile to be assigned to the resource. This item is set only if the rule type is "UserResourceThreshold".
userResourceThresholdName	string	Name of the threshold profile to be assigned to the resource. This item is set only if the rule type is "UserResourceThreshold".
profileResourceType	enum	Resource type of threshold profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
201	Created	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No create privilege.
409	Conflict	A resource with the same name exists.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/AutoAssignFilters
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "filterName": "filterName-20160812201703052",
  "filterType": "Group",
  "resourceType": "VM",
  "description": "Description 7 Consumer - Host",
  "groupID": "group#a9942fa3-0567-48fd-a147-dalbbe77c0ff",
  "groupName": "GroupAutoAssignFilterGetId"
}

[Response Header]
HTTP/1.1 201 Created
Date: Fri, 12 Aug 2016 11:17:03 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
30f198fbc8b17b25ed2d623b761929ba5a56df2_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
```

```

X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "autoAssignFilter#1e24a8b4-afb6-4afe-b657-349588e4248c",
  "filterName" : "filterName-20160812201703052",
  "filterType" : "Group",
  "resourceType" : "VM",
  "priority" : 1,
  "description" : "Description 7 Consumer - Host",
  "groupID" : "group#a9942fa3-0567-48fd-a147-dalb77c0ff",
  "groupName" : "GroupAutoAssignFilterGetId",
  "profileResourceType" : "INVALID_MEMBER"
}

```

Getting specific automatic resource assignment rule information

You can obtain information about a specific automatic resource assignment rule.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/AutoAssignFilters/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

AutoAssignFilter

```

{
  "instanceID": "...",
  "filterName": "...",
  "filterType": "...",
  "resourceType": "...",
  "priority": "...",
  "description": "...",
  "groupID": "...",

```

```

"groupName": "...",
"userResourceThresholdID": "...",
"userResourceThresholdName": "...",
"profileResourceType": "..."
}

```

AutoAssignFilter (Type: AutoAssignFilter)

Attribute	Type	Description
instanceID	string	ID of the assignment rule
filterName	string	Name of the assignment rule
filterType	enum	Type of the assignment rule (For details about the valid values, see the table <i>FilterType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resources to which the assignment rule is to be applied (For details about the valid values, see the table <i>FilterResourceType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> VM Volume Host
priority	int	Priority of the assignment rule
description	string	Description of the assignment rule
groupID	string	ID of the assignment-destination consumer. This item is set only if the rule type is "Group".
groupName	string	Name of the assignment-destination consumer. This item is set only if the rule type is "Group".
userResourceThresh oldID	string	ID of the threshold profile to be assigned to the resource. This item is set only if the rule type is "UserResourceThreshold".
userResourceThresh oldName	string	Name of the threshold profile to be assigned to the resource. This item is set only if the rule type is "UserResourceThreshold".
profileResourceType	enum	Resource type of threshold profile.

Attribute	Type	Description
		(For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/AutoAssignFilters/autoAssignFilter%238b14d6a4-0802-4360-9164-2192324ae657
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:51:54 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "instanceID" : "autoAssignFilter#8b14d6a4-0802-4360-9164-2192324ae657",
  "filterName" : "filterName-20160812025153377",
  "filterType" : "Group",
  "resourceType" : "VM",
  "priority" : 1,
  "description" : "Description 7 Consumer - Host",
  "groupID" : "group#bd40cdaa-5b4f-49fb-83f6-6e5393150b06",
  "groupName" : "GroupAutoAssignFilterGetId",
  "profileResourceType" : "INVALID_MEMBER"
}
```

Updating specific automatic resource assignment rule

You can update a specific automatic resource assignment rule.

Execution permission

Admin, Modify

Request line

```
PUT baseUrl/v1/objects/AutoAssignFilters/{id}
```

Request body

The structure of the request body and the object attributes are as follows:

AutoAssignFilter

```
{
  "instanceID": "...",
  "filterName": "...",
  "filterType": "...",
  "resourceType": "...",
  "priority": "...",
  "description": "...",
  "groupID": "...",
  "groupName": "...",
  "userResourceThresholdID": "...",
  "userResourceThresholdName": "...",
  "profileResourceType": "..."
}
```

AutoAssignFilter (Type: AutoAssignFilter)

Attribute	Type	Description
instanceID	string	ID of the assignment rule
filterName	string	Name of the assignment rule
filterType	enum	Type of the assignment rule (For details about the valid values, see the table FilterType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resources to which the assignment rule is to be applied (For details about the valid values, see the table FilterResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> VM Volume Host
priority	int	Priority of the assignment rule
description	string	Description of the assignment rule
groupID	string	ID of the assignment-destination consumer. This item is set only if the rule type is "Group".
groupName	string	Name of the assignment-destination consumer. This item is set only if the rule type is "Group".
userResourceThresholdID	string	ID of the threshold profile to be assigned to the resource. This item is set only if the rule type is "UserResourceThreshold".
userResourceThresholdName	string	Name of the threshold profile to be assigned to the resource. This item is set only if the rule type is "UserResourceThreshold".
profileResourceType	enum	Resource type of threshold profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

Response body

The structure of the response body and the object attributes is as follows:

AutoAssignFilter

```
{
  "instanceID": "...",
  "filterName": "...",
  "filterType": "...",
  "resourceType": "...",
  "priority": "...",
  "description": "...",
  "groupID": "...",
  "groupName": "...",
  "userResourceThresholdID": "...",
  "userResourceThresholdName": "...",
  "profileResourceType": "..."
}
```

AutoAssignFilter (Type: AutoAssignFilter)

Attribute	Type	Description
instanceID	string	ID of the assignment rule
filterName	string	Name of the assignment rule
filterType	enum	Type of the assignment rule (For details about the valid values, see the table FilterType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resources to which the assignment rule is to be applied (For details about the valid values, see the table FilterResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> VM Volume Host
priority	int	Priority of the assignment rule
description	string	Description of the assignment rule
groupID	string	ID of the assignment-destination consumer. This item is set only if the rule type is "Group".
groupName	string	Name of the assignment-destination consumer. This item is set only if the rule type is "Group".

Attribute	Type	Description
userResourceThresholdID	string	ID of the threshold profile to be assigned to the resource. This item is set only if the rule type is "UserResourceThreshold".
userResourceThresholdName	string	Name of the threshold profile to be assigned to the resource. This item is set only if the rule type is "UserResourceThreshold".
profileResourceType	enum	Resource type of threshold profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
PUT /Analytics/v1/objects/AutoAssignFilters/autoAssignFilter%23575a9bc3-7f10-455b-a43b-c6b3346dba54
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
```

```

"instanceID":"autoAssignFilter#a9807e96-4110-466e-9f3e-2fbff9368100",
"filterName":"GroupFilterNameForAutoAssignFilterPutTest",
"filterType":"Group",
"resourceType":"VM",
"description":"Description 7 Consumer - Host",
"groupID":"group#766db34f-e63c-4e10-b038-bf383748c058",
"anyGroupFlag":false,
"groupName":"GroupForAutoAssignFilterPutTest"
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:52:10 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "autoAssignFilter#a9807e96-4110-466e-9f3e-2fbff9368100",
  "filterName" : "GroupFilterNameForAutoAssignFilterPutTest",
  "filterType" : "Group",
  "resourceType" : "VM",
  "priority" : 1,
  "description" : "Description 7 Consumer - Host",
  "groupID" : "group#766db34f-e63c-4e10-b038-bf383748c058",
  "groupName" : "GroupForAutoAssignFilterPutTest",
  "profileResourceType" : "INVALID_MEMBER"
}

```

Deleting specific automatic resource assignment rule

You can delete a specific automatic resource assignment rule.

Execution permission

Admin, Modify

Request line

```
DELETE baseUrl/v1/objects/AutoAssignFilters/{id}
```

Request body

Not applicable.

Response body

Not applicable.

Status codes

Status code	Reason phrase	Description
204	No Content	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No delete privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
DELETE /Analytics/v1/objects/AutoAssignFilters/autoAssignFilter
%23d4655d61-1073-408f-9316-1c8e3b8fc684
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 204 No Content
Date: Thu, 11 Aug 2016 17:52:04 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json
```

Getting a list of operations for information about automatic resource assignment rules

You can obtain a list of operations that can be performed on a specific automatic resource assignment rule.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/AutoAssignFilters/{id}/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.

Status code	Reason phrase	Description
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/AutoAssignFilters/111111/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Fri, 12 Aug 2016 03:53:49 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8810cbc381adfl14797b70f0c5a4de1bd9d09ad1_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "getFilterCondition",
    "href" : "http://localhost:22015/Analytics/v1/objects/
AutoAssignFilters/111111/actions/getFilterCondition/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  }, {
    "name" : "updateFilterCondition",
    "href" : "http://localhost:22015/Analytics/v1/objects/
AutoAssignFilters/111111/actions/updateFilterCondition/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 2
}
```

Preparing to obtain a list of condition information for automatic resource assignment rules

The following operation is the initial step to obtain a list of conditions of a specific automatic resource assignment rule.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/AutoAssignFilters/{id}/actions/getFilterCondition
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetFilterConditionParam objects necessary to execute an operation. For details about GetFilterConditionParam, see the table below.

GetFilterConditionParam

```
{
    "filterType": "...",
    "resourceType": "..."
}
```

GetFilterConditionParam (Type: GetFilterConditionParam)

Attribute	Type	Description
filterType	enum	Type of assignment rule to be obtained (For details about the valid values, see the table FilterType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resource to which the assignment rule to be obtained is to be applied (For details about the valid values, see the table FilterResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> VM Volume Host

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/AutoAssignFilters/autoAssignFilter%2318a8ad07-
```

```

09c5-4d73-a7ad-aa797721a5db/actions/getFilterCondition
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:52:26 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getFilterCondition",
  "href" : "http://localhost:22015/Analytics/v1/objects/AutoAssignFilters/
autoAssignFilter%2318a8ad07%2d09c5%2d4d73%2da7ad%2daa797721a5db/actions/
getFilterCondition/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "filterType" : "Group",
    "resourceType" : "Host"
  } ]
}

```

Getting a list of condition information for automatic resource assignment rules

You can obtain a list of conditions of a specific automatic resource assignment rule.

Execution permission

Admin, Modify

Request line

```

POST baseURL/v1/objects/AutoAssignFilters/{id}/actions/getFilterCondition/
invoke

```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetFilterConditionParam objects necessary to execute an operation. For details about GetFilterConditionParam, see the table below.

GetFilterConditionParam

```
{
  "filterType": "...",
  "resourceType": "..."
}
```

GetFilterConditionParam (Type: GetFilterConditionParam)

Attribute	Type	Description
filterType	enum	Type of assignment rule to be obtained (For details about the valid values, see the table FilterType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resource to which the assignment rule to be obtained is to be applied

Attribute	Type	Description
		(For details about the valid values, see the table FilterResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ VM ▪ Volume ▪ Host

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.

Attribute	Type	Description
result	anyType[]	A list of FilterCondition objects. For details about FilterCondition, see the table below.

FilterCondition

```
{
  "displayOrder": "...",
  "attributeType": "...",
  "conditionType": "...",
  "osType": "...",
  "storageSystems": [{
    "storageSystemID": "...",
    "storageSystemName": "...",
    "poolID": "...",
    "poolName": "..."
  }],
  :
],
  "filterString": "...",
  "storageSystemModelName": "..."
}
```

FilterCondition (Type: FilterCondition)

Attribute	Type	Description
displayOrder	int	Priority of the assignment rule
attributeType	enum	Attribute of the assignment rule

Attribute	Type	Description
		<p>(For details about the valid values, see the table FilterAttributeType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ VMName ▪ ClusterName ▪ OSType ▪ HostName ▪ ConsumerName ▪ Label ▪ Pools ▪ StorageSystems ▪ Model ▪ HostGroup ▪ ConsumerNameOfRelatedResources ▪ LUNOwnerName
conditionType	enum	<p>Type of the condition for the assignment rule</p> <p>(For details about the valid values, see the table ConditionType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Equals ▪ Start_With ▪ End_With ▪ Contains ▪ NotEquals ▪ In ▪ NotIn
osType	enum	<p>OS type to be specified as an assignment rule value. This item is set only if the attribute of the assignment rule is "OSType".</p> <p>(For details about the valid values, see the table OsType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Linux ▪ Windows

Attribute	Type	Description
storageSystems	FilterConditionStorageSystem[]	Storage assignment rule. This item is set only if the attribute of the assignment rule is "StorageSystems" or "Pools".
filterString	string	Value of the assignment rule. This item is not set if the attribute of the assignment rule is "OSType", "StorageSystems", or "Pools".
storageSystemModelName	string	Name of the storage system. This item is set only if the attribute of the assignment rule is "Model".

storageSystems (Type: FilterConditionStorageSystem)

Attribute	Type	Description
storageSystemID	string	ID of the storage system
storageSystemName	string	Name of the storage system
poolID	string	ID of the pool
poolName	string	Name of the pool

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/AutoAssignFilters/autoAssignFilter%2318a8ad07-09c5-4d73-a7ad-aa797721a5db/actions/getFilterCondition/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Request Body]
{
  "name": "getFilterCondition",
  "href": "http://localhost:22015/Analytics/v1/objects/AutoAssignFilters/autoAssignFilter%2318a8ad07%2d09c5%2d4d73%2da7ad%2daa797721a5db/actions/getFilterCondition/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "filterType": "UserResourceThreshold",
    "resourceType": "VM"
  }]
}
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:52:27 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "instanceID" : "464a3cf6-790f-496f-93f9-8c72a06ab581",
  "created" : "2016-08-12T02:52:27.970+09:00",
  "updated" : "2016-08-12T02:52:27.970+09:00",
  "completed" : "2016-08-12T02:52:27.970+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ ]
}
```


Preparing to update a condition information for automatic resource assignment rules

The following operation is the initial step to modify a condition of a specific automatic resource assignment rule.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/AutoAssignFilters/{id}/actions/updateFilterCondition
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of UpdateFilterConditionParam objects necessary to execute an operation. For details about UpdateFilterConditionParam, see the table below.

UpdateFilterConditionParam

```

{
  "filterType": "...",
  "resourceType": "...",
  "filterConditions": [{
    "displayOrder": "...",
    "attributeType": "...",
    "conditionType": "...",
    "osType": "...",
    "storageSystems": [{
      "storageSystemID": "...",
      "storageSystemName": "...",
      "poolID": "...",
      "poolName": "..."
    }
  ],
  :
  ],
  "filterString": "...",
  "storageSystemModelName": "..."
},
:
]
}

```

UpdateFilterConditionParam (Type: UpdateFilterConditionParam)

Attribute	Type	Description
filterType	enum	Type of assignment rule (For details about the valid values, see the table FilterType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resource to which the assignment rule to be updated is to be applied (For details about the valid values, see the table FilterResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> VM Volume Host
filterConditions	FilterCondition[]	List of assignment rules to be set

filterConditions (Type: FilterCondition)

Attribute	Type	Description
displayOrder	int	Priority of the assignment rule
attributeType	enum	<p>Attribute of the assignment rule</p> <p>(For details about the valid values, see the table FilterAttributeType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ VMName ▪ ClusterName ▪ OSType ▪ HostName ▪ ConsumerName ▪ Label ▪ Pools ▪ StorageSystems ▪ Model ▪ HostGroup ▪ ConsumerNameOfRelatedResources ▪ LUNOwnerName
conditionType	enum	<p>Type of the condition for the assignment rule</p> <p>(For details about the valid values, see the table ConditionType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Equals ▪ Start_With ▪ End_With ▪ Contains ▪ NotEquals ▪ In ▪ NotIn
osType	enum	<p>OS type to be specified as an assignment rule value.</p> <p>This item is set only if the attribute of the assignment rule is "OSType".</p>

Attribute	Type	Description
		(For details about the valid values, see the table <code>OsType</code> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> Linux Windows
storageSystems	FilterConditionStorageSystem[]	Storage assignment rule. This item is set only if the attribute of the assignment rule is "StorageSystems" or "Pools".
filterString	string	Value of the assignment rule. This item is not set if the attribute of the assignment rule is "OSType", "StorageSystems", or "Pools".
storageSystemModelName	string	Name of the storage system. This item is set only if the attribute of the assignment rule is "Model".

storageSystems (Type: FilterConditionStorageSystem)

Attribute	Type	Description
storageSystemID	string	ID of the storage system
storageSystemName	string	Name of the storage system
poolID	string	ID of the pool
poolName	string	Name of the pool

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/AutoAssignFilters/autoAssignFilter%23ab2c3eba-
cc85-4a2a-b16e-2d73da986095/actions/updateFilterCondition
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:52:31 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "updateFilterCondition",
  "href" : "http://localhost:22015/Analytics/v1/objects/AutoAssignFilters/
autoAssignFilter%23ab2c3eba%2dcc85%2d4a2a%2db16e%2d2d73da986095/actions/
updateFilterCondition/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "filterType" : "Group",
    "resourceType" : "Host",
    "filterConditions" : [ ]
  } ]
}
```

Updating condition information for automatic resource assignment rules

You can modify a condition of a specific automatic resource assignment rule.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/objects/AutoAssignFilters/{id}/actions/
updateFilterCondition/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of UpdateFilterConditionParam objects necessary to execute an operation. For details about UpdateFilterConditionParam, see the table below.

UpdateFilterConditionParam

```
{
  "filterType": "...",
  "resourceType": "...",
  "filterConditions": [{
    "displayOrder": "...",
    "attributeType": "...",
    "conditionType": "...",
    "osType": "...",
    "storageSystems": [{
      "storageSystemID": "...",
      "storageSystemName": "...",
      "poolID": "...",
      "poolName": "..."
    }
  ]
}
```

```

    },
    :
  ],
  "filterString": "...",
},
:
]
}

```

UpdateFilterConditionParam (Type: UpdateFilterConditionParam)

Attribute	Type	Description
filterType	enum	Type of assignment rule (For details about the valid values, see the table FilterType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resource to which the assignment rule to be updated is to be applied (For details about the valid values, see the table FilterResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> VM Volume Host
filterConditions	FilterCondition[]	List of assignment rules to be set

filterConditions (Type: FilterCondition)

Attribute	Type	Description
displayOrder	int	Priority of the assignment rule
attributeType	enum	Attribute of the assignment rule

Attribute	Type	Description
		<p>(For details about the valid values, see the table FilterAttributeType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ VMName ▪ ClusterName ▪ OSType ▪ HostName ▪ ConsumerName ▪ Label ▪ Pools ▪ StorageSystems ▪ Model ▪ HostGroup ▪ ConsumerNameOfRelatedResources ▪ LUNOwnerName
conditionType	enum	<p>Type of the condition for the assignment rule</p> <p>(For details about the valid values, see the table ConditionType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Equals ▪ Start_With ▪ End_With ▪ Contains ▪ NotEquals ▪ In ▪ NotIn
osType	enum	<p>OS type to be specified as an assignment rule value. This item is set only if the attribute of the assignment rule is "OSType".</p> <p>(For details about the valid values, see the table OsType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Linux ▪ Windows

Attribute	Type	Description
storageSystems	FilterConditionStorageSystem[]	Storage assignment rule. This item is set only if the attribute of the assignment rule is "StorageSystems" or "Pools".
filterString	string	Value of the assignment rule. This item is not set if the attribute of the assignment rule is "OSType", "StorageSystems", or "Pools".

storageSystems (Type: FilterConditionStorageSystem)

Attribute	Type	Description
storageSystemID	string	ID of the storage system
storageSystemName	string	Name of the storage system
poolID	string	ID of the pool
poolName	string	Name of the pool

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).

Attribute	Type	Description
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/AutoAssignFilters/autoAssignFilter%23ab2c3eba-cc85-4a2a-b16e-2d73da986095/actions/updateFilterCondition/invoke
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
```

```

Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "updateFilterCondition",
  "href": "http://localhost:22015/Analytics/v1/objects/AutoAssignFilters/
autoAssignFilter%23ab2c3eba%2dcc85%2d4a2a%2db16e%2d2d73da986095/actions/
updateFilterCondition/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "filterType": "UserResourceThreshold",
    "resourceType": "VM",
    "filterConditions": [{
      "displayOrder": 1,
      "attributeType": "OSType",
      "conditionType": "Equals",
      "osType": "Windows"
    }]
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:52:31 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "784fba13-8ce5-44c3-9a0e-0396ba1293b2",
  "created" : "2016-08-12T02:52:32.728+09:00",
  "updated" : "2016-08-12T02:52:32.728+09:00",
  "completed" : "2016-08-12T02:52:32.728+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ ]
}

```

Getting a list of operations for automatic resource assignment rules

You can obtain a list of operations related to automatic resource assignment rules.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/AutoAssignFilters/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```

[Request Header]
GET /Analytics/v1/services/AutoAssignFilters/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:51:48 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "changeFilterPriority",
    "href" : "http://localhost:22015/Analytics/v1/services/
AutoAssignFilters/actions/changeFilterPriority/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  }, {
    "name" : "previewVolume",
    "href" : "http://localhost:22015/Analytics/v1/services/
AutoAssignFilters/actions/previewVolume/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  }, {
    "name" : "assignmentResource",
    "href" : "http://localhost:22015/Analytics/v1/services/
AutoAssignFilters/actions/assignmentResource/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  }, {
    "name" : "previewHost",
    "href" : "http://localhost:22015/Analytics/v1/services/
AutoAssignFilters/actions/previewHost/invoke",

```

```

    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  }, {
    "name" : "previewVirtualMachine",
    "href" : "http://localhost:22015/Analytics/v1/services/
AutoAssignFilters/actions/previewVirtualMachine/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 5
}

```

Preparing to change the priority of automatic resource assignment rules

The following operation is the initial step to change the priority of a specific automatic resource assignment rule.

Execution permission

Admin, Modify

Request line

GET baseUrl/v1/services/AutoAssignFilters/actions/changeFilterPriority

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```

{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of ChangePriorityFilterParam objects necessary to execute an operation. For details about ChangePriorityFilterParam, see the table below.

ChangePriorityFilterParam

```
{
  "filterType": "...",
  "resourceType": "...",
  "profileResourceType": ["...", ...],
  "filterIDList": ["...", ...]
}
```

ChangePriorityFilterParam (Type: ChangePriorityFilterParam)

Attribute	Type	Description
filterType	enum	Type of assignment rule (For details about the valid values, see the table FilterType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resource to which the assignment rule is to be applied (For details about the valid values, see the table FilterResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> VM Volume Host
profileResourceType	enum[]	Resource type of threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

Attribute	Type	Description
filterIDList	string[]	ID of the assignment rule

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/AutoAssignFilters/actions/changeFilterPriority
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:52:22 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "changeFilterPriority",
  "href" : "http://localhost:22015/Analytics/v1/services/AutoAssignFilters/
```

```
actions/changeFilterPriority/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "filterType" : "Group",
    "resourceType" : "Host",
    "filterIDList" : [ ]
  } ]
}
```

Changing the priority of automatic resource assignment rules

You can change the priority of a specific automatic resource assignment rule.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/AutoAssignFilters/actions/changeFilterPriority/
invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.

Attribute	Type	Description
type	string	Data format for the object.
parameters	anyType[]	A list of ChangePriorityFilterParam objects necessary to execute an operation. For details about ChangePriorityFilterParam, see the table below.

ChangePriorityFilterParam

```
{
  "filterType": "...",
  "resourceType": "...",
  "profileResourceType": ["...", ...],
  "filterIDList": ["...", ...]
}
```

ChangePriorityFilterParam (Type: ChangePriorityFilterParam)

Attribute	Type	Description
filterType	enum	Type of assignment rule (For details about the valid values, see the table FilterType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resource to which the assignment rule is to be applied (For details about the valid values, see the table FilterResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> VM Volume Host
profileResourceType	enum[]	Resource type of threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
filterIDList	string[]	ID of the assignment rule

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.

Status code	Reason phrase	Description
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/AutoAssignFilters/actions/changeFilterPriority/
invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "changeFilterPriority",
  "href": "http://localhost:22015/Analytics/v1/services/
AutoAssignFilters/actions/changeFilterPriority/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [
    {
      "filterType": "UserResourceThreshold",
      "resourceType": "VM",
      "profileResourceType": [
        "ESX_VM"
      ],
      "filterIDList": [
        "autoAssignFilter#4372943b-d86f-4346-8054-b85c0d3659c4"
      ]
    }
  ]
}

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 22 Aug 2016 03:57:59 GMT
```

```

Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
f0751c34edbce22432793e8c64f16c2ea125e88_Y2UOI2pkMXQ=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

```

[Response Body]

```

{
  "instanceID": "338977ac-5a39-45ad-8e25-d2c554c5006d",
  "created": "2016-08-22T12:57:59.444+09:00",
  "updated": "2016-08-22T12:57:59.444+09:00",
  "completed": "2016-08-22T12:57:59.444+09:00",
  "state": "success",
  "affectedResource": [

  ],
  "result": [

  ]
}

```

Preparing to assign resources

The following operation is the initial step to assign unassigned resources.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/AutoAssignFilters/actions/assignmentResource
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```

{
  "name": "...",

```

```

    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of AssignmentResourceParam objects necessary to execute an operation. For details about AssignmentResourceParam, see the table below.

AssignmentResourceParam

```

{
  "filterType": "...",
  "resourceType": "...",
  "profileResourceType": ["...", ...],
  "assignmentAllResource": "...",
  "resourceIDList": ["...", ...],
  "filterIDList": ["...", ...],
  "includeAwaitingAssignmentResources": "...",
  "disableDiscoveredTimeCheck": "..."
}

```

AssignmentResourceParam (Type: AssignmentResourceParam)

Attribute	Type	Description
filterType	enum	Type of assignment rule (For details about the valid values, see the table FilterType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resource to which the assignment rule is to be applied

Attribute	Type	Description
		(For details about the valid values, see the table <code>FilterResourceType</code> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ VM ▪ Volume ▪ Host
<code>profileResourceType</code>	<code>enum[]</code>	Resource type of threshold profile (For details about the valid values, see the table <code>PerformanceResourceType</code> in <i>List of enumerators</i> .)
<code>assignmentAllResource</code>	<code>boolean</code>	Whether or not to assign the consumer or threshold profile to all unassigned resources. If "true" is specified, the consumer or threshold profile is assigned to all unassigned resources. If "false" is specified, the consumer or threshold profile is assigned to the resources with the IDs specified in <code>resourceIDList</code> .
<code>resourceIDList</code>	<code>string[]</code>	ID of the assignment-target resource. This item is used only if <code>assignmentAllResource</code> is "false".
<code>filterIDList</code>	<code>string[]</code>	ID of the rule to be used for assignment. If an empty list is specified, all rules will be used.
<code>includeAwaitingAssignmentResources</code>	<code>boolean</code>	Value that specifies whether resources waiting to be assigned are to be included in the assignment target. If "True" is specified, the resources will be included in the assignment target. If "False" is specified, the resources will not be included in the assignment target.
<code>disableDiscoveredTimeCheck</code>	<code>boolean</code>	Value that specifies whether to check, during the assignment of unassigned resources, whether data collection has finished. If "True" is specified, resources will be assigned without performing this check. If "False" is specified, this check will be performed. When the check is performed, if a corresponding resource already exists, the assignment of unassigned resources fails.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.

Status code	Reason phrase	Description
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET
http://10.197.198.241:22015/Analytics/v1/services/AutoAssignFilters/
actions/assignmentResource
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:52:39 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "assignmentResource",
  "href" : "http://localhost:22015/Analytics/v1/services/AutoAssignFilters/
actions/assignmentResource/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "filterType" : "Group",
    "resourceType" : "Host",
    "assignmentAllResource" : false,
    "resourceIDList" : [ ]
  } ]
}
```

Assigning resources

You can assign unassigned resources.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/AutoAssignFilters/actions/assignmentResource/
invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of AssignmentResourceParam objects necessary to execute an operation. For details about AssignmentResourceParam, see the table below.

AssignmentResourceParam

```
{
  "filterType": "...",
  "resourceType": "...",
  "profileResourceType": ["...", ...],
}
```

```

"assignmentAllResource": "...",
"resourceIDList": ["...", ...],
"filterIDList": ["...", ...],
"includeAwaitingAssignmentResources": "...",
"disableDiscoveredTimeCheck": "..."
}

```

AssignmentResourceParam (Type: AssignmentResourceParam)

Attribute	Type	Description
filterType	enum	Type of assignment rule (For details about the valid values, see the table <i>FilterType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> UserResourceThreshold Group
resourceType	enum	Type of resource to which the assignment rule is to be applied (For details about the valid values, see the table <i>FilterResourceType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> VM Volume Host
profileResourceType	enum[]	Resource type of threshold profile (For details about the valid values, see the table <i>PerformanceResourceType</i> in <i>List of enumerators</i> .)
assignmentAllResource	boolean	Whether or not to assign the consumer or threshold profile to all unassigned resources. If "true" is specified, the consumer or threshold profile is assigned to all unassigned resources. If "false" is specified, the consumer or threshold profile is assigned to the resources with the IDs specified in resourceIDList.
resourceIDList	string[]	ID of the assignment-target resource. This item is used only if assignmentAllResource is "false".
filterIDList	string[]	ID of the rule to be used for assignment. If an empty list is specified, all rules will be used.
includeAwaitingAssignmentResources	boolean	Value that specifies whether resources waiting to be assigned are to be included in the assignment target. If "True" is specified, the resources will be included in the assignment target. If "False" is specified, the resources will not be included in the assignment target.

Attribute	Type	Description
disableDiscoveredTimeCheck	boolean	Value that specifies whether to check, during the assignment of unassigned resources, whether data collection has finished. If "True" is specified, resources will be assigned without performing this check. If "False" is specified, this check will be performed. When the check is performed, if a corresponding resource already exists, the assignment of unassigned resources fails.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.

Attribute	Type	Description
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	- The server is not available. - Error in the processing to check the resource discovery time.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/AutoAssignFilters/actions/assignmentResource/
invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "assignmentResource",
  "href": "http://localhost:22015/Analytics/v1/services/AutoAssignFilters/
actions/assignmentResource/invoke",
  "method": "POST",
  "type": "application/json",
```

```

"parameters":[{"filterType": "UserResourceThreshold",
"resourceType":"Windows",
"profileResourceType":["WINDOWS"],
"assignmentAllResource":false,
"filterIDList":[],
"resourceIDList":["vm#ITPDLab_172.17.17.115_vm-143"]}]]
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:52:40 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "bde82024-b5a9-45e7-b760-d5acec016215",
  "created" : "2016-08-12T02:52:40.421+09:00",
  "updated" : "2016-08-12T02:52:40.421+09:00",
  "completed" : "2016-08-12T02:52:40.421+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ ]
}

```

Preparing to obtain the results of automatic host distribution

The following operation is the initial step to obtain a preview of the results of assigning hosts according to automatic resource assignment rules.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/AutoAssignFilters/actions/previewHost
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of AssignPreviewParam objects necessary to execute an operation. For details about AssignPreviewParam, see the table below.

AssignPreviewParam

```
{
  "profileID": "...",
  "type": "...",
  "autoAssignFilterIDs": ["...", ...],
  "filterConditions": [{
    "displayOrder": "...",
    "attributeType": "...",
    "conditionType": "...",
    "osType": "...",
    "storageSystems": [{
      "storageSystemID": "...",
      "storageSystemName": "...",
      "poolID": "...",
      "poolName": "..."
    }],
  }],
  :
}
```

```

    ],
    "filterString":"...",
    "storageSystemModelName":"..."
  },
  :
],
"profileResourceType":["...", ...],
"hqlFilter":"...",
"hqlSort":"...",
"page":"...",
"pageSize":"...",
"includeAwaitingAssignmentResources":"..."
}

```

AssignPreviewParam (Type: AssignPreviewParam)

Attribute	Type	Description
profileID	string	ID of the profile
type	string	Filter type ("in" or "notIn")
autoAssignFilterIDs	string[]	ID of the assignment rule
filterConditions	FilterCondition[]	Condition for the assignment rule
profileResourceType	enum[]	Resource type of threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
hqlFilter	string	Filter information
hqlSort	string	Sort information
page	integer	Pages obtained
pageSize	integer	Size of the page
includeAwaitingAssignmentResources	boolean	Value that specifies whether resources waiting to be assigned are to be included in the assignment target. If "True" is specified, the resources will be included in the assignment target. If "False" is specified, the resources will not be included in the assignment target.

filterConditions (Type: FilterCondition)

Attribute	Type	Description
displayOrder	int	Priority of the assignment rule

Attribute	Type	Description
attributeType	enum	<p>Attribute of the assignment rule</p> <p>(For details about the valid values, see the table FilterAttributeType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ VMName ▪ ClusterName ▪ OSType ▪ HostName ▪ ConsumerName ▪ Label ▪ Pools ▪ StorageSystems ▪ Model ▪ HostGroup ▪ ConsumerNameOfRelatedResources ▪ LUNOwnerName
conditionType	enum	<p>Type of the condition for the assignment rule</p> <p>(For details about the valid values, see the table ConditionType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Equals ▪ Start_With ▪ End_With ▪ Contains ▪ NotEquals ▪ In ▪ NotIn
osType	enum	<p>OS type to be specified as an assignment rule value. This item is set only if the attribute of the assignment rule is "OSType".</p> <p>(For details about the valid values, see the table OsType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Linux ▪ Windows

Attribute	Type	Description
storageSystems	FilterConditionStorageSystem[]	Storage assignment rule. This item is set only if the attribute of the assignment rule is "StorageSystems" or "Pools".
filterString	string	Value of the assignment rule. This item is not set if the attribute of the assignment rule is "OSType", "StorageSystems", or "Pools".
storageSystemModelName	string	Name of the storage system. This item is set only if the attribute of the assignment rule is "Model".

storageSystems (Type: FilterConditionStorageSystem)

Attribute	Type	Description
storageSystemID	string	ID of the storage system
storageSystemName	string	Name of the storage system
poolID	string	ID of the pool
poolName	string	Name of the pool

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/AutoAssignFilters/actions/previewHost
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
```

```

Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Fri, 12 Aug 2016 03:54:48 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8810cbc381adfl14797b70f0c5a4de1bd9d09ad1_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "previewHost",
  "href" : "http://localhost:22015/Analytics/v1/services/AutoAssignFilters/
actions/previewHost/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "profileID" : [ ],
    "type" : "in",
    "autoAssignFilterIDs" : [ ],
    "filterConditions" : [ ],
    "hqlFilter" : "",
    "hqlSort" : "",
    "page" : 1,
    "pageSize" : 30
  } ]
}

```

Getting the results of automatic host distribution

You can obtain a preview of the results of assigning hosts according to automatic resource assignment rules.

Execution permission

Admin, Modify

Request line

POST baseURL/v1/services/AutoAssignFilters/actions/previewHost/invoke

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of AssignPreviewParam objects necessary to execute an operation. For details about AssignPreviewParam, see the table below.

AssignPreviewParam

```
{
  "profileID": "...",
  "type": "...",
  "autoAssignFilterIDs": ["...", ...],
  "filterConditions": [{
    "displayOrder": "...",
    "attributeType": "...",
    "conditionType": "...",
    "osType": "...",
    "storageSystems": [{
      "storageSystemID": "...",
      "storageSystemName": "...",
      "poolID": "...",
      "poolName": "..."
    }],
    :
  ],
  "filterString": "..."
},
```

```

:
],
"profileResourceType":["...", ...],
"hqlFilter":"...",
"hqlSort":"...",
"page":"...",
"pageSize":"...",
"includeAwaitingAssignmentResources":"..."
}

```

AssignPreviewParam (Type: AssignPreviewParam)

Attribute	Type	Description
profileID	string	ID of the profile
type	string	Filter type ("in" or "notIn")
autoAssignFilterIDs	string[]	ID of the assignment rule
filterConditions	FilterCondition[]	Condition for the assignment rule
profileResourceType	enum[]	Resource type of threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
hqlFilter	string	Filter information
hqlSort	string	Sort information
page	integer	Pages obtained
pageSize	integer	Size of the page
includeAwaitingAssignmentResources	boolean	Value that specifies whether resources waiting to be assigned are to be included in the assignment target. If "True" is specified, the resources will be included in the assignment target. If "False" is specified, the resources will not be included in the assignment target.

filterConditions (Type: FilterCondition)

Attribute	Type	Description
displayOrder	int	Priority of the assignment rule
attributeType	enum	Attribute of the assignment rule

Attribute	Type	Description
		<p>(For details about the valid values, see the table FilterAttributeType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ VMName ▪ ClusterName ▪ OSType ▪ HostName ▪ ConsumerName ▪ Label ▪ Pools ▪ StorageSystems ▪ Model ▪ HostGroup ▪ ConsumerNameOfRelatedResources ▪ LUNOwnerName
conditionType	enum	<p>Type of the condition for the assignment rule</p> <p>(For details about the valid values, see the table ConditionType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Equals ▪ Start_With ▪ End_With ▪ Contains ▪ NotEquals ▪ In ▪ NotIn
osType	enum	<p>OS type to be specified as an assignment rule value. This item is set only if the attribute of the assignment rule is "OSType".</p> <p>(For details about the valid values, see the table OsType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Linux ▪ Windows

Attribute	Type	Description
storageSystems	FilterConditionStorageSystem[]	Storage assignment rule. This item is set only if the attribute of the assignment rule is "StorageSystems" or "Pools".
filterString	string	Value of the assignment rule. This item is not set if the attribute of the assignment rule is "OSType", "StorageSystems", or "Pools".

storageSystems (Type: FilterConditionStorageSystem)

Attribute	Type	Description
storageSystemID	string	ID of the storage system
storageSystemName	string	Name of the storage system
poolID	string	ID of the pool
poolName	string	Name of the pool

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).

Attribute	Type	Description
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/AutoAssignFilters/actions/previewHost/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
```


Content-Type: application/json

[Request Body]

```
{
  "name": "previewHost",
  "href": "http://localhost:22015/Analytics/v1/services/AutoAssignFilters/
actions/previewHost/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "profileID": ["thProfile#ESX_VM"],
    "type": "in",
    "autoAssignFilterIDs": ["autoAssignFilter#aa4cac08-18e9-46be-9277-
8f7156551762"],
    "filterConditions": []}]
}
```

[Response Header]

```
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:52:51 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

[Response Body]

```
{
  "instanceID" : "5a1845c6-99c0-454c-998f-96d50f41433c",
  "created" : "2016-08-12T02:52:51.943+09:00",
  "updated" : "2016-08-12T02:52:51.943+09:00",
  "completed" : "2016-08-12T02:52:51.943+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "data" : [ ],
    "count" : 0
  } ]
}
```

Preparing to obtain the results of automatic virtual machine distribution

The following operation is the initial step to obtain a preview of the results of assigning virtual machines according to automatic resource assignment rules.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/AutoAssignFilters/actions/previewVirtualMachine
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of AssignPreviewParam objects necessary to execute an operation. For details about AssignPreviewParam, see the table below.

AssignPreviewParam

```

{
  "profileID": "...",
  "type": "...",
  "autoAssignFilterIDs": ["...", ...],
  "filterConditions": [{
    "displayOrder": "...",
    "attributeType": "...",
    "conditionType": "...",
    "osType": "...",
    "storageSystems": [{
      "storageSystemID": "...",
      "storageSystemName": "...",
      "poolID": "...",
      "poolName": "..."
    }],
    :
  ],
  "filterString": "...",
  "storageSystemModelName": "..."
},
:
],
"profileResourceType": ["...", ...],
"hqlFilter": "...",
"hqlSort": "...",
"page": "...",
"pageSize": "...",
"includeAwaitingAssignmentResources": "..."
}

```

AssignPreviewParam (Type: AssignPreviewParam)

Attribute	Type	Description
profileID	string	ID of the profile
type	string	Filter type ("in" or "notIn")
autoAssignFilterIDs	string[]	ID of the assignment rule
filterConditions	FilterCon dition[]	Condition for the assignment rule
profileResourceType	enum[]	Resource type of threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
hqlFilter	string	Filter information

Attribute	Type	Description
hqlSort	string	Sort information
page	integer	Pages obtained
pageSize	integer	Size of the page
includeAwaitingAssignmentResources	boolean	Value that specifies whether resources waiting to be assigned are to be included in the assignment target. If "True" is specified, the resources will be included in the assignment target. If "False" is specified, the resources will not be included in the assignment target.

filterConditions (Type: FilterCondition)

Attribute	Type	Description
displayOrder	int	Priority of the assignment rule
attributeType	enum	<p>Attribute of the assignment rule</p> <p>(For details about the valid values, see the table FilterAttributeType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ VMName ▪ ClusterName ▪ OSType ▪ HostName ▪ ConsumerName ▪ Label ▪ Pools ▪ StorageSystems ▪ Model ▪ HostGroup ▪ ConsumerNameOfRelatedResources ▪ LUNOwnerName
conditionType	enum	Type of the condition for the assignment rule

Attribute	Type	Description
		<p>(For details about the valid values, see the table ConditionType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Equals ▪ Start_With ▪ End_With ▪ Contains ▪ NotEquals ▪ In ▪ NotIn
osType	enum	<p>OS type to be specified as an assignment rule value. This item is set only if the attribute of the assignment rule is "OSType".</p> <p>(For details about the valid values, see the table OsType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Linux ▪ Windows
storageSystems	FilterConditionStorageSystem[]	Storage assignment rule. This item is set only if the attribute of the assignment rule is "StorageSystems" or "Pools".
filterString	string	Value of the assignment rule. This item is not set if the attribute of the assignment rule is "OSType", "StorageSystems", or "Pools".
storageSystemModelName	string	Name of the storage system. This item is set only if the attribute of the assignment rule is "Model".

storageSystems (Type: FilterConditionStorageSystem)

Attribute	Type	Description
storageSystemID	string	ID of the storage system
storageSystemName	string	Name of the storage system
poolID	string	ID of the pool
poolName	string	Name of the pool

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/AutoAssignFilters/actions/previewVirtualMachine
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:52:53 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "previewVirtualMachine",
  "href" : "http://localhost:22015/Analytics/v1/services/AutoAssignFilters/
actions/previewVirtualMachine/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "profileID" : [ ],
    "type" : "in",
    "autoAssignFilterIDs" : [ ],
```

```

    "filterConditions" : [ ],
    "hqlFilter" : "",
    "hqlSort" : "",
    "page" : 1,
    "pageSize" : 30
  } ]
}

```

Getting the results of automatic virtual machine distribution

You can obtain a preview of the results of assigning virtual machines according to automatic resource assignment rules.

Execution permission

Admin, Modify

Request line

```

POST baseURL/v1/services/AutoAssignFilters/actions/previewVirtualMachine/
invoke

```

Request body

The structure of the request body and the object attributes are as follows:

Action

```

{
    "name": "...",
    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.

Attribute	Type	Description
parameters	anyType[]	A list of AssignPreviewParam objects necessary to execute an operation. For details about AssignPreviewParam, see the table below.

AssignPreviewParam

```
{
  "profileID":"...",
  "type":"...",
  "autoAssignFilterIDs":["...", ...],
  "filterConditions":[{"
    "displayOrder":"...",
    "attributeType":"...",
    "conditionType":"...",
    "osType":"...",
    "storageSystems":[{"
      "storageSystemID":"...",
      "storageSystemName":"...",
      "poolID":"...",
      "poolName":"..."
    }],
    :
  ],
  "filterString":"..."
},
:
],
"profileResourceType":["...", ...],
"hqlFilter":"...",
"hqlSort":"...",
"page":"...",
"pageSize":"...",
"includeAwaitingAssignmentResources":"..."
}
```

AssignPreviewParam (Type: AssignPreviewParam)

Attribute	Type	Description
profileID	string	ID of the profile
type	string	Filter type ("in" or "notIn")
autoAssignFilterIDs	string[]	ID of the assignment rule

Attribute	Type	Description
filterConditions	FilterCondition[]	Condition for the assignment rule
profileResourceType	enum[]	Resource type of threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
hqlFilter	string	Filter information
hqlSort	string	Sort information
page	integer	Pages obtained
pageSize	integer	Size of the page
includeAwaitingAssignmentResources	boolean	Value that specifies whether resources waiting to be assigned are to be included in the assignment target. If "True" is specified, the resources will be included in the assignment target. If "False" is specified, the resources will not be included in the assignment target.

filterConditions (Type: FilterCondition)

Attribute	Type	Description
displayOrder	int	Priority of the assignment rule
attributeType	enum	Attribute of the assignment rule

Attribute	Type	Description
		<p>(For details about the valid values, see the table FilterAttributeType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ VMName ▪ ClusterName ▪ OSType ▪ HostName ▪ ConsumerName ▪ Label ▪ Pools ▪ StorageSystems ▪ Model ▪ HostGroup ▪ ConsumerNameOfRelatedResources ▪ LUNOwnerName
conditionType	enum	<p>Type of the condition for the assignment rule</p> <p>(For details about the valid values, see the table ConditionType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Equals ▪ Start_With ▪ End_With ▪ Contains ▪ NotEquals ▪ In ▪ NotIn
osType	enum	<p>OS type to be specified as an assignment rule value. This item is set only if the attribute of the assignment rule is "OSType".</p> <p>(For details about the valid values, see the table OsType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Linux ▪ Windows

Attribute	Type	Description
storageSystems	FilterConditionStorageSystem[]	Storage assignment rule. This item is set only if the attribute of the assignment rule is "StorageSystems" or "Pools".
filterString	string	Value of the assignment rule. This item is not set if the attribute of the assignment rule is "OSType", "StorageSystems", or "Pools".

storageSystems (Type: FilterConditionStorageSystem)

Attribute	Type	Description
storageSystemID	string	ID of the storage system
storageSystemName	string	Name of the storage system
poolID	string	ID of the pool
poolName	string	Name of the pool

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).

Attribute	Type	Description
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/AutoAssignFilters/actions/
previewVirtualMachine/invoke
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
```

```

Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "previewVirtualMachine",
  "href": "http://localhost:22015/Analytics/v1/services/AutoAssignFilters/
actions/previewVirtualMachine/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "profileID": ["thProfile#ESX_VM"],
    "type": "in",
    "autoAssignFilterIDs": ["autoAssignFilter#24fa3245-f476-4011-9184-
da2caelc39ab"],
    "filterConditions": []
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:52:58 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "e9db1581-ad72-4d72-b434-e48748f58494",
  "created" : "2016-08-12T02:52:59.159+09:00",
  "updated" : "2016-08-12T02:52:59.159+09:00",
  "completed" : "2016-08-12T02:52:59.159+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "data" : [ ],
    "count" : 0
  } ]
}

```

Preparing to obtain the results of automatic volume distribution

The following operation is the initial step to obtain a preview of the results of assigning volumes according to automatic resource assignment rules.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/AutoAssignFilters/actions/previewVolume
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of AssignPreviewParam objects necessary to execute an operation. For details about AssignPreviewParam, see the table below.

AssignPreviewParam

```

{
  "profileID": "...",
  "type": "...",
  "autoAssignFilterIDs": ["...", ...],
  "filterConditions": [{
    "displayOrder": "...",
    "attributeType": "...",
    "conditionType": "...",
    "osType": "...",
    "storageSystems": [{
      "storageSystemID": "...",
      "storageSystemName": "...",
      "poolID": "...",
      "poolName": "..."
    }],
    :
  ],
  "filterString": "...",
  "storageSystemModelName": "..."
},
:
],
"profileResourceType": ["...", ...],
"hqlFilter": "...",
"hqlSort": "...",
"page": "...",
"pageSize": "...",
"includeAwaitingAssignmentResources": "..."
}

```

AssignPreviewParam (Type: AssignPreviewParam)

Attribute	Type	Description
profileID	string	ID of the profile
type	string	Filter type ("in" or "notIn")
autoAssignFilterIDs	string[]	ID of the assignment rule
filterConditions	FilterCon dition[]	Condition for the assignment rule
profileResourceType	enum[]	Resource type of threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
hqlFilter	string	Filter information

Attribute	Type	Description
hqlSort	string	Sort information
page	integer	Pages obtained
pageSize	integer	Size of the page
includeAwaitingAssignmentResources	boolean	Value that specifies whether resources waiting to be assigned are to be included in the assignment target. If "True" is specified, the resources will be included in the assignment target. If "False" is specified, the resources will not be included in the assignment target.

filterConditions (Type: FilterCondition)

Attribute	Type	Description
displayOrder	int	Priority of the assignment rule
attributeType	enum	Attribute of the assignment rule (For details about the valid values, see the table FilterAttributeType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ VMName ▪ ClusterName ▪ OSType ▪ HostName ▪ ConsumerName ▪ Label ▪ Pools ▪ StorageSystems ▪ Model ▪ HostGroup ▪ ConsumerNameOfRelatedResources ▪ LUNOwnerName
conditionType	enum	Type of the condition for the assignment rule

Attribute	Type	Description
		<p>(For details about the valid values, see the table ConditionType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Equals ▪ Start_With ▪ End_With ▪ Contains ▪ NotEquals ▪ In ▪ NotIn
osType	enum	<p>OS type to be specified as an assignment rule value. This item is set only if the attribute of the assignment rule is "OSType".</p> <p>(For details about the valid values, see the table OsType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Linux ▪ Windows
storageSystems	FilterConditionStorageSystem[]	Storage assignment rule. This item is set only if the attribute of the assignment rule is "StorageSystems" or "Pools".
filterString	string	Value of the assignment rule. This item is not set if the attribute of the assignment rule is "OSType", "StorageSystems", or "Pools".
storageSystemModelName	string	Name of the storage system. This item is set only if the attribute of the assignment rule is "Model".

storageSystems (Type: FilterConditionStorageSystem)

Attribute	Type	Description
storageSystemID	string	ID of the storage system
storageSystemName	string	Name of the storage system
poolID	string	ID of the pool
poolName	string	Name of the pool

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/AutoAssignFilters/actions/previewVolume
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:53:00 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "previewVolume",
  "href" : "http://localhost:22015/Analytics/v1/services/AutoAssignFilters/
actions/previewVolume/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "profileID" : [ ],
    "type" : "in",
    "autoAssignFilterIDs" : [ ],
```

```

    "filterConditions" : [ ],
    "hqlFilter" : "",
    "hqlSort" : "",
    "page" : 1,
    "pageSize" : 30
  } ]
}

```

Getting the results of automatic volume distribution

You can obtain a preview of the results of assigning volumes according to automatic resource assignment rules.

Execution permission

Admin, Modify

Request line

POST `baseUrl/v1/services/AutoAssignFilters/actions/previewVolume/invoke`

Request body

The structure of the request body and the object attributes are as follows:

Action

```

{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.

Attribute	Type	Description
parameters	anyType[]	A list of AssignPreviewParam objects necessary to execute an operation. For details about AssignPreviewParam, see the table below.

AssignPreviewParam

```
{
  "profileID": "...",
  "type": "...",
  "autoAssignFilterIDs": ["...", ...],
  "filterConditions": [{
    "displayOrder": "...",
    "attributeType": "...",
    "conditionType": "...",
    "osType": "...",
    "storageSystems": [{
      "storageSystemID": "...",
      "storageSystemName": "...",
      "poolID": "...",
      "poolName": "..."
    }],
    :
  ],
  "filterString": "..."
},
:
],
"profileResourceType": ["...", ...],
"hqlFilter": "...",
"hqlSort": "...",
"page": "...",
"pageSize": "...",
"includeAwaitingAssignmentResources": "..."
}
```

AssignPreviewParam (Type: AssignPreviewParam)

Attribute	Type	Description
profileID	string	ID of the profile
type	string	Filter type ("in" or "notIn")
autoAssignFilterIDs	string[]	ID of the assignment rule

Attribute	Type	Description
filterConditions	FilterCondition[]	Condition for the assignment rule
profileResourceType	enum[]	Resource type of threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
hqlFilter	string	Filter information
hqlSort	string	Sort information
page	integer	Pages obtained
pageSize	integer	Size of the page
includeAwaitingAssignmentResources	boolean	Value that specifies whether resources waiting to be assigned are to be included in the assignment target. If "True" is specified, the resources will be included in the assignment target. If "False" is specified, the resources will not be included in the assignment target.

filterConditions (Type: FilterCondition)

Attribute	Type	Description
displayOrder	int	Priority of the assignment rule
attributeType	enum	Attribute of the assignment rule

Attribute	Type	Description
		<p>(For details about the valid values, see the table FilterAttributeType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ VMName ▪ ClusterName ▪ OSType ▪ HostName ▪ ConsumerName ▪ Label ▪ Pools ▪ StorageSystems ▪ Model ▪ HostGroup ▪ ConsumerNameOfRelatedResources ▪ LUNOwnerName
conditionType	enum	<p>Type of the condition for the assignment rule</p> <p>(For details about the valid values, see the table ConditionType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Equals ▪ Start_With ▪ End_With ▪ Contains ▪ NotEquals ▪ In ▪ NotIn
osType	enum	<p>OS type to be specified as an assignment rule value. This item is set only if the attribute of the assignment rule is "OSType".</p> <p>(For details about the valid values, see the table OsType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Linux ▪ Windows

Attribute	Type	Description
storageSystems	FilterConditionStorageSystem[]	Storage assignment rule. This item is set only if the attribute of the assignment rule is "StorageSystems" or "Pools".
filterString	string	Value of the assignment rule. This item is not set if the attribute of the assignment rule is "OSType", "StorageSystems", or "Pools".

storageSystems (Type: FilterConditionStorageSystem)

Attribute	Type	Description
storageSystemID	string	ID of the storage system
storageSystemName	string	Name of the storage system
poolID	string	ID of the pool
poolName	string	Name of the pool

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).

Attribute	Type	Description
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST
http://10.197.198.241:22015/Analytics/v1/services/AutoAssignFilters/
actions/previewVolume/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
```



```

Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "previewVolume",
  "href": "http://localhost:22015/Analytics/v1/services/AutoAssignFilters/
actions/previewVolume/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "profileID": ["thProfile#ESX_VM"],
    "type": "in",
    "autoAssignFilterIDs": ["autoAssignFilter#39384310-874b-4a1e-aalb-
8454d345b26f"],
    "filterConditions": []
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:53:03 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "e077d15a-3c02-491e-9bb9-bc0373a13eea",
  "created" : "2016-08-12T02:53:03.914+09:00",
  "updated" : "2016-08-12T02:53:03.914+09:00",
  "completed" : "2016-08-12T02:53:03.914+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "data" : [ ],
    "count" : 0
  } ]
}

```

Chapter 3: Performing operations related to the history of changes made to the configuration

You can obtain a history of changes made to the configuration and obtain trends regarding the number of changes over a period of time.

Getting a list of configuration change histories

You can obtain a list of histories of configuration changes.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/ChangeHistorys?  
$query={HQL}&page={page}&pageSize={size}
```

Query parameters

The following table describes the values for the supported parameters of a query string:

Parameter	Description
\$query={HQL}	(Required) Using HQL. Specify the following parameters. nodeID ((Optional) Multiple values can be specified.) componentID ((Optional) Multiple values can be specified.) instanceIDofEvent ((Optional) Multiple values can be specified.) NodeDisplayType ((Optional) Only one value can be specified.) ComponentType ((Optional) Only one value can be specified.) ObtainingTimeRange ((Optional) Only one value can be specified.)

Parameter	Description
	Filtering conditions: Specify using HQL standard.
page={page}	(Optional) Specify the paging information (page to be obtained). Filtering conditions: Checks whether the comparison target is equal to the value
pageSize={size}	(Optional) Specify the number of items that can be displayed on 1 page. Filtering conditions: Checks whether the comparison target is equal to the value

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of ChangeHistory objects. For details about ChangeHistory, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.

Attribute	Type	Description
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

ChangeHistory

```
{
  "instanceID": "...",
  "message": "...",
  "dateTime": "...",
  "nodeId": "...",
  "deviceName": "...",
  "deviceType": "...",
  "componentId": "...",
  "componentName": "...",
  "componentType": "...",
  "attributeType": "...",
  "previousValue": "...",
  "newValue": "...",
  "componentChangeType": "...",
  "nodeChangeType": "..."
}
```

ChangeHistory (Type: ChangeHistory)

Attribute	Type	Description
instanceID	string	ID of the configuration change history
message	string	Message of the configuration change history
dateTime	dateTime	Configuration change detection time

Attribute	Type	Description
nodeId	string	ID of the device for which the configuration change occurred
deviceName	string	Name of the device for which the configuration change occurred
deviceType	enum	Type of device for which the configuration change occurred (For details about the valid values, see the table NodeDisplayType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Server ▪ Storage ▪ NetworkDevice ▪ Datastore
componentId	string	ID of the component for which the configuration change occurred
componentName	string	Name of the component for which the configuration change occurred
componentType	enum	Type of component for which the configuration change occurred (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
attributeType	enum	Attribute type of component for which the configuration change occurred (For details about the valid values, see the table ComponentAttributeType in <i>List of enumerators</i> .)
previousValue	string	Value before the configuration is changed
newValue	string	Value after the configuration is changed
componentChangeType	enum	Modification type of component for which the configuration change occurred (For details about the valid values, see the table ChangeEventType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ ADD ▪ MODIFY ▪ REMOVE
nodeChangeType	enum	Modification type of device for which the configuration change occurred

Attribute	Type	Description
		(For details about the valid values, see the table ChangeEventType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ ADD ▪ MODIFY ▪ REMOVE

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	- The format of the request body is invalid. - A query parameter is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/ChangeHistorys/?HQL::filter=componentId+eq+'vm
%23ITPDLab_172.17.17.115_vm-149' HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Mon, 22 Aug 2016 07:03:23 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
359359188f9afdee4c32c10c6c8bf8567ada4_YXZvNFILd2IcDAIaWXcFMFR3FVc=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json
```

[Response Body]

```

{
  "data":
  [
    {
      "instanceID": "16$1201$vm#ITPDLab_172.17.17.115_vm-149$vm#ITPDLab_172.17.17.115_vm-149$null$1471252355000$MODIFY",
      "message": "The number of CPU cores was changed from 2 to 1.
Device name: 172.17.17.119
Name of VM: CT003hoshi",
      "dateTime": "2016-08-15T18:12:35.000+09:00",
      "nodeId": "h#ITPDLab_172.17.17.115_host-143",
      "deviceName": "172.17.17.119",
      "deviceType": "Server",
      "componentId": "vm#ITPDLab_172.17.17.115_vm-149",
      "componentName": "CT003hoshi",
      "componentType": "VIRTUAL_MACHINE",
      "attributeType": "NUM_OF_CPU_CORES",
      "previousValue": "2",
      "newValue": "1",
      "componentChangeType": "MODIFY",
      "nodeChangeType": "MODIFY"
    },
    {
      "instanceID": "16$1202$vm#ITPDLab_172.17.17.115_vm-149$vm#ITPDLab_172.17.17.115_vm-149$null$1471252355000$MODIFY",
      "message": "Memory size was changed from 2.0 GB to 4.0 GB.
Device name: 172.17.17.119
Name of VM: CT003hoshi",
      "dateTime": "2016-08-15T18:12:35.000+09:00",
      "nodeId": "h#ITPDLab_172.17.17.115_host-143",
      "deviceName": "172.17.17.119",
      "deviceType": "Server",
      "componentId": "vm#ITPDLab_172.17.17.115_vm-149",
      "componentName": "CT003hoshi",
      "componentType": "VIRTUAL_MACHINE",
      "attributeType": "TOTAL_MEMORY",
      "previousValue": "2.0 GB",
      "newValue": "4.0 GB",
      "componentChangeType": "MODIFY",
      "nodeChangeType": "MODIFY"
    }
  ],
  "count": 2
}

```

Getting specific history of configuration changes

You can obtain information about a specific history of configuration changes.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/ChangeHistorys/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

ChangeHistory

```
{
  "instanceID": "...",
  "message": "...",
  "dateTime": "...",
  "nodeId": "...",
  "deviceName": "...",
  "deviceType": "...",
  "componentId": "...",
  "componentName": "...",
  "componentType": "...",
  "attributeType": "...",
  "previousValue": "...",
  "newValue": "...",
  "componentChangeType": "...",
  "nodeChangeType": "..."
}
```

ChangeHistory (Type: ChangeHistory)

Attribute	Type	Description
instanceID	string	ID of the configuration change history
message	string	Message of the configuration change history
dateTime	dateTime	Configuration change detection time

Attribute	Type	Description
nodeId	string	ID of the device for which the configuration change occurred
deviceName	string	Name of the device for which the configuration change occurred
deviceType	enum	Type of device for which the configuration change occurred (For details about the valid values, see the table NodeDisplayType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Server ▪ Storage ▪ NetworkDevice ▪ Datastore
componentId	string	ID of the component for which the configuration change occurred
componentName	string	Name of the component for which the configuration change occurred
componentType	enum	Type of component for which the configuration change occurred (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
attributeType	enum	Attribute type of component for which the configuration change occurred (For details about the valid values, see the table ComponentAttributeType in <i>List of enumerators</i> .)
previousValue	string	Value before the configuration is changed
newValue	string	Value after the configuration is changed
componentChangeType	enum	Modification type of component for which the configuration change occurred (For details about the valid values, see the table ChangeEventType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ ADD ▪ MODIFY ▪ REMOVE
nodeChangeType	enum	Modification type of device for which the configuration change occurred

Attribute	Type	Description
		(For details about the valid values, see the table ChangeEventType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ ADD ▪ MODIFY ▪ REMOVE

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/ChangeHistorys/16$1201$vm
%23ITPDLab_172.17.17.115_vm-149$vm%23ITPDLab_172.17.17.115_vm-149$null
$1471252355000$MODIFY HTTP/1.1
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 22 Aug 2016 07:24:22 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
2e48b94f47d976ece069226313cacf394cf613f3_YXZvNFILd2IcDAIaWXCfMFR3FVc=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json
```

```
[Response Body]
{
  "instanceID" : "16$1201$vm#ITPDLab_172.17.17.115_vm-149$vm#ITPDLab_172.17.17.115_vm-149$null$1471252355000$MODIFY",
  "message" : "The number of CPU cores was changed from 2 to 1.\nDevice name: 172.17.17.119\nName of VM: CT003hoshi",
  "dateTime" : "2016-08-15T18:12:35.000+09:00",
  "nodeId" : "h#ITPDLab_172.17.17.115_host-143",
  "deviceName" : "172.17.17.119",
  "deviceType" : "Server",
  "componentId" : "vm#ITPDLab_172.17.17.115_vm-149",
  "componentName" : "CT003hoshi",
  "componentType" : "VIRTUAL_MACHINE",
  "attributeType" : "NUM_OF_CPU_CORES",
  "previousValue" : "2",
  "newValue" : "1",
  "componentChangeType" : "MODIFY",
  "nodeChangeType" : "MODIFY"
}
```

Getting a list of operations for specific history of configuration changes

You can obtain a list of operations related to configuration changes, such as the operation to obtain the number of configuration changes.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/ChangeHistorys/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
```

```

        "pageSize": "...",
        "numPages": "...",
        "totalCount": "...",
    },
    "count": "...",
}

```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```

{
    "name": "...",
    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.

Attribute	Type	Description
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/ChangeHistorys/actions HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 22 Aug 2016 07:29:11 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
9037e7cbddbbe472bd66ecc5496554253a4e0_YXZvNFILd2IcDAIaWXcFMFR3FVc=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json

[Response Body]
{
```

```

{
  "data" : [ {
    "name" : "getTrend",
    "href" : "http://localhost:22015/Analytics/v1/services/ChangeHistorys/
actions/getTrend/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  }, {
    "name" : "getCount",
    "href" : "http://localhost:22015/Analytics/v1/services/ChangeHistorys/
actions/getCount/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 2
}

```

Preparing to obtain the number of configuration changes

The following operation is the initial step to obtain the number of configuration changes.

Execution permission

Admin, Modify

Request line

GET baseURL/v1/services/ChangeHistorys/actions/getCount

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```

{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetChangeCountParam objects necessary to execute an operation. For details about GetChangeCountParam, see the table below.

GetChangeCountParam

```
{
  "nodeIDs": ["...", ...],
  "deviceTypes": ["...", ...],
  "countFrom": "...",
  "countTo": "...",
  "interval": "..."
}
```

GetChangeCountParam (Type: GetChangeCountParam)

Attribute	Type	Description
nodeIDs	long[]	ID of the device for which the configuration change occurred
deviceTypes	enum[]	Type of device for which the configuration change occurred (For details about the valid values, see the table NodeDisplayType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Server ▪ Storage ▪ NetworkDevice ▪ Datastore
countFrom	dateTime	Aggregation start time of the configuration change history
countTo	dateTime	Aggregation end time of the configuration change history

Attribute	Type	Description
interval	long	Aggregation interval of the configuration change history (ms).

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/ChangeHistorys/actions/getCount HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Tue, 23 Aug 2016 12:21:20 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
be34d9f31129bb09cf2b1a132b6d5c28e81be1_YXZvNFILd2IcDAIaWXcFMFR3FVc=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json

[Response Body]
{
  "name" : "getCount",
  "href" : "http://localhost:22015/Analytics/v1/services/ChangeHistorys/
actions/getCount/invoke",
  "method" : "POST",
  "type" : "application/json",
```



```

"parameters" : [ {
  "nodeIDs" : [ ],
  "deviceTypes" : [ "Server", "NetworkDevice", "Storage" ],
  "countFrom" : "2016-08-22T21:21:20.236+09:00",
  "countTo" : "2016-08-23T21:21:20.236+09:00",
  "interval" : 3600000
} ]
}

```

Getting the number of configuration changes

You can obtain the number of configuration changes.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/ChangeHistorys/actions/getCount/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```

{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.

Attribute	Type	Description
parameters	anyType[]	A list of GetChangeCountParam objects necessary to execute an operation. For details about GetChangeCountParam, see the table below.

GetChangeCountParam

```
{
  "nodeIDs":["...", ...],
  "deviceTypes":["...", ...],
  "countFrom":"...",
  "countTo":"...",
  "interval":"..."
}
```

GetChangeCountParam (Type: GetChangeCountParam)

Attribute	Type	Description
nodeIDs	long[]	ID of the device for which the configuration change occurred
deviceTypes	enum[]	Type of device for which the configuration change occurred (For details about the valid values, see the table NodeDisplayType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Server ▪ Storage ▪ NetworkDevice ▪ Datastore
countFrom	dateTime	Aggregation start time of the configuration change history
countTo	dateTime	Aggregation end time of the configuration change history
interval	long	Aggregation interval of the configuration change history (ms).

Response body

The structure of the response body and the object attributes is as follows:

ChangeCount

```
{
  "deviceType": "...",
  "periodFrom": "...",
  "count": "..."
}
```

ChangeCount (Type: ChangeCount)

Attribute	Type	Description
deviceType	enum	Type of device for which the configuration change occurred (For details about the valid values, see the table NodeDisplayType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Server ▪ Storage ▪ NetworkDevice ▪ Datastore
periodFrom	dateTime	Start time for the aggregation of the configuration change history
count	long	Number of configuration change histories

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```

[Request Header]
POST /Analytics/v1/services/ChangeHistorys/actions/getCount/invoke HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name" : "getCount",
  "href" : "http://localhost:22015/Analytics/v1/services/ChangeHistorys/
actions/getCount/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "nodeIDs" : [ ],
    "deviceTypes" : [ "Server" ],
    "countFrom" : "2016-08-22T21:21:20.236+09:00",
    "countTo" : "2016-08-23T21:21:20.236+09:00",
    "interval" : 3600000
  } ]
}

[Response Header]
HTTP/1.1 200 OK
Date: Tue, 23 Aug 2016 12:24:16 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
d5edd16e4304d187c184cff39dc443fae882c0_YXZvNFILd2IcDAIaWXcFMFR3FVc=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json

[Response Body]
{
  "instanceID" : "d0d9f541-62e6-450d-8a8e-abbbdf04586a",
  "created" : "2016-08-23T21:24:16.408+09:00",
  "updated" : "2016-08-23T21:24:16.408+09:00",
  "completed" : "2016-08-23T21:24:16.408+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "deviceType" : "Server",
    "periodFrom" : "2016-08-22T21:21:20.236+09:00",
    "count" : 0
  }, {

```

```

    "deviceType" : "Server",
    "periodFrom" : "2016-08-22T22:21:20.236+09:00",
    "count" : 0
  }, {
    "deviceType" : "Server",
    "periodFrom" : "2016-08-22T23:21:20.236+09:00",
    "count" : 0
  }, {
    "deviceType" : "Server",
    "periodFrom" : "2016-08-23T00:21:20.236+09:00",
    "count" : 0
  }, {
    "deviceType" : "Server",
    "periodFrom" : "2016-08-23T01:21:20.236+09:00",
    "count" : 0
  }, {
    "deviceType" : "Server",
    "periodFrom" : "2016-08-23T02:21:20.236+09:00",
    "count" : 0
  }, {
    "deviceType" : "Server",
    "periodFrom" : "2016-08-23T03:21:20.236+09:00",
    "count" : 0
  }, {
    "deviceType" : "Server",
    "periodFrom" : "2016-08-23T04:21:20.236+09:00",
    "count" : 0
  }, {
    "deviceType" : "Server",
    "periodFrom" : "2016-08-23T05:21:20.236+09:00",
    "count" : 0
  }, {
    "deviceType" : "Server",
    "periodFrom" : "2016-08-23T06:21:20.236+09:00",
    "count" : 0
  }, {
    "deviceType" : "Server",
    "periodFrom" : "2016-08-23T07:21:20.236+09:00",
    "count" : 7
  }, {
    "deviceType" : "Server",
    "periodFrom" : "2016-08-23T08:21:20.236+09:00",
    "count" : 11
  }, {
    "deviceType" : "Server",
    "periodFrom" : "2016-08-23T09:21:20.236+09:00",
    "count" : 0
  }, {
    "deviceType" : "Server",
    "periodFrom" : "2016-08-23T10:21:20.236+09:00",
    "count" : 0
  }

```

```

}, {
  "deviceType" : "Server",
  "periodFrom" : "2016-08-23T11:21:20.236+09:00",
  "count" : 0
}, {
  "deviceType" : "Server",
  "periodFrom" : "2016-08-23T12:21:20.236+09:00",
  "count" : 6
}, {
  "deviceType" : "Server",
  "periodFrom" : "2016-08-23T13:21:20.236+09:00",
  "count" : 0
}, {
  "deviceType" : "Server",
  "periodFrom" : "2016-08-23T14:21:20.236+09:00",
  "count" : 0
}, {
  "deviceType" : "Server",
  "periodFrom" : "2016-08-23T15:21:20.236+09:00",
  "count" : 1
}, {
  "deviceType" : "Server",
  "periodFrom" : "2016-08-23T16:21:20.236+09:00",
  "count" : 0
}, {
  "deviceType" : "Server",
  "periodFrom" : "2016-08-23T17:21:20.236+09:00",
  "count" : 0
}, {
  "deviceType" : "Server",
  "periodFrom" : "2016-08-23T18:21:20.236+09:00",
  "count" : 2
}, {
  "deviceType" : "Server",
  "periodFrom" : "2016-08-23T19:21:20.236+09:00",
  "count" : 5
}, {
  "deviceType" : "Server",
  "periodFrom" : "2016-08-23T20:21:20.236+09:00",
  "count" : 8
} ]
}

```

Preparing to obtain a trend in the number of configuration changes

The following operation is the initial step to obtain the trend in the number of configuration changes.

Execution permission

Admin, Modify

Request line**GET** baseUrl/v1/services/ChangeHistorys/actions/getTrend**Request body**

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
    "name": "...",
    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetChangeCountParam objects necessary to execute an operation. For details about GetChangeCountParam, see the table below.

GetChangeCountParam

```
{
    "nodeIDs": ["...", ...],
    "deviceTypes": ["...", ...],
    "countFrom": "...",
    "countTo": "...",
}
```

```

    "interval": "...
  }

```

GetChangeCountParam (Type: GetChangeCountParam)

Attribute	Type	Description
nodeIDs	long[]	ID of the device for which the configuration change occurred
deviceTypes	enum[]	Type of device for which the configuration change occurred (For details about the valid values, see the table <i>NodeDisplayType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Server ▪ Storage ▪ NetworkDevice ▪ Datastore
countFrom	dateTime	Aggregation start time of the configuration change history
countTo	dateTime	Aggregation end time of the configuration change history
interval	long	Aggregation interval of the configuration change history (ms).

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```

[Request Header]
GET /Analytics/v1/services/ChangeHistorys/actions/getTrend HTTP/1.1

```



```

Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 22 Aug 2016 07:33:09 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8f67a6685c3ef67d7b35a2b23a597504984a5_YXZvNFILd2IcDAIaWXcFMFR3FVc=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json

[Response Body]
{
  "name" : "getTrend",
  "href" : "http://localhost:22015/Analytics/v1/services/ChangeHistorys/
actions/getTrend/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "countFrom" : "2016-08-21T16:33:09.931+09:00",
    "countTo" : "2016-08-22T16:33:09.931+09:00",
    "interval" : 3600000
  } ]
}

```

Getting trend in the number of configuration changes

You can obtain the trend in the number of configuration changes.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/ChangeHistorys/actions/getTrend/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
    "name": "...",
    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetChangeCountParam objects necessary to execute an operation. For details about GetChangeCountParam, see the table below.

GetChangeCountParam

```
{
    "nodeIDs": ["...", ...],
    "deviceTypes": ["...", ...],
    "countFrom": "...",
    "countTo": "...",
    "interval": "..."
}
```

GetChangeCountParam (Type: GetChangeCountParam)

Attribute	Type	Description
nodeIDs	long[]	ID of the device for which the configuration change occurred
deviceTypes	enum[]	Type of device for which the configuration change occurred

Attribute	Type	Description
		(For details about the valid values, see the table NodeDisplayType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Server ▪ Storage ▪ NetworkDevice ▪ Datastore
countFrom	dateTime	Aggregation start time of the configuration change history
countTo	dateTime	Aggregation end time of the configuration change history
interval	long	Aggregation interval of the configuration change history (ms).

Response body

The structure of the response body and the object attributes is as follows:

ChangeCount

```
{
  "deviceType": "...",
  "periodFrom": "...",
  "count": "..."
}
```

ChangeCount (Type: ChangeCount)

Attribute	Type	Description
deviceType	enum	Type of device for which the configuration change occurred (For details about the valid values, see the table NodeDisplayType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Server ▪ Storage ▪ NetworkDevice ▪ Datastore
periodFrom	dateTime	Start time for the aggregation of the configuration change history

Attribute	Type	Description
count	long	Number of configuration change histories

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/services/ChangeHistorys/actions/getTrend/invoke HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name" : "getTrend",
  "href" : "http://localhost:22015/Analytics/v1/services/ChangeHistorys/
actions/getTrend/invoke",
  "method" : "POST",
  "type" : "application/json",

  "parameters":
  [
    {
      "countFrom": "2016-08-21T16:33:09.931+09:00",
      "countTo": "2016-08-22T16:33:09.931+09:00",
      "interval": 3600000
    }
  ]
}
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Mon, 22 Aug 2016 07:36:19 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
d7cc224d2febee6f4345b8c1913f46150f9a8_YXZvNFILd2IcDAIaWXcFMFR3FVc=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json
```

```
[Response Body]
{
  "instanceID" : "d7a87b6b-ddd8-49c9-b890-16a27ae95727",
  "created" : "2016-08-22T16:36:20.243+09:00",
  "updated" : "2016-08-22T16:36:20.243+09:00",
  "completed" : "2016-08-22T16:36:20.243+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "periodFrom" : "2016-08-21T16:33:09.931+09:00",
    "count" : 110
  }, {
    "periodFrom" : "2016-08-21T17:33:09.931+09:00",
    "count" : 13
  }, {
    "periodFrom" : "2016-08-21T18:33:09.931+09:00",
    "count" : 5
  }, {
    "periodFrom" : "2016-08-21T19:33:09.931+09:00",
    "count" : 0
  }, {
    "periodFrom" : "2016-08-21T20:33:09.931+09:00",
    "count" : 0
  }, {
    "periodFrom" : "2016-08-21T21:33:09.931+09:00",
    "count" : 0
  }, {
    "periodFrom" : "2016-08-21T22:33:09.931+09:00",
    "count" : 0
  }, {
    "periodFrom" : "2016-08-21T23:33:09.931+09:00",
    "count" : 0
  }, {
    "periodFrom" : "2016-08-22T00:33:09.931+09:00",
    "count" : 0
  }, {
    "periodFrom" : "2016-08-22T01:33:09.931+09:00",
    "count" : 0
  } ]
}
```

```

}, {
  "periodFrom" : "2016-08-22T02:33:09.931+09:00",
  "count" : 0
}, {
  "periodFrom" : "2016-08-22T03:33:09.931+09:00",
  "count" : 0
}, {
  "periodFrom" : "2016-08-22T04:33:09.931+09:00",
  "count" : 0
}, {
  "periodFrom" : "2016-08-22T05:33:09.931+09:00",
  "count" : 0
}, {
  "periodFrom" : "2016-08-22T06:33:09.931+09:00",
  "count" : 0
}, {
  "periodFrom" : "2016-08-22T07:33:09.931+09:00",
  "count" : 2
}, {
  "periodFrom" : "2016-08-22T08:33:09.931+09:00",
  "count" : 3
}, {
  "periodFrom" : "2016-08-22T09:33:09.931+09:00",
  "count" : 0
}, {
  "periodFrom" : "2016-08-22T10:33:09.931+09:00",
  "count" : 0
}, {
  "periodFrom" : "2016-08-22T11:33:09.931+09:00",
  "count" : 0
}, {
  "periodFrom" : "2016-08-22T12:33:09.931+09:00",
  "count" : 15
}, {
  "periodFrom" : "2016-08-22T13:33:09.931+09:00",
  "count" : 30
}, {
  "periodFrom" : "2016-08-22T14:33:09.931+09:00",
  "count" : 80
}, {
  "periodFrom" : "2016-08-22T15:33:09.931+09:00",
  "count" : 55
} ]
}

```

Chapter 4: Performing operations related to executing actions

You can obtain a listing of valid execute action operations, details about the types of emails that can be sent, and information about which commands can be executed. You can also execute commands that have been defined in a template file.

Getting a list of operations for execute action functions

You can obtain a list of operations that the execute action function can perform.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/CustomAction/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/CustomAction/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:20 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data": [
    {
      "name": "getActionTemplateList",
      "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getActionTemplateList/invoke",
      "method": "POST",
      "type": "application/json",
      "parameters": []
    },
    {
```

```

    "name": "getMailActionTemplateDetail",
    "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getMailActionTemplateDetail/invoke",
    "method": "POST",
    "type": "application/json",
    "parameters": []
  },
  {
    "name": "getCommandActionTemplateDetail",
    "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getCommandActionTemplateDetail/invoke",
    "method": "POST",
    "type": "application/json",
    "parameters": []
  },
  {
    "name": "invokeCommandAction",
    "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/invokeCommandAction/invoke",
    "method": "POST",
    "type": "application/json",
    "parameters": []
  },
  {
    "name": "invokeReload",
    "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/invokeReload/invoke",
    "method": "POST",
    "type": "application/json",
    "parameters": []
  },
  {
    "name": "getResourcesCommandActionTemplateDetail",
    "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getResourcesCommandActionTemplateDetail/invoke",
    "method": "POST",
    "type": "application/json",
    "parameters": []
  },
  {
    "name": "getResourcesAutomationDirectorServiceActionTemplateDetail",
    "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getResourcesAutomationDirectorServiceActionTemplateDetail/invoke",
    "method": "POST",
    "type": "application/json",
    "parameters": []
  },
  {
    "name": "invokeResourcesCommandAction",
    "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/invokeResourcesCommandAction/invoke",

```

```
    "method": "POST",
    "type": "application/json",
    "parameters": []
  },
  {
    "name": "getResourcesActionTemplateList",
    "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getResourcesActionTemplateList/invoke",
    "method": "POST",
    "type": "application/json",
    "parameters": []
  }
],
"count": 9
}
```

Preparing to obtain a list of actions that can be executed by the execute action function

The following operation is the initial step to obtain a list of actions that the execute action function can perform.

Execution permission

Admin, Modify

Request line

GET baseUrl/v1/services/CustomAction/actions/getActionTemplateList

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetActionTemplateListParam objects necessary to execute an operation. For details about GetActionTemplateListParam, see the table below.

GetActionTemplateListParam

```
{
    "componentID": "...",
    "nodeID": "...",
    "targetTypes": ["...", ...]
}
```

GetActionTemplateListParam (Type: GetActionTemplateListParam)

Attribute	Type	Description
componentID	string	ID of the component specified as the action execution target. The ID of the device that the component belongs to must also be specified. To execute an action for a device, omit this parameter.
nodeID	string	ID of the device specified as the action execution target
targetTypes	enum[]	Type of actions to be acquired. (For details about the valid values, see the table TemplateType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.

Status code	Reason phrase	Description
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/CustomAction/actions/getActionTemplateList
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:21 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getActionTemplateList",
  "href" : "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getActionTemplateList/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "componentID" : "0",
    "nodeID" : "0"
  } ]
}
```

Getting a list of actions that can be executed by the execute action function

You can obtain a list of actions that the execute action function can perform.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/services/CustomAction/actions/getActionTemplateList/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetActionTemplateListParam objects necessary to execute an operation. For details about GetActionTemplateListParam, see the table below.

GetActionTemplateListParam

```
{
  "componentID": "...",
  "nodeID": "...",
}
```

```

    "targetTypes":["...", ...]
  }

```

GetActionTemplateListParam (Type: GetActionTemplateListParam)

Attribute	Type	Description
componentID	string	ID of the component specified as the action execution target. The ID of the device that the component belongs to must also be specified. To execute an action for a device, omit this parameter.
nodeID	string	ID of the device specified as the action execution target
targetTypes	enum[]	Type of actions to be acquired. (For details about the valid values, see the table TemplateType in <i>List of enumerators</i> .)

Response body

The structure of the response body and the object attributes is as follows:

Job

```

{
  "instanceID":"...",
  "created":"...",
  "updated":"...",
  "completed":"...",
  "state":"...",
  "affectedResource":["...", ...],
  "result":["...", ...]
}

```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).

Attribute	Type	Description
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of ActionTemplate objects. For details about ActionTemplate, see the table below.

ActionTemplate

```
{
  "instanceID": "...",
  "name": "...",
  "description": "...",
  "templateFileName": "...",
  "templateType": "...",
  "multipleResources": "...",
  "automationDirectorServiceGroupName": "...",
  "automationDirectorServiceName": "..."
}
```

ActionTemplate (Type: ActionTemplate)

Attribute	Type	Description
instanceID	string	ID of the action
name	string	Name of the action
description	string	Description of the action
templateFileName	string	Name of the template file in which the action is registered
templateType	enum	Template type of action (For details about the valid values, see the table TemplateType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ COMMAND ▪ MAIL

Attribute	Type	Description
multipleResources	boolean	Whether the template supports the use of multiple resource IDs
automationDirectorServiceGroupName	string	The name of an Ops Center Automator service group
automationDirectorServiceName	string	The name of an Ops Center Automator service

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/CustomAction/actions/getActionTemplateList/
invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getActionTemplateList",
  "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getActionTemplateList/invoke",
```

```

"method": "POST",
"type": "application/json",
"parameters": [{
  "nodeID": "h#ITPDLab_172.17.17.115_host-258"
}]
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:21 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "4bc7ea0e-284a-4fab-a4fe-ba8a8ace40fe",
  "created" : "2016-08-12T02:56:21.855+09:00",
  "updated" : "2016-08-12T02:56:22.711+09:00",
  "completed" : "2016-08-12T02:56:22.711+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "instanceID" : 0,
    "name" : "MailActionTemplate",
    "description" : "mail template description",
    "templateFileName" : "/opt/hitachi/Analytics/conf/template/mail/
MailTemplate.txt",
    "templateType" : "MAIL"
  }, {
    "instanceID" : 1,
    "name" : "CommandActionTemplate",
    "description" : "command template description",
    "templateFileName" : "/opt/hitachi/Analytics/conf/template/command/
CmdTemplate.txt",
    "templateType" : "COMMAND"
  } ]
}

```

Preparing to obtain a detailed information about emails that can be sent by the execute action function

The following operation is the initial step to obtain details about emails that the execute action function can send.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/CustomAction/actions/getMailActionTemplateDetail
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetMailActionTemplateDetailParam objects necessary to execute an operation. For details about GetMailActionTemplateDetailParam, see the table below.

GetMailActionTemplateDetailParam

```
{
  "componentID": "...",
  "nodeID": "...",
  "templateFileName": "..."
}
```

GetMailActionTemplateDetailParam (Type: GetMailActionTemplateDetailParam)

Attribute	Type	Description
componentID	string	ID of the component specified as the action execution target. The ID of the device that the component belongs to must also be specified. To execute an action for a device, omit this parameter.
nodeID	string	ID of the device specified as the action execution target
templateFileName	string	Name of the template file in which the action is registered

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/CustomAction/actions/getMailActionTemplateDetail
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
```

```
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:24 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "name" : "getMailActionTemplateDetail",
  "href" : "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getMailActionTemplateDetail/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "componentID" : "0",
    "nodeID" : "0",
    "templateFileName" : ""
  } ]
}
```

Getting detailed information about emails that can be sent by the execute action function

You can obtain details about emails that the execute action function can send.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/CustomAction/actions/getMailActionTemplateDetail/
invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetMailActionTemplateDetailParam objects necessary to execute an operation. For details about GetMailActionTemplateDetailParam, see the table below.

GetMailActionTemplateDetailParam

```
{
  "componentID": "...",
  "nodeID": "...",
  "templateFileName": "..."
}
```

GetMailActionTemplateDetailParam (Type: GetMailActionTemplateDetailParam)

Attribute	Type	Description
componentID	string	ID of the component specified as the action execution target. The ID of the device that the component belongs to must also be specified. To execute an action for a device, omit this parameter.
nodeID	string	ID of the device specified as the action execution target
templateFileName	string	Name of the template file in which the action is registered

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of MailActionTemplateDetail objects. For details about MailActionTemplateDetail, see the table below.

MailActionTemplateDetail

```
{
  "destAddress": "...",
  "subject": "...",
  "textBody": "..."
}
```

MailActionTemplateDetail (Type: MailActionTemplateDetail)

Attribute	Type	Description
destAddress	string	Email destination address
subject	string	Email subject
textBody	string	Email body

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/CustomAction/actions/
getMailActionTemplateDetail/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getMailActionTemplateDetail",
  "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getMailActionTemplateDetail/invoke",
  "method": "POST",
  "type": "application/json",
```



```
"parameters":[{
  "nodeID":"h#ITPDLab_172.17.17.115_host-258",
  "templateFileName":"/opt/hitachi/Analytics/conf/template/mail/
MailTemplate.txt"
}]
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:25 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "17d6136c-ffae-48fb-bf70-57f481954a0f",
  "created" : "2016-08-12T02:56:25.200+09:00",
  "updated" : "2016-08-12T02:56:25.379+09:00",
  "completed" : "2016-08-12T02:56:25.379+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "destAddress" : "admin@example.com",
    "subject" : "mail subject",
    "textBody" : "mail text"
  } ]
}
```

Preparing to obtain a detailed information about commands that can be sent by the execute action function

The following operation is the initial step to obtain details about commands that the execute action function can run.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/CustomAction/actions/getCommandActionTemplateDetail
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetCommandActionTemplateDetailParam objects necessary to execute an operation. For details about GetCommandActionTemplateDetailParam, see the table below.

GetCommandActionTemplateDetailParam

```
{
  "componentID": "...",
  "nodeID": "...",
  "templateFileName": "..."
}
```

GetCommandActionTemplateDetailParam (Type: GetCommandActionTemplateDetailParam)

Attribute	Type	Description
componentID	string	ID of the component specified as the action execution target. The ID of the device that the component belongs to must also be specified. To execute an action for a device, omit this parameter.
nodeID	string	ID of the device specified as the action execution target
templateFileName	string	Name of the template file in which the action is registered

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/services/CustomAction/actions/
getCommandActionTemplateDetail
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:29 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
```

```
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getCommandActionTemplateDetail",
  "href" : "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getCommandActionTemplateDetail/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "componentID" : "0",
    "nodeID" : "0",
    "templateFileName" : ""
  } ]
}
```

Getting detailed information about commands that can be executed by the execute action function

You can obtain details about commands that the execute action function can run.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/CustomAction/actions/
getCommandActionTemplateDetail/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetCommandActionTemplateDetailParam objects necessary to execute an operation. For details about GetCommandActionTemplateDetailParam, see the table below.

GetCommandActionTemplateDetailParam

```
{
    "componentID": "...",
    "nodeID": "...",
    "templateFileName": "..."
}
```

GetCommandActionTemplateDetailParam (Type: GetCommandActionTemplateDetailParam)

Attribute	Type	Description
componentID	string	ID of the component specified as the action execution target. The ID of the device that the component belongs to must also be specified. To execute an action for a device, omit this parameter.
nodeID	string	ID of the device specified as the action execution target
templateFileName	string	Name of the template file in which the action is registered

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
    "instanceID": "...",
    "created": "...",
    "updated": "...",
```

```

    "completed": "...",
    "state": "...",
    "affectedResource": ["...", ...],
    "result": ["...", ...]
  }

```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of CommandActionTemplateDetail objects. For details about CommandActionTemplateDetail, see the table below.

CommandActionTemplateDetail

```

{
  "actionName": "...",
  "description": "...",
  "commandName": "...",
  "commandParameter": "...",
  "usage": "..."
}

```

CommandActionTemplateDetail (Type: CommandActionTemplateDetail)

Attribute	Type	Description
actionName	string	Name of the action execution command.
description	string	Description of the action execution command.
commandName	string	Command to be executed
commandParameter	string	Arguments of the command to be executed
usage	string	Description of how to use the command

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/CustomAction/actions/
getCommandActionTemplateDetail/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getCommandActionTemplateDetail",
  "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getCommandActionTemplateDetail/invoke",
```

```
"method": "POST",
"type": "application/json",
"parameters": [{
  "nodeID": "h#ITPDLab_172.17.17.115_host-258",
  "templateFileName": "/opt/hitachi/Analytics/conf/template/command/
CmdTemplate.txt"
}]
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:29 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "a8e900fa-087e-4a24-a023-1d8f0a5aeebb",
  "created" : "2016-08-12T02:56:29.468+09:00",
  "updated" : "2016-08-12T02:56:29.636+09:00",
  "completed" : "2016-08-12T02:56:29.636+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "actionName" : "CommandActionTemplate",
    "description" : "command template description",
    "commandName" : "/opt/hitachi/Analytics/bin/command/TaskA.sh",
    "commandParameter" : "-param CommandParam"
  } ]
}
```

Preparing to execute commands that can be executed by the execute action function

The following operation is the initial step to invoke commands that the execute action function can run.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/CustomAction/actions/invokeCommandAction
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of InvokeCommandActionParam objects necessary to execute an operation. For details about InvokeCommandActionParam, see the table below.

InvokeCommandActionParam

```
{
  "componentID": "...",
  "nodeID": "...",
  "templateFileName": "...",
  "commandParameter": "..."
}
```

InvokeCommandActionParam (Type: InvokeCommandActionParam)

Attribute	Type	Description
componentID	string	ID of the component specified as the action execution target. The ID of the device that the component belongs to must also be specified. To execute an action for a device, omit this parameter.
nodeID	string	ID of the device specified as the action execution target
templateFileName	string	Name of the template file in which the action is registered
commandParameter	string	Parameter for the command to be executed. Set a string encoded in Base64.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/services/CustomAction/actions/invokeCommandAction
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:33 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
```

```
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "invokeCommandAction",
  "href" : "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/invokeCommandAction/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "componentID" : "0",
    "nodeID" : "0",
    "templateFileName" : "",
    "commandParameter" : ""
  } ]
}
```

Executing commands that can be executed by the execute action function

You can invoke commands that the execute action function can run.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/services/CustomAction/actions/invokeCommandAction/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
```

```

    "parameters":["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of InvokeCommandActionParam objects necessary to execute an operation. For details about InvokeCommandActionParam, see the table below.

InvokeCommandActionParam

```

{
  "componentID":"...",
  "nodeID":"...",
  "templateFileName":"...",
  "commandParameter":"..."
}

```

InvokeCommandActionParam (Type: InvokeCommandActionParam)

Attribute	Type	Description
componentID	string	ID of the component specified as the action execution target. The ID of the device that the component belongs to must also be specified. To execute an action for a device, omit this parameter.
nodeID	string	ID of the device specified as the action execution target
templateFileName	string	Name of the template file in which the action is registered
commandParameter	string	Parameter for the command to be executed. Set a string encoded in Base64.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.

Status code	Reason phrase	Description
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/CustomAction/actions/invokeCommandAction/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Request Body]
{
  "name": "invokeCommandAction",
  "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/invokeCommandAction/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "nodeID": "h#ITPDLab_172.17.17.115_host-258",
    "templateFileName": "/opt/hitachi/Analytics/conf/template/command/
CmdTemplate.txt",
    "commandParameter": ""
  }]
}
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:33 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
```

```
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "b3fe1e36-1737-426c-bdd2-c5706472e2bc",
  "created" : "2016-08-12T02:56:33.366+09:00",
  "updated" : "2016-08-12T02:56:33.409+09:00",
  "completed" : "2016-08-12T02:56:33.409+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ ]
}
```

Preparing to reload a list of actions that can be executed by the execute action function

The following operation is the initial step to reload a list of actions that the execute action function can perform.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/CustomAction/actions/invokeReload
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/CustomAction/actions/invokeReload
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:35 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```



```
[Response Body]
{
  "name" : "invokeReload",
  "href" : "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/invokeReload/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ ]
}
```

Reloading a list of actions that can be executed by the execute action function

You can reload a list of actions that the execute action function can perform.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/CustomAction/actions/invokeReload/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name":"...",
  "href":"...",
  "method":"...",
  "type":"...",
  "parameters":["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.

Attribute	Type	Description
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.

Attribute	Type	Description
result	anyType[]	A list of CommandActionReloadResult objects. For details about CommandActionReloadResult, see the table below.

CommandActionReloadResult

```
{
  "instanceID": "...",
  "readFileCount": "...",
  "readFileSuccessCount": "..."
}
```

CommandActionReloadResult (Type: CommandActionReloadResult)

Attribute	Type	Description
instanceID	string	ID of the reload result
readFileCount	long	Number of template files to be loaded
readFileSuccessCount	long	Number of template files that were successfully loaded

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST
http://10.197.198.241:22015/Analytics/v1/services/CustomAction/actions/
```

```
invokeReload/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "invokeReload",
  "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/invokeReload/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": []
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:35 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "5a160d64-43fd-4390-b7ed-abdff6bf642a",
  "created" : "2016-08-12T02:56:35.914+09:00",
  "updated" : "2016-08-12T02:56:35.928+09:00",
  "completed" : "2016-08-12T02:56:35.928+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "readFileCount" : 2,
    "readFileSuccessCount" : 2
  } ]
}
```

Preparing to get a list of the actions that can be executed by using the execute action function of the target resources

The following operation is the initial step to obtain a list of actions that the execute action function can perform on multiple resources.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/CustomAction/actions/getResourcesActionTemplateList
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetResourcesActionTemplateListParam objects necessary to execute an operation. For details about GetResourcesActionTemplateListParam, see the table below.

GetResourcesActionTemplateListParam

```
{
    "resourceIDs":["...", ...]
}
```

GetResourcesActionTemplateListParam (Type: GetResourcesActionTemplateListParam)

Attribute	Type	Description
resourceIDs	string[]	List of the IDs of the components and devices for which the action is to be executed

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/CustomAction/actions/
getResourcesActionTemplateList
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:21 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
```

```
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name": "getResourcesActionTemplateList",
  "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getResourcesActionTemplateList/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [
    {
      "instanceID": 0,
      "resourceIDs": [
        "ResourceID 0",
        "ResourceID 1"
      ]
    }
  ]
}
```

Getting a list of the actions that can be executed by using the execute action function of the target resources

You can obtain a list of actions that the execute action function can perform on multiple resources.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/services/CustomAction/actions/
getResourcesActionTemplateList/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
```

```
"method": "...",
"type": "...",
"parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetResourcesActionTemplateListParam objects necessary to execute an operation. For details about GetResourcesActionTemplateListParam, see the table below.

GetResourcesActionTemplateListParam

```
{
  "resourceIDs": ["...", ...]
}
```

GetResourcesActionTemplateListParam (Type: GetResourcesActionTemplateListParam)

Attribute	Type	Description
resourceIDs	string[]	List of the IDs of the components and devices for which the action is to be executed

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
}
```



```
    "result":["...", ...]  
  }
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of ActionTemplate objects. For details about ActionTemplate, see the table below.

ActionTemplate

```
{  
  "instanceID":"...",  
  "name":"...",  
  "description":"...",  
  "templateFileName":"...",  
  "templateType":"...",  
  "multipleResources":"...",  
  "automationDirectorServiceGroupName":"...",  
  "automationDirectorServiceName":"..."  
}
```

ActionTemplate (Type: ActionTemplate)

Attribute	Type	Description
instanceID	string	ID of the action

Attribute	Type	Description
name	string	Name of the action
description	string	Description of the action
templateFileName	string	Name of the template file in which the action is registered
templateType	enum	Template type of action (For details about the valid values, see the table <i>TemplateType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none">▪ COMMAND▪ MAIL
multipleResources	boolean	Whether the template supports the use of multiple resource IDs
automationDirectorServiceGroupName	string	The name of an Ops Center Automator service group
automationDirectorServiceName	string	The name of an Ops Center Automator service

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/CustomAction/actions/
getResourcesActionTemplateList/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name" : "getResourcesActionTemplateList",
  "href" : "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getResourcesActionTemplateList/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters": [
    {
      "resourceIDs": [
        "raidLdev#12345-00^01^11",
        "raidLdev#12345-00^2F^AC"
      ]
    }
  ]
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:21 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "4bc7ea0e-284a-4fab-a4fe-ba8a8ace40fe",
  "created" : "2016-08-12T02:56:21.855+09:00",
  "updated" : "2016-08-12T02:56:22.711+09:00",
  "completed" : "2016-08-12T02:56:22.711+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
```

```
{
  "instanceID" : 0,
  "name" : "MailActionTemplate",
  "description" : "mail template description",
  "templateFileName" : "/opt/hitachi/Analytics/conf/template/mail/
MailTemplate.txt",
  "templateType" : "MAIL",
  "multipleResources": false
}, {
  "instanceID" : 1,
  "name" : "CommandActionTemplate",
  "description" : "command template description",
  "templateFileName" : "/opt/hitachi/Analytics/conf/template/command/
CmdTemplate.txt",
  "templateType" : "COMMAND",
  "multipleResources": false
} ]
}
```

Preparing to get detailed information about the commands that can be executed by using the execute action function of the target resource

The following operation is the initial step to obtaining details about commands that the execute action function can run on multiple resources.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/CustomAction/actions/
getResourcesCommandActionTemplateDetail
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
}
```

Preparing to get detailed information about the commands that can be executed by using the *execute* action function of the target resource

```
"type": "...",  
"parameters": ["...", ...]  
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of <code>GetResourcesCommandActionTemplateDetailParam</code> objects necessary to execute an operation. For details about <code>GetResourcesCommandActionTemplateDetailParam</code> , see the table below.

GetResourcesCommandActionTemplateDetailParam

```
{  
    "resourceIDs": ["...", ...],  
    "templateFileName": "..."  
}
```

GetResourcesCommandActionTemplateDetailParam (Type: GetResourcesCommandActionTemplateDetailParam)

Attribute	Type	Description
resourceIDs	string[]	List of the IDs of the components and devices for which the action is to be executed
templateFileName	string	Name of the template file in which the action is registered

Status codes

Status code	Reason phrase	Description
200	OK	Success.

Preparing to get detailed information about the commands that can be executed by using the execute action function of the target resource

Status code	Reason phrase	Description
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/services/CustomAction/actions/
getResourcesCommandActionTemplateDetail
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:29 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name": "getResourcesCommandActionTemplateDetail",
  "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getResourcesCommandActionTemplateDetail/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [
    {
      "instanceID": 0,
```

```
"resourceIDs": [
  "ResourceID 0",
  "ResourceID 1"
],
"templateFileName": "Template File Name"
}
]
```

Getting detailed information about the commands that can be executed by using the execute action function of the target resource

You can obtain details about commands that the execute action function can run on multiple resources.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/CustomAction/actions/
getResourcesCommandActionTemplateDetail/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.

Getting detailed information about the commands that can be executed by using the execute action function of the target resource

Attribute	Type	Description
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetResourcesCommandActionTemplateDetailParam objects necessary to execute an operation. For details about GetResourcesCommandActionTemplateDetailParam, see the table below.

GetResourcesCommandActionTemplateDetailParam

```
{
  "resourceIDs":["...", ...],
  "templateFileName":"..."
}
```

GetResourcesCommandActionTemplateDetailParam (Type: GetResourcesCommandActionTemplateDetailParam)

Attribute	Type	Description
resourceIDs	string[]	List of the IDs of the components and devices for which the action is to be executed
templateFileName	string	Name of the template file in which the action is registered

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID":"...",
  "created":"...",
  "updated":"...",
  "completed":"...",
  "state":"...",
  "affectedResource":["...", ...],
  "result":["...", ...]
}
```

Job (Type: Job)

Getting detailed information about the commands that can be executed by using the *execute action* function of the target resource

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of CommandActionTemplateDetail objects. For details about CommandActionTemplateDetail, see the table below.

CommandActionTemplateDetail

```
{  
  "actionName": "...",  
  "description": "...",  
  "commandName": "...",  
  "commandParameter": "...",  
  "usage": "..."  
}
```

CommandActionTemplateDetail (Type: CommandActionTemplateDetail)

Attribute	Type	Description
actionName	string	Name of the action execution command.
description	string	Description of the action execution command.
commandName	string	Command to be executed
commandParameter	string	Arguments of the command to be executed
usage	string	Description of how to use the command

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/CustomAction/actions/
getResourcesCommandActionTemplateDetail/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name" : "getResourcesCommandActionTemplateDetail",
  "href" : "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getResourcesCommandActionTemplateDetail/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters": [
    {
      "resourceIDs": [
        "raidLdev#12345-00^01^11",
        "raidLdev#12345-00^2F^AC"
      ],
      "templateFileName": "/opt/hitachi/Analytics/conf/template/command/
CmdTemplate.txt"
    }
  ]
}
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:29 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "a8e900fa-087e-4a24-a023-1d8f0a5aeebb",
  "created" : "2016-08-12T02:56:29.468+09:00",
  "updated" : "2016-08-12T02:56:29.636+09:00",
  "completed" : "2016-08-12T02:56:29.636+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "actionName" : "CommandActionTemplate",
    "description" : "command template description",
    "commandName" : "/opt/hitachi/Analytics/bin/command/TaskA.sh",
    "commandParameter" : "-param CommandParam"
  } ]
}
```

Preparing to execute a command using the execute action function of the target resource

The following operation is the initial step to invoke commands that the execute action function can run on multiple resources.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/CustomAction/actions/invokeResourcesCommandAction
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of InvokeResourcesCommandActionParam objects necessary to execute an operation. For details about InvokeResourcesCommandActionParam, see the table below.

InvokeResourcesCommandActionParam

```
{
  "resourceIDs": ["...", ...],
  "templateFileName": "...",
  "commandParameter": "..."
}
```

InvokeResourcesCommandActionParam (Type: InvokeResourcesCommandActionParam)

Attribute	Type	Description
resourceIDs	string[]	List of the IDs of the components and devices for which the action is to be executed
templateFileName	string	Name of the template file in which the action is registered

Attribute	Type	Description
commandParameter	string	Parameter of the command to be executed. Specify a string encoded in Base64.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/services/CustomAction/actions/
invokeResourcesCommandAction
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:33 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "name": "invokeResourcesCommandAction",
  "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/invokeResourcesCommandAction/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [
    {
      "instanceID": 0,
      "resourceIDs": [
        "ResourceID 0",
        "ResourceID 1"
      ],
      "templateFileName": "Template File Name",
      "commandParameter": "Command Parameter"
    }
  ]
}
```

Executing a command using the execute action function of the target resource

You can invoke commands that the execute action function can run on multiple resources.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/CustomAction/actions/invokeResourcesCommandAction/
invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of InvokeResourcesCommandActionParam objects necessary to execute an operation. For details about InvokeResourcesCommandActionParam, see the table below.

InvokeResourcesCommandActionParam

```
{
  "resourceIDs":["...", ...],
  "templateFileName":"...",
  "commandParameter":"..."
}
```

InvokeResourcesCommandActionParam (Type: InvokeResourcesCommandActionParam)

Attribute	Type	Description
resourceIDs	string[]	List of the IDs of the components and devices for which the action is to be executed
templateFileName	string	Name of the template file in which the action is registered
commandParameter	string	Parameter of the command to be executed. Specify a string encoded in Base64.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID":"...",
  "created":"...",
  "updated":"...",
  "completed":"...",
}
```

```

    "state": "...",
    "affectedResource": ["...", ...],
    "result": ["...", ...]
  }

```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.

Status code	Reason phrase	Description
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/CustomAction/actions/
invokeResourcesCommandAction/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name" : "invokeResourcesCommandAction",
  "href" : "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/invokeResourcesCommandAction/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters": [
    {
      "resourceIDs": [
        "raidLdev#12345-00^01^11",
        "raidLdev#12345-00^2F^AC"
      ],
      "templateFileName": "/opt/hitachi/Analytics/conf/template/command/
CmdTemplate.txt",
      "commandParameter": ""
    }
  ]
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:33 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
```

```
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "b3fe1e36-1737-426c-bdd2-c5706472e2bc",
  "created" : "2016-08-12T02:56:33.366+09:00",
  "updated" : "2016-08-12T02:56:33.409+09:00",
  "completed" : "2016-08-12T02:56:33.409+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ ]
}
```

Getting information needed to get details about an Ops Center Automator service that is executable by the execute action function

You can get information that needs to be specified in a request to get details about an Ops Center Automator service that is executable by the execute action function.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/CustomAction/actions/
getResourcesAutomationDirectorServiceActionTemplateDetail
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetResourcesAutomationDirectorServiceActionTemplateDetailParam objects necessary to execute an operation. For details about GetResourcesAutomationDirectorServiceActionTemplateDetailParam, see the table below.

GetResourcesAutomationDirectorServiceActionTemplateDetailParam

```
{
  "resourceIDs":["...", ...],
  "serviceGroupName":"...",
  "serviceName":"..."
}
```

GetResourcesAutomationDirectorServiceActionTemplateDetailParam (Type: GetResourcesAutomationDirectorServiceActionTemplateDetailParam)

Attribute	Type	Description
resourceIDs	string[]	A list of IDs for the components and devices for which an action is to be executed
serviceGroupName	string	The name of an Ops Center Automator service group
serviceName	string	The name of an Ops Center Automator service

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.

Status code	Reason phrase	Description
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/services/CustomAction/actions/
getResourcesAutomationDirectorServiceActionTemplateDetail
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Fri, 25 Aug 2017 11:07:39 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
384d86cd8397edfd44e093e28ff2dcf1b563e471_UQV8dA9cIGw=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name": "getResourcesAutomationDirectorServiceActionTemplateDetail",
  "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getResourcesAutomationDirectorServiceActionTemplateDetail/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [
    {
      "instanceID": 0,
      "resourceIDs": [
```

```
    "ResourceID 0",
    "ResourceID 1"
  ],
  "serviceGroupName": "A Service Group Name",
  "serviceName": "A Service Name"
}
]
```

Getting details about an Ops Center Automator service that is executable by the execute action function

You can get details about an Ops Center Automator service that is executable by the execute action function.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/CustomAction/actions/
getResourcesAutomationDirectorServiceActionTemplateDetail/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.

Attribute	Type	Description
type	string	Data format for the object.
parameters	anyType[]	A list of GetResourcesAutomationDirectorServiceActionTemplateDetailParam objects necessary to execute an operation. For details about GetResourcesAutomationDirectorServiceActionTemplateDetailParam, see the table below.

GetResourcesAutomationDirectorServiceActionTemplateDetailParam

```
{
  "resourceIDs":["...", ...],
  "serviceGroupName":"...",
  "serviceName":"..."
}
```

GetResourcesAutomationDirectorServiceActionTemplateDetailParam (Type: GetResourcesAutomationDirectorServiceActionTemplateDetailParam)

Attribute	Type	Description
resourceIDs	string[]	A list of IDs for the components and devices for which an action is to be executed
serviceGroupName	string	The name of an Ops Center Automator service group
serviceName	string	The name of an Ops Center Automator service

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID":"...",
  "created":"...",
  "updated":"...",
  "completed":"...",
  "state":"...",
  "affectedResource":["...", ...],
  "result":["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/CustomAction/actions/
getResourcesAutomationDirectorServiceActionTemplateDetail/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getResourcesAutomationDirectorServiceActionTemplateDetail",
  "href": "http://localhost:22015/Analytics/v1/services/CustomAction/
actions/getResourcesAutomationDirectorServiceActionTemplateDetail/invoke",
  "method": "POST",
  "parameters": [
    {
      "resourceIDs": [
        "vm#0",
        "vm#1"
      ],
      "serviceGroupName": "Default Service Group",
      "serviceName": "Stop Virtual Machine"
    }
  ]
}

[Response Header]
HTTP/1.1 200 OK
Date: Fri, 25 Aug 2017 11:07:39 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
42e4c1b3a553126bd3fab3bebd4ceaa67719af_ZAlDR1YdfRJUBwFo_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID": "262a79a0-3e17-4483-9fa4-73075ee7369a",
  "created": "2017-08-25T20:30:07.741+09:00",
  "updated": "2017-08-25T20:30:07.742+09:00",
  "completed": "2017-08-25T20:30:07.742+09:00",
  "state": "success",
  "affectedResource": [],
```



```
"result": [  
  {  
    "serviceGroupName": "Default Service Group",  
    "serviceName": "Stop Virtual Machine",  
    "description": "Stops multiple virtual servers in a VMware vSphere  
environment.",  
    "automationDirectorServiceWindowUrl": "http://hostA:22015/Automation/  
launcher/SubmitTask",  
    "automationDirectorLaunchParams": [  
      {  
        "key": "sg",  
        "value": "Default Service Group"  
      },  
      {  
        "key": "sn",  
        "value": "Stop Virtual Machine"  
      }  
    ],  
    "automationDirectorMainWindowUrl": "http://hostA:22015/Automation/  
launcher/Login"  
  }  
]
```

Chapter 5: Getting a list of resources

You can obtain a list of resources (hypervisors, storage systems, switches, and hosts).

Getting a list of resources

You can obtain a list of resources and resource-related information, such as information about hypervisors, storages, switches, and hosts.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/DiscoveredResources?page={page}&pageSize={size}
```

Query parameters

The following table describes the values for the supported parameters of a query string:

Parameter	Description
page={page}	(Optional) Specify the paging information (page to be obtained). Filtering conditions: Checks whether the comparison target is equal to the value
pageSize={size}	(Optional) Specify the number of items that can be displayed on 1 page. Filtering conditions: Checks whether the comparison target is equal to the value

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of DiscoveredResource objects. For details about DiscoveredResource, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

DiscoveredResource

```
{
  "instanceID":"...",
  "name":"...",
  "ipAddress":"...",
  "status":"...",
  "monitorStatus":"...",
}
```

```

    "description": "...",
    "clusterName": "...",
    "vmName": "...",
    "modelID": "...",
    "modelName": "...",
    "wwn": "...",
    "resourceType": "...",
    "thresholdProfileID": "...",
    "thresholdProfileName": "...",
    "groupIDs": ["...", ...],
    "groupNames": ["...", ...],
    "gradeNames": ["...", ...],
    "gradeOrders": ["...", ...],
    "profileResourceType": "...",
    "ipAddressIDs": ["...", ...],
    "ipAddresses": ["...", ...],
    "componentCriticalCount": "...",
    "componentWarningCount": "...",
    "componentTotalCount": "...",
    "assignmentSchedule": "..."
  }

```

DiscoveredResource (Type: DiscoveredResource)

Attribute	Type	Description
instanceID	string	ID of the device.
name	string	Name of the device.
ipAddress	string	IP address set for the device.
status	enum	Status of the device. (For details about the valid values, see the table <i>NodeStatusType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown
monitorStatus	enum	Monitor status of the device. (For details about the valid values, see the table <i>ManagementLevelType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Manage
description	string	Description of the device.

Attribute	Type	Description
clusterName	string	Cluster name. Specified only if the device is a hypervisor.
vmName	string	Host name of the OS operating on the virtual machine.
modelID	string	ID of the storage system model.
modelName	string	Name of the storage system model.
wwn	string	WWN. Specified only if the device is an FC switch.
resourceType	enum	Type of device. (For details about the valid values, see the table ArgusNodeType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ SERVER_WINDOWS ▪ SERVER_LINUX ▪ SERVER_ESX ▪ SWITCH_FC ▪ STORAGE_HITACHI ▪ STORAGE_OTHER ▪ SERVER_HYPERV ▪ SERVER_VCENTER
thresholdProfileID	string	ID of the threshold profile assigned to the device.
thresholdProfileName	string	Name of the threshold profile assigned to the device.
groupIDs	string[]	ID of the consumer assigned to the device.
groupNames	string[]	Name of the consumer assigned to the device.
gradeNames	string[]	Name of the grade of the consumer assigned to the device.
gradeOrders	integer[]	Priority of the grade of the consumer assigned to the device.
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
ipAddressIDs	string[]	List of the IDs of IP addresses
ipAddresses	string[]	List of the IP addresses.

Attribute	Type	Description
componentCriticalCount	long	The number of components. (critical)
componentWarningCount	long	The number of components. (warning)
componentTotalCount	long	The number of components. (all)
assignmentSchedule	dateTime	Scheduled assignment time.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	No create privilege.

Example code

```
[Request Header]
GET /Analytics/v1/objects/DiscoveredResources
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 22 Aug 2016 04:53:24 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
1d8dd66aa77a72e2843aef7e599e12dc8a1bbdf3_Y2UOI2pkMXQ=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
```

```

X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data": [
    {
      "instanceID": "h#ITPDLab_172.17.17.115_host-158",
      "name": "172.17.17.118",
      "status": "Normal",
      "monitorStatus": "Manage",
      "description": "HITACHI BladeSymphony F51 VMware ESXi N/A",
      "resourceType": "SERVER_ESX",
      "thresholdProfileID": "thProfile#ESX",
      "thresholdProfileName": "Default Profile for Hypervisor
(VMware)",
      "groupIDs": [

      ],
      "groupNames": [

      ],
      "gradeNames": [

      ],
      "gradeOrders": [

      ],
      "profileResourceType": "ESX",
      "ipAddressIDs": [
        "pn#ITPDLab_172.17.17.115_host-158^vmnic0",
        "pn#ITPDLab_172.17.17.115_host-158^vmnic1"
      ],
      "ipAddresses": [

      ],
      "componentCriticalCount": 0,
      "componentWarningCount": 0
    },
    {
      .....
    },
    .....
  ],
  "count": 5
}

```

Chapter 6: Performing operations related to resource information in E2E View

You can obtain details and topology data for resources that are displayed in the E2E view. You can also obtain the query parameters used to display the E2E view, as well as a list of related resources that are displayed during bottleneck analysis.

Getting a list of resources that are displayed in the E2E view

You can obtain a list of resources displayed in the E2E view.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/E2EView?
basePointNodeType={E2ENodeType}&basePointNodeID={nodeID}&targetNodeType={E2
ENodeType}&parentNodeID={nodeID}&page={page}&pageSize={size}
```

Query parameters

The following table describes the values for the supported parameters of a query string:

Parameter	Description
basePointNodeType={E2ENodeType}	(Required) Specify the E2E node type. Filtering conditions: Checks whether the comparison target is equal to the value
basePointNodeID={nodeID}	(Required) Specify 1 or more base node IDs. Filtering conditions: Checks whether the value is included in the comparison target. Multiple values separated by a comma (,) can be specified.

Parameter	Description
targetNodeType={E2ENodeType}	(Required) Specify the E2E node type. Filtering conditions: Checks whether the comparison target is equal to the value
parentNodeID={nodeID}	(Optional) Specify 0 or more node IDs. Filtering conditions: Checks whether the value is included in the comparison target. Multiple values separated by a comma (,) can be specified.
page={page}	(Optional) Specify the paging information (page to be obtained). Filtering conditions: Checks whether the comparison target is equal to the value
pageSize={size}	(Optional) Specify the number of items that can be displayed on 1 page. Filtering conditions: Checks whether the comparison target is equal to the value

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of E2ENode objects. For details about E2ENode, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

E2ENode

```
{
  "instanceID": "...",
  "name": "...",
  "type": "...",
  "status": "...",
  "consumerName": "...",
  "gradeName": "...",
  "gradeOrder": "...",
  "additional": "...",
  "parentID": "...",
  "parentType": "...",
  "description": "...",
  "label": "...",
  "nvmHostNicknames": ["...", ...],
  "hostGroupIDs": ["...", ...],
  "hostGroupNames": ["...", ...],
  "lunOwnerIDs": ["...", ...],
  "lunOwnerNames": ["...", ...],
  "poolSavingRatio": "...",
  "datastoreType": "...",
  "datastoreCapacity": "..."
}
```

E2ENode (Type: E2ENode)

Attribute	Type	Description
instanceID	string	ID of the resource.
name	string	Name of the resource.
type	enum	Type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
status	enum	Status of the resource. (For details about the valid values, see the table NodeStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown
consumerName	string	Name of the consumer.
gradeName	string	Name of the grade.
gradeOrder	int	Priority of the grade.
additional	string	Additional information.
parentID	string	ID of the parent resource that a resource belongs to.
parentType	enum	Type of parent resource that a resource belongs to. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
description	string	Description of the resource.
label	string	Label of the volume.
nvmHostNicknames	string[]	NVM host nickname of the volume.
hostGroupIDs	string[]	ID of the host group that a volume belongs to.
hostGroupNames	string[]	Type of host group that a volume belongs to.
lunOwnerIDs	string[]	ID of the LUN owner that a volume is associated with.
lunOwnerNames	string[]	Name of the LUN owner that a volume is associated with.
poolSavingRatio	float	The capacity savings ratio with the controller-based capacity saving and accelerated compression features in a pool.

Attribute	Type	Description
datastoreType	string	Type of datastore.
datastoreCapacity	float	Capacity of the datastore.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	A query parameter is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	- The server is not available. - The threshold of a query parameter exceeded.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/E2EView/?basePointNodeID[]=h
%23ABC_172.17.17.115_host-
195&basePointNodeType=HYPERVISOR&targetNodeType=CPU&parentNodeID=h
%23ABC_172.17.17.115_host-195
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:51:48 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
```

```
Content-Type: application/json
```

```
[Response Body]
```

```
{
  "data" : [ {
    "instanceID" : "cpu#ABC_172.17.17.115_host-195^0",
    "name" : "Intel(R) Xeon(R) CPU E5-2670 0 @ 2.60GHz#0",
    "type" : "CPU",
    "status" : "Unknown",
    "additional" : "172.17.17.181",
    "parentID" : "h#ABC_172.17.17.115_host-195",
    "parentType" : "HYPERVISOR"
  }, {
    .....
  } ],
  "count" : 8
}
```

Preparing to obtain topology data for resources that are displayed in the E2E view

The following operation is the initial step to obtain the topology data of resources displayed in the E2E view.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/E2EView/actions/getTopologyData
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
}
```

```

    "parameters":["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2EViewParam objects necessary to execute an operation. For details about E2EViewParam, see the table below.

E2EViewParam

```

{
    "basePointNodeID":["...", ...],
    "basePointNodeType":"..."
}

```

E2EViewParam (Type: E2EViewParam)

Attribute	Type	Description
basePointNodeID	string[]	ID of the base resource. Multiple IDs can be specified if the resources are of the same type.
basePointNodeType	enum	Type of base resource (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.

Status code	Reason phrase	Description
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/E2EView/actions/getTopologyData
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:51:59 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getTopologyData",
  "href" : "http://localhost:22015/Analytics/v1/services/E2EView/actions/getTopologyData/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "basePointNodeID" : [ ],
    "basePointNodeType" : "HYPERVISOR"
  } ]
}
```

Getting topology data for resources that are displayed in the E2E view

You can obtain the topology data of resources displayed in the E2E view.

Execution permission

Admin, Modify

Request line**POST** baseURL/v1/services/E2EView/actions/getTopologyData/invoke**Request body**

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2EViewParam objects necessary to execute an operation. For details about E2EViewParam, see the table below.

E2EViewParam

```
{
  "basePointNodeID": ["...", ...],
  "basePointNodeType": "..."
}
```

E2EViewParam (Type: E2EViewParam)

Attribute	Type	Description
basePointNodeID	string[]	ID of the base resource. Multiple IDs can be specified if the resources are of the same type.
basePointNodeType	enum	Type of base resource (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

Response body

The structure of the response body and the object attributes is as follows:

E2ETopologyData

```
{
  "basePointNodeName": "...",
  "hasHighlightData": "...",
  "customer": {
    "count": "...",
    "customerGradeList": [ {
      "name": "...",
      "order": "...",
      "customers": [ {
        "instanceID": "...",
        "name": "...",
        "status": "...",
        "relatedNodeList": [ {
          "instanceID": "...",
          "type": "...",
          "componentType": "...",
          "profileResourceType": "..."
        } ],
        :
      ] ,
      "shareRate": "...",
      "profileResourceType": "...",
      "driveStatus": "..."
    } ],
    :
  ]
},
:
]
},
:
]
},
"server": {
  "count": "...",
  "clusterList": [ {
    "instanceID": "...",
    "name": "...",

```

```

"hypervisors": [{
  "instanceID": "...",
  "name": "...",
  "status": "...",
  "hosts": [{
    "instanceID": "...",
    "name": "...",
    "status": "...",
    "relatedNodeList": [{
      "instanceID": "...",
      "type": "...",
      "componentType": "...",
      "profileResourceType": "..."
    }],
    :
  ],
  "shareRate": "...",
  "profileResourceType": "...",
  "driveStatus": "..."
},
:
],
"components": [{
  "name": "...",
  "type": "...",
  "items": [{
    "instanceID": "...",
    "name": "...",
    "status": "...",
    "relatedNodeList": [{
      "instanceID": "...",
      "type": "...",
      "componentType": "...",
      "profileResourceType": "..."
    }],
    :
  ],
  "shareRate": "...",
  "profileResourceType": "...",
  "driveStatus": "..."
},
:
],
"relatedNodeList": [{
  "instanceID": "...",
  "type": "...",
  "componentType": "...",
  "profileResourceType": "..."
}

```

```

        },
        :
    ],
    "profileResourceType": "...",
},
:
],
"relatedNodeList": [{
    "instanceID": "...",
    "type": "...",
    "componentType": "...",
    "profileResourceType": "...",
},
:
]
},
:
],
"nonclusteredHypervisorList": [{
    "instanceID": "...",
    "name": "...",
    "status": "...",
    "hosts": [{
        "instanceID": "...",
        "name": "...",
        "status": "...",
        "relatedNodeList": [{
            "instanceID": "...",
            "type": "...",
            "componentType": "...",
            "profileResourceType": "...",
        },
        :
    ],
    "shareRate": "...",
    "profileResourceType": "...",
    "driveStatus": "...",
},
:
],
"components": [{
    "name": "...",
    "type": "...",
    "items": [{
        "instanceID": "...",
        "name": "...",
        "status": "...",
        "relatedNodeList": [{
            "instanceID": "...",
            "type": "...",
            "componentType": "...",

```

```

        "profileResourceType":"..."
      },
      :
    ],
    "shareRate":"...",
    "profileResourceType":"...",
    "driveStatus":"..."
  },
  :
]
},
:
],
"relatedNodeList":[{"
  "instanceID":"...",
  "type":"...",
  "componentType":"...",
  "profileResourceType":"..."
}],
:
],
"profileResourceType":"..."
},
:
],
"otherserverHostList":[{"
  "instanceID":"...",
  "name":"...",
  "status":"...",
  "relatedNodeList":[{"
    "instanceID":"...",
    "type":"...",
    "componentType":"...",
    "profileResourceType":"..."
  }],
  :
],
  "shareRate":"...",
  "profileResourceType":"...",
  "driveStatus":"..."
},
:
]
},
"datastore":{
  "count":"...",
  "datastoreGroupList":[{"
    "instanceID":"...",
    "name":"...",
    "datastores":[{"
      "instanceID":"...",

```

```

        "name": "...",
        "status": "...",
        "relatedNodeList": [{
            "instanceID": "...",
            "type": "...",
            "componentType": "...",
            "profileResourceType": "..."
        }],
        :
    ],
    "shareRate": "...",
    "profileResourceType": "...",
    "driveStatus": "..."
},
:
]
},
:
]
},
"network": {
    "count": "...",
    "sanList": [{
        "instanceID": "...",
        "name": "...",
        "switches": [{
            "instanceID": "...",
            "name": "...",
            "status": "...",
            "relatedNodeList": [{
                "instanceID": "...",
                "type": "...",
                "componentType": "...",
                "profileResourceType": "..."
            }],
            :
        ]
    },
    "shareRate": "...",
    "profileResourceType": "...",
    "driveStatus": "..."
},
:
]
},
:
]
},
"storage": {
    "count": "...",
    "storageList": [{
        "instanceID": "...",

```

```

"name": "...",
"status": "...",
"volumes": [{
  "instanceID": "...",
  "name": "...",
  "status": "...",
  "relatedNodeList": [{
    "instanceID": "...",
    "type": "...",
    "componentType": "...",
    "profileResourceType": "..."
  },
  :
],
"shareRate": "...",
"profileResourceType": "...",
"driveStatus": "..."
},
:
],
"components": [{
  "name": "...",
  "type": "...",
  "items": [{
    "instanceID": "...",
    "name": "...",
    "status": "...",
    "relatedNodeList": [{
      "instanceID": "...",
      "type": "...",
      "componentType": "...",
      "profileResourceType": "..."
    },
    :
  ],
  "shareRate": "...",
  "profileResourceType": "...",
  "driveStatus": "..."
},
:
]
},
:
],
"relatedNodeList": [{
  "instanceID": "...",
  "type": "...",
  "componentType": "...",
  "profileResourceType": "..."
},
:

```

```

    ],
    "profileResourceType": "...",
  },
  :
  ]
}
}

```

E2ETopologyData (Type: E2ETopologyData)

Attribute	Type	Description
basePointNodeName	string	Name of the base resource
hasHighlightData	boolean	Whether or not highlight information (information about connections among resources) has already been obtained. If it has already been obtained, "true" is set. If it has not been obtained yet, "false" is set.
customer	E2ECustomerColumn	Information about the consumer arrays
server	E2EServerColumn	Information about the server arrays
datastore	E2EDatastoreColumn	Information about the datastore arrays
network	E2ENetworkColumn	Information about the network arrays
storage	E2EStorageColumn	Information about the storage arrays

customer (Type: E2ECustomerColumn)

Attribute	Type	Description
count	long	Number of consumers
customerGradeList	E2ECustomerGrade[]	Information about the consumers classified by grade

customerGradeList (Type: E2ECustomerGrade)

Attribute	Type	Description
name	string	Name of the grade
order	long	Priority of the grade
customers	E2ETopologyNode[]	Information about the consumers belonging to the grade

customers (Type: E2ETopologyNode)

Attribute	Type	Description
instanceID	string	ID of the resource
name	string	Name of the resource
status	enum	Status of the resource (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)
relatedNodeList	E2ETopologyRelatedNode[]	Information about related resources
shareRate	int	Percentage of related base point resources out of all the base point resources. (Note: The Share Rate value is not available when you set a Hypervisor or Storage System as the base point of analysis.)
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
driveStatus	string	Aggregated drive status of all data drives that configure the parity group

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource.

Attribute	Type	Description
		(For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

server (Type: E2EServerColumn)

Attribute	Type	Description
count	int	Total number of virtual machines and hosts
clusterList	E2ECluster[]	Information about clustered hypervisors and virtual machines
nonclusteredHypervisorList	E2EHypervisor[]	Information about non-clustered hypervisors and virtual machines
otherserverHostList	E2ETopologyNode[]	Information about the host

clusterList (Type: E2ECluster)

Attribute	Type	Description
instanceID	string	ID of the cluster
name	string	Name of the cluster
hypervisors	E2EHypervisor[]	Hypervisor information related cluster
relatedNodeList	E2ETopologyRelatedNode[]	ID of the related resources

hypervisors (Type: E2EHypervisor)

Attribute	Type	Description
instanceID	string	ID of the hypervisor
name	string	Name of the hypervisor
status	enum	Status of the hypervisor (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)
hosts	E2ETopologyNode[]	Information about the virtual machines owned by a hypervisor
components	E2EComponentGroup[]	Information about the components owned by a hypervisor
relatedNodeList	E2ETopologyRelatedNode[]	Information about related resources
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

hosts (Type: E2ETopologyNode)

Attribute	Type	Description
instanceID	string	ID of the resource
name	string	Name of the resource
status	enum	Status of the resource (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)
relatedNodeList	E2ETopologyRelatedNode[]	Information about related resources
shareRate	int	Percentage of related base point resources out of all the base point resources. (Note: The Share Rate value is not available when you set a Hypervisor or Storage System as the base point of analysis.)
profileResourceType	enum	Resource type of the profile

Attribute	Type	Description
		(For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
driveStatus	string	Aggregated drive status of all data drives that configure the parity group

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

components (Type: E2EComponentGroup)

Attribute	Type	Description
name	string	Name of the component type
type	enum	Type of the component (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
items	E2ETopologyNode[]	Information about the component

items (Type: E2ETopologyNode)

Attribute	Type	Description
instanceID	string	ID of the resource

Attribute	Type	Description
name	string	Name of the resource
status	enum	Status of the resource (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)
relatedNodeList	E2ETopologyRelatedNode[]	Information about related resources
shareRate	int	Percentage of related base point resources out of all the base point resources. (Note: The Share Rate value is not available when you set a Hypervisor or Storage System as the base point of analysis.)
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
driveStatus	string	Aggregated drive status of all data drives that configure the parity group

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

nonclusteredHypervisorList (Type: E2EHypervisor)

Attribute	Type	Description
instanceID	string	ID of the hypervisor
name	string	Name of the hypervisor
status	enum	Status of the hypervisor (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)

Attribute	Type	Description
hosts	E2ETopologyNode[]	Information about the virtual machines owned by a hypervisor
components	E2EComponentGroup[]	Information about the components owned by a hypervisor
relatedNodeList	E2ETopologyRelatedNode[]	Information about related resources
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

hosts (Type: E2ETopologyNode)

Attribute	Type	Description
instanceID	string	ID of the resource
name	string	Name of the resource
status	enum	Status of the resource (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)
relatedNodeList	E2ETopologyRelatedNode[]	Information about related resources
shareRate	int	Percentage of related base point resources out of all the base point resources. (Note: The Share Rate value is not available when you set a Hypervisor or Storage System as the base point of analysis.)
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
driveStatus	string	Aggregated drive status of all data drives that configure the parity group

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

components (Type: E2EComponentGroup)

Attribute	Type	Description
name	string	Name of the component type
type	enum	Type of the component (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
items	E2ETopo logyNode[]	Information about the component

items (Type: E2ETopologyNode)

Attribute	Type	Description
instanceID	string	ID of the resource
name	string	Name of the resource
status	enum	Status of the resource (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)
relatedNodeList	E2ETopo logyRelatedNode[]	Information about related resources

Attribute	Type	Description
shareRate	int	Percentage of related base point resources out of all the base point resources. (Note: The Share Rate value is not available when you set a Hypervisor or Storage System as the base point of analysis.)
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
driveStatus	string	Aggregated drive status of all data drives that configure the parity group

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)

Attribute	Type	Description
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

otherserverHostList (Type: E2ETopologyNode)

Attribute	Type	Description
instanceID	string	ID of the resource
name	string	Name of the resource
status	enum	Status of the resource (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)
relatedNodeList	E2ETopo logyRelat edNode[]	Information about related resources
shareRate	int	Percentage of related base point resources out of all the base point resources. (Note: The Share Rate value is not available when you set a Hypervisor or Storage System as the base point of analysis.)
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
driveStatus	string	Aggregated drive status of all data drives that configure the parity group

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource.

Attribute	Type	Description
		(For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

datastore (Type: E2EDatastoreColumn)

Attribute	Type	Description
count	int	Number of datastores
datastoreGroupList	E2EDatastoreGroup[]	Information about the datastore group

datastoreGroupList (Type: E2EDatastoreGroup)

Attribute	Type	Description
instanceID	string	ID of the datastore group
name	string	Name of the datastore group
datastores	E2ETopologyNode[]	Datastore information related to the datastore group

datastores (Type: E2ETopologyNode)

Attribute	Type	Description
instanceID	string	ID of the resource
name	string	Name of the resource
status	enum	Status of the resource (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)
relatedNodeList	E2ETopologyRelatedNode[]	Information about related resources

Attribute	Type	Description
shareRate	int	Percentage of related base point resources out of all the base point resources. (Note: The Share Rate value is not available when you set a Hypervisor or Storage System as the base point of analysis.)
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
driveStatus	string	Aggregated drive status of all data drives that configure the parity group

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

network (Type: E2ENetworkColumn)

Attribute	Type	Description
count	int	Number of switches
sanList	E2ENetwork[]	FC switch list

sanList (Type: E2ENetwork)

Attribute	Type	Description
instanceID	string	ID of the network
name	string	Name of the network
switches	E2ETopo logyNode[]	FC switch information

switches (Type: E2ETopologyNode)

Attribute	Type	Description
instanceID	string	ID of the resource
name	string	Name of the resource
status	enum	Status of the resource (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)
relatedNodeList	E2ETopo logyRelatedNode[]	Information about related resources
shareRate	int	Percentage of related base point resources out of all the base point resources. (Note: The Share Rate value is not available when you set a Hypervisor or Storage System as the base point of analysis.)
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
driveStatus	string	Aggregated drive status of all data drives that configure the parity group

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

Attribute	Type	Description
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

storage (Type: E2EStorageColumn)

Attribute	Type	Description
count	int	Number of storage systems
storageList	E2EStorage[]	Information about the storage system

storageList (Type: E2EStorage)

Attribute	Type	Description
instanceID	string	ID of the storage system
name	string	Name of the storage system
status	enum	Status of the storage system (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)
volumes	E2ETopologyNode[]	Information about the storage system volumes.
components	E2EComponentGroup[]	Information about the storage system components.
relatedNodeList	E2ETopologyRelatedNode[]	Information about related resources
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

volumes (Type: E2ETopologyNode)

Attribute	Type	Description
instanceID	string	ID of the resource
name	string	Name of the resource
status	enum	Status of the resource (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)
relatedNodeList	E2ETopo logyRelat edNode[]	Information about related resources
shareRate	int	Percentage of related base point resources out of all the base point resources. (Note: The Share Rate value is not available when you set a Hypervisor or Storage System as the base point of analysis.)
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
driveStatus	string	Aggregated drive status of all data drives that configure the parity group

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

components (Type: E2EComponentGroup)

Attribute	Type	Description
name	string	Name of the component type
type	enum	Type of the component (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
items	E2ETopologyNode[]	Information about the component

items (Type: E2ETopologyNode)

Attribute	Type	Description
instanceID	string	ID of the resource
name	string	Name of the resource
status	enum	Status of the resource (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)
relatedNodeList	E2ETopologyRelatedNode[]	Information about related resources
shareRate	int	Percentage of related base point resources out of all the base point resources. (Note: The Share Rate value is not available when you set a Hypervisor or Storage System as the base point of analysis.)
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
driveStatus	string	Aggregated drive status of all data drives that configure the parity group

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource.

Attribute	Type	Description
		(For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	- The server is not available. - The threshold of a query parameter exceeded.
500	Internal Server Error	Server processing error.

Status code	Reason phrase	Description
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/E2EView/actions/getTopologyData/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getTopologyData",
  "href": "http://localhost:22015/Analytics/v1/services/E2EView/actions/
getTopologyData/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "basePointNodeID": ["h#ABC_172.17.17.115_host-195"],
    "basePointNodeType": "HYPERVISOR"
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:51:59 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "dba6253d-0514-43e3-b63b-8260b37b3cef",
  "created" : "2016-07-20T11:52:01.022+09:00",
  "updated" : "2016-07-20T11:52:01.023+09:00",
  "completed" : "2016-07-20T11:52:01.023+09:00",
  "state" : "success",
```

```

"affectedResource" : [ ],
"result" : [ {
  "basePointNodeName" : "172.17.17.181",
  "hasHighlightData" : true,
  "customer" : {
    "count" : 0,
    "customerGradeList" : [ ]
  },
  "server" : {
    "count" : 11,
    "clusterList" : [ ],
    "nonclusteredHypervisorList" : [ {
      "instanceID" : "h#ABC_172.17.17.115_host-195",
      "name" : "172.17.17.181",
      "status" : "UNKNOWN",
      "hosts" : [ {
        "instanceID" : "vm#ABC_172.17.17.115_vm-350",
        "name" : "CT5_DT005_e",
        "status" : "UNKNOWN",
        "relatedNodeList" : [ {
          "instanceID" : "cpu#ABC_172.17.17.115_host-195^2",
          "type" : "CPU",
          "componentType" : "CPU",
          "profileResourceType" : "ESX"
        }, {
          .....
        } ],
        "shareRate" : 100,
        "profileResourceType" : "ESX_VM"
      }, {
        .....
      } ],
      "components" : [ {
        "name" : "CPU",
        "type" : "CPU",
        "items" : [ {
          "instanceID" : "cpu#ABC_172.17.17.115_host-195^0",
          "name" : "Intel(R) Xeon(R) CPU E5-2670 0 @ 2.60GHz#0",
          "status" : "UNKNOWN",
          "relatedNodeList" : [ {
            "instanceID" : "vm#ABC_172.17.17.115_vm-488",
            "type" : "VIRTUAL_MACHINE",
            "componentType" : "VIRTUAL_MACHINE",
            "profileResourceType" : "ESX_VM"
          }, {
            .....
          } ],
          "shareRate" : 100,
          "profileResourceType" : "ESX"
        } ]
      }, {

```

```
.....
} ],
},
.....
"externalStorage" : {
  "count" : 0,
  "storageList" : [ ]
}
} ]
}
```

Preparing to obtain details about resources that are displayed in the E2E view

The following operation is the initial step to obtain details about resources displayed in the E2E view.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/E2EView/actions/getNodeDetail
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2ENodeDetailParam objects necessary to execute an operation. For details about E2ENodeDetailParam, see the table below.

E2ENodeDetailParam

```
{
  "targetNodeID": "...",
  "targetNodeType": "..."
}
```

E2ENodeDetailParam (Type: E2ENodeDetailParam)

Attribute	Type	Description
targetNodeID	string	ID of the resources for which details are to be obtained
targetNodeType	enum	Type of the resources for which details are to be obtained (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/E2EView/actions/getNodeDetail
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:51:50 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getNodeDetail",
  "href" : "http://localhost:22015/Analytics/v1/services/E2EView/actions/
getNodeDetail/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "targetNodeID" : "0",
    "targetNodeType" : "HYPERVISOR"
  } ]
}
```

Getting details about resources that are displayed in the E2E view

You can obtain details about resources displayed in the E2E view.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/services/E2EView/actions/getNodeDetail/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2ENodeDetailParam objects necessary to execute an operation. For details about E2ENodeDetailParam, see the table below.

E2ENodeDetailParam

```
{
  "targetNodeID": "...",
  "targetNodeType": "..."
}
```

E2ENodeDetailParam (Type: E2ENodeDetailParam)

Attribute	Type	Description
targetNodeID	string	ID of the resources for which details are to be obtained
targetNodeType	enum	Type of the resources for which details are to be obtained

Attribute	Type	Description
		(For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

Response body

The structure of the response body and the object attributes is as follows:

E2ENodeDetailData

```
{
  "nodeInformation":{
    "name":"...",
    "status":"...",
    "description":"...",
    "powerstatus":"...",
    "vendor":"...",
    "operatingSystem":"...",
    "processor":"...",
    "memory":"...",
    "hypervisorName":"...",
    "hypervisorType":"...",
    "model":"...",
    "serialNumber":"...",
    "firmware":"...",
    "managementIPAddress":"...",
    "numberOfPorts":"...",
    "subnet":"...",
    "fabric":"...",
    "capacity":"...",
    "cluster":"...",
    "hostName":"...",
    "uuid":"...",
    "totalCache":"...",
    "storage":"...",
    "label":"...",
    "copyType":"...",
    "storageTotalEfficiencyRatio":"...",
    "storageDataReductionRatio":"...",
    "storageSoftwareSavingRatio":"...",
    "storageAcSavingRatio":"...",
    "storageSnapshotEfficiencyRatio":"...",
    "storageProvisioningEfficiency":"...",
    "storageCalculationTimeRange":{
      "calculationStartTime":,
      "calculationEndTime":
    },
    "poolName":"...",
    "poolType":"...",
  },
}
```

```

"poolID":"...",
"poolTouchedCapacity":"...",
"poolUsageRate":"...",
"poolPhysicalCapacity":"...",
"poolPhysicalCapacityUsed":"...",
"poolPhysicalCapacityUsageRate":"...",
"poolDataSaving":"...",
"poolUserDataCapacity":"...",
"poolSavingRatio":"...",
"poolSavingCapacity":"...",
"dkcSavingRatio":"...",
"dkcCompressionRatio":"...",
"dkcDedupRatio":"...",
"dkcSavingCapacity":"...",
"dkcCompressionCapacity":"...",
"dkcDedupCapacity":"...",
"dkcReclaimCapacity":"...",
"dkcSystemCapacity":"...",
"dkcPreProcCapacity":"...",
"fmcSavingCapacity":"...",
"fmcCompressionRatio":"...",
"fmcCompressionCapacity":"...",
"fmcReclaimCapacity":"...",
"fmcPhysicalCapacity":"...",
"fmcPhysicalCapacityUsed":"...",
"fmcLogicalCapacity":"...",
"fmcLogicalCapacityUsed":"...",
"poolAutoExpansion":"...",
"poolTotalEfficiencyRatio":"...",
"poolDataReductionRatio":"...",
"poolSoftwareSavingRatio":"...",
"poolAcSavingRatio":"...",
"poolSnapshotEfficiencyRatio":"...",
"poolProvisioningEfficiency":"...",
"poolCalculationTimeRange":{
  "calculationStartTime":,
  "calculationEndTime":
},
"driveType":"...",
"displayDriveType":"...",
"driveSpeed":"...",
"raidLevel":"...",
"driveStatus":"...",
"usedSpareDriveCount":"...",
"usedEnduranceIndicator":"...",
"batteryLifeIndicator":"...",
"chipType":"...",
"consumerName":"...",
"gradeName":"...",
"userResourceThresholdProfile":"...",
"systemResourceThresholdProfile":"...",

```



```

"hostGroupIDs":["...", ...],
"hostGroupNames":["...", ...],
"lunOwnerIDs":["...", ...],
"lunOwnerNames":["...", ...],
"assignmentSchedule":"...",
"datastoreType":"...",
"datastoreCapacity":"...",
"datastoreCapacityUsed":"...",
"datastoreUsageRate":"...",
"datastoreFreeSpace":"...",
"portType":"...",
"attribute":"...",
"speedInGB":"...",
"loopId":"...",
"topology":"...",
"lunSecurity":"...",
"wwn":"...",
"negotiatedPortSpeed":"...",
"portMode":"...",
"nvmSubsystemID":"...",
"nvmSubsystemNQN":"...",
"nvmSubsystemNickname":"...",
"nvmNamespaceSecurity":"...",
"nvmNamespaceID":"...",
"nvmNamespaceNickname":"...",
"nvmHostNQNs":["...", ...],
"nvmHostNicknames":["...", ...],
"portId":"...",
"portStatus":"...",
"protocol":"...",
"wwnIscsiName":"...",
"storageNode":"...",
"driveId":"...",
"vssbDriveStatus":"...",
"driveWwid":"...",
"driveCapacity":"...",
"storageNodes":["...", ...],
"volumeId":"...",
"volumeTotalCapacity":"...",
"volumeUsedCapacity":"...",
"nickname":"...",
"volumeNumber":"...",
"computeNodes":["...", ...],
"volumeStatus":"...",
"storageId":"...",
"storageServiceId":"...",
"storageInternalId":"...",
"storageTotalCapacity":"...",
"storageFreeCapacity":"...",
"storageClusterStatus":"..."
},

```

```

"vsmInformation":{
  "volumeName":"...",
  "storage":"..."
},
"pairInformation":{
  "copyType":"...",
  "physicalVolumeName":"...",
  "physicalStorage":"...",
  "virtualVolumeName":"...",
  "virtualStorage":"..."
},
"poolInformation":{
  "name":"...",
  "status":"...",
  "capacity":"...",
  "poolName":"...",
  "poolType":"...",
  "poolID":"...",
  "tierNumber":"...",
  "driveType":"...",
  "driveSpeed":"...",
  "raidLevel":"...",
  "chipType":"...",
  "userResourceThresholdProfile":"...",
  "systemResourceThresholdProfile":"...",
  "touchedCapacity":"...",
  "usageRate":"...",
  "physicalCapacity":"...",
  "physicalCapacityUsed":"...",
  "physicalCapacityUsageRate":"...",
  "dataSaving":"...",
  "userDataCapacity":"...",
  "savingRatio":"...",
  "savingCapacity":"...",
  "dkcSavingRatio":"...",
  "dkcCompressionRatio":"...",
  "dkcDedupRatio":"...",
  "dkcSavingCapacity":"...",
  "dkcCompressionCapacity":"...",
  "dkcDedupCapacity":"...",
  "dkcReclaimCapacity":"...",
  "dkcSystemCapacity":"...",
  "dkcPreProcCapacity":"...",
  "fmcSavingCapacity":"...",
  "fmcCompressionRatio":"...",
  "fmcCompressionCapacity":"...",
  "fmcReclaimCapacity":"...",
  "fmcPhysicalCapacity":"...",
  "fmcPhysicalCapacityUsed":"...",
  "fmcLogicalCapacity":"...",
  "fmcLogicalCapacityUsed":"..."
}

```

```

    "autoExpansion": "...",
    "totalEfficiencyRatio": "...",
    "dataReductionRatio": "...",
    "softwareSavingRatio": "...",
    "acSavingRatio": "...",
    "snapshotEfficiencyRatio": "...",
    "provisioningEfficiency": "...",
    "calculationTimeRange": {
      "calculationStartTime":,
      "calculationEndTime":
    }
  },
  "pgInformation": {
    "name": "...",
    "status": "...",
    "capacity": "...",
    "driveType": "...",
    "driveSpeed": "...",
    "raidLevel": "...",
    "chipType": "...",
    "userResourceThresholdProfile": "...",
    "systemResourceThresholdProfile": "..."
  },
  "tierInformation": [{
    "instanceID": "...",
    "tierNumber": "...",
    "driveType": "...",
    "driveSpeed": "...",
    "raidLevel": "...",
    "chipType": "..."
  }],
  :
],
  "ipNetworkInformation": [{
    "instanceID": "...",
    "adapter": "...",
    "mac": "...",
    "ipAddress": "..."
  }],
  :
],
  "fcNetworkInformation": [{
    "instanceID": "...",
    "adapter": "...",
    "wwn": "..."
  }],
  :
],
  "diskInformation": [{
    "instanceID": "...",
    "name": "...",

```

```

        "capacity": "...",
        "adapterNumber": "...",
        "busID": "...",
        "targetID": "...",
        "lunID": "..."
    },
    :
  ],
  "driveCapacity": [{
    "instanceID": "...",
    "category": "...",
    "driveName": "...",
    "totalCapacity": "...",
    "fileSystem": "...",
    "driveType": "..."
  },
  :
  ],
  "virtualDisk": [{
    "instanceID": "...",
    "diskName": "...",
    "totalCapacity": "..."
  },
  :
  ]
}

```

E2ENodeDetailData (Type: E2ENodeDetailData)

Attribute	Type	Description
nodeInformation	E2ENodeInformation	Details about a resource
vsmInformation	E2EVSMInformation	VSM information. This item is set only if the resource is a volume.
pairInformation	E2EPairInformation	Pair information. This item is set only if the resource is a volume.
poolInformation	E2EPoolInformation	Pool information. This item is set only if the resource is a volume.
pgInformation	E2EPGInformation	Parity group information. This item is set only if the resource is a volume.

Attribute	Type	Description
tierInformation	E2ETierInformation[]	Pool tier information. This item is set only if the resource is a volume.
ipNetworkInformation	E2EIPNetwork[]	IP network information. This item is set only if the resource is a hypervisor or host.
fcNetworkInformation	E2EFCNetwork[]	FC network information. This item is set only if the resource is a hypervisor or host.
diskInformation	E2EDisk[]	Disk information. This item is set only if the resource is a hypervisor or host.
driveCapacity	E2EDriveCapacity[]	File system information. This item is set only if the resource is a hypervisor or host.
virtualDisk	E2EVirtualDisk[]	Information about the virtual disks that a virtual machine has. This item is set only if the resource is a virtual machine.

nodeInformation (Type: E2ENodeInformation)

Attribute	Type	Description
name	string	Name of the resource.
status	enum	Status of the resource. (For details about the valid values, see the table NodeStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown
description	string	Description.
powerstatus	enum	Power status of a virtual machine. (For details about the valid values, see the table PowerStatusType in <i>List of enumerators</i> .)
vendor	string	Name of the vendor.
operatingSystem	string	Name of the OS.
processor	string	Processor.

Attribute	Type	Description
memory	string	Memory (MB).
hypervisorName	string	Name of the hypervisor.
hypervisorType	enum	Type of the hypervisor. (For details about the valid values, see the table ArgusNodeType in <i>List of enumerators</i> .)
model	string	Model.
serialNumber	string	Serial number.
firmware	string	Firmware.
managementIPAddress	string	IP address for managed.
numberOfPorts	string	Number of ports of a switch.
subnet	string	Subnet of the switch.
fabric	string	Fabric of the switch.
capacity	string	Disk capacity (GB).
cluster	string	Cluster Name.
hostName	string	Host name.
uuid	string	UUID of the virtual machine.
totalCache	string	Total cache size (MB).
storage	string	Name of the storage system.
label	string	Label.
copyType	string	Copy Type.
storageTotalEfficiencyRatio	float	The ratio of the total saving effect achieved by accelerated compression, capacity saving (compression and deduplication), snapshot, and Dynamic Provisioning of the storage.
storageDataReductionRatio	float	The data reduction ratio before and after accelerated compression and capacity saving (compression and deduplication) of the storage.
storageSoftwareSavingRatio	float	The capacity reduction ratio before and after capacity saving.
storageAcSavingRatio	float	The data reduction efficiency ratio of the total storage by accelerated compression.

Attribute	Type	Description
storageSnapshotEfficiencyRatio	float	The efficiency ratio achieved by snapshot of the storage.
storageProvisioningEfficiency	float	The efficiency ratio achieved by Dynamic Provisioning of the storage.
storageCalculationTimeRange	CalculationTimeRange	The start and end times for the calculation. The time based on the system date and time (date, time, and timezone) of the storage system is displayed.
poolName	string	Pool name.
poolType	enum	Pool type. (For details about the valid values, see the table E2EPoolType in <i>List of enumerators</i> .)
poolID	string	Pool ID.
poolTouchedCapacity	long	Pool capacity used.
poolUsageRate	float	Pool capacity usage rate.
poolPhysicalCapacity	long	Pool physical capacity.
poolPhysicalCapacityUsed	long	Pool physical capacity used.
poolPhysicalCapacityUsageRate	float	Pool physical capacity usage rate.
poolDataSaving	string	The capability of data deduplication.
poolUserDataCapacity	float	Total used capacity of data volumes (DP-VOLs).
poolSavingRatio	float	The storage capacity savings ratio with the controller-based capacity saving and accelerated compression functions in a pool.
poolSavingCapacity	float	The storage capacity savings with the controller-based capacity saving and accelerated compression functions in a pool.
dkcSavingRatio	float	The saving ratio with the capacity saving function (deduplication and compression) in a pool.
dkcCompressionRatio	float	The saving ratio with the capacity saving function (compression) in a pool.

Attribute	Type	Description
dkcDedupRatio	float	The saving ratio with the capacity saving function (deduplication) in a pool.
dkcSavingCapacity	float	The saved capacity with the capacity saving function (deduplication and compression) in a pool.
dkcCompressionCapacity	float	The saved capacity with the capacity saving function (compression) in a pool.
dkcDedupCapacity	float	The saved capacity with the capacity saving function (deduplication) in a pool.
dkcReclaimCapacity	float	The reclaimed capacity with the capacity saving function.
dkcSystemCapacity	float	The system data capacity (=Meta data capacity + Garbage data capacity) saved with the capacity saving function.
dkcPreProcCapacity	float	The preprocessed data capacity with the capacity saving function.
fmcSavingCapacity	float	The saved capacity with the accelerated compression function.
fmcCompressionRatio	float	The saved capacity ratio with the accelerated compression function.
fmcCompressionCapacity	float	The compressed capacity with the accelerated compression function.
fmcReclaimCapacity	float	The reclaimed capacity with the accelerated compression function.
fmcPhysicalCapacity	float	The total physical capacity with the accelerated compression function.
fmcPhysicalCapacityUsed	float	The used physical capacity with the accelerated compression function.
fmcLogicalCapacity	float	The total capacity with the accelerated compression function.
fmcLogicalCapacityUsed	float	The total used capacity with the accelerated compression function.
poolAutoExpansion	string	The capability of expanding the pool automatically.
poolTotalEfficiencyRatio	float	The ratio of the total saving effect achieved by accelerated compression, capacity saving (compression and deduplication), snapshot, and Dynamic Provisioning for the pool.

Attribute	Type	Description
poolDataReductionRatio	float	The data reduction ratio of the pool before and after accelerated compression and capacity saving (compression and deduplication).
poolSoftwareSavingRatio	float	The capacity reduction ratio in the pool before and after capacity saving.
poolAcSavingRatio	float	The reduction efficiency ratio of the pool using accelerated compression.
poolSnapshotEfficiencyRatio	float	The efficiency ratio of the pool achieved by snapshot.
poolProvisioningEfficiency	float	The DP-Volume reduction rate of the pool.
poolCalculationTimeRange	CalculationTimeRange	The start and end times for the calculation. The time based on the system date and time (date, time, and timezone) of the storage system is displayed.
driveType	enum	Type of disk drive such as SAS, SATA and SSD. (For details about the valid values, see the table E2EDriveType in <i>List of enumerators</i> .)
displayDriveType	string	Type of disk drive such as SAS, SATA and SSD.
driveSpeed	string	Drive speed.
raidLevel	string	RAID level.
driveStatus	string	Summary drive status of all data drives that compose the parity group.
usedSpareDriveCount	integer	The number of spare drives among the data drives that compose the parity group.
usedEnduranceIndicator	integer	The greatest SSD endurance indicator (%) among all of the data drives that compose the parity group.
batteryLifeIndicator	integer	The greatest FMD battery life indicator (%) among all of the batteries for the data drives that compose the parity group.
chipType	enum	Chip type. (For details about the valid values, see the table E2EChipType in <i>List of enumerators</i> .)
consumerName	string	Consumer name.
gradeName	string	Grade.

Attribute	Type	Description
userResourceThresholdProfile	string	Name of threshold profile for user resource.
systemResourceThresholdProfile	string	Name of threshold profile for system resource.
hostGroupIDs	string[]	ID of the host group that a volume belongs to.
hostGroupNames	string[]	Name of the host group that a volume belongs to.
lunOwnerIDs	string[]	ID of the LUN Owner that a volume is associated with.
lunOwnerNames	string[]	Name of the LUN Owner that a volume is associated with.
assignmentSchedule	dateTime	Time that an assignment rule is applied.
datastoreType	string	Datastore type.
datastoreCapacity	float	Datastore capacity.
datastoreCapacityUsed	float	Datastore capacity used.
datastoreUsageRate	float	Datastore usage rate.
datastoreFreeSpace	float	Datastore free space.
portType	string	Port type.
attribute	string	Port attribute.
speedInGB	string	Port speed.
loopId	string	Port loop ID.
topology	string	Port topology.
lunSecurity	string	Port LUN security.
wwn	string	Port WWN.
negotiatedPortSpeed	string	Port negotiated speed.
portMode	string	Operation mode of the storage system port.
nvmSubsystemID	string	NVM subsystem ID of volume.
nvmSubsystemNQN	string	NVM subsystem NQN of volume.
nvmSubsystemNickname	string	NVM subsystem nickname of volume.

Attribute	Type	Description
nvmNamespaceSecurity	string	Setting whether to use the namespace security. If enabled, "Enabled" is set. If disabled, "Disabled" is set.
nvmNamespaceID	string	NVM namespace ID of volume.
nvmNamespaceNickname	string	NVM namespace nickname of volume.
nvmHostNQNs	string[]	NVM host NQN of volume.
nvmHostNicknames	string[]	NVM host nickname of volume.
portId	string	Port id.
portStatus	string	Port status.
protocol	string	Port type.
wwnIscsiName	string	WWN/iSCSI.
storageNode	string	Storage Node.
driveId	string	Drive id.
vssbDriveStatus	string	Drive status.
driveWwid	string	Drive WWID.
driveCapacity	long	Drive Capacity.
storageNodes	string[]	Storage nodes.
volumeId	string	Volume ID.
volumeTotalCapacity	long	Total capacity of volume.
volumeUsedCapacity	long	Used capacity of volume.
nickname	string	Volume nickname.
volumeNumber	string	Volume number.
computeNodes	string[]	Compute nodes.
volumeStatus	string	Volume status.
storageId	string	Storage ID.
storageServiceId	string	Storage service ID.
storageInternalId	string	Storage internal ID.
storageTotalCapacity	long	Pool total capacity of storage.
storageFreeCapacity	long	Pool free capacity of storage.

Attribute	Type	Description
storageClusterStatus	string	Storage cluster status.

storageCalculationTimeRange (Type: CalculationTimeRange)

Attribute	Type	Description
calculationStartTime	datetime	Calculation start time.
calculationEndTime	datetime	Calculation end time.

poolCalculationTimeRange (Type: CalculationTimeRange)

Attribute	Type	Description
calculationStartTime	datetime	Calculation start time.
calculationEndTime	datetime	Calculation end time.

vsmInformation (Type: E2EVSMInformation)

Attribute	Type	Description
volumeName	string	Volume name of VSM
storage	string	Storage name of VSM

pairInformation (Type: E2EPairInformation)

Attribute	Type	Description
copyType	string	Copy Type
physicalVolumeName	string	Name of physical volume
physicalStorage	string	Name of physical storage
virtualVolumeName	string	Name of virtual volume
virtualStorage	string	Name of virtual storage

poolInformation (Type: E2EPoolInformation)

Attribute	Type	Description
name	string	Name of the pool.
status	enum	<p>Status of the pool.</p> <p>(For details about the valid values, see the table NodeStatusType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown
capacity	string	Capacity of the pool.
poolName	string	Name of the pool.
poolType	enum	<p>Type of the pool.</p> <p>(For details about the valid values, see the table E2EPoolType in <i>List of enumerators</i>.)</p>
poolID	string	ID of the pool.
tierNumber	string	Tier number.
driveType	enum	<p>Type of disk drive such as SAS, SATA and SSD.</p> <p>(For details about the valid values, see the table E2EDriveType in <i>List of enumerators</i>.)</p>
driveSpeed	string	Drive speed.
raidLevel	string	RAID level.
chipType	enum	<p>Chip type.</p> <p>(For details about the valid values, see the table E2EChipType in <i>List of enumerators</i>.)</p>
userResourceThresholdProfile	string	Name of the threshold profile for user resource.
systemResourceThresholdProfile	string	Name of the threshold profile for system resource.
touchedCapacity	long	Capacity used.
usageRate	float	Capacity usage rate.
physicalCapacity	long	Physical capacity.
physicalCapacityUsed	long	Physical capacity used.

Attribute	Type	Description
physicalCapacityUsageRate	float	Physical capacity usage rate.
dataSaving	string	The capability of data deduplication.
userDataCapacity	float	Total used capacity of data volumes (DP-VOLs).
savingRatio	float	The storage capacity savings ratio with the controller-based capacity saving and accelerated compression in a pool.
savingCapacity	float	The storage capacity savings with the controller-based capacity saving and accelerated compression in a pool.
dkcSavingRatio	float	The saving ratio with the capacity saving feature (deduplication and compression) in a pool.
dkcCompressionRatio	float	The saving ratio with the capacity saving feature (compression) in a pool.
dkcDedupRatio	float	The saving ratio with the capacity saving feature (deduplication) in a pool.
dkcSavingCapacity	float	The saved capacity with the capacity saving feature (deduplication and compression) in a pool.
dkcCompressionCapacity	float	The saved capacity with the capacity saving feature (compression) in a pool.
dkcDedupCapacity	float	The saved capacity with the capacity saving feature (deduplication) in a pool.
dkcReclaimCapacity	float	The reclaimed capacity with the capacity saving feature.
dkcSystemCapacity	float	The system data capacity (metadata capacity + garbage data capacity) saved with the capacity saving feature.
dkcPreProcCapacity	float	The preprocessed data capacity with the capacity saving feature.
fmcSavingCapacity	float	The saved capacity with accelerated compression.
fmcCompressionRatio	float	The saved capacity ratio with accelerated compression.
fmcCompressionCapacity	float	The compressed capacity with accelerated compression.
fmcReclaimCapacity	float	The reclaimed capacity with accelerated compression.
fmcPhysicalCapacity	float	The total physical capacity with accelerated compression.

Attribute	Type	Description
fmcPhysicalCapacityUsed	float	The used physical capacity with accelerated compression.
fmcLogicalCapacity	float	The total capacity with accelerated compression.
fmcLogicalCapacityUsed	float	The total used capacity with accelerated compression.
autoExpansion	string	The capability of expanding the pool automatically.
totalEfficiencyRatio	float	The ratio of the total saving effect achieved by accelerated compression, capacity saving (compression and deduplication), snapshot, and Dynamic Provisioning of the pool.
dataReductionRatio	float	The data reduction ratio of the pool before and after accelerated compression and capacity saving (compression and deduplication).
softwareSavingRatio	float	The capacity reduction ratio of the pool before and after capacity saving.
acSavingRatio	float	The reduction efficiency ratio of the pool using accelerated compression.
snapshotEfficiencyRatio	float	The efficiency ratio achieved by snapshot for the pool.
provisioningEfficiency	float	The efficiency ratio achieved by Dynamic Provisioning for the pool.
calculationTimeRange	CalculationTimeRange	The start and end times for the calculation. The time based on the system date and time (date, time, and timezone) of the storage system is displayed.

calculationTimeRange (Type: CalculationTimeRange)

Attribute	Type	Description
calculationStartTime	datetime	Calculation start time.
calculationEndTime	datetime	Calculation end time.

pgInformation (Type: E2EPGInformation)

Attribute	Type	Description
name	string	Name of the parity group
status	enum	Status of the parity group (For details about the valid values, see the table NodeStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown
capacity	string	Capacity of the parity group
driveType	enum	Drive type (For details about the valid values, see the table E2EDriveType in <i>List of enumerators</i> .)
driveSpeed	string	Drive speed
raidLevel	string	RAID level
chipType	enum	Chip type (For details about the valid values, see the table E2EChipType in <i>List of enumerators</i> .)
userResourceThresholdProfile	string	Name of threshold profile for user resource
systemResourceThresholdProfile	string	Name of threshold profile for system resource

tierInformation (Type: E2ETierInformation)

Attribute	Type	Description
instanceID	string	ID of the tier
tierNumber	string	Tier number
driveType	string	Drive tipe
driveSpeed	string	Drive speed
raidLevel	string	RAID level
chipType	string	Chip type

ipNetworkInformation (Type: E2EIPNetwork)

Attribute	Type	Description
instanceID	string	ID of the resource
adapter	string	Name of the network adapter
mac	string	Mac address of the resource
ipAddress	string	IP address of the resource

fcNetworkInformation (Type: E2EFCNetwork)

Attribute	Type	Description
instanceID	string	ID of the resource.
adapter	string	Name of the network adapter.
wwn	string	Value of WWN.

diskInformation (Type: E2EDisk)

Attribute	Type	Description
instanceID	string	ID of the disk.
name	string	Name of the disk.
capacity	long	Disk capacity in GB.
adapterNumber	int	Adapter number. This item is set only if ScsiDiskDrive is set.
busID	int	Bus ID. This item is set only if ScsiDiskDrive is set.
targetID	int	ID. This item is set only if ScsiDiskDrive is set.
lunID	int	LUN ID. This item is set only if ScsiDiskDrive is set.

driveCapacity (Type: E2EDriveCapacity)

Attribute	Type	Description
instanceID	string	ID of the file system
category	string	Category

Attribute	Type	Description
driveName	string	Drive name
totalCapacity	string	Total capacity (GB)
fileSystem	string	Type of the file system
driveType	enum	Type of the drive (For details about the valid values, see the table E2ENodeDriveType in <i>List of enumerators</i> .)

virtualDisk (Type: E2EVirtualDisk)

Attribute	Type	Description
instanceID	string	ID of the virtual disk
diskName	string	Disk name
totalCapacity	string	Total capacity (GB)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/services/E2EView/actions/getNodeDetail/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Request Body]
{
  "name": "getNodeDetail",
  "href": "http://localhost:22015/Analytics/v1/services/E2EView/actions/
getNodeDetail/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "targetNodeID": "h#ABC_172.17.17.115_host-195",
    "targetNodeType": "HYPERVISOR"
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:51:50 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "9432e298-818c-40cd-bbb3-7be5f3cece91",
  "created" : "2016-07-20T11:51:50.945+09:00",
  "updated" : "2016-07-20T11:51:52.769+09:00",
  "completed" : "2016-07-20T11:51:52.769+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "nodeInformation" : {
      "name" : "172.17.17.181",
      "status" : "Unknown",
      "vendor" : "VMware, Inc.",
      "operatingSystem" : {
        "osName" : "VMware ESXi",
        "osVersion" : "5.5.0"
      },
    },
    "processor" : {
      "cpuName" : "Intel(R) Xeon(R) CPU E5-2670 0 @ 2.60GHz",
      "clockSpeed" : "2600",
      "processors" : "8"
    },
    "memory" : 16776692,
    "hypervisorType" : "SERVER_ESX",
  } ]
}
```

```
    "model" : "VMware Virtual Platform",
    "systemResourceThresholdProfile" : [ "Default Profile for Hypervisor
(VMware)" ]
  },
  "ipNetworkInformation" : [ {
    "adapter" : "vmnic0 : e1000"
  } ],
  "diskInformation" : [ {
    "name" : "mpx.vmhba1:C0:T0:L0",
    "capacity" : 167772160
  } ],
  "driveCapacity" : [ {
    "driveName" : "datastore1 : ds:///vmfs/volumes/54f014c4-a73a50dd-
ed19-005056a34b21/",
    "totalCapacity" : 159907840,
    "fileSystem" : "VMFS"
  } ]
} ]
}
```

Preparing to obtain a query parameters used to display the E2E view

The following operation is the initial step to check if a resource can obtain topology data for display in the E2E view.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/E2EView/actions/checkBasePointParam
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
}
```

```

    "parameters":["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2ECheckParam objects necessary to execute an operation. For details about E2ECheckParam, see the table below.

E2ECheckParam

```

{
    "basePointNodeID":["...", ...]
}

```

E2ECheckParam (Type: E2ECheckParam)

Attribute	Type	Description
basePointNodeID	string[]	ID of the base resource. Multiple IDs can be specified if the resources are of the same type.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/E2EView/actions/checkBasePointParam
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:51:45 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "checkBasePointParam",
  "href" : "http://localhost:22015/Analytics/v1/services/E2EView/actions/
checkBasePointParam/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "basePointNodeID" : [ ],
    "basePointTableType" : "NODE"
  } ]
}
```

Getting query parameters used to display the E2E view

You can check if a resource can obtain topology data for display in the E2E view.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/E2EView/actions/checkBasePointParam/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2ECheckParam objects necessary to execute an operation. For details about E2ECheckParam, see the table below.

E2ECheckParam

```
{
  "basePointNodeID": ["...", ...]
}
```

E2ECheckParam (Type: E2ECheckParam)

Attribute	Type	Description
basePointNodeID	string[]	ID of the base resource. Multiple IDs can be specified if the resources are of the same type.

Response body

The structure of the response body and the object attributes is as follows:

E2EViewParam

```
{
  "basePointNodeID": ["...", ...],
}
```

```
"basePointNodeType": "..."  
}
```

E2EViewParam (Type: E2EViewParam)

Attribute	Type	Description
basePointNodeID	string[]	ID of the base resource. Multiple IDs can be specified if the resources are of the same type.
basePointNodeType	enum	Type of base resource (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
404	Not Found	Number of obtained items: 0
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]  
POST /Analytics/v1/services/E2EView/actions/checkBasePointParam/invoke  
Authorization: Basic c3lzdGVtOmlhbmFnZXI=  
Host: localhost:22015  
Accept: application/json  
Content-Type: application/json  
  
[Request Body]  
{  
  "name": "checkBasePointParam",  
  "href": "http://localhost:22015/Analytics/v1/services/E2EView/actions/"
```



```

checkBasePointParam/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "basePointNodeID": ["h#ABC_172.17.17.115_host-195"],
    "basePointTableType": "NODE"
  } ]
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:51:45 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "acceeea6-48aa-480d-b4fa-ad4726e00218",
  "created" : "2016-07-20T11:51:47.272+09:00",
  "updated" : "2016-07-20T11:51:47.273+09:00",
  "completed" : "2016-07-20T11:51:47.273+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "basePointNodeID" : [ "h#ABC_172.17.17.115_host-195" ],
    "basePointNodeType" : "HYPERVISOR"
  } ]
}

```

Preparing to obtain a list of resources related to the E2E view

The following operation is the initial step to obtain a list of resources related to a specific resource displayed in the Analyze Bottleneck view.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/E2EView/actions/getRelatedNodeList
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2EViewParam objects necessary to execute an operation. For details about E2EViewParam, see the table below.

E2EViewParam

```
{
  "basePointNodeID": ["...", ...],
  "basePointNodeType": "..."
}
```

E2EViewParam (Type: E2EViewParam)

Attribute	Type	Description
basePointNodeID	string[]	ID of the base resource. Multiple IDs can be specified if the resources are of the same type.
basePointNodeType	enum	Type of base resource (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/E2EView/actions/getRelatedNodeList
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:51:55 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
```

```
{
  "name" : "getRelatedNodeList",
  "href" : "http://localhost:22015/Analytics/v1/services/E2EView/actions/
getRelatedNodeList/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "basePointNodeID" : [ ],
    "basePointNodeType" : "HYPERVISOR"
  } ]
}
```

Getting a list of resources related to the E2E views

You can obtain a list of resources related to a specific resource displayed in the Analyze Bottleneck view.

Execution permission

Admin, Modify

Request line

POST baseURL/v1/services/E2EView/actions/getRelatedNodeList/invoke

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.

Attribute	Type	Description
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2EViewParam objects necessary to execute an operation. For details about E2EViewParam, see the table below.

E2EViewParam

```
{
  "basePointNodeID":["...", ...],
  "basePointNodeType":"..."
}
```

E2EViewParam (Type: E2EViewParam)

Attribute	Type	Description
basePointNodeID	string[]	ID of the base resource. Multiple IDs can be specified if the resources are of the same type.
basePointNodeType	enum	Type of base resource (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID":"...",
  "created":"...",
  "updated":"...",
  "completed":"...",
  "state":"...",
  "affectedResource":["...", ...],
  "result":["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of Collections objects. For details about Collections, see the table below.

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	Collections resource list containing the following Collections resources that have the following structure: { "<E2ENodeType>": Collections

Attribute	Type	Description
		}
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of E2ETopologyNode objects. For details about E2ETopologyNode, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

E2ETopologyNode

```
{
  "instanceID": "...",
  "name": "...",
  "status": "...",
  "relatedNodeList": [{
    "instanceID": "...",
    "type": "...",
    "componentType": "...",
    "profileResourceType": "..."
  }],
  "shareRate": "...",
  "profileResourceType": "...",
  "driveStatus": "..."
}
```

E2ETopologyNode (Type: E2ETopologyNode)

Attribute	Type	Description
instanceID	string	ID of the resource
name	string	Name of the resource
status	enum	Status of the resource (For details about the valid values, see the table E2ENodeStatus in <i>List of enumerators</i> .)
relatedNodeList	E2ETopo logyRelat edNode[]	Information about related resources

Attribute	Type	Description
shareRate	int	Percentage of related base point resources out of all the base point resources. (Note: The Share Rate value is not available when you set a Hypervisor or Storage System as the base point of analysis.)
profileResourceType	enum	Resource type of the profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
driveStatus	string	Aggregated drive status of all data drives that configure the parity group

relatedNodeList (Type: E2ETopologyRelatedNode)

Attribute	Type	Description
instanceID	string	ID of the resource.
type	enum	Device type of the resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type of the resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
profileResourceType	enum	Type of the profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	- The server is not available. - The threshold of a query parameter exceeded.

Status code	Reason phrase	Description
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/E2EView/actions/getRelatedNodeList/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getRelatedNodeList",
  "href": "http://localhost:22015/Analytics/v1/services/E2EView/actions/
getRelatedNodeList/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "basePointNodeID": ["h#ABC_172.17.17.115_host-195"],
    "basePointNodeType": "HYPERVISOR"
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:51:55 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "ef8ef038-cca2-41f1-9a8b-d5cadedb8e37",
  "created" : "2016-07-20T11:51:58.740+09:00",
```

```
"updated" : "2016-07-20T11:51:58.740+09:00",
"completed" : "2016-07-20T11:51:58.740+09:00",
"state" : "success",
"affectedResource" : [ ],
"result" : [ {
  "DISK" : [ {
    "instanceID" : "disk#ABC_172.17.17.115_host-195^mpx.vmhba1^C0^T0^L0",
    "name" : "mpx.vmhba1:C0:T0:L0",
    "status" : "UNKNOWN",
    "relatedNodeList" : [ {
      "instanceID" : "vdisk#ABC_172.17.17.115_vm-198^2000",
      "type" : "VIRTUAL_MACHINE",
      "componentType" : "VIRTUAL_DISK",
      "profileResourceType" : "ESX_VM"
    }, {
      .....
    } ],
    "shareRate" : 100,
    "profileResourceType" : "ESX"
  } ],
  "VIRTUAL_MACHINE" : [ {
    "instanceID" : "vm#ABC_172.17.17.115_vm-350",
    "name" : "CT5_DT005_e",
    "status" : "UNKNOWN",
    "relatedNodeList" : [ {
      "instanceID" : "cpu#ABC_172.17.17.115_host-195^2",
      "type" : "CPU",
      "componentType" : "CPU",
      "profileResourceType" : "ESX"
    }, {
      .....
    } ],
    "shareRate" : 100,
    "profileResourceType" : "ESX_VM"
  }, {
    .....
  } ]
}
```

Preparing to obtain a query parameters used to display resources in the E2E view

The following operation is the initial step to obtain information about a specific resource, such as the resource name.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/E2EView/actions/getNodeName
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2ENodeDetailParam objects necessary to execute an operation. For details about E2ENodeDetailParam, see the table below.

E2ENodeDetailParam

```
{
  "targetNodeID": "...",
  "targetNodeType": "..."
}
```

E2ENodeDetailParam (Type: E2ENodeDetailParam)

Attribute	Type	Description
targetNodeID	string	ID of the resources for which details are to be obtained
targetNodeType	enum	Type of the resources for which details are to be obtained (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/E2EView/actions/getNodeName
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:51:53 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
```

```
{
  "name" : "getNodeName",
  "href" : "http://localhost:22015/Analytics/v1/services/E2EView/actions/
getNodeName/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "targetNodeID" : "0",
    "targetNodeType" : "VIRTUAL_MACHINE"
  } ]
}
```

Getting query parameters used to display resources in the E2E view

You can obtain information about a specific resource displayed in the E2E view, such as the resource name.

Execution permission

Admin, Modify

Request line

POST baseUrl/v1/services/E2EView/actions/getNodeName/invoke

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.

Attribute	Type	Description
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2ENodeDetailParam objects necessary to execute an operation. For details about E2ENodeDetailParam, see the table below.

E2ENodeDetailParam

```
{
  "targetNodeID": "...",
  "targetNodeType": "..."
}
```

E2ENodeDetailParam (Type: E2ENodeDetailParam)

Attribute	Type	Description
targetNodeID	string	ID of the resources for which details are to be obtained
targetNodeType	enum	Type of the resources for which details are to be obtained (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

Response body

The structure of the response body and the object attributes is as follows:

E2ENodeName

```
{
  "nodeName": "...",
  "nodeType": "...",
  "componentID": "...",
  "componentName": "...",
  "componentType": "..."
}
```

E2ENodeName (Type: E2ENodeName)

Attribute	Type	Description
nodeName	string	Name of the resources that are managed by Ops Center Analyzer
nodeType	enum	Type of the resources that are managed by Ops Center Analyzer (For details about the valid values, see the table NodeDisplayType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Unknown ▪ Server ▪ Storage ▪ NetworkDevice ▪ Datastore
componentID	string	ID of the component
componentName	string	Name of the component
componentType	enum	Type of the component (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ CPU ▪ MEMORY ▪ LAN_PORT ▪ FC_HBA_PORT ▪ DISK_DRIVE ▪ FILE_SYSTEM ▪ STORAGE_CONTROLLER ▪ STORAGE_FC_PORT ▪ STORAGE_POOL ▪ STORAGE_VOLUME ▪ STORAGE_CACHE ▪ VIRTUAL_MACHINE ▪ HYPERVISOR_CLUSTER ▪ STORAGE_MPB ▪ STORAGE_DP_POOL

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
404	Not Found	Number of obtained items: 0
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/services/E2EView/actions/getNodeName/invoke
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getNodeName",
  "href": "http://localhost:22015/Analytics/v1/services/E2EView/actions/
getNodeName/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "targetNodeID": "h#ABC_172.17.17.115_host-195",
    "targetNodeType": "HYPERVISOR"
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:51:53 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
```

```
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "instanceID" : "5a485cb6-19b8-42e8-9064-417026f98a83",
  "created" : "2016-07-20T11:51:53.620+09:00",
  "updated" : "2016-07-20T11:51:54.759+09:00",
  "completed" : "2016-07-20T11:51:54.759+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "instanceID" : "h#ABC_172.17.17.115_host-195",
    "nodeName" : "172.17.17.181",
    "nodeType" : "Server"
  } ]
}
```

Preparing to get resource information

The following operation is the initial step to obtain information about a specific resource, such as the resource name.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/E2EView/actions/getNodeList
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetNodeListParam objects necessary to execute an operation. For details about GetNodeListParam, see the table below.

GetNodeListParam

```
{
    "resourceIDs":["...", ...]
}
```

GetNodeListParam (Type: GetNodeListParam)

Attribute	Type	Description
resourceIDs	string[]	ID of the resource

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/E2EView/actions/getNodeList HTTP/1.1
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
```

```

Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Tue, 31 Jan 2017 04:14:42 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
d799177dd86fc4661512e0ace8c07e52248d76b2_ZA1DR1YdfRBWBxNW_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getNodeList",
  "href" : "http://localhost:22015/Analytics/v1/services/E2EView/actions/
getNodeList/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "resourceIDs" : [ "ResourceID 0", "ResourceID 1" ]
  } ]
}

```

Getting resource information

You can obtain information about a specific resource, such as the resource name.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/E2EView/actions/getNodeList/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
```

```

    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetNodeListParam objects necessary to execute an operation. For details about GetNodeListParam, see the table below.

GetNodeListParam

```

{
  "resourceIDs": ["...", ...]
}

```

GetNodeListParam (Type: GetNodeListParam)

Attribute	Type	Description
resourceIDs	string[]	ID of the resource

Response body

The structure of the response body and the object attributes is as follows:

E2ENodeList

```

{
  "resources": [{
    "nodeName": "...",
    "nodeType": "...",
    "componentID": "...",
    "componentName": "...",
    "componentType": "..."
  },
  :

```

```
    ]
}
```

E2ENodeList (Type: E2ENodeList)

Attribute	Type	Description
resources	E2ENodeName[]	Resource

resources (Type: E2ENodeName)

Attribute	Type	Description
nodeName	string	Name of the resources that are managed by Ops Center Analyzer
nodeType	enum	Type of the resources that are managed by Ops Center Analyzer (For details about the valid values, see the table NodeDisplayType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> Unknown Server Storage NetworkDevice Datastore
componentID	string	ID of the component
componentName	string	Name of the component
componentType	enum	Type of the component

Attribute	Type	Description
		<p>(For details about the valid values, see the table <code>ComponentType</code> in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ CPU ▪ MEMORY ▪ LAN_PORT ▪ FC_HBA_PORT ▪ DISK_DRIVE ▪ FILE_SYSTEM ▪ STORAGE_CONTROLLER ▪ STORAGE_FC_PORT ▪ STORAGE_POOL ▪ STORAGE_VOLUME ▪ STORAGE_CACHE ▪ VIRTUAL_MACHINE ▪ HYPERVISOR_CLUSTER ▪ STORAGE_MPB ▪ STORAGE_DP_POOL

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
404	Not Found	Number of obtained items: 0
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
```

```

POST Analytics/v1/services/E2EView/actions/getNodeList/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name" : "getNodeList",
  "href" : "http://localhost:22015/Analytics/v1/services/E2EView/actions/
getNodeList/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters": [
    {
      "resourceIDs": [
        "raidLdev#51547-00^00^00", "raidLdev#410438-00^00^00",
        "raidLdev#51306-00^00^00"
      ]
    }
  ]
}

[Response Header]
HTTP/1.1 200 OK
Cache-Control: no-cache
Connection: Keep-Alive
Content-Type: application/json
Date: Tue, 24 Jan 2017 01:20:00 GMT
Server: Cosminexus HTTP Server
Transfer-Encoding: chunked
WWW-Authenticate: HSSO
c450462eec01893d4c1ebcba7e7876538bd94_VwBvNGpyDgxyCUY3eXZdCQ==_V0810
X-Content-Type-Options: nosniff
X-Frame-Options: SAMEORIGIN
X-XSS-Protection : 1; mode=block

[Response Body]
{
  "instanceID": "9a277dd5-5016-4a03-ba87-ac6ccc9de566",
  "created": "2017-01-24T10:20:00.820+09:00",
  "updated": "2017-01-24T10:20:00.820+09:00",
  "completed": "2017-01-24T10:20:00.820+09:00",
  "state": "success",
  "affectedResource": [],
  "result": [
    {
      "resources": [
        {
          "instanceID": "raidStorage#410438",

```



```

        "nodeName": "VSP G400/G600 (410438)",
        "nodeType": "Storage",
        "componentID": "raidLdev#410438-00^00^00",
        "componentName": "00:00:00"
    },
    {
        "instanceID": "raidStorage#51306",
        "nodeName": "XP7 (51306)",
        "nodeType": "Storage",
        "componentID": "raidLdev#51306-00^00^00",
        "componentName": "00:00:00"
    },
    {
        "instanceID": "raidStorage#51547",
        "nodeName": "VSP G1500 (51547)",
        "nodeType": "Storage",
        "componentID": "raidLdev#51547-00^00^00",
        "componentName": "00:00:00"
    }
]
}
]
}

```

Chapter 7: Setting up a mail server

You can update mail server settings and send test emails.

Getting a list of email server settings

You can display a list of SMTP server settings, such as the host name and port number.

Execution permission

Admin

Request line

```
GET baseUrl/v1/objects/EmailServerSettings
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of EmailSetting objects. For details about EmailSetting, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

EmailSetting

```
{
  "instanceID": "...",
  "hostname": "...",
  "authenticationEnabled": "...",
  "userId": "...",
  "senderAddress": "...",
  "secureConnection": "...",
  "portNumber": "..."
}
```

EmailSetting (Type: EmailSetting)

Attribute	Type	Description
instanceID	string	ID of the mail server settings
hostname	string	IP address or host name of the SMTP server
authenticationEnabled	boolean	Whether or not to enable authentication of the user who sends emails. If enabled, "true" is set. If disabled, "false" is set.

Attribute	Type	Description
userId	string	User ID used for authentication of the user who sends emails. This item is set only if authenticationEnabled is "true".
senderAddress	string	Sender address
secureConnection	enum	Setting of security used when emails are sent (For details about the valid values, see the table SecureConnectionType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ TLS ▪ Plain ▪ STARTTLS
portNumber	int	Port number used for connection to the SMTP server

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/EmailServerSettings
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:50:43 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
```

```

33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

```

```

[Response Body]
{
  "data" : [ {
    "instanceID" : "mailServerSetting#0",
    "hostname" : "smtp server",
    "authenticationEnabled" : false,
    "secureConnection" : "Plain",
    "portNumber" : 25
  } ],
  "count" : 1
}

```

Uploading specific email server settings

You can update information about the configuration of a specific email server, such as the host name and port number.

Execution permission

Admin

Request line

```
PUT baseUrl/v1/objects/EmailServerSettings/{id}
```

Request body

The structure of the request body and the object attributes are as follows:

EmailSetting

```

{
  "instanceID": "...",
  "hostname": "...",
  "authenticationEnabled": "...",
  "userId": "...",
  "updatePassword": "...",
  "password": "...",
  "senderAddress": "...",
  "secureConnection": "...",

```

```

    "portNumber": "...",
  }

```

EmailSetting (Type: EmailSetting)

Attribute	Type	Description
instanceID	string	ID of the mail server settings
hostname	string	IP address or host name of the SMTP server
authenticationEnabled	boolean	Whether or not to enable authentication of the user who sends emails. If enabled, "true" is set. If disabled, "false" is set.
userId	string	User ID used for authentication of the user who sends emails. This item is set only if authenticationEnabled is "true".
updatePassword	boolean	Whether or not to change the password that is used to authenticate the email sender. Specify this item if the password needs to be changed when the mail server settings are changed. To change the password, specify "true". To not change the password, specify "false".
password	string	Password used for authentication of the user who sends emails. Specify a string encoded in Base64.
senderAddress	string	Sender address
secureConnection	enum	Setting of security used when emails are sent (For details about the valid values, see the table SecureConnectionType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ TLS ▪ Plain ▪ STARTTLS
portNumber	int	Port number used for connection to the SMTP server

Response body

The structure of the response body and the object attributes is as follows:

EmailSetting

```

{
  "instanceID": "...",
  "hostname": "...",
  "authenticationEnabled": "...",
  "userId": "...",
  "senderAddress": "...",

```

```

    "secureConnection": "...",
    "portNumber": "..."
  }

```

EmailSetting (Type: EmailSetting)

Attribute	Type	Description
instanceID	string	ID of the mail server settings
hostname	string	IP address or host name of the SMTP server
authenticationEnabled	boolean	Whether or not to enable authentication of the user who sends emails. If enabled, "true" is set. If disabled, "false" is set.
userId	string	User ID used for authentication of the user who sends emails. This item is set only if authenticationEnabled is "true".
senderAddress	string	Sender address
secureConnection	enum	Setting of security used when emails are sent (For details about the valid values, see the table SecureConnectionType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ TLS ▪ Plain ▪ STARTTLS
portNumber	int	Port number used for connection to the SMTP server

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```

[Request Header]
PUT /Analytics/v1/objects/EmailServerSettings/mailServerSetting%230
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "instanceID":1234568790,
  "hostname":"172.17.17.116",
  "authenticationEnabled":true,
  "userId":"user1",
  "updatePassword":true,
  "password":"a2FzaGltYTE=",
  "senderAddress":"user@example.com",
  "secureConnection":"Plain",
  "portNumber":25
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:50:44 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "mailServerSetting#0",
  "hostname" : "172.17.17.116",
  "authenticationEnabled" : false,
  "userId" : "user1",
  "senderAddress" : "user@example.com",
  "secureConnection" : "Plain",
  "portNumber" : 25
}

```


Getting a list of operations for email server settings

You can display a list of operations related to email server settings, such as the operation to obtain a list of email server settings.

Execution permission

Admin

Request line

```
GET baseURL/v1/services/EmailServerSettings/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/EmailServerSettings/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:50:43 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "sendTestMail",
    "href" : "http://localhost:22015/Analytics/v1/services/
EmailServerSettings/actions/sendTestMail/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 1
}
```

Preparing to send a test mail

The following operation is the initial step to send a test email.

Execution permission

Admin

Request line

```
GET baseUrl/v1/services/EmailServerSettings/actions/sendTestMail
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of TestMail objects necessary to execute an operation. For details about TestMail, see the table below.

TestMail

```
{
  "destinationAddresses": ["...", ...],
  "emailSetting": {
    "instanceID": "...",
    "hostname": "...",
    "authenticationEnabled": "...",
    "userId": "...",
    "senderAddress": "...",
    "secureConnection": "...",
    "portNumber": "..."
  }
}
```

TestMail (Type: TestMail)

Attribute	Type	Description
destinationAddresses	string[]	Email address specified as the destination of the test email
emailSetting	EmailSetting	Email server settings used to send a test email

emailSetting (Type: EmailSetting)

Attribute	Type	Description
instanceID	string	ID of the mail server settings
hostname	string	IP address or host name of the SMTP server
authenticationEnabled	boolean	Whether or not to enable authentication of the user who sends emails. If enabled, "true" is set. If disabled, "false" is set.
userId	string	User ID used for authentication of the user who sends emails. This item is set only if authenticationEnabled is "true".
senderAddress	string	Sender address
secureConnection	enum	Setting of security used when emails are sent (For details about the valid values, see the table SecureConnectionType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ TLS ▪ Plain ▪ STARTTLS
portNumber	int	Port number used for connection to the SMTP server

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.

Status code	Reason phrase	Description
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/EmailServerSettings/actions/sendTestMail
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:50:44 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "sendTestMail",
  "href" : "http://localhost:22015/Analytics/v1/services/EmailServerSettings/actions/sendTestMail/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "emailSetting" : {
      "instanceID" : "mailServerSetting#0",
      "hostname" : "172.17.17.116",
      "authenticationEnabled" : false,
      "userId" : "user1",
      "senderAddress" : "user@example.com",
      "secureConnection" : "Plain",
      "portNumber" : 25
    }
  } ]
}
```

Sending a test mail

You can send a test email from the mail server by specifying information such as the host name and delivery address.

Execution permission

Admin

Request line

POST baseURL/v1/services/EmailServerSettings/actions/sendTestMail/invoke

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of TestMail objects necessary to execute an operation. For details about TestMail, see the table below.

TestMail

```
{
  "destinationAddresses": ["...", ...],
  "emailSetting": {
    "instanceID": "...",
```

```

    "hostname":"...",
    "authenticationEnabled":"...",
    "userId":"...",
    "updatePassword":"...",
    "password":"...",
    "senderAddress":"...",
    "secureConnection":"...",
    "portNumber":"..."
  }
}

```

TestMail (Type: TestMail)

Attribute	Type	Description
destinationAddresses	string[]	Email address specified as the destination of the test email
emailSetting	EmailSetting	Email server settings used to send a test email

emailSetting (Type: EmailSetting)

Attribute	Type	Description
instanceID	string	ID of the mail server settings
hostname	string	IP address or host name of the SMTP server
authenticationEnabled	boolean	Whether or not to enable authentication of the user who sends emails. If enabled, "true" is set. If disabled, "false" is set.
userId	string	User ID used for authentication of the user who sends emails. This item is set only if authenticationEnabled is "true".
updatePassword	boolean	Whether or not to change the password that is used to authenticate the email sender. Specify this item if the password needs to be changed when the mail server settings are changed. To change the password, specify "true". To not change the password, specify "false".
password	string	Password used for authentication of the user who sends emails. Specify a string encoded in Base64.
senderAddress	string	Sender address
secureConnection	enum	Setting of security used when emails are sent

Attribute	Type	Description
		(For details about the valid values, see the table SecureConnectionType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ TLS ▪ Plain ▪ STARTTLS
portNumber	int	Port number used for connection to the SMTP server

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.

Attribute	Type	Description
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/services/EmailServerSettings/actions/sendTestMail/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Request Body]
{
  "name": "sendTestMail",
  "href": "http://localhost:22015/Analytics/v1/services/EmailServerSettings/actions/sendTestMail/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [
    {
      "emailSetting": {
        "instanceID": "mailServerSetting#0",
        "hostname": "172.17.17.116",
        "authenticationEnabled": true,
        "userId": "user1",
```

```

        "updatePassword": true,
        "password": "a2FzaGltYTE=",
        "senderAddress": "user@example.com",
        "secureConnection": "Plain",
        "portNumber": 25
    },
    "destinationAddresses": [
        "user2@example.com",
        "user3@example.com"
    ]
}
]
}

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 22 Aug 2016 04:46:45 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
f0f3ee9e20f6ce82bf67a24e862b7b86e7ef8bb0_Y2UOI2pkMXQ=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
    "instanceID": "33f2e181-4f13-408a-91c1-d13c858519d9",
    "created": "2016-08-22T13:46:46.097+09:00",
    "updated": "2016-08-22T13:46:46.097+09:00",
    "completed": "2016-08-22T13:46:46.097+09:00",
    "state": "success",
    "affectedResource": [

    ],
    "result": [

    ]
}

```

Chapter 8: Performing operations related to event information

You can obtain a list of events and the number of events.

Getting a list of events

You can obtain a list of events and event-related information, such as messages, dates, and times.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/Events?page={page}&pageSize={size}
```

Query parameters

The following table describes the values for the supported parameters of a query string:

Parameter	Description
page={page}	(Optional) Specify the paging information (page to be obtained). Filtering conditions: Checks whether the comparison target is equal to the value
pageSize={size}	(Optional) Specify the number of items that can be displayed on 1 page. Filtering conditions: Checks whether the comparison target is equal to the value

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Event objects. For details about Event, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Event

```
{
  "instanceID":"...",
  "level":"...",
```

```

    "message": "...",
    "dateTime": "...",
    "category": "...",
    "nodeId": "...",
    "deviceName": "...",
    "deviceType": "...",
    "componentId": "...",
    "componentName": "...",
    "componentType": "...",
    "targetMetric": "...",
    "targetMetricName": "...",
    "profileName": "...",
    "planName": "...",
    "thresholdValue": "...",
    "thresholdUnit": "..."
  }

```

Event (Type: Event)

Attribute	Type	Description
instanceID	string	ID of the event
level	enum	Event level (For details about the valid values, see the table EventSeverityType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ INFO ▪ WARNING ▪ CRITICAL
message	string	Event message
dateTime	dateTime	Event issuance time
category	enum	Event category (For details about the valid values, see the table EventCategoryType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ PERFORMANCE ▪ EVENT ▪ SETTING
nodeId	string	ID of the device for which the event was issued
deviceName	string	Name of the device for which the event was issued
deviceType	enum	Type of the device for which the event was issued

Attribute	Type	Description
		(For details about the valid values, see the table NodeDisplayType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> Unknown Server Storage NetworkDevice Datastore
componentId	string	ID of the component for which the event was issued
componentName	string	Name of the component for which the event was issued
componentType	enum	Type of the component for which the event was issued (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
targetMetric	enum	ID of the metric for which the event was issued. This item is displayed only if the category is "Performance". (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
targetMetricName	string	Name of the metric for which the event was issued. This item is displayed only if the category is "Performance".
profileName	string	Name of the threshold profile for which the event was issued. This item is displayed only if the category is "Performance".
planName	string	Name of the plan set for the threshold profile for which the event was issued. This item is displayed only if the category is "Performance".
thresholdValue	string	Threshold for which the event was issued. This item is displayed only if the category is "Performance".
thresholdUnit	string	Unit of the threshold for which the event was issued. This item is displayed only if the category is "Performance".

Status codes

Status code	Reason phrase	Description
200	OK	Success.

Status code	Reason phrase	Description
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/Events
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:26:03 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "instanceID" : "Setting##1468980297687##0##INFO##null####null##",
    "status" : "NOTACK",
    "level" : "INFO",
    "message" : "The service started. (host:localhost)",
    "dateTime" : "2016-07-20T11:04:57.687+09:00",
    "category" : "SETTING",
    "thresholdValue" : 0.0
  }, {
    "instanceID" : "Setting##1468971056202##0##INFO##null####null##",
    "status" : "NOTACK",
    "level" : "INFO",
    "message" : "The service started. (host:localhost)",
```



```

    "dateTime" : "2016-07-20T08:30:56.202+09:00",
    "category" : "SETTING",
    "thresholdValue" : 0.0
  } ],
  "count" : 2
}

```

Getting specific event information

You can obtain information about a specific event, such as the message, date, and time.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/Events/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Event

```

{
  "instanceID": "...",
  "level": "...",
  "message": "...",
  "dateTime": "...",
  "category": "...",
  "nodeId": "...",
  "deviceName": "...",
  "deviceType": "...",
  "componentId": "...",
  "componentName": "...",
  "componentType": "...",
  "targetMetric": "...",
  "targetMetricName": "...",
  "profileName": "...",
  "planName": "...",
  "thresholdValue": "...",
  "thresholdUnit": "..."
}

```

Event (Type: Event)

Attribute	Type	Description
instanceID	string	ID of the event
level	enum	Event level (For details about the valid values, see the table EventSeverityType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ INFO ▪ WARNING ▪ CRITICAL
message	string	Event message
dateTime	dateTime	Event issuance time
category	enum	Event category (For details about the valid values, see the table EventCategoryType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ PERFORMANCE ▪ EVENT ▪ SETTING
nodeId	string	ID of the device for which the event was issued
deviceName	string	Name of the device for which the event was issued
deviceType	enum	Type of the device for which the event was issued (For details about the valid values, see the table NodeDisplayType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Unknown ▪ Server ▪ Storage ▪ NetworkDevice ▪ Datastore
componentId	string	ID of the component for which the event was issued
componentName	string	Name of the component for which the event was issued
componentType	enum	Type of the component for which the event was issued (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)

Attribute	Type	Description
targetMetric	enum	ID of the metric for which the event was issued. This item is displayed only if the category is "Performance". (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
targetMetricName	string	Name of the metric for which the event was issued. This item is displayed only if the category is "Performance".
profileName	string	Name of the threshold profile for which the event was issued. This item is displayed only if the category is "Performance".
planName	string	Name of the plan set for the threshold profile for which the event was issued. This item is displayed only if the category is "Performance".
thresholdValue	string	Threshold for which the event was issued. This item is displayed only if the category is "Performance".
thresholdUnit	string	Unit of the threshold for which the event was issued. This item is displayed only if the category is "Performance".

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/Events/Setting
%23%231491153559830%23%230%23%23INFO%23%23null%23%23%23%23null%23%23
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
```

```

Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:26:03 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "Setting##1468980297687##0##INFO##null####null##",
  "status" : "NOTACK",
  "level" : "INFO",
  "message" : "The service started. (host:localhost)",
  "dateTime" : "2016-07-20T11:04:57.687+09:00",
  "category" : "SETTING",
  "thresholdValue" : 0.0
}

```

Getting a list of operations for events

You can obtain a list of operations related to events, such as the operation to obtain the number of events.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/Events/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name":"...",
  "href":"...",
  "method":"...",
  "type":"...",
  "parameters":["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/Events/actions
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:26:04 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "data" : [ {
    "name" : "getEventCount",
    "href" : "http://localhost:22015/Analytics/v1/services/Events/actions/
getEventCount/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 1
}
```

Preparing to obtain number of events

The following operation is the initial step to obtain the number of events within a specific time period.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/Events/actions/getEventCount
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetEventCountParam objects necessary to execute an operation. For details about GetEventCountParam, see the table below.

GetEventCountParam

```
{
  "categories":["...", ...],
  "countFrom":"...",
  "countTo":"...",
  "interval":"..."
}
```

GetEventCountParam (Type: GetEventCountParam)

Attribute	Type	Description
categories	enum[]	Category of events to be aggregated (For details about the valid values, see the table EventCategoryType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ PERFORMANCE ▪ EVENT ▪ SETTING
countFrom	dateTime	Start time of the period for which the events is to be obtained
countTo	dateTime	End time of the period for which the events is to be obtained
interval	long	Aggregation interval (ms).

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/Events/actions/getEventCount
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:26:04 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getEventCount",
  "href" : "http://localhost:22015/Analytics/v1/services/Events/actions/
getEventCount/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "categories" : [ "CHANGE" ],
    "countFrom" : "2016-07-19T11:26:04.476+09:00",
    "countTo" : "2016-07-20T11:26:04.476+09:00",
    "interval" : 3600000
  }
]
```

```
} ]
}
```

Getting a number of events

You can obtain the number of events that occurred within a specific time period.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/Events/actions/getEventCount/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetEventCountParam objects necessary to execute an operation. For details about GetEventCountParam, see the table below.

GetEventCountParam

```
{
    "categories":["...", ...],
    "countFrom":"...",
    "countTo":"...",
    "interval":"..."
}
```

GetEventCountParam (Type: GetEventCountParam)

Attribute	Type	Description
categories	enum[]	Category of events to be aggregated (For details about the valid values, see the table EventCategoryType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ PERFORMANCE ▪ EVENT ▪ SETTING
countFrom	dateTime	Start time of the period for which the events is to be obtained
countTo	dateTime	End time of the period for which the events is to be obtained
interval	long	Aggregation interval (ms).

Response body

The structure of the response body and the object attributes is as follows:

EventCount

```
{
    "periodFrom":"...",
    "info":"...",
    "warning":"...",
    "critical":"...",
    "total":"..."
}
```

EventCount (Type: EventCount)

Attribute	Type	Description
periodFrom	dateTime	Event aggregation time

Attribute	Type	Description
info	long	Number of information events that occurred during the aggregation interval
warning	long	Number of warning events that occurred during the aggregation interval
critical	long	Number of critical events that occurred during the aggregation interval
total	long	Total number of events that occurred during the aggregation interval

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/services/Events/actions/getEventCount/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getEventCount",
  "href": "http://localhost:22015/Analytics/v1/services/Events/actions/getEventCount/invoke",
  "method": "POST",
```

```

"type": "application/json",
"parameters": [{
  "countFrom": "2016-07-19T11:26:04.476+09:00",
  "countTo": "2016-07-20T11:26:04.476+09:00",
  "interval": "3600000"
}]
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:26:04 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "79e6e2e0-a800-4b22-bb5d-25424ca65a51",
  "created" : "2016-07-20T11:26:04.966+09:00",
  "updated" : "2016-07-20T11:26:05.047+09:00",
  "completed" : "2016-07-20T11:26:05.047+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "periodFrom" : "2016-07-19T11:26:04.476+09:00",
    "info" : 0,
    "warning" : 0,
    "critical" : 0,
    "total" : 0
  }, {
    .....
  }, {
    "periodFrom" : "2016-07-20T10:26:04.476+09:00",
    "info" : 2,
    "warning" : 0,
    "critical" : 0,
    "total" : 2
  } ]
}

```

Chapter 9: Getting information about a consumer grade

You can obtain a list of grade information that includes details such as grade names and grade priorities.

Getting a list of grades

You can obtain a list of grade information, such as grade names and grade priorities.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/Grades
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Grade objects. For details about Grade, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Grade

```
{
  "gradeKey": "...",
  "name": "...",
  "displayOrder": "..."
}
```

Grade (Type: Grade)

Attribute	Type	Description
gradeKey	string	ID of the grade
name	string	Name of the grade
displayOrder	int	Priority of the grade

Status codes

Status code	Reason phrase	Description
200	OK	Success.

Status code	Reason phrase	Description
400	Bad Request	A query parameter is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/Grades
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 03 Aug 2016 02:00:50 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
a61560c2eac97b0564aec48d2883daf39c0dfdf_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "instanceID" : "grade#Platinum",
    "gradeKey" : "10",
    "name" : "Platinum",
    "displayOrder" : 10
  }, {
    "instanceID" : "grade#Bronze",
```



```
    "gradeKey" : "40",
    "name" : "Bronze",
    "displayOrder" : 40
  }, {
    "instanceID" : "grade#Gold",
    "gradeKey" : "20",
    "name" : "Gold",
    "displayOrder" : 20
  }, {
    "instanceID" : "grade#Silver",
    "gradeKey" : "30",
    "name" : "Silver",
    "displayOrder" : 30
  } ],
  "count" : 4
}
```

Chapter 10: Performing operations related to consumers

You can create, update, or delete consumers. You can also assign consumers to resources.

Getting a list of consumers

You can obtain a list of consumer information, such as the consumer name and grade.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/Groups
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Group objects. For details about Group, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Group

```
{
  "instanceID":"...",
  "name":"...",
  "status":"...",
  "gradeKey":"...",
  "gradeName":"...",
  "gradeDisplayOrder":"...",
  "description":"...",
  "templateCreatorType":"...",
  "numOfVolumes":"...",
  "numOfVMs":"...",
  "numOfHosts":"...",
  "volumeAutoAssignFilters":["...", ...],
  "vmAutoAssignFilters":["...", ...],
  "hostAutoAssignFilters":["...", ...]
}
```

Group (Type: Group)

Attribute	Type	Description
instanceID	string	ID of the consumer.

Attribute	Type	Description
name	string	Name of the consumer.
status	enum	<p>Status of the consumer.</p> <p>(For details about the valid values, see the table <i>NodeStatusType</i> in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown
gradeKey	string	ID of the grade.
gradeName	string	Name of the grade.
gradeDisplayOrder	int	Priority of the grade.
description	string	Description.
templateCreatorType	enum	<p>Type indicating whether the consumer can perform editing. The consumer can perform editing only if the type is "User".</p> <p>(For details about the valid values, see the table <i>TemplateCreatorType</i> in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ User ▪ Default
numOfVolumes	int	Number of volumes assigned to the consumer.
numOfVMs	int	Number of virtual machines assigned to the consumer.
numOfHosts	int	Number of hosts assigned to the consumer.
volumeAutoAssignFilters	string[]	Assignment rules of volumes that can be assigned to this consumer.
vmAutoAssignFilters	string[]	Assignment rules of virtual machines that can be assigned to this consumer.
hostAutoAssignFilters	string[]	Assignment rules of hosts that can be assigned to this consumer.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	A query parameter is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/Groups
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:10:48 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "instanceID" : "group#aea4c579-af9d-4a01-b786-e05740ea687a",
    "name" : "Group-20160720111044502",
    "status" : "Unknown",
    "gradeKey" : "10",
```

```

    "gradeName" : "Platinum",
    "gradeDisplayOrder" : 10,
    "description" : "groupxxxxxxxxxx",
    "templateCreatorType" : "User",
    "numOfVolumes" : 0,
    "numOfVMs" : 0,
    "numOfHosts" : 0,
    "volumeAutoAssignFilters" : [ ],
    "vmAutoAssignFilters" : [ ],
    "hostAutoAssignFilters" : [ ]
  }, {
    .....
  } ],
  "count" : 4
}

```

Creating consumer

You can create a new consumer by specifying information such as the consumer name and grade.

Execution permission

Admin, Modify

Request line

POST baseURL/v1/objects/Groups

Request body

The structure of the request body and the object attributes are as follows:

Group

```

{
  "instanceID": "...",
  "name": "...",
  "status": "...",
  "gradeKey": "...",
  "gradeName": "...",
  "gradeDisplayOrder": "...",
  "description": "...",
  "templateCreatorType": "...",
  "numOfVolumes": "...",
  "numOfVMs": "...",
  "numOfHosts": "...",
  "volumeAutoAssignFilters": ["...", ...],
  "vmAutoAssignFilters": ["...", ...],

```

```

    "hostAutoAssignFilters":["...", ...]
  }

```

Group (Type: Group)

Attribute	Type	Description
instanceID	string	ID of the consumer.
name	string	Name of the consumer.
status	enum	Status of the consumer. (For details about the valid values, see the table NodeStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown
gradeKey	string	ID of the grade.
gradeName	string	Name of the grade.
gradeDisplayOrder	int	Priority of the grade.
description	string	Description.
templateCreatorType	enum	Type indicating whether the consumer can perform editing. The consumer can perform editing only if the type is "User". (For details about the valid values, see the table TemplateCreatorType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ User ▪ Default
numOfVolumes	int	Number of volumes assigned to the consumer.
numOfVMs	int	Number of virtual machines assigned to the consumer.
numOfHosts	int	Number of hosts assigned to the consumer.
volumeAutoAssignFilters	string[]	Assignment rules of volumes that can be assigned to this consumer.
vmAutoAssignFilters	string[]	Assignment rules of virtual machines that can be assigned to this consumer.
hostAutoAssignFilters	string[]	Assignment rules of hosts that can be assigned to this consumer.

Response body

The structure of the response body and the object attributes is as follows:

Group

```
{
  "instanceID": "...",
  "name": "...",
  "status": "...",
  "gradeKey": "...",
  "gradeName": "...",
  "gradeDisplayOrder": "...",
  "description": "...",
  "templateCreatorType": "...",
  "numOfVolumes": "...",
  "numOfVMs": "...",
  "numOfHosts": "...",
  "volumeAutoAssignFilters": ["...", ...],
  "vmAutoAssignFilters": ["...", ...],
  "hostAutoAssignFilters": ["...", ...]
}
```

Group (Type: Group)

Attribute	Type	Description
instanceID	string	ID of the consumer.
name	string	Name of the consumer.
status	enum	Status of the consumer. (For details about the valid values, see the table <i>NodeStatusType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown
gradeKey	string	ID of the grade.
gradeName	string	Name of the grade.
gradeDisplayOrder	int	Priority of the grade.
description	string	Description.
templateCreatorType	enum	Type indicating whether the consumer can perform editing. The consumer can perform editing only if the type is "User".

Attribute	Type	Description
		(For details about the valid values, see the table TemplateCreatorType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> User Default
numOfVolumes	int	Number of volumes assigned to the consumer.
numOfVMs	int	Number of virtual machines assigned to the consumer.
numOfHosts	int	Number of hosts assigned to the consumer.
volumeAutoAssignFilters	string[]	Assignment rules of volumes that can be assigned to this consumer.
vmAutoAssignFilters	string[]	Assignment rules of virtual machines that can be assigned to this consumer.
hostAutoAssignFilters	string[]	Assignment rules of hosts that can be assigned to this consumer.

Status codes

Status code	Reason phrase	Description
201	Created	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The grade is invalid.
409	Conflict	A resource with the same name exists.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
```

```

POST /Analytics/v1/objects/Groups
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "Group-20160720111044502",
  "gradeKey": "10",
  "description": "groupxxxxxxxxx"
}

[Response Header]
HTTP/1.1 201 Created
Date: Wed, 20 Jul 2016 02:10:44 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "group#aea4c579-af9d-4a01-b786-e05740ea687a",
  "name" : "Group-20160720111044502",
  "status" : "Unknown",
  "gradeKey" : "10",
  "gradeName" : "Platinum",
  "gradeDisplayOrder" : 10,
  "description" : "groupxxxxxxxxx",
  "templateCreatorType" : "User",
  "numOfVolumes" : 0,
  "numOfVMs" : 0,
  "numOfHosts" : 0,
  "volumeAutoAssignFilters" : [ ],
  "vmAutoAssignFilters" : [ ],
  "hostAutoAssignFilters" : [ ]
}

```

Getting specific consumer information

You can obtain information about a specific consumer, such as the consumer name and grade.

Execution permission

Admin, Modify

Request line**GET** baseURL/v1/objects/Groups/{id}**Request body**

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Group

```

{
  "instanceID": "...",
  "name": "...",
  "status": "...",
  "gradeKey": "...",
  "gradeName": "...",
  "gradeDisplayOrder": "...",
  "description": "...",
  "templateCreatorType": "...",
  "numOfVolumes": "...",
  "numOfVMs": "...",
  "numOfHosts": "...",
  "volumeAutoAssignFilters": ["...", ...],
  "vmAutoAssignFilters": ["...", ...],
  "hostAutoAssignFilters": ["...", ...]
}

```

Group (Type: Group)

Attribute	Type	Description
instanceID	string	ID of the consumer.
name	string	Name of the consumer.
status	enum	Status of the consumer.

Attribute	Type	Description
		(For details about the valid values, see the table <i>NodeStatusType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown
gradeKey	string	ID of the grade.
gradeName	string	Name of the grade.
gradeDisplayOrder	int	Priority of the grade.
description	string	Description.
templateCreatorType	enum	Type indicating whether the consumer can perform editing. The consumer can perform editing only if the type is "User". (For details about the valid values, see the table <i>TemplateCreatorType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ User ▪ Default
numOfVolumes	int	Number of volumes assigned to the consumer.
numOfVMs	int	Number of virtual machines assigned to the consumer.
numOfHosts	int	Number of hosts assigned to the consumer.
volumeAutoAssignFilters	string[]	Assignment rules of volumes that can be assigned to this consumer.
vmAutoAssignFilters	string[]	Assignment rules of virtual machines that can be assigned to this consumer.
hostAutoAssignFilters	string[]	Assignment rules of hosts that can be assigned to this consumer.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.

Status code	Reason phrase	Description
403	Forbidden	No reference privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/Groups/group%2380d3b2fd-3199-429b-803e-9c7d4c20fe78
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:10:49 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "group#80d3b2fd-3199-429b-803e-9c7d4c20fe78",
  "name" : "Group-20160720111049086",
  "status" : "Unknown",
  "gradeKey" : "10",
  "gradeName" : "Platinum",
  "gradeDisplayOrder" : 10,
  "description" : "groupxxxxxxxx",
  "templateCreatorType" : "User",
```

```

"numOfVolumes" : 0,
"numOfVMs" : 0,
"numOfHosts" : 0,
"volumeAutoAssignFilters" : [ ],
"vmAutoAssignFilters" : [ ],
"hostAutoAssignFilters" : [ ]
}

```

Updating consumer

You can update information about a specific consumer, such as the consumer name and grade.

Execution permission

Admin, Modify

Request line

```
PUT baseUrl/v1/objects/Groups/{id}
```

Request body

The structure of the request body and the object attributes are as follows:

Group

```

{
  "instanceID":"...",
  "name":"...",
  "status":"...",
  "gradeKey":"...",
  "gradeName":"...",
  "gradeDisplayOrder":"...",
  "description":"...",
  "templateCreatorType":"...",
  "numOfVolumes":"...",
  "numOfVMs":"...",
  "numOfHosts":"...",
  "volumeAutoAssignFilters":["...", ...],
  "vmAutoAssignFilters":["...", ...],
  "hostAutoAssignFilters":["...", ...]
}

```

Group (Type: Group)

Attribute	Type	Description
instanceID	string	ID of the consumer.
name	string	Name of the consumer.
status	enum	Status of the consumer. (For details about the valid values, see the table NodeStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown
gradeKey	string	ID of the grade.
gradeName	string	Name of the grade.
gradeDisplayOrder	int	Priority of the grade.
description	string	Description.
templateCreatorType	enum	Type indicating whether the consumer can perform editing. The consumer can perform editing only if the type is "User". (For details about the valid values, see the table TemplateCreatorType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ User ▪ Default
numOfVolumes	int	Number of volumes assigned to the consumer.
numOfVMs	int	Number of virtual machines assigned to the consumer.
numOfHosts	int	Number of hosts assigned to the consumer.
volumeAutoAssignFilters	string[]	Assignment rules of volumes that can be assigned to this consumer.
vmAutoAssignFilters	string[]	Assignment rules of virtual machines that can be assigned to this consumer.
hostAutoAssignFilters	string[]	Assignment rules of hosts that can be assigned to this consumer.

Response body

The structure of the response body and the object attributes is as follows:

Group

```
{
  "instanceID": "...",
  "name": "...",
  "status": "...",
  "gradeKey": "...",
  "gradeName": "...",
  "gradeDisplayOrder": "...",
  "description": "...",
  "templateCreatorType": "...",
  "numOfVolumes": "...",
  "numOfVMs": "...",
  "numOfHosts": "...",
  "volumeAutoAssignFilters": ["...", ...],
  "vmAutoAssignFilters": ["...", ...],
  "hostAutoAssignFilters": ["...", ...]
}
```

Group (Type: Group)

Attribute	Type	Description
instanceID	string	ID of the consumer.
name	string	Name of the consumer.
status	enum	Status of the consumer. (For details about the valid values, see the table <i>NodeStatusType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown
gradeKey	string	ID of the grade.
gradeName	string	Name of the grade.
gradeDisplayOrder	int	Priority of the grade.
description	string	Description.
templateCreatorType	enum	Type indicating whether the consumer can perform editing. The consumer can perform editing only if the type is "User".

Attribute	Type	Description
		(For details about the valid values, see the table TemplateCreatorType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> User Default
numOfVolumes	int	Number of volumes assigned to the consumer.
numOfVMs	int	Number of virtual machines assigned to the consumer.
numOfHosts	int	Number of hosts assigned to the consumer.
volumeAutoAssignFilters	string[]	Assignment rules of volumes that can be assigned to this consumer.
vmAutoAssignFilters	string[]	Assignment rules of virtual machines that can be assigned to this consumer.
hostAutoAssignFilters	string[]	Assignment rules of hosts that can be assigned to this consumer.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
409	Conflict	A resource with the same name exists.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
```

```

PUT /Analytics/v1/objects/Groups/group%2331cf9a64-c9b8-4abf-a5b8-1f11c8d982ac
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "Group-20160720111053343",
  "gradeKey": "0",
  "description": "groupzzzzzz"
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:10:53 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "group#31cf9a64-c9b8-4abf-a5b8-1f11c8d982ac",
  "name" : "Group-20160720111053343",
  "status" : "Unknown",
  "gradeKey" : "0",
  "gradeName" : "-",
  "gradeDisplayOrder" : 2147483647,
  "description" : "groupzzzzzz",
  "templateCreatorType" : "User",
  "numOfVolumes" : 0,
  "numOfVMs" : 0,
  "numOfHosts" : 0,
  "volumeAutoAssignFilters" : [ ],
  "vmAutoAssignFilters" : [ ],
  "hostAutoAssignFilters" : [ ]
}

```

Deleting a specific consumer

You can delete a specific consumer. Resources assigned to the deleted consumer are set as unassigned (#Unassigned Resources).

Execution permission

Admin, Modify

Request line

```
DELETE baseURL/v1/objects/Groups/{id}
```

Request body

Not applicable.

Response body

Not applicable.

Status codes

Status code	Reason phrase	Description
204	No Content	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No delete privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
DELETE /Analytics/v1/objects/Groups/group%2331cf9a64-c9b8-4abf-a5b8-1f11c8d982ac
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
```

```

Content-Type: application/json

[Response Header]
HTTP/1.1 204 No Content
Date: Wed, 20 Jul 2016 02:25:55 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json

```

Getting a list of operations for specific consumers

You can obtain a list of operations that can be performed on a specific consumer.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/Groups/{id}/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```

{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}

```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/Groups/100000/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:10:44 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "updateTargetResource",
    "href" : "http://localhost:22015/Analytics/v1/objects/Groups/100000/
actions/updateTargetResource/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
```

```
"count" : 1
}
```

Preparing to assign a consumer

The following operation is the initial step to assign a specific consumer to resources to be monitored.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/Groups/{id}/actions/updateTargetResource
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.

Attribute	Type	Description
parameters	anyType[]	A list of UpdateTargetResourceParam objects necessary to execute an operation. For details about UpdateTargetResourceParam, see the table below.

UpdateTargetResourceParam

```
{
  "volumeIDs": ["...", ...],
  "vmIDs": ["...", ...],
  "resourceIDs": ["...", ...]
}
```

UpdateTargetResourceParam (Type: UpdateTargetResourceParam)

Attribute	Type	Description
volumeIDs	string[]	ID of the volume
vmIDs	string[]	ID of the virtual machine
resourceIDs	string[]	ID of the host

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/Groups/group%23a6c24393-07c9-4465-ba3f-
dc33b9583d74/actions/updateTargetResource
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:43:25 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "updateTargetResource",
  "href" : "http://localhost:22015/Analytics/v1/objects/Groups/group
%23a6c24393%2d07c9%2d4465%2dba3f%2ddc33b9583d74/actions/
updateTargetResource/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "volumeIDs" : [ ],
    "vmIDs" : [ ],
    "resourceIDs" : [ ]
  } ]
}
```

Assigning a specific consumer

You can assign a specific consumer to resources to be monitored.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/objects/Groups/{id}/actions/updateTargetResource/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of UpdateTargetResourceParam objects necessary to execute an operation. For details about UpdateTargetResourceParam, see the table below.

UpdateTargetResourceParam

```
{
  "volumeIDs": ["...", ...],
  "vmIDs": ["...", ...],
  "resourceIDs": ["...", ...]
}
```

UpdateTargetResourceParam (Type: UpdateTargetResourceParam)

Attribute	Type	Description
volumeIDs	string[]	ID of the volume

Attribute	Type	Description
vmIDs	string[]	ID of the virtual machine
resourceIDs	string[]	ID of the host

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/Groups/group%23fd830c03-a08a-4a96-aed9-
55024c4f678a/actions/updateTargetResource/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name" : "updateTargetResource",
  "href" : "http://localhost:22015/Analytics/v1/objects/Groups/group
%23a6c24393%2d07c9%2d4465%2dba3f%2ddc33b9583d74/actions/
updateTargetResource/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "volumeIDs": ["raidLdev#410025-00^03^3F"],
    "vmIDs" : [],
    "resourceIDs" : []
  } ]
}

[Response Header]
HTTP/1.1 200 OK
```

```
Date: Wed, 03 Aug 2016 02:00:49 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
a61560c2eac97b0564aec48d2883daf39c0dfdf_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

[Response Body]

```
{
  "instanceID" : "b194ea16-2cce-4dee-bf0b-d77b57160620",
  "created" : "2016-08-03T11:00:50.143+09:00",
  "updated" : "2016-08-03T11:00:50.143+09:00",
  "completed" : "2016-08-03T11:00:50.143+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ ]
}
```

Chapter 11: Performing operations related to consumer auto creation

You can create consumers by consumer definitions. You can also generate, preview, export and register a consumer definition.

Getting information to generate a consumer definition

You can get request information to generate a consumer definition.

Execution permission

Admin

Request line

```
GET baseUrl/v1/services/GroupsDefinition/actions/generate
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of ConsumerDefinitionGenerateParam objects necessary to execute an operation. For details about ConsumerDefinitionGenerateParam, see the table below.

ConsumerDefinitionGenerateParam

```
{
  "baseParameter": "...",
  "generationPolicy": "...",
  "generationPolicySubParam": "...",
  "gradeKey": "..."
}
```

ConsumerDefinitionGenerateParam (Type: ConsumerDefinitionGenerateParam)

Attribute	Type	Description
baseParameter	enum	Base parameter for consumer auto creation (For details about the valid values, see the table BaseParameter in <i>List of enumerators</i> .)
generationPolicy	enum	generation policy (For details about the valid values, see the table GenerationPolicy in <i>List of enumerators</i> .)
generationPolicySubParam	string	Subparameter to define generation policy
gradeKey	string	Grade of consumer

Status codes

Status code	Reason phrase	Description
200	OK	Success.

Status code	Reason phrase	Description
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET Analytics/v1/services/GroupsDefinition/actions/generate
authorization:
Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
date: Fri, 01 Apr 2022 02:02:31 GMT
server: CosminexusComponentContainer
cache-control: no-cache, must-revalidate, private, max-age=0
www-authenticate: HSSO
18616ecdaa33afda9e179c113bb286e7ebd3a67b_Wm0HGnlmckFqXXwA_V0810
content-type: application/json
content-length: 389
x-frame-options: SAMEORIGIN
x-xss-protection: 1; mode=block
x-content-type-options: nosniff
content-security-policy: frame-ancestors 'self'

[Response Body]
{
  "name" : "generate",
  "href" : "http://localhost:22015/Analytics/v1/services/GroupsDefinition/
actions/generate/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "baseParameter" : "HostGroup",
    "generationPolicy" : "LeadingAlphabets",
    "generationPolicySubParam" : "",
    "grade" : "",
    "autoAssignRelatedResource" : false
```



```
} ]  
}
```

Generate a consumer definition

You can generate a consumer definition.

Execution permission

Admin

Request line

POST baseURL/v1/services/GroupsDefinition/actions/generate/invoke

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{  
    "name": "...",  
    "href": "...",  
    "method": "...",  
    "type": "...",  
    "parameters": ["...", ...]  
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of ConsumerDefinitionGenerateParam objects necessary to execute an operation. For details about ConsumerDefinitionGenerateParam, see the table below.

ConsumerDefinitionGenerateParam

```
{
  "baseParameter": "...",
  "generationPolicy": "...",
  "generationPolicySubParam": "...",
  "gradeKey": "..."
}
```

ConsumerDefinitionGenerateParam (Type: ConsumerDefinitionGenerateParam)

Attribute	Type	Description
baseParameter	enum	Base parameter for consumer auto creation (For details about the valid values, see the table BaseParameter in <i>List of enumerators</i> .)
generationPolicy	enum	generation policy (For details about the valid values, see the table GenerationPolicy in <i>List of enumerators</i> .)
generationPolicySubParam	string	Subparameter to define generation policy
gradeKey	string	Grade of consumer

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.

Attribute	Type	Description
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of ConsumerDefinitionGenerateResponse objects. For details about ConsumerDefinitionGenerateResponse, see the table below.

ConsumerDefinitionGenerateResponse

```
{
  "informationMessage": "... "
}
```

ConsumerDefinitionGenerateResponse (Type: ConsumerDefinitionGenerateResponse)

Attribute	Type	Description
informationMessage	string	Information message.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.

Status code	Reason phrase	Description
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST Analytics/v1/services/GroupsDefinition/actions/generate/invoke
authorization:Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "generate",
  "href": "http://localhost:22015/Analytics/v1/services/GroupsDefinition/
actions/generate/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [
    {
      "baseParameter": "HostGroup",
      "generationPolicy": "PrecedeSeparator",
      "generationPolicySubParam": "-",
      "grade": "Bronze",
      "autoAssignRelatedResource": false
    }
  ]
}

[Response Header]
HTTP/1.1 200 OK
date: Fri, 01 Apr 2022 02:07:43 GMT
server: CosminexusComponentContainer
cache-control: no-cache, must-revalidate, private, max-age=0
www-authenticate: HSSO
dae9a6422f35b2e6a379db33118dd745ca5228_Wm0HGnlmckFqXXwA_V0810
content-type: application/json
content-length: 348
x-frame-options: SAMEORIGIN
x-xss-protection: 1; mode=block
```

```
x-content-type-options: nosniff
content-security-policy: frame-ancestors 'self'

[Response Body]
{
  "instanceID": "c11a5532-649b-40d0-acc2-4653b5d70de7",
  "created": "2022-03-31T19:07:43.670-07:00",
  "updated": "2022-03-31T19:07:43.670-07:00",
  "completed": "2022-03-31T19:07:43.670-07:00",
  "state": "success",
  "affectedResource": [],
  "result": [
    {
      "instanceID": "consumerDefinition#786722c0-24c0-44ac-b436-cb4d4e52c564"
    }
  ],
}
```

Getting information to preview a consumer definition

You can get request information to preview a result of consumer auto creation for a consumer definition.

Execution permission

Admin

Request line

```
GET baseUrl/v1/objects/GroupsDefinition/{id}/actions/preview
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET Analytics/v1/objects/GroupsDefinition/consumerDefinition%23786722c0-24c0-44ac-b436-cb4d4e52c564/actions/preview
authorization:
Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Response Header]
HTTP/1.1 200 OK
date: Fri, 01 Apr 2022 02:12:27 GMT
server: CosminexusComponentContainer
cache-control: no-cache, must-revalidate, private, max-age=0
www-authenticate: HSSO
2e5791f57e4474325f13e1d36ab6c7f5409519_Wm0HGnlmckFqXXwA_V0810
```

```

content-type: application/json
content-length: 265
x-frame-options: SAMEORIGIN
x-xss-protection: 1; mode=block
x-content-type-options: nosniff
content-security-policy: frame-ancestors 'self'

[Response Body]
{
  "name" : "preview",
  "href" : "http://localhost:22015/Analytics/v1/objects/GroupsDefinition/
consumerDefinition%23786722c0%2d24c0%2d44ac%2db436%2dcb4d4e52c564/actions/
preview/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ ]
}

```

Preview a consumer definition

You can preview a result of consumer auto creation for a consumer definition.

Execution permission

Admin

Request line

POST baseUrl/v1/objects/GroupsDefinition/{id}/actions/preview/invoke

Request body

The structure of the request body and the object attributes are as follows:

Action

```

{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed.

Attribute	Type	Description
		"success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of ConsumerDefinitionPreviewResponse objects. For details about ConsumerDefinitionPreviewResponse, see the table below.

ConsumerDefinitionPreviewResponse

```
{
  "totalConsumer": "...",
  "existingConsumer": "...",
  "largestResource": "...",
  "previewConsumerList": [{
    "consumerName": "...",
    "baseSample": "...",
    "count": "...",
    "type": "...",
    "grade": "..."
  }],
  "isSubmittable": "...",
  "errorMessage": "..."
}
```

ConsumerDefinitionPreviewResponse (Type: ConsumerDefinitionPreviewResponse)

Attribute	Type	Description
totalConsumer	int	The number of new consumers to create.
existingConsumer	int	The number of consumers that already exist.
largestResource	int	Largest number of resources per consumer.
previewConsumerList	ConsumerDefinitionPreviewConsumer[]	A list of consumers created by specified parameters.
isSubmittable	boolean	Whether user can submit consumer auto creation.
errorMessage	string	Error message.

previewConsumerList (Type: ConsumerDefinitionPreviewConsumer)

Attribute	Type	Description
consumerName	string	Name of the consumer.
baseSample	string	Sample base parameters of resources that are assigned to.
count	int	Number of resources assigned to the consumer.
type	enum	Whether the consumer is new or existing. (For details about the valid values, see the table ConsumerExistenceType in <i>List of enumerators</i> .)
grade	string	Grade of consumer.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST Analytics/v1/objects/GroupsDefinition/consumerDefinition%23786722c0-
24c0-44ac-b436-cb4d4e52c564/actions/preview/invoke
authorization:
Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "preview",
```

```

    "href": "http://localhost:22015/Analytics/v1/objects/GroupsDefinition/
consumerDefinition%23786722c0%2d24c0%2d44ac%2db436%2dcb4d4e52c564/actions/
preview/invoke",
    "method": "POST",
    "type": "application/json",
    "parameters": []
  }

[Response Header]
HTTP/1.1 200 OK
date: Fri, 01 Apr 2022 02:36:22 GMT
server: CosminexusComponentContainer
cache-control: no-cache, must-revalidate, private, max-age=0
www-authenticate: HSSO
27fe10c5c21c92b222d62ab1f9b9fb4640758da2_Wm0HGnlmckFqXXwA_V0810
content-type: application/json
content-length: 544
x-frame-options: SAMEORIGIN
x-xss-protection: 1; mode=block
x-content-type-options: nosniff
content-security-policy: frame-ancestors 'self'

[Response Body]
{
  "instanceID" : "1479050e-5198-4185-925f-5eaf5d543ce4",
  "created" : "2022-03-31T19:36:22.899-07:00",
  "updated" : "2022-03-31T19:36:22.899-07:00",
  "completed" : "2022-03-31T19:36:22.899-07:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "totalConsumer" : 1,
    "existingConsumer" : 0,
    "largestResource" : 40,
    "previewConsumerList" : [ {
      "consumerName" : "_A_HostGroup",
      "baseSample" : "HostGroup-1A001",
      "count" : 40,
      "type" : "New",
      "grade" : "Bronze"
    } ]
  } ]
}

```

Getting information to submit a consumer auto creation task

You can get request information to submit a consumer auto creation task.

Execution permission

Admin

Request line**GET** baseUrl/v1/objects/GroupsDefinition/{id}/actions/submit**Request body**

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.

Status code	Reason phrase	Description
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET Analytics/v1/objects/GroupsDefinition/consumerDefinition%23786722c0-
24c0-44ac-b436-cb4d4e52c564/actions/submit
authorization:
Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
date: Fri, 01 Apr 2022 05:05:37 GMT
server: CosminexusComponentContainer
cache-control: no-cache, must-revalidate, private, max-age=0
www-authenticate: HSSO
e91797cce0d9a1b674ff523966a56398ba92ea_Wm0HGnlmckFqXXwA_V0810
content-type: application/json
content-length: 263
x-frame-options: SAMEORIGIN
x-xss-protection: 1; mode=block
x-content-type-options: nosniff
content-security-policy: frame-ancestors 'self'

[Response Body]
{
  "name" : "submit",
  "href" : "http://localhost:22015/Analytics/v1/objects/GroupsDefinition/
consumerDefinition%23786722c0%2d24c0%2d44ac%2db436%2dcb4d4e52c564/actions/
submit/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ ]
}
```

Submit a consumer auto creation task

You can create consumers by submitting a consumer definition.

Execution permission

Admin

Request line

```
POST baseURL/v1/objects/GroupsDefinition/{id}/actions/submit/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
}
```

```

    "updated": "...",
    "completed": "...",
    "state": "...",
    "affectedResource": ["...", ...],
    "result": ["...", ...]
  }

```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of ConsumerDefinitionSubmitResponse objects. For details about ConsumerDefinitionSubmitResponse, see the table below.

ConsumerDefinitionSubmitResponse

```

{
  "message": "...",
  "createdConsumers": "...",
  "createdRules": "...",
  "modifiedRules": "..."
}

```

ConsumerDefinitionSubmitResponse (Type: ConsumerDefinitionSubmitResponse)

Attribute	Type	Description
message	string	The message for result of submit API.
createdConsumers	string	List of created consumers.
createdRules	string	List of created rules.
modifiedRules	string	List of modified rules.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST Analytics/v1/objects/GroupsDefinition/consumerDefinition%23786722c0-
24c0-44ac-b436-cb4d4e52c564/actions/submit/invoke
authorization:Basic c3lzdGVtOmlhbmFnZXI=
content-type:application/json
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name" : "submit",
  "href" : "http://localhost:22015/Analytics/v1/objects/GroupsDefinition/
consumerDefinition%23786722c0%2d24c0%2d44ac%2db436%2dcb4d4e52c564/actions/
submit/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ ]
}
```



```
[Response Header]
HTTP/1.1 200 OK
date: Fri, 01 Apr 2022 10:12:43 GMT
server: CosminexusComponentContainer
cache-control: no-cache, must-revalidate, private, max-age=0
www-authenticate: HSSO
dc9c674d68f9ce230f4e199e1e6fd3f96c3db0_Wm0HGnlmckFqXXwA_V0810
content-type: application/json
content-length: 275
x-frame-options: SAMEORIGIN
x-xss-protection: 1; mode=block
x-content-type-options: nosniff
content-security-policy: frame-ancestors 'self'

[Response Body]
{
  "instanceID" : "b01a367f-e950-4bd7-9f2f-44659407d5f9",
  "created" : "2022-04-01T03:12:43.809-07:00",
  "updated" : "2022-04-01T03:12:43.809-07:00",
  "completed" : "2022-04-01T03:12:43.809-07:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ { } ]
}
```

Getting information to export a consumer definition file

You can get request information to export a consumer definition as a csv file.

Execution permission

Admin

Request line

```
GET baseUrl/v1/objects/GroupsDefinition/{id}/actions/export
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET Analytics/v1/objects/GroupsDefinition/consumerDefinition%23786722c0-24c0-44ac-b436-cb4d4e52c564/actions/export
authorization:
Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
```

```

Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
date: Fri, 01 Apr 2022 11:03:47 GMT
server: CosminexusComponentContainer
cache-control: no-cache, must-revalidate, private, max-age=0
www-authenticate: HSSO
6fb71fd328b81cc33f47c76dd2a4ee2c9cb6fee7_Wm0HGnlmckFqXXwA_V0810
content-type: application/json
content-length: 255
x-frame-options: SAMEORIGIN
x-xss-protection: 1; mode=block
x-content-type-options: nosniff
content-security-policy: frame-ancestors 'self'

[Response Body]
{
  "name" : "export",
  "href" : "http://localhost:22015/Analytics/v1/objects/GroupsDefinition/
consumerDefinition%23786722c0-24c0-44ac-b436-cb4d4e52c564/actions/export/
invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ ]
}

```

Export a consumer definition file

You can export a consumer definition as a csv file.

Execution permission

Admin

Request line

```
POST baseUrl/v1/objects/GroupsDefinition/{id}/actions/export/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```

{
  "name": "...",
  "href": "...",

```

```

    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Response body

The structure of the response body is csv.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```

[Request Header]
POST Analytics/v1/objects/GroupsDefinition/consumerDefinition%23786722c0-
24c0-44ac-b436-cb4d4e52c564/actions/export/invoke
authorization:Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015

```

```

Accept: application/json,text/csv
Content-Type: application/json

[Request Body]
{
  "name": "export",
  "href": "http://localhost:22015/Analytics/v1/objects/GroupsDefinition/
creationPlan%23786722c0-24c0-44ac-b436-cb4d4e52c564/actions/export/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": []
}

[Response Header]
HTTP/1.1 200 OK
date: Fri, 01 Apr 2022 11:21:14 GMT
server: CosminexusComponentContainer
cache-control: no-cache, must-revalidate, private, max-age=0
content-disposition: attachment;
filename="VOLUME_Host_Group_Name_PrecedeSeparator_Bronze_20220331190743.csv
"; creation-date="Fri, 01 Apr 2022 11:21:14 GMT"
x-consumer-creation-plan-csv-filename:
VOLUME_Host_Group_Name_PrecedeSeparator_Bronze_20220331190743.csv
access-control-expose-headers: X-Consumer-Creation-Plan-Csv-Filename,
Content-Disposition
www-authenticate: HSSO
767c4dcc631df853945e2272f695555997d6804a_Wm0HGnlmckFqXXwA_V0810
content-type: text/csv
content-length: 288
x-frame-options: SAMEORIGIN
x-xss-protection: 1; mode=block
x-content-type-options: nosniff
content-security-policy: frame-ancestors 'self'

[Response Body]
"CONSUMER","GRADE","RESOURCE TYPE","ATTRIBUTE","CONDITION","VALUE","RULE
NAME","RULE DESCRIPTION"
"_A_HostGroup","Bronze","Volume","Host Group Name","Starts with",
"HostGroup","_A_HostGroup_Host Group Name_Starts with","_A_Volume_Host
Group Name_PrecedeSeparator_Bronze_System_20220331190743"

```

Getting information to register a consumer definition file

You can get request information to register a consumer definition csv file.

Execution permission

Admin

Request line

```
GET baseUrl/v1/services/GroupsDefinition/actions/register
```

Request body

Not applicable.

Response body

The structure of the response body is HTML.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET Analytics/V1/services/GroupsDefinition/actions/register
authorization:Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
date: Fri, 01 Apr 2022 11:29:13 GMT
server: CosminexusComponentContainer
cache-control: no-cache, must-revalidate, private, max-age=0
www-authenticate: HSSO
2e255eb2de6aef161353a4e3ca421813012f322_Wm0HGnlmckFqXXwA_V0810
content-type: text/html
content-length: 274
x-frame-options: SAMEORIGIN
x-xss-protection: 1; mode=block
x-content-type-options: nosniff
```

```

content-security-policy: frame-ancestors 'self'

[Response Body]
<html>
  <body>
    <form method="POST" action="http://localhost:22015/Analytics/v1/services/
GroupsDefinition/actions/register/invoke" enctype="multipart/form-data">
      <input type="file" name="csv"/>
      <input type="submit" value="Submit"/>
    </form>
  </body>
</html>

```

Register a consumer definition file

You can register a consumer definition csv file.

Execution permission

Admin

Request line

POST baseUrl/v1/services/GroupsDefinition/actions/register/invoke

Request body

Specify consumer definition csv file.

Response body

The structure of the response body and the object attributes is as follows:

Job

```

{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}

```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST Analytics/V1/services/GroupsDefinition/actions/register/invoke
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
```



```

Accept: application/json
Content-Type: multipart/form-data;

[Response Header]
HTTP/1.1 200
Date: Fri, 01 Apr 2022 12:20:29 GMT
Server: CosminexusComponentContainer
Cache-Control: no-cache, must-revalidate, private, max-age=0
WWW-Authenticate: HSSO
eaab59c82e6b46e139979fab8b8431dd2e8c671a_Wm0HGnlmckFqXXwA_V0810
Content-Type: application/json
Content-Length: 480
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Security-Policy: frame-ancestors 'self'

[Response Body]
{ [480 bytes data]
100 1183 100 480 100 703 1660 2432 --:--:-- --:--:-- --:--:--
4107{
  "instanceID" : "fece0b00-ba69-4e34-8d33-3cd19950e394",
  "created" : "2022-04-01T05:20:29.558-07:00",
  "updated" : "2022-04-01T05:20:29.558-07:00",
  "completed" : "2022-04-01T05:20:29.558-07:00",
  "state" : "success",
  "affectedResource" : [ "http://localhost:22015/Analytics/v1/objects/
GroupsDefinition/consumerDefinition%2364c0f284%2db22f%2d41ae
%2db493%2dee8a47041d35" ],
  "result" : [ {
    "instanceID" : "consumerDefinition#64c0f284-b22f-41ae-b493-
ee8a47041d35"
  } ]
}

```

Chapter 12: Connecting to the Analyzer detail view server

You can update connection settings, check the state of a connection, and obtain the URL for the Analyzer detail view server.

Getting a list of Analyzer detail view server connection settings

You can obtain a list of connection settings for the Analyzer detail view server, such as the host name and user name.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/HdcaSettings
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of HdcaSetting objects. For details about HdcaSetting, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

HdcaSetting

```
{
  "instanceID":"...",
  "host":"...",
  "protocol":"...",
  "port":"...",
  "userName":"...",
  "connectionResult":"...",
  "url":"...",
  "message":"...",
  "messageID":"..."
}
```

HdcaSetting (Type: HdcaSetting)

Attribute	Type	Description
instanceID	string	ID of the connection setting.
host	string	Host name used for connecting to the Analyzer detail view server.

Attribute	Type	Description
protocol	string	Protocol used for connecting to the Analyzer detail view server.
port	int	Port number used for connecting to the Analyzer detail view server.
userName	string	Administration user of Analyzer detail view.
connectionResult	boolean	Whether or not connection to the Analyzer detail view server was successful.
url	string	URL of the Analyzer detail view server.
message	string	The error message when connection failed.
messageID	string	ID of the error message when connection failed.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/HdcaSettings
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:36 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
```

```
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

[Response Body]

```
{
  "data" : [ {
    "instanceID" : "997104105",
    "host" : "172.17.25.153",
    "protocol" : "https",
    "port" : 8443,
    "userName" : "admin",
    "connectionResult" : false
  } ],
  "count" : 1
}
```

Updating specific Analyzer detail view server connection settings

You can update information about a specific connection setting for the Analyzer detail view server, such as the host name and user name.

Execution permission

Admin

Request line

```
PUT baseUrl/v1/objects/HdcaSettings/{id}
```

Request body

The structure of the request body and the object attributes are as follows:

HdcaSetting

```
{
  "instanceID": "...",
  "host": "...",
  "protocol": "...",
  "port": "...",
  "userName": "...",
  "password": "...",
  "connectionResult": "...",
}
```

```

    "url":"...",
    "message":"...",
    "messageID":"..."
  }

```

HdcaSetting (Type: HdcaSetting)

Attribute	Type	Description
instanceID	string	ID of the connection setting.
host	string	Host name used for connecting to the Analyzer detail view server.
protocol	string	Protocol used for connecting to the Analyzer detail view server.
port	int	Port number used for connecting to the Analyzer detail view server.
userName	string	Administration user of Analyzer detail view.
password	string	Password used for executing the user API. Set a string encoded in Base64.
connectionResult	boolean	Whether or not connection to the Analyzer detail view server was successful.
url	string	URL of the Analyzer detail view server.
message	string	The error message when connection failed.
messageID	string	ID of the error message when connection failed.

Response body

The structure of the response body and the object attributes is as follows:

HdcaSetting

```

{
  "instanceID":"...",
  "host":"...",
  "protocol":"...",
  "port":"...",
  "userName":"...",
  "connectionResult":"...",
  "url":"...",
  "message":"...",
  "messageID":"..."
}

```

HdcaSetting (Type: HdcaSetting)

Attribute	Type	Description
instanceID	string	ID of the connection setting.
host	string	Host name used for connecting to the Analyzer detail view server.
protocol	string	Protocol used for connecting to the Analyzer detail view server.
port	int	Port number used for connecting to the Analyzer detail view server.
userName	string	Administration user of Analyzer detail view.
connectionResult	boolean	Whether or not connection to the Analyzer detail view server was successful.
url	string	URL of the Analyzer detail view server.
message	string	The error message when connection failed.
messageID	string	ID of the error message when connection failed.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
PUT /Analytics/v1/objects/HdcaSettings/997104105
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
```

```

Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "host": "172.17.25.153",
  "protocol": "https",
  "port": "8443",
  "userName": "admin",
  "password": "aWFzMTIz"
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:44 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "997104105",
  "host" : "172.17.25.153",
  "protocol" : "https",
  "port" : 8443,
  "userName" : "admin",
  "connectionResult" : false
}

```

Getting specific Analyzer detail view server connection settings

You can obtain information about a specific connection setting for the Analyzer detail view server, such as the host name and user name.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/HdcaSettings/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

HdcaSetting

```
{
  "instanceID": "...",
  "host": "...",
  "protocol": "...",
  "port": "...",
  "userName": "...",
  "connectionResult": "...",
  "url": "...",
  "message": "...",
  "messageID": "..."
}
```

HdcaSetting (Type: HdcaSetting)

Attribute	Type	Description
instanceID	string	ID of the connection setting.
host	string	Host name used for connecting to the Analyzer detail view server.
protocol	string	Protocol used for connecting to the Analyzer detail view server.
port	int	Port number used for connecting to the Analyzer detail view server.
userName	string	Administration user of Analyzer detail view.
connectionResult	boolean	Whether or not connection to the Analyzer detail view server was successful.
url	string	URL of the Analyzer detail view server.
message	string	The error message when connection failed.
messageID	string	ID of the error message when connection failed.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/HdcaSettings/997104105
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:36 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "997104105",
  "host" : "172.17.25.153",
  "protocol" : "https",
  "port" : 8443,
  "userName" : "admin",
  "connectionResult" : false,
  "url" : "https://172.17.25.153:8443/launchApp.htm?launchId=a1341d12-8288-
```

```
4173-b806-2d8861a896d1"  
}
```

Getting a list of operations for configuring the connection settings of the Analyzer detail view server

You can obtain a list of operations that can be performed on a specific connection setting for the Analyzer detail view server.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/HdcaSettings/{id}/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{  
  "data":["...", ...],  
  "pagination":{  
    "page":"...",  
    "pageSize":"...",  
    "numPages":"...",  
    "totalCount":"..."  
  },  
  "count":"..."  
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.

Attribute	Type	Description
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/HdcaSettings/997104105/actions HTTP/1.1
Host: localhost:22015
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.49.1
Accept: application/json
Content-Type:application/json

[Response Header]
HTTP/1.1 200 OK
Date: Tue, 31 Jan 2017 04:44:26 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8a2e74abf3032bec56e82d2f424d7874b77e2_ZAlDR1YdfRBWBxNW_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "getInContextLaunchUrl",
    "href" : "http://localhost:22015/Analytics/v1/objects/HdcaSettings/
997104105/actions/getInContextLaunchUrl/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
```

```

    } ],
    "count" : 1
  }

```

Preparing to get the URL of the Analyzer detail view server

The following operation is the initial step to obtain the URL for connecting to the Analyzer detail view server, with a resource selected.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/HdcaSettings/{id}/actions/getInContextLaunchUrl
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```

{
    "name": "...",
    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.

Attribute	Type	Description
parameters	anyType[]	A list of HdcalnContextLaunchParam objects necessary to execute an operation. For details about HdcalnContextLaunchParam, see the table below.

HdcalnContextLaunchParam

```
{
  "resourceId": "... "
}
```

HdcalnContextLaunchParam (Type: HdcalnContextLaunchParam)

Attribute	Type	Description
resourceId	string	Resource ID of In-Context Launch destination

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/HdcaSettings/997104105/actions/
getInContextLaunchUrl HTTP/1.1
Host: localhost:22015
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.49.1
Accept: application/json
Content-Type: application/json
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Tue, 31 Jan 2017 04:45:00 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
49b4df80c683e1e0abcdceeeaeec1a24559ba0fd_ZA1DR1YdfRBWBxNW_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getInContextLaunchUrl",
  "href" : "http://localhost:22015/Analytics/v1/objects/HdcaSettings/
997104105/actions/getInContextLaunchUrl/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "resourceId" : "resourceId"
  } ]
}
```

Getting the URL of the Analyzer detail view server

You can obtain the URL for connecting to the Analyzer detail view server, with a resource selected.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/objects/HdcaSettings/{id}/actions/getInContextLaunchUrl/
invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
```



```

    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of HdcalnContextLaunchParam objects necessary to execute an operation. For details about HdcalnContextLaunchParam, see the table below.

HdcalnContextLaunchParam

```

{
    "resourceId": "..."
}

```

HdcalnContextLaunchParam (Type: HdcalnContextLaunchParam)

Attribute	Type	Description
resourceId	string	Resource ID of In-Context Launch destination

Response body

The structure of the response body and the object attributes is as follows:

Job

```

{
    "instanceID": "...",
    "created": "...",
    "updated": "...",
    "completed": "...",
    "state": "...",
    "affectedResource": ["...", ...],
    "result": ["...", ...]
}

```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of HdcalnContextLaunchUrl objects. For details about HdcalnContextLaunchUrl, see the table below.

HdcalnContextLaunchUrl

```
{
  "inContextLaunchUrl": "..."}

```

HdcalnContextLaunchUrl (Type: HdcalnContextLaunchUrl)

Attribute	Type	Description
inContextLaunchUrl	string	URL of In-Context Launch destination

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.

Status code	Reason phrase	Description
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/HdcaSettings/997104105/actions/
getInContextLaunchUrl/invoke
Host: localhost:22015
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.49.1
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name" : "getInContextLaunchUrl",
  "href" : "http://localhost:22015/Analytics/v1/objects/HdcaSettings/
1243417192/actions/getInContextLaunchUrl/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters": [
    {
      "resourceId": "raidLdev#51547-00^00^00"
    }
  ]
}

[Response Header]
HTTP/1.1 200 OK
Cache-Control: no-cache
Connection: Keep-Alive
Content-Type: application/json
Date: Tue, 24 Jan 2017 01:20:00 GMT
Server: Cosminexus HTTP Server
Transfer-Encoding: chunked
WWW-Authenticate: HSSO
c450462eec01893d4c1ebcba7e7876538bd94_VwBvNGpyDgxyCUY3eXZdCQ==_V0810
X-Content-Type-Options: nosniff
X-Frame-Options: SAMEORIGIN
```

```
X-XSS-Protection : 1; mode=block
```

[Response Body]

```
{
  "instanceID": "685ca5af-1ee3-4168-8873-f9ed5bebc431",
  "created": "2017-01-24T11:20:28.364+09:00",
  "updated": "2017-01-24T11:20:28.364+09:00",
  "completed": "2017-01-24T11:20:28.364+09:00",
  "state": "success",
  "affectedResource": [],
  "result": [
    {
      "inContextLaunchUrl": "https://172.17.25.104:8443/launchApp.htm?
launchId=4ecb6a91-b500-426d-9212-
17bb173123e7&resSig=cmFpZExkZXYjNTE1NDctMDBeMDBeMDA="
    }
  ]
}
```

Getting a list of operations for configuring Analyzer detail view server connection settings

You can obtain a list of operations related to connection settings for the Analyzer detail view server.

Execution permission

Admin

Request line

```
GET baseUrl/v1/services/HdcaSettings/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data": ["...", ...],
  "pagination": {
    "page": "...",
    "pageSize": "...",
  }
}
```

```

        "numPages": "...",
        "totalCount": "...",
    },
    "count": "...",
}

```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```

{
    "name": "...",
    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.

Attribute	Type	Description
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/HdcaSettings/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:36 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
```

```
"data" : [ {  
  "name" : "checkConnection",  
  "href" : "http://localhost:22015/Analytics/v1/services/HdcaSettings/  
actions/checkConnection/invoke",  
  "method" : "POST",  
  "type" : "application/json",  
  "parameters" : [ ]  
} ],  
"count" : 1  
}
```

Preparing to check the connection to Analyzer detail view server

The following operation is the initial step to check the connection to the Analyzer detail view server.

Execution permission

Admin

Request line

GET baseUrl/v1/services/HdcaSettings/actions/checkConnection

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{  
  "name": "...",  
  "href": "...",  
  "method": "...",  
  "type": "...",  
  "parameters": ["...", ...]  
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of HdcaSetting objects necessary to execute an operation. For details about HdcaSetting, see the table below.

HdcaSetting

```
{
  "instanceID": "...",
  "host": "...",
  "protocol": "...",
  "port": "...",
  "userName": "...",
  "connectionResult": "...",
  "url": "...",
  "message": "...",
  "messageID": "..."
}
```

HdcaSetting (Type: HdcaSetting)

Attribute	Type	Description
instanceID	string	ID of the connection setting.
host	string	Host name used for connecting to the Analyzer detail view server.
protocol	string	Protocol used for connecting to the Analyzer detail view server.
port	int	Port number used for connecting to the Analyzer detail view server.
userName	string	Administration user of Analyzer detail view.
connectionResult	boolean	Whether or not connection to the Analyzer detail view server was successful.
url	string	URL of the Analyzer detail view server.

Attribute	Type	Description
message	string	The error message when connection failed.
messageID	string	ID of the error message when connection failed.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/HdcaSettings/actions/checkConnection
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 22 Aug 2016 05:19:50 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
891f1a62fea230bee798f496e1189ce2ead3fca_Y2UOI2pkMXQ=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name": "checkConnection",
  "href": "http://localhost:22015/Analytics/v1/services/HdcaSettings/
actions/checkConnection/invoke",
```

```

"method": "POST",
"type": "application/json",
"parameters": [
  {
    "instanceID": "997104105",
    "host": "hdca server",
    "protocol": "https",
    "port": 8443,
    "userName": "admin",
    "connectionResult": false
  }
]
}

```

Checking the connection to Analyzer detail view server

You can check the connection to the Analyzer detail view server.

Execution permission

Admin

Request line

POST baseUrl/v1/services/HdcaSettings/actions/checkConnection/invoke

Request body

The structure of the request body and the object attributes are as follows:

Action

```

{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.

Attribute	Type	Description
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of HdcaSetting objects necessary to execute an operation. For details about HdcaSetting, see the table below.

HdcaSetting

```
{
  "instanceID": "...",
  "host": "...",
  "protocol": "...",
  "port": "...",
  "userName": "...",
  "password": "...",
  "connectionResult": "...",
  "url": "...",
  "message": "...",
  "messageID": "..."
}
```

HdcaSetting (Type: HdcaSetting)

Attribute	Type	Description
instanceID	string	ID of the connection setting.
host	string	Host name used for connecting to the Analyzer detail view server.
protocol	string	Protocol used for connecting to the Analyzer detail view server.
port	int	Port number used for connecting to the Analyzer detail view server.
userName	string	Administration user of Analyzer detail view.
password	string	Password used for executing the user API. Set a string encoded in Base64.
connectionResult	boolean	Whether or not connection to the Analyzer detail view server was successful.
url	string	URL of the Analyzer detail view server.

Attribute	Type	Description
message	string	The error message when connection failed.
messageID	string	ID of the error message when connection failed.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of HdcaSetting objects. For details about HdcaSetting, see the table below.

HdcaSetting

```
{
  "instanceID": "...",
  "host": "...",
  "protocol": "...",
  "port": "...",
  "userName": "...",
  "connectionResult": "...",
  "url": "...",
  "message": "...",
  "messageID": "..."
}
```

HdcaSetting (Type: HdcaSetting)

Attribute	Type	Description
instanceID	string	ID of the connection setting.
host	string	Host name used for connecting to the Analyzer detail view server.
protocol	string	Protocol used for connecting to the Analyzer detail view server.
port	int	Port number used for connecting to the Analyzer detail view server.
userName	string	Administration user of Analyzer detail view.
connectionResult	boolean	Whether or not connection to the Analyzer detail view server was successful.
url	string	URL of the Analyzer detail view server.
message	string	The error message when connection failed.
messageID	string	ID of the error message when connection failed.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.

Status code	Reason phrase	Description
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/services/HdcaSettings/actions/checkConnection/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "checkConnection",
  "href": "http://localhost:22015/Analytics/v1/services/HdcaSettings/
actions/checkConnection/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "instanceID": 997104105,
    "host": "172.17.25.153",
    "protocol": "https",
    "port": "8443",
    "userName": "admin",
    "password": "aWFzMTIz"
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:37 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

[Response Body]

```
{
  "instanceID" : "24aa67f4-26cb-4b89-8b22-acf9cecdc50b",
  "created" : "2016-08-12T02:56:38.372+09:00",
  "updated" : "2016-08-12T02:56:38.372+09:00",
  "completed" : "2016-08-12T02:56:38.372+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "port" : 0,
    "connectionResult" : true
  } ]
}
```

Chapter 13: Performing operations related to Storage I/O control settings

You can obtain a list of task history operations for the I/O control settings associated with a storage system, specify I/O control settings, and update the status of a task.

Getting a list of tasks related to Storage I/O control settings

You can obtain a list of Storage I/O control configuration tasks and task-related information, such as names, descriptions, and statuses.

Execution permission

Admin, StorageOps, Modify

Request line

```
GET baseURL/v1/objects/IoControlHistory
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of IoControlHistory objects. For details about IoControlHistory, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

IoControlHistory

```
{
  "instanceID": "...",
  "taskName": "...",
  "description": "...",
  "targetMetric": "...",
  "targetVolumes": ["...", ...],
  "limitationMode": "...",
  "limitValue": "...",
  "status": "...",
  "statusLastUpdateDateTime":,
  "registeredDatetime":,
  "registeredUserName": "...",
  "executionType": "...",
  "automationDirectorTaskIDs": ["...", ...]
}
```

IoControlHistory (Type: IoControlHistory)

Attribute	Type	Description
instanceID	string	ID of the I/O control settings task.

Attribute	Type	Description
taskName	string	Name of the I/O control settings task.
description	string	Explanation of the I/O control settings task.
targetMetric	enum	Type of the target metric. (For details about the valid values, see the table <code>IoControlMetricType</code> in <i>List of enumerators</i> .)
targetVolumes	string[]	ID of the target volume.
limitationMode	enum	Upper limit setting mode. (For details about the valid values, see the table <code>LimitationMode</code> in <i>List of enumerators</i> .)
limitValue	long	Upper limit. Not used if <code>limitationMode</code> is "OFF". When <code>targetMetric</code> is "TransferRate", the unit is MBps.
status	enum	Task status. (For details about the valid values, see the table <code>TaskStatus</code> in <i>List of enumerators</i> .)
statusLastUpdateDateTime	datetime	Date and time when the task status was last obtained.
registeredDatetime	datetime	Date and time when the task was registered.
registeredUserName	string	Name of the user who registered the task.
executionType	enum	Task execution type. (For details about the valid values, see the table <code>ExecutionType</code> in <i>List of enumerators</i> .)
automationDirectorTaskIDs	string[]	Task ID of Ops Center Automator.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	- The format of the request body is invalid. - A query parameter is invalid.
401	Unauthorized	No login privilege.

Status code	Reason phrase	Description
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET http://localhost:22015/Analytics/v1/objects/IoControlHistory HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Mon, 05 Sep 2016 03:13:59 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
5d3b478672e01d126f372d5f0fcd6b2d6e2227_Vlo8Y30Idn8EY0BdB3IEfwgabiA=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json
```

```
[Response Body]
{
  "data" : [ {
    "instanceID" : "TaskID",
    "taskName" : "TaskName0010",
    "description" : "TaskDescription",
    "targetMetric" : "IOPS",
    "targetVolumes" : [ "raidLdev#00^00^01", "raidLdev#00^00^02" ],
    "limitationMode" : "ON",
    "limitValue" : 2147483647,
    "status" : "Success",
    "statusLastUpdateDateTime" : "2016-09-05T12:14:00.002+09:00",
    "registeredDatetime" : "2016-09-05T12:13:59.994+09:00",
    "registeredUserName" : "User",
    "executionType" : "AutomationDirector",
    "automationDirectorTaskIDs" : [ "AutoTask1", "AutoTask2" ]
  } ],
  "count" : 1
}
```

Getting information about a specific Storage I/O control settings task

You can obtain information about a specific Storage I/O control configuration task, such as name, description, and status.

Execution permission

Admin, StorageOps, Modify

Request line

```
GET baseUrl/v1/objects/IoControlHistory/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

IoControlHistory

```
{
  "instanceID": "...",
  "taskName": "...",
  "description": "...",
  "targetMetric": "...",
  "targetVolumes": ["...", ...],
  "limitationMode": "...",
  "limitValue": "...",
  "status": "...",
  "statusLastUpdateDateTime":,
  "registeredDatetime":,
  "registeredUserName": "...",
  "executionType": "...",
  "automationDirectorTaskIDs": ["...", ...]
}
```

IoControlHistory (Type: IoControlHistory)

Attribute	Type	Description
instanceID	string	ID of the I/O control settings task.
taskName	string	Name of the I/O control settings task.

Attribute	Type	Description
description	string	Explanation of the I/O control settings task.
targetMetric	enum	Type of the target metric. (For details about the valid values, see the table <code>IoControlMetricType</code> in <i>List of enumerators</i> .)
targetVolumes	string[]	ID of the target volume.
limitationMode	enum	Upper limit setting mode. (For details about the valid values, see the table <code>LimitationMode</code> in <i>List of enumerators</i> .)
limitValue	long	Upper limit. Not used if <code>limitationMode</code> is "OFF". When <code>targetMetric</code> is "TransferRate", the unit is MBps.
status	enum	Task status. (For details about the valid values, see the table <code>TaskStatus</code> in <i>List of enumerators</i> .)
statusLastUpdateDateTime	datetime	Date and time when the task status was last obtained.
registeredDatetime	datetime	Date and time when the task was registered.
registeredUserName	string	Name of the user who registered the task.
executionType	enum	Task execution type. (For details about the valid values, see the table <code>ExecutionType</code> in <i>List of enumerators</i> .)
automationDirectorTaskIDs	string[]	Task ID of Ops Center Automator.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET http://localhost:22015/Analytics/v1/objects/IoControlHistory/
dummyTaskId HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 05 Sep 2016 03:15:13 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
7891f7d443804d8e3f5ac1159687edd1d4fbbbec_Vlo8Y30Idn8EY0BdB3IEfwgabiA=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json

[Response Body]
{
  "instanceID" : "dummyTaskId",
  "taskName" : "dummyTask",
  "description" : "dummyDescription",
  "targetMetric" : "IOPS",
  "targetVolumes" : [ "raidLdev#dummy1", "raidLdev#dummy2" ],
  "limitationMode" : "ON",
  "limitValue" : 2147483647,
  "status" : "Success",
  "statusLastUpdateDateTime" : "2016-09-05T12:15:13.862+09:00",
  "registeredDatetime" : "2016-09-05T12:15:13.862+09:00",
  "registeredUserName" : "dummyUser",
  "executionType" : "AutomationDirector",
  "automationDirectorTaskIDs" : [ "hadtask1", "hadtask2" ]
}
```

Getting a list of actions related to Storage I/O control configuration task history

You can obtain a list of operations related to Storage I/O control configuration task history.

Execution permission

Admin, StorageOps, Modify

Request line

```
GET baseURL/v1/services/IoControlHistory/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET http://localhost:22015/Analytics/v1/objects/IoControlHistory/actions
HTTP/1.1
Host: localhost:22015
User-Agent: Mozilla/5.0 (Windows NT 6.1; WOW64; rv:45.0) Gecko/20100101
Firefox/45.0
```



```
Accept: application/json, text/javascript, */*; q=0.01
Accept-Language: null
Accept-Encoding: gzip, deflate
Content-Type: application/json
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Cookie: JSESSIONID=00A8DFD2B38317A0C74369F0866CF67C
Proxy-Authorization: Basic NzA2MzMwOTI6aGl0YWNoaW5va2kyMTE=
Connection: keep-alive

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 05 Sep 2016 03:16:01 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
31988d251331f5c8535f3214d24d9bb3d744fd6_Vlo8Y30Idn8EY0BdB3IEfwgabiA=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json

[Response Body]
{
  "instanceID" : "actions",
  "taskName" : "dummyTask",
  "description" : "dummyDescription",
  "targetMetric" : "IOPS",
  "targetVolumes" : [ "raidLdev#dummy1", "raidLdev#dummy2" ],
  "limitationMode" : "ON",
  "limitValue" : 2147483647,
  "status" : "Success",
  "statusLastUpdateDateTime" : "2016-09-05T12:16:01.674+09:00",
  "registeredDatetime" : "2016-09-05T12:16:01.674+09:00",
  "registeredUserName" : "dummyUser",
  "executionType" : "AutomationDirector",
  "automationDirectorTaskIDs" : [ "hadtask1", "hadtask2" ]
}
```

Getting the parameter used to update the status of a Storage I/O control settings task

The following operation is the initial step to modify the status of a Storage I/O control configuration task.

Execution permission

Admin, StorageOps, Modify

Request line

```
GET baseURL/v1/services/IoControlHistory/actions/updateStatus
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of IoControlHistoryUpdateStatusParam objects necessary to execute an operation. For details about IoControlHistoryUpdateStatusParam, see the table below.

IoControlHistoryUpdateStatusParam

```
{
  "ioControlTaskIDs": ["...", ...]
}
```

IoControlHistoryUpdateStatusParam (Type: IoControlHistoryUpdateStatusParam)

Attribute	Type	Description
ioControlTaskIDs	string[]	IDs of the I/O control settings tasks whose statuses are to be updated. If no IDs are specified, the statuses of all tasks will be updated.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET http://localhost:22015/Analytics/v1/services/IoControlHistory/actions/
updateStatus HTTP/1.1
Host: localhost:22015
User-Agent: Mozilla/5.0 (Windows NT 6.1; WOW64; rv:45.0) Gecko/20100101
Firefox/45.0
Accept: application/json, text/javascript, */*; q=0.01
Accept-Language: null
Accept-Encoding: gzip, deflate
Content-Type: application/json
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Cookie: JSESSIONID=00A8DFD2B38317A0C74369F0866CF67C
Proxy-Authorization: Basic NzA2MzMwOTI6aGl0YWN0aW5va2kyMTE=
Connection: keep-alive
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Mon, 05 Sep 2016 03:16:35 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
f789a859ef16ba7f58d80f03318163682136b2f_Vl08Y30Idn8EY0BdB3IEfwgabiA=_V0810
```

```

X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json

[Response Body]
{
  "name" : "updateStatus",
  "href" : "http://localhost:22015/Analytics/v1/services/IoControlHistory/
actions/updateStatus/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "ioControlTaskIDs" : [ "0" ]
  } ]
}

```

Updating the status of a Storage I/O control settings task

You can modify the status of a Storage I/O control configuration task.

Execution permission

Admin, StorageOps, Modify

Request line

```
POST baseUrl/v1/services/IoControlHistory/actions/updateStatus/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```

{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of IoControlHistoryUpdateStatusParam objects necessary to execute an operation. For details about IoControlHistoryUpdateStatusParam, see the table below.

IoControlHistoryUpdateStatusParam

```
{
  "ioControlTaskIDs":["...", ...]
}
```

IoControlHistoryUpdateStatusParam (Type: IoControlHistoryUpdateStatusParam)

Attribute	Type	Description
ioControlTaskIDs	string[]	IDs of the I/O control settings tasks whose statuses are to be updated. If no IDs are specified, the statuses of all tasks will be updated.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID":"...",
  "created":"...",
  "updated":"...",
  "completed":"...",
  "state":"...",
  "affectedResource":["...", ...],
  "result":["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST http://localhost:22015/Analytics/v1/services/IoControlHistory/actions/
updateStatus/invoke HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
```

```

Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name" : "updateStatus",
  "href" : "http://localhost:22015/Analytics/v1/services/IoControlHistory/
actions/updateStatus/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "ioControlTaskIDs" : [ "0" ]
  } ]
}

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 05 Sep 2016 03:17:32 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
6f4d0a7a621771443e4c67ae3c32751aa6c3ad_Vlo8Y30Idn8EY0BdB3IEfwgabiA=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json

[Response Body]
{
  "instanceID" : "0a06360c-ea4c-4fa4-aef8-ae458d53d809",
  "created" : "2016-09-05T12:17:32.323+09:00",
  "updated" : "2016-09-05T12:17:32.323+09:00",
  "completed" : "2016-09-05T12:17:32.323+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ ]
}

```

Getting a list of actions related to Storage I/O control settings

You can obtain a list of operations related to configuring Storage I/O control settings.

Execution permission

StorageOps

Request line

```
GET baseURL/v1/services/IoControlSettings/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET http://localhost:22015/Analytics/v1/services/IoControlSettings/actions
HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
```

```
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 05 Sep 2016 03:18:34 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
726e2e9a29a516a8cc284a24e753d4c6ac75a28_Vlo8Y30Idn8EY0BdB3IEfwgabiA=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "submit",
    "href" : "http://localhost:22015/Analytics/v1/services/
IoControlSettings/actions/submit/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 1
}
```

Getting the parameters used to configure Storage I/O control settings

The following operation is the initial step to configure Storage I/O control settings.

Execution permission

StorageOps

Request line

```
GET baseUrl/v1/services/IoControlSettings/actions/submit
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of IoControlSettingParam objects necessary to execute an operation. For details about IoControlSettingParam, see the table below.

IoControlSettingParam

```
{
  "taskName": "...",
  "description": "...",
  "targetMetric": "...",
  "targetVolumes": ["...", ...],
  "limitationMode": "...",
  "limitValue": "..."
}
```

IoControlSettingParam (Type: IoControlSettingParam)

Attribute	Type	Description
taskName	string	Name of the I/O control settings task
description	string	Explanation of the I/O control settings task
targetMetric	enum	Type of the target metric

Attribute	Type	Description
		(For details about the valid values, see the table <code>IoControlMetricType</code> in <i>List of enumerators</i> .)
<code>targetVolumes</code>	<code>string[]</code>	ID of the target volume
<code>limitationMode</code>	<code>enum</code>	Upper limit setting mode (For details about the valid values, see the table <code>LimitationMode</code> in <i>List of enumerators</i> .)
<code>limitValue</code>	<code>integer</code>	Upper limit. Not used if <code>limitationMode</code> is "OFF". When <code>targetMetric</code> is "TransferRate", the unit is MBps.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET http://localhost:22015/Analytics/v1/services/IoControlSettings/actions/submit HTTP/1.1
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 05 Sep 2016 03:18:59 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
ed36ffc15b137a3d5a97dec11e134bc73b8fb4b_V1o8Y30Idn8EY0BdB3IEfwgabiA=_V0810
X-Frame-Options: SAMEORIGIN
```

```

X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json

[Response Body]
{
  "name" : "submit",
  "href" : "http://localhost:22015/Analytics/v1/services/IoControlSettings/
actions/submit/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "taskName" : "taskName",
    "description" : "taskDescription",
    "targetMetric" : "IOPS",
    "targetVolumes" : [ "0" ],
    "limitationMode" : "ON",
    "limitValue" : 1
  } ]
}

```

Configuring Storage I/O control settings

You can configure Storage I/O control settings. Task IDs generated during the configuration task are returned as response data.

Execution permission

StorageOps

Request line

```
POST baseUrl/v1/services/IoControlSettings/actions/submit/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```

{
  "name":"...",
  "href":"...",
  "method":"...",
  "type":"...",
  "parameters":["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of IoControlSettingParam objects necessary to execute an operation. For details about IoControlSettingParam, see the table below.

IoControlSettingParam

```
{
  "taskName": "...",
  "description": "...",
  "targetMetric": "...",
  "targetVolumes": ["...", ...],
  "limitationMode": "...",
  "limitValue": "..."
}
```

IoControlSettingParam (Type: IoControlSettingParam)

Attribute	Type	Description
taskName	string	Name of the I/O control settings task
description	string	Explanation of the I/O control settings task
targetMetric	enum	Type of the target metric (For details about the valid values, see the table IoControlMetricType in <i>List of enumerators</i> .)
targetVolumes	string[]	ID of the target volume
limitationMode	enum	Upper limit setting mode (For details about the valid values, see the table LimitationMode in <i>List of enumerators</i> .)
limitValue	integer	Upper limit. Not used if limitationMode is "OFF". When targetMetric is "TransferRate", the unit is MBps.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of InstanceID objects. For details about InstanceID, see the table below.

InstanceID

```
{
  "instanceID": "..."
}
```

InstanceID (Type: InstanceID)

Attribute	Type	Description
instanceID	string	ID of the Instance.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
409	Conflict	A resource with the same task name exists.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST http://localhost:22015/Analytics/v1/services/IoControlSettings/
actions/submit/invoke HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name" : "submit",
  "href" : "http://localhost:22015/Analytics/v1/services/IoControlSettings/
actions/submit/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters": [
    {
      "taskName": "taskName001122",
      "description": "taskDescription",
      "targetMetric": "IOPS",
      "targetVolumes": [
        "raidLdev#10182-00^FE^F5"
```



```

    ],
    "limitationMode": "ON",
    "limitValue": 1
  }
]
}

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 05 Sep 2016 03:39:08 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
c1fec785ac4156f812e3753a676080908c5c98d0_Vlo8Y30Idn8EY0BdB3IEfwgabiA=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json

[Response Body]
{
  "instanceID" : "8a25cc50-b220-4285-bf6a-6fc71a3b3c78",
  "created" : "2016-09-05T12:39:10.625+09:00",
  "updated" : "2016-09-05T12:39:10.626+09:00",
  "completed" : "2016-09-05T12:39:10.626+09:00",
  "state" : "success",
  "affectedResource" : [ "http://localhost:22015/Analytics/v1/objects/
IoControlHistory/iaaIoControlTask%23eda080ec
%2dd675%2d4af6%2d95f6%2dabd5bf557ecb" ],
  "result" : [ {
    "instanceID" : "iaaIoControlTask#eda080ec-d675-4af6-95f6-abd5bf557ecb"
  } ]
}

```

Chapter 14: Performing operations related to sessions that use HSSO tokens

You can obtain a list of operations for HSSO token sessions or extend the valid period of a session.

Getting a list of operations for sessions of the HSSO token

You can obtain a list of operations that can be performed on sessions that use HSSO tokens.

Execution permission

Admin, StorageOps, Modify, User Management

Request line

```
GET baseUrl/v1/services/KeepAlive/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/KeepAlive/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 22 Aug 2016 05:24:49 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
50a6ea7230762530879b2914c3ac12144074638c_Y2UOI2pkMXQ=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data": [
    {
      "name": "submit",
      "href": "http://localhost:22015/Analytics/v1/services/KeepAlive/actions/submit/invoke",
      "method": "POST",
      "type": "application/json",
      "parameters": [
      ]
    }
  ]
}
```

```

    ],
    "count": 1
  }

```

Preparing to extend the valid period of a session of the HSSO token

The following operation is the initial step to extend the valid time period of a session that uses HSSO tokens.

Execution permission

Admin, StorageOps, Modify, User Management

Request line

```
GET baseUrl/v1/services/KeepAlive/actions/submit
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```

{
    "name": "...",
    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.

Attribute	Type	Description
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/KeepAlive/actions/submit
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:51:25 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "submit",
  "href" : "http://localhost:22015/Analytics/v1/services/KeepAlive/actions/submit/invoke",
```

```

"method" : "POST",
"type" : "application/json",
"parameters" : [ ]
}

```

Extending the valid period of a session of the HSSO token

You can extend the valid time period of a session that uses HSSO tokens.

Execution permission

Admin, StorageOps, Modify, User Management

Request line

```
POST baseURL/v1/services/KeepAlive/actions/submit/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```

{
    "name": "...",
    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of KeepAlive objects. For details about KeepAlive, see the table below.

KeepAlive

```
{
  "timeToLive": "..."
}
```

KeepAlive (Type: KeepAlive)

Attribute	Type	Description
timeToLive	long	Period during which the session is available by the HSSO token (sec.)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/services/KeepAlive/actions/submit/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name" : "submit",
  "href" : "http://localhost:22015/Analytics/v1/services/KeepAlive/actions/submit/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ ]
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:51:26 GMT
```

```
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

[Response Body]

```
{
  "instanceID" : "43f90f1e-c0c3-41d1-a5dd-4666b2ba7c90",
  "created" : "2016-08-12T02:51:26.371+09:00",
  "updated" : "2016-08-12T02:51:26.400+09:00",
  "completed" : "2016-08-12T02:51:26.400+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "timeToLive" : 1000
  } ]
}
```

Chapter 15: Performing operations related to email addresses

You can create, update, or delete email addresses. You can also assign notification profiles to email addresses, and activate or suspend email addresses.

Getting a list of mail addresses

You can obtain a list of information about email addresses, such as the email addresses and assigned notification profiles.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/MailAddress
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of MailAddress objects. For details about MailAddress, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

MailAddress

```
{
  "instanceID":"...",
  "email":"...",
  "isActive":"...",
  "description":"...",
  "assignedConditionProfilesIDs":["...", ...],
  "assignedConditionProfiles":["...", ...]
}
```

MailAddress (Type: MailAddress)

Attribute	Type	Description
instanceID	string	ID of the mail address
email	string	Mail address
isActive	boolean	Whether or not the email addresses are enabled as notification destinations. For enabled addresses, "true" is set. For disabled addresses, "false" is set.
description	string	Description

Attribute	Type	Description
assignedConditionProfilesIDs	string[]	ID of the condition profile for the notification condition in which this email address is specified as the destination address
assignedConditionProfiles	string[]	Name of the condition profile for the notification condition in which this email address is specified as the destination address

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/MailAddress
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 03 Aug 2016 02:02:32 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
a61560c2eac97b0564aec48d2883daf39c0dfdf_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "data" : [ {
    "instanceID" : "mailAddress#ff6bb9a9-cb64-4f6d-8041-5908744738eb",
    "email" : "admin@example.com",
    "isActive" : true,
    "description" : "description",
    "assignedConditionProfilesIDs" : [ ],
    "assignedConditionProfiles" : [ ]
  } ],
  "count" : 1
}
```

Creating a mail address

You can create information about a new email address by specifying information such as the email address and notification profile to be assigned.

Execution permission

Admin, Modify

Request line

POST baseUrl/v1/objects/MailAddress

Request body

The structure of the request body and the object attributes are as follows:

MailAddress

```
{
  "instanceID":"...",
  "email":"...",
  "isActive":"...",
  "description":"...",
  "assignedConditionProfilesIDs":["...", ...],
  "assignedConditionProfiles":["...", ...]
}
```

MailAddress (Type: MailAddress)

Attribute	Type	Description
instanceID	string	ID of the mail address

Attribute	Type	Description
email	string	Mail address
isActive	boolean	Whether or not the email addresses are enabled as notification destinations. For enabled addresses, "true" is set. For disabled addresses, "false" is set.
description	string	Description
assignedConditionProfilesIDs	string[]	ID of the condition profile for the notification condition in which this email address is specified as the destination address
assignedConditionProfiles	string[]	Name of the condition profile for the notification condition in which this email address is specified as the destination address

Response body

The structure of the response body and the object attributes is as follows:

MailAddress

```
{
  "instanceID": "...",
  "email": "...",
  "isActive": "...",
  "description": "...",
  "assignedConditionProfilesIDs": ["...", ...],
  "assignedConditionProfiles": ["...", ...]
}
```

MailAddress (Type: MailAddress)

Attribute	Type	Description
instanceID	string	ID of the mail address
email	string	Mail address
isActive	boolean	Whether or not the email addresses are enabled as notification destinations. For enabled addresses, "true" is set. For disabled addresses, "false" is set.
description	string	Description
assignedConditionProfilesIDs	string[]	ID of the condition profile for the notification condition in which this email address is specified as the destination address

Attribute	Type	Description
assignedConditionProfiles	string[]	Name of the condition profile for the notification condition in which this email address is specified as the destination address

Status codes

Status code	Reason phrase	Description
201	Created	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No create privilege.
409	Conflict	A resource with the same email exists.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/MailAddress
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "email": "admin@example.com",
  "isActive": true,
  "description": "description",
  "assignedConditionProfilesIDs": [1, 2],
  "assignedConditionProfiles": ["EventProfile-1", "EventProfile-2"]
}

[Response Header]
HTTP/1.1 201 Created
Date: Wed, 03 Aug 2016 02:02:33 GMT
Server: Cosminexus HTTP Server
```



```
Cache-Control: no-cache
WWW-Authenticate: HSSO
a61560c2eac97b0564aec48d2883daf39c0dfdf_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

[Response Body]

```
{
  "instanceID" : "mailAddress#b2dd1785-bc8a-4cb2-90d2-cd6a41aab82c",
  "email" : "admin@example.com",
  "isActive" : true,
  "description" : "description",
  "assignedConditionProfilesIDs" : [ ],
  "assignedConditionProfiles" : [ ]
}
```

Getting specific mail address information

You can obtain information about a specific email address, such as the assigned notification profile.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/MailAddress/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

MailAddress

```
{
  "instanceID": "...",
  "email": "...",
  "isActive": "...",
  "description": "...",
  "assignedConditionProfilesIDs": ["...", ...],
```

```

    "assignedConditionProfiles":["...", ...]
  }

```

MailAddress (Type: MailAddress)

Attribute	Type	Description
instanceID	string	ID of the mail address
email	string	Mail address
isActive	boolean	Whether or not the email addresses are enabled as notification destinations. For enabled addresses, "true" is set. For disabled addresses, "false" is set.
description	string	Description
assignedConditionProfilesIDs	string[]	ID of the condition profile for the notification condition in which this email address is specified as the destination address
assignedConditionProfiles	string[]	Name of the condition profile for the notification condition in which this email address is specified as the destination address

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```

[Request Header]
GET /Analytics/v1/objects/MailAddress/mailAddress%23b2dd1785-bc8a-4cb2-90d2-cd6a41aab82c
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json

```

```

Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 03 Aug 2016 02:02:33 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
a61560c2eac97b0564aec48d2883daf39c0dfdf_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "mailAddress#b2dd1785-bc8a-4cb2-90d2-cd6a41aab82c",
  "email" : "admin@example.com",
  "isActive" : true,
  "description" : "description",
  "assignedConditionProfilesIDs" : [ ],
  "assignedConditionProfiles" : [ ]
}

```

Updating specific mail address

You can update information about a specific email address, such as the assigned notification profile.

Execution permission

Admin, Modify

Request line

```
PUT baseUrl/v1/objects/MailAddress/{id}
```

Request body

The structure of the request body and the object attributes are as follows:

MailAddress

```

{
  "instanceID": "...",
  "email": "...",
  "isActive": "...",

```

```

    "description":"...",
    "assignedConditionProfilesIDs":["...", ...],
    "assignedConditionProfiles":["...", ...]
  }

```

MailAddress (Type: MailAddress)

Attribute	Type	Description
instanceID	string	ID of the mail address
email	string	Mail address
isActive	boolean	Whether or not the email addresses are enabled as notification destinations. For enabled addresses, "true" is set. For disabled addresses, "false" is set.
description	string	Description
assignedConditionProfilesIDs	string[]	ID of the condition profile for the notification condition in which this email address is specified as the destination address
assignedConditionProfiles	string[]	Name of the condition profile for the notification condition in which this email address is specified as the destination address

Response body

The structure of the response body and the object attributes is as follows:

MailAddress

```

{
  "instanceID":"...",
  "email":"...",
  "isActive":"...",
  "description":"...",
  "assignedConditionProfilesIDs":["...", ...],
  "assignedConditionProfiles":["...", ...]
}

```

MailAddress (Type: MailAddress)

Attribute	Type	Description
instanceID	string	ID of the mail address
email	string	Mail address

Attribute	Type	Description
isActive	boolean	Whether or not the email addresses are enabled as notification destinations. For enabled addresses, "true" is set. For disabled addresses, "false" is set.
description	string	Description
assignedConditionProfilesIDs	string[]	ID of the condition profile for the notification condition in which this email address is specified as the destination address
assignedConditionProfiles	string[]	Name of the condition profile for the notification condition in which this email address is specified as the destination address

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
409	Conflict	A resource with the same email exists.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
PUT /Analytics/v1/objects/MailAddress/mailAddress%234ac8f61f-d97c-4225-91ce-f4bb10530e24
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
```

```
{
  "instanceID":"mailAddress#4ac8f61f-d97c-4225-91ce-f4bb10530e24",
  "email":"admin@example.com",
  "isActive":false,
  "description":"xxxxxx",
  "assignedConditionProfilesIDs":[1,2],
  "assignedConditionProfiles":["EventProfile-1","EventProfile-2"]
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 03 Aug 2016 02:02:34 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
a61560c2eac97b0564aec48d2883daf39c0dfdf_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "mailAddress#4ac8f61f-d97c-4225-91ce-f4bb10530e24",
  "email" : "admin@example.com",
  "isActive" : false,
  "description" : "xxxxxx",
  "assignedConditionProfilesIDs" : [ ],
  "assignedConditionProfiles" : [ ]
}
```

Deleting specific mail address

You can delete a specific email address.

Execution permission

Admin, Modify

Request line

```
DELETE baseUrl/v1/objects/MailAddress/{id}
```

Request body

Not applicable.

Response body

Not applicable.

Status codes

Status code	Reason phrase	Description
204	No Content	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No delete privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
DELETE /Analytics/v1/objects/MailAddress/mailAddress%23b2dd1785-bc8a-4cb2-90d2-cd6a41aab82c
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Response Header]
HTTP/1.1 204 No Content
Date: Wed, 03 Aug 2016 02:02:33 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
a61560c2eac97b0564aec48d2883daf39c0dfdf_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json
```

Getting a list of operations for specific email address information

You can obtain a list of operations that can be performed on a specific email address.

Execution permission

Admin, Modify

Request line**GET** baseURL/v1/objects/MailAddress/{id}/actions**Request body**

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.

Attribute	Type	Description
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```

[Request Header]
GET /Analytics/v1/objects/MailAddress/111111/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Fri, 12 Aug 2016 11:20:19 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
30f198fbc8b17b25ed2d623b761929ba5a56df2_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ ],
  "count" : 0
}

```

Preparing to assign a notification profile

The following operation is the initial step to assign a notification profile to a specific email address.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/MailAddress/{id}/actions/
updateTargetNotificationProfile
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of UpdateTargetNotificationProfileParam objects necessary to execute an operation. For details about UpdateTargetNotificationProfileParam, see the table below.

UpdateTargetNotificationProfileParam

```
{
  "notificationProfileParamIDs": ["...", ...]
}
```

UpdateTargetNotificationProfileParam (Type: UpdateTargetNotificationProfileParam)

Attribute	Type	Description
notificationProfileParamIDs	long[]	Specify the IDs of all condition profiles for notification conditions to be assigned to the destination addresses. If there are condition profiles that have already been assigned, they are de-assigned by not specifying their IDs. To de-assign all condition profiles, specify an empty list.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/MailAddress/mailAddress%239a9e8f87-5872-45b1-958e-5628c6e6d899/actions/updateTargetNotificationProfile
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 03 Aug 2016 02:02:36 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
a61560c2eac97b0564aec48d2883daf39c0dfdf_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "updateTargetNotificationProfile",
  "href" : "http://localhost:22015/Analytics/v1/objects/MailAddress/mailAddress%239a9e8f87%2d5872%2d45b1%2d958e%2d5628c6e6d899/actions/updateTargetNotificationProfile/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "notificationProfileParamIDs" : [ ]
  } ]
}
```

```
} ]
}
```

Assigning a notification profile

You can assign a notification profile to a specific email address.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/objects/MailAddress/{id}/actions/
updateTargetNotificationProfile/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of UpdateTargetNotificationProfileParam objects necessary to execute an operation. For details about UpdateTargetNotificationProfileParam, see the table below.

UpdateTargetNotificationProfileParam

```
{
  "notificationProfileParamIDs":["...", ...]
}
```

UpdateTargetNotificationProfileParam (Type: UpdateTargetNotificationProfileParam)

Attribute	Type	Description
notificationProfileParamIDs	long[]	Specify the IDs of all condition profiles for notification conditions to be assigned to the destination addresses. If there are condition profiles that have already been assigned, they are de-assigned by not specifying their IDs. To de-assign all condition profiles, specify an empty list.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID":"...",
  "created":"...",
  "updated":"...",
  "completed":"...",
  "state":"...",
  "affectedResource":["...", ...],
  "result":["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).

Attribute	Type	Description
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/MailAddress/mailAddress%239a9e8f87-5872-45b1-958e-5628c6e6d899/actions/updateTargetNotificationProfile/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "updateTargetNotificationProfile",
```

```

    "href" : "http://localhost:22015/Analytics/v1/objects/MailAddress/
mailAddress%239a9e8f87%2d5872%2d45b1%2d958e%2d5628c6e6d899/actions/
updateTargetNotificationProfile/invoke",
    "method": "POST",
    "type": "application/json",
    "parameters": [{
        "notificationProfileParamIDs": ["notificationProfile#202c7713-b158-
458e-9a5c-022318628723"]
    }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 03 Aug 2016 02:02:36 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
a61560c2eac97b0564aec48d2883daf39c0dfdf_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
    "instanceID" : "c0720425-e506-4c2d-9ffb-78ab795d2299",
    "created" : "2016-08-03T11:02:36.328+09:00",
    "updated" : "2016-08-03T11:02:36.328+09:00",
    "completed" : "2016-08-03T11:02:36.328+09:00",
    "state" : "success",
    "affectedResource" : [ ],
    "result" : [ ]
}

```

Getting a list of operations for mail addresses

You can obtain a list of operations related to email addresses, such as the operation to change the status of an email address.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/MailAddress/actions
```


Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name":"...",
  "href":"...",
```

```

    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```

[Request Header]
GET /Analytics/v1/services/MailAddress/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 03 Aug 2016 02:02:32 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO

```

```
a61560c2eac97b0564aec48d2883daf39c0dfdf_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "changeStatus",
    "href" : "http://localhost:22015/Analytics/v1/services/MailAddress/
actions/changeStatus/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  }, {
    "name" : "updateTargetNotificationProfile",
    "href" : "http://localhost:22015/Analytics/v1/services/MailAddress/
actions/updateTargetNotificationProfile/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 2
}
```

Preparing to change the status of email addresses

The following operation is the initial step to change the status of specific email addresses to active or suspend.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/MailAddress/actions/changeStatus
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of ChangeMailAddressStatusParam objects necessary to execute an operation. For details about ChangeMailAddressStatusParam, see the table below.

ChangeMailAddressStatusParam

```
{
  "isActive": "...",
  "instanceIDs": ["...", ...]
}
```

ChangeMailAddressStatusParam (Type: ChangeMailAddressStatusParam)

Attribute	Type	Description
isActive	boolean	Whether or not to enable the email address when it is changed. To enable it, specify "true". To disable it, specify "false".
instanceIDs	string[]	ID of the email address whose status is to be changed

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/MailAddress/actions/changeStatus
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 03 Aug 2016 02:02:35 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
a61560c2eac97b0564aec48d2883daf39c0dfdf_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "changeStatus",
  "href" : "http://localhost:22015/Analytics/v1/services/MailAddress/
actions/changeStatus/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "isActive" : false,
    "instanceIDs" : [ ]
  } ]
}
```

Changing the status of email addresses

You can change the status of specific email addresses to active or suspend.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/services/MailAddress/actions/changeStatus/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of ChangeMailAddressStatusParam objects necessary to execute an operation. For details about ChangeMailAddressStatusParam, see the table below.

ChangeMailAddressStatusParam

```
{
  "isActive": "...",
  "instanceIDs": ["...", ...]
}
```

ChangeMailAddressStatusParam (Type: ChangeMailAddressStatusParam)

Attribute	Type	Description
isActive	boolean	Whether or not to enable the email address when it is changed. To enable it, specify "true". To disable it, specify "false".
instanceIDs	string[]	ID of the email address whose status is to be changed

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.

Attribute	Type	Description
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/services/MailAddress/actions/changeStatus/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "changeStatus",
  "href": "http://localhost:22015/Analytics/v1/services/MailAddress/
actions/changeStatus/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "isActive": true,
    "instanceIDs": [
      "mailAddress#cbe211af-4466-4ab3-8707-5a70cc609d3d"
    ]
  }]
}
```



```
[Response Header]
HTTP/1.1 200 OK
Date: Wed, 03 Aug 2016 02:02:35 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
a61560c2eac97b0564aec48d2883daf39c0dfdf_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "instanceID" : "ad33dc90-db20-4be3-9a68-1894d224116a",
  "created" : "2016-08-03T11:02:35.241+09:00",
  "updated" : "2016-08-03T11:02:35.241+09:00",
  "completed" : "2016-08-03T11:02:35.241+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ ]
}
```

Chapter 16: Performing operations related to notification profiles

You can create, update, or delete notification profiles. You can also create a notification profile specifying which notifications are sent to a given email address or obtain a list of categories that can be selected as notification targets.

Getting a list of notification profiles

You can obtain a list of information about notification profiles, such as profile names and notification event levels.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/NotificationProfile
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of NotificationProfile objects. For details about NotificationProfile, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

NotificationProfile

```
{
  "instanceID":"...",
  "profileName":"...",
  "description":"...",
  "notificationEventLevels":["...", ...],
  "useAllCategory":"...",
  "notificationCategories":["...", ...],
  "mailRecipientType":"..."
}
```

NotificationProfile (Type: NotificationProfile)

Attribute	Type	Description
instanceID	string	ID of the condition profile for the notification condition
profileName	string	Name of the condition profile for the notification condition
description	string	Description
notificationEventLevels	enum[]	Event level of the events to be reported

Attribute	Type	Description
		(For details about the valid values, see the table EventSeverityType in <i>List of enumerators</i> .)
useAllCategory	boolean	Whether or not to use all event categories as notification conditions. To use all event categories as notification conditions, specify "true". To use only specific event categories as notification conditions, specify "false".
notificationCategories	enum[]	Category of the events that can be used in notification conditions. Specify this item only if useAllCategory is "false". (For details about the valid values, see the table EventCategoryType in <i>List of enumerators</i> .)
mailRecipientType	enum	Email transmission type (For details about the valid values, see the table MailRecipientType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ TO ▪ CC ▪ BCC

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/NotificationProfile
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:55:27 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "instanceID" : "notificationProfile#ab5ae064-5888-4a51-b397-79adf728666b",
    "profileName" : "Profile Name@20160812025527454",
    "description" : "description",
    "notificationEventLevels" : [ "CRITICAL", "WARNING" ],
    "useAllCategory" : false,
    "notificationCategories" : [ "PERFORMANCE" ],
    "mailRecipientType" : "TO"
  } ],
  "count" : 1
}
```

Creating notification profile

You can create a new notification profile by specifying details such as the profile name and notification event level.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/objects/NotificationProfile
```

Request body

The structure of the request body and the object attributes are as follows:

NotificationProfile

```
{
  "instanceID": "...",
  "profileName": "...",
  "description": "...",
  "notificationEventLevels": ["...", ...],
  "useAllCategory": "...",
  "notificationCategories": ["...", ...],
  "mailRecipientType": "..."
}
```

NotificationProfile (Type: NotificationProfile)

Attribute	Type	Description
instanceID	string	ID of the condition profile for the notification condition
profileName	string	Name of the condition profile for the notification condition
description	string	Description
notificationEventLevels	enum[]	Event level of the events to be reported (For details about the valid values, see the table EventSeverityType in <i>List of enumerators</i> .)
useAllCategory	boolean	Whether or not to use all event categories as notification conditions. To use all event categories as notification conditions, specify "true". To use only specific event categories as notification conditions, specify "false".
notificationCategories	enum[]	Category of the events that can be used in notification conditions. Specify this item only if useAllCategory is "false". (For details about the valid values, see the table EventCategoryType in <i>List of enumerators</i> .)
mailRecipientType	enum	Email transmission type (For details about the valid values, see the table MailRecipientType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ TO ▪ CC ▪ BCC

Response body

The structure of the response body and the object attributes is as follows:

NotificationProfile

```
{
  "instanceID": "...",
  "profileName": "...",
  "description": "...",
  "notificationEventLevels": ["...", ...],
  "useAllCategory": "...",
  "notificationCategories": ["...", ...],
  "mailRecipientType": "..."
}
```

NotificationProfile (Type: NotificationProfile)

Attribute	Type	Description
instanceID	string	ID of the condition profile for the notification condition
profileName	string	Name of the condition profile for the notification condition
description	string	Description
notificationEventLevels	enum[]	Event level of the events to be reported (For details about the valid values, see the table EventSeverityType in <i>List of enumerators</i> .)
useAllCategory	boolean	Whether or not to use all event categories as notification conditions. To use all event categories as notification conditions, specify "true". To use only specific event categories as notification conditions, specify "false".
notificationCategories	enum[]	Category of the events that can be used in notification conditions. Specify this item only if useAllCategory is "false". (For details about the valid values, see the table EventCategoryType in <i>List of enumerators</i> .)
mailRecipientType	enum	Email transmission type (For details about the valid values, see the table MailRecipientType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ TO ▪ CC ▪ BCC

Status codes

Status code	Reason phrase	Description
201	Created	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No create privilege.
409	Conflict	A resource with the same name exists.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/NotificationProfile
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "profileName": "Profile Name@20160812025526397",
  "description": "description",
  "notificationEventLevels": ["CRITICAL", "WARNING"],
  "useAllCategory": false,
  "notificationCategories": ["PERFORMANCE"],
  "mailRecipientType": "TO"
}

[Response Header]
HTTP/1.1 201 Created
Date: Thu, 11 Aug 2016 17:55:26 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
```



```
Content-Type: application/json
```

```
[Response Body]
{
  "instanceID" : "notificationProfile#10cf6ab9-b986-4fd2-9cbf-
a3e7d0481337",
  "profileName" : "Profile Name@20160812025526397",
  "description" : "description",
  "notificationEventLevels" : [ "CRITICAL", "WARNING" ],
  "useAllCategory" : false,
  "notificationCategories" : [ "PERFORMANCE" ],
  "mailRecipientType" : "TO"
}
```

Getting specific notification profile information

You can obtain information about a specific notification profile, such as the profile name and the notification event level.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/NotificationProfile/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

NotificationProfile

```
{
  "instanceID":"...",
  "profileName":"...",
  "description":"...",
  "notificationEventLevels":["...", ...],
  "useAllCategory":"...",
  "notificationCategories":["...", ...],
  "mailRecipientType":"..."
}
```

NotificationProfile (Type: NotificationProfile)

Attribute	Type	Description
instanceID	string	ID of the condition profile for the notification condition
profileName	string	Name of the condition profile for the notification condition
description	string	Description
notificationEventLevels	enum[]	Event level of the events to be reported (For details about the valid values, see the table EventSeverityType in <i>List of enumerators</i> .)
useAllCategory	boolean	Whether or not to use all event categories as notification conditions. To use all event categories as notification conditions, specify "true". To use only specific event categories as notification conditions, specify "false".
notificationCategories	enum[]	Category of the events that can be used in notification conditions. Specify this item only if useAllCategory is "false". (For details about the valid values, see the table EventCategoryType in <i>List of enumerators</i> .)
mailRecipientType	enum	Email transmission type (For details about the valid values, see the table MailRecipientType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ TO ▪ CC ▪ BCC

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/NotificationProfile/notificationProfile
%23a5911a22-d0ec-4ec4-bff3-b178b644a342
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:55:27 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "notificationProfile#a5911a22-d0ec-4ec4-bff3-
b178b644a342",
  "profileName" : "Profile Name@20160812025527839",
  "description" : "description",
  "notificationEventLevels" : [ "CRITICAL", "WARNING" ],
  "useAllCategory" : false,
  "notificationCategories" : [ "PERFORMANCE" ],
  "mailRecipientType" : "TO"
}
```

Updating notification profile

You can update information about a specific notification profile, such as the profile name and the notification event level.

Execution permission

Admin, Modify

Request line

```
PUT baseURL/v1/objects/NotificationProfile/{id}
```

Request body

The structure of the request body and the object attributes are as follows:

NotificationProfile

```
{
  "instanceID": "...",
  "profileName": "...",
  "description": "...",
  "notificationEventLevels": ["...", ...],
  "useAllCategory": "...",
  "notificationCategories": ["...", ...],
  "mailRecipientType": "..."
}
```

NotificationProfile (Type: NotificationProfile)

Attribute	Type	Description
instanceID	string	ID of the condition profile for the notification condition
profileName	string	Name of the condition profile for the notification condition
description	string	Description
notificationEventLevels	enum[]	Event level of the events to be reported (For details about the valid values, see the table EventSeverityType in <i>List of enumerators</i> .)
useAllCategory	boolean	Whether or not to use all event categories as notification conditions. To use all event categories as notification conditions, specify "true". To use only specific event categories as notification conditions, specify "false".
notificationCategories	enum[]	Category of the events that can be used in notification conditions. Specify this item only if useAllCategory is "false". (For details about the valid values, see the table EventCategoryType in <i>List of enumerators</i> .)
mailRecipientType	enum	Email transmission type

Attribute	Type	Description
		(For details about the valid values, see the table MailRecipientType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ TO ▪ CC ▪ BCC

Response body

The structure of the response body and the object attributes is as follows:

NotificationProfile

```
{
  "instanceID":"...",
  "profileName":"...",
  "description":"...",
  "notificationEventLevels":["...", ...],
  "useAllCategory":"...",
  "notificationCategories":["...", ...],
  "mailRecipientType":"..."
}
```

NotificationProfile (Type: NotificationProfile)

Attribute	Type	Description
instanceID	string	ID of the condition profile for the notification condition
profileName	string	Name of the condition profile for the notification condition
description	string	Description
notificationEventLevels	enum[]	Event level of the events to be reported (For details about the valid values, see the table EventSeverityType in <i>List of enumerators</i> .)
useAllCategory	boolean	Whether or not to use all event categories as notification conditions. To use all event categories as notification conditions, specify "true". To use only specific event categories as notification conditions, specify "false".
notificationCategories	enum[]	Category of the events that can be used in notification conditions. Specify this item only if useAllCategory is "false".

Attribute	Type	Description
		(For details about the valid values, see the table EventCategoryType in <i>List of enumerators</i> .)
mailRecipientType	enum	Email transmission type (For details about the valid values, see the table MailRecipientType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ TO ▪ CC ▪ BCC

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
PUT /Analytics/v1/objects/NotificationProfile/notificationProfile
%2326c9fb2f-edb6-457e-b2b6-77a7802b7d66
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "instanceID":12534479899,
  "profileName":"Profile Name@20160812025529388",
  "description":"descriptionXXXXXXXXXX",
```

```

    "notificationEventLevels":["CRITICAL","INFO"],
    "useAllCategory":false,
    "notificationCategories":["SETTING","CHANGE"],
    "mailRecipientType":"CC"
  }

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:55:29 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "notificationProfile#26c9fb2f-edb6-457e-b2b6-77a7802b7d66",
  "profileName" : "Profile Name@20160812025529388",
  "description" : "descriptionXXXXXXXXXX",
  "notificationEventLevels" : [ "CRITICAL", "INFO" ],
  "useAllCategory" : false,
  "notificationCategories" : [ "SETTING", "CHANGE" ],
  "mailRecipientType" : "CC"
}

```

Deleting specific notification profile

You can delete a specific notification profile.

Execution permission

Admin, Modify

Request line

```
DELETE baseURL/v1/objects/NotificationProfile/{id}
```

Request body

Not applicable.

Response body

Not applicable.

Status codes

Status code	Reason phrase	Description
204	No Content	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No delete privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
DELETE /Analytics/v1/objects/NotificationProfile/notificationProfile
%2326c9fb2f-edb6-457e-b2b6-77a7802b7d66
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 204 No Content
Date: Thu, 11 Aug 2016 17:55:29 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json
```

Getting a list of operations for specific notification profile configuration information

You can obtain a list of operations that can be performed on a specific notification profile.

Execution permission

Admin, Modify

Request line**GET** baseUrl/v1/objects/NotificationProfile/{id}/actions**Request body**

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.

Attribute	Type	Description
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/NotificationProfile/111111/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Fri, 12 Aug 2016 03:57:19 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8810cbc381adf14797b70f0c5a4de1bd9d09ad1_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "updateTargetMailAddress",
    "href" : "http://localhost:22015/Analytics/v1/objects/
NotificationProfile/111111/actions/updateTargetMailAddress/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 1
}
```

Preparing to assign notification-destination email addresses

The following operation is the initial step to assign the notification-destination email addresses to a specific notification profile.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/NotificationProfile/{id}/actions/
updateTargetMailAddress
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of UpdateTargetMailAddressParam objects necessary to execute an operation. For details about UpdateTargetMailAddressParam, see the table below.

UpdateTargetMailAddressParam

```
{
  "mailAddressIDs": ["...", ...]
}
```

UpdateTargetMailAddressParam (Type: UpdateTargetMailAddressParam)

Attribute	Type	Description
mailAddressIDs	string[]	Specify the IDs of all email addresses to be assigned as the destination addresses. If there are email addresses that have already been assigned, they are de-assigned by not specifying their IDs. To de-assign all email addresses, specify an empty list.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/NotificationProfile/notificationProfile
%232efedee0-2bab-4560-ada1-8bfeab7cfd94/actions/updateTargetMailAddress
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:55:30 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "name" : "updateTargetMailAddress",
  "href" : "http://localhost:22015/Analytics/v1/objects/
NotificationProfile/notificationProfile%232efedee0%2d2bab
%2d4560%2dada1%2d8bfeab7cfd94/actions/updateTargetMailAddress/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "mailAddressIDs" : [ ]
  } ]
}
```

Assigning notification-destination email addresses

You can assign the notification-destination email addresses to a specific notification profile.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/objects/NotificationProfile/{id}/actions/
updateTargetMailAddress/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.

Attribute	Type	Description
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of UpdateTargetMailAddressParam objects necessary to execute an operation. For details about UpdateTargetMailAddressParam, see the table below.

UpdateTargetMailAddressParam

```
{
  "mailAddressIDs":["...", ...]
}
```

UpdateTargetMailAddressParam (Type: UpdateTargetMailAddressParam)

Attribute	Type	Description
mailAddressIDs	string[]	Specify the IDs of all email addresses to be assigned as the destination addresses. If there are email addresses that have already been assigned, they are de-assigned by not specifying their IDs. To de-assign all email addresses, specify an empty list.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID":"...",
  "created":"...",
  "updated":"...",
  "completed":"...",
  "state":"...",
  "affectedResource":["...", ...],
  "result":["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST
```



```

http://10.197.198.241:22015/Analytics/v1/objects/NotificationProfile/
notificationProfile%232efedee0-2bab-4560-ada1-8bfeab7cfd94/actions/
updateTargetMailAddress/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "updateTargetMailAddress",
  "href": "http://localhost:22015/Analytics/v1/objects/NotificationProfile/
notificationProfile%232efedee0%2d2bab%2d4560%2dada1%2d8bfeab7cfd94/actions/
updateTargetMailAddress/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "mailAddressIDs": ["mailAddress#8610bd0e-d8f1-4a15-8a6f-cd1505cf7b73"]
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:55:30 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "5f41abb9-16bc-4a23-b2c2-c928d4d0e976",
  "created" : "2016-08-12T02:55:30.457+09:00",
  "updated" : "2016-08-12T02:55:30.457+09:00",
  "completed" : "2016-08-12T02:55:30.457+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ ]
}

```

Getting a list of operations for notification profiles

You can obtain a list of operations related to notification profile settings, such as the operation to assign a notification-destination email address.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/NotificationProfile/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/NotificationProfile/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:55:27 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "getTargetEventCategory",
    "href" : "http://localhost:22015/Analytics/v1/services/
NotificationProfile/actions/getTargetEventCategory/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 1
}
```

Preparing to obtain a list of notification target categories for notification profiles

The following operation is the initial step to obtain a list of notification categories, such as performance and event actions, that can be used in notification profiles.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/NotificationProfile/actions/getTargetEventCategory
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.

Status code	Reason phrase	Description
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/NotificationProfile/actions/
getTargetEventCategory
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:55:30 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getTargetEventCategory",
  "href" : "http://localhost:22015/Analytics/v1/services/
NotificationProfile/actions/getTargetEventCategory/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ ]
}
```

Getting a list of notification target categories for notification profiles

You can obtain a list of notification categories, such as performance and event actions, that can be used in notification profiles.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/NotificationProfile/actions/
getTargetEventCategory/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Response body

The structure of the response body and the object attributes is as follows:

TargetEventCategories

```
{
  "notificationCategories": ["...", ...]
}
```

TargetEventCategories (Type: TargetEventCategories)

Attribute	Type	Description
notificationCategories	enum[]	Event category (For details about the valid values, see the table EventCategoryType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/services/NotificationProfile/actions/
getTargetEventCategory/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getTargetEventCategory",
  "href": "http://localhost:22015/Analytics/v1/services/
NotificationProfile/actions/getTargetEventCategory/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [ ]
}

[Response Header]
```



```
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:55:30 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

[Response Body]

```
{
  "instanceID" : "53516abe-3dba-41e9-af05-66c84ff3ed77",
  "created" : "2016-08-12T02:55:30.970+09:00",
  "updated" : "2016-08-12T02:55:30.970+09:00",
  "completed" : "2016-08-12T02:55:30.970+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "notificationCategories" : [ "PERFORMANCE", "EVENT", "SETTING" ]
  } ]
}
```

Chapter 17: Performing operations related to resource information and metric information

You can obtain performance graph data for metrics or a list of metrics related to resources and components.

Getting specific metric information

You can obtain a list of metrics for specific resources.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/PerfComponents/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

E2EPerfComponent

```
{
  "instanceID": "...",
  "componentID": "...",
  "componentName": "...",
  "metricType": "...",
  "metricOrder": "...",
  "metricName": "...",
  "status": "..."
}
```

E2EPerfComponent (Type: E2EPerfComponent)

Attribute	Type	Description
instanceID	string	ID of the performance information for a component
componentID	string	ID of the component
componentName	string	Name of the component
metricType	enum	ID of the metric (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricOrder	long	Order of displaying metric types
metricName	string	Name of the metric
status	enum	Status of the performance information (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ LinkDown ▪ Unknown ▪ NA ▪ NotMonitored ▪ NotCollected ▪ Info

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/PerfComponents/cpu%23ABC_172.17.17.115_host-435%5E0%23ESX_CPU_CPUUSAGE
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:52:12 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "cpu#ABC_172.17.17.115_host-435^0#ESX_CPU_CPUUSAGE",
  "componentName" : "",
  "metricType" : "ESX_CPU_CPUUSAGE",
  "metricOrder" : 3400,
  "metricName" : "CPU Usage (VMware Host CPU)",
  "status" : "Unknown"
}
```

Getting a list of operations for specific metrics

You can obtain a list of operations for the metrics for specific resources.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/PerfComponents/{id}/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name":"...",
  "href":"...",
```

```

    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```

[Request Header]
GET /Analytics/v1/objects/PerfComponents/b20f2b2b-99dd-4bc6-b585-
c63a8ce60168/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:52:02 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache

```

```

WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "getGraphData",
    "href" : "http://localhost:22015/Analytics/v1/objects/PerfComponents/
b20f2b2b%2d99dd%2d4bc6%2db585%2dc63a8ce60168/actions/getGraphData/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 1
}

```

Preparing to obtain performance graph data for specific metrics

The following operation is the initial step to obtain performance graph data for a specific metric.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/PerfComponents/{id}/actions/getGraphData
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```

{
  "name": "...",
  "href": "...",

```

```

    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2EGetGraphDataParam objects necessary to execute an operation. For details about E2EGetGraphDataParam, see the table below.

E2EGetGraphDataParam

```

{
  "pointTimeRange": "...",
  "baseTime": "...",
  "conflict": "...",
  "perfComponents": [{
    "instanceID": "...",
    "nodeType": "...",
    "metricType": "..."
  }],
  :
],
  "timespan": "...",
  "cullTimespan": "..."
}

```

E2EGetGraphDataParam (Type: E2EGetGraphDataParam)

Attribute	Type	Description
pointTimeRange	long	Period during which performance information is obtained (ms).

Attribute	Type	Description
baseTime	dateTime	Start time for obtaining performance information. The performance information for a certain period before the specified start time is obtained. The period is specified by pointTimeRange. If this item is omitted, the time that the API was executed is used as the start time.
conflict	string	Specifies the type of performance information to be obtained. As the type, "average" or "peak" can be specified. The average value is the average of performance information collected at the interval specified by timespan. The peak value is the most abnormal value in the performance information collected at the interval specified by timespan. If this item is omitted, both the average and peak values are obtained.
perfComponents	PerformanceDataParam[]	Information identifying the performance information to be obtained
timespan	long	Interval (in minutes) of aggregating performance data. This item is used for calculating the average or worst value in performance information.
cullTimespan	long	Interval (in minutes) of cull performance data.

perfComponents (Type: PerformanceDataParam)

Attribute	Type	Description
instanceID	string	ID of the component from which performance information is obtained
nodeType	enum	Type of the device that the component, from which performance information is obtained, belongs to (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
metricType	enum	Type of the metric from which performance information is obtained (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/PerfComponents/cpu%23ABC_172.17.17.115_host-
435%5E0/actions/getGraphData
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:52:07 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getGraphData",
  "href" : "http://localhost:22015/Analytics/v1/objects/PerfComponents/cpu
%23ABC_172.17.17.115_host%2d435%5E0/actions/getGraphData/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "pointTimeRange" : 3600000,
    "baseTime" : "2016-07-20T11:52:07.371+09:00"
```

```
} ]
}
```

Getting performance graph data for specific metrics

You can obtain performance graph data for a specific metric.

Execution permission

Admin, Modify

Request line

POST `baseUrl/v1/objects/PerfComponents/{id}/actions/getGraphData/invoke`

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2EGetGraphDataParam objects necessary to execute an operation. For details about E2EGetGraphDataParam, see the table below.

E2EGetGraphDataParam

```
{
  "pointTimeRange": "...",
  "baseTime": "...",
  "conflict": "...",
  "perfComponents": [{
    "instanceID": "...",
    "nodeType": "...",
    "metricType": "..."
  }],
  "timespan": "...",
  "cullTimespan": "..."
}
```

E2EGetGraphDataParam (Type: E2EGetGraphDataParam)

Attribute	Type	Description
pointTimeRange	long	Period during which performance information is obtained (ms).
baseTime	dateTime	Start time for obtaining performance information. The performance information for a certain period before the specified start time is obtained. The period is specified by pointTimeRange. If this item is omitted, the time that the API was executed is used as the start time.
conflict	string	Specifies the type of performance information to be obtained. As the type, "average" or "peak" can be specified. The average value is the average of performance information collected at the interval specified by timespan. The peak value is the most abnormal value in the performance information collected at the interval specified by timespan. If this item is omitted, both the average and peak values are obtained.
perfComponents	PerformanceDataParam[]	Information identifying the performance information to be obtained
timespan	long	Interval (in minutes) of aggregating performance data. This item is used for calculating the average or worst value in performance information.
cullTimespan	long	Interval (in minutes) of cull performance data.

perfComponents (Type: PerformanceDataParam)

Attribute	Type	Description
instanceID	string	ID of the component from which performance information is obtained
nodeType	enum	Type of the device that the component, from which performance information is obtained, belongs to (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
metricType	enum	Type of the metric from which performance information is obtained (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).

Attribute	Type	Description
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of E2EPerformanceGraphData objects. For details about E2EPerformanceGraphData, see the table below.

E2EPerformanceGraphData

```
{
  "metricType": "...",
  "metricName": "...",
  "thresholdProfileName": "...",
  "thresholdValueOfWarning": "...",
  "thresholdValueOfCritical": "...",
  "proportion": "...",
  "plans": [{
    "instanceID": "...",
    "planType": "...",
    "planName": "...",
    "schedule": ["...", ...],
    "from": "...",
    "to": "...",
    "priority": "...",
    "description": "...",
    "thresholdValues": [{
      "instanceID": "...",
      "monitoringMode": "...",
      "metricType": "...",
      "metricTypeName": "...",
      "unit": "...",
      "proportion": "...",
      "thresholdValueOfWarning": "...",
      "thresholdValueOfCritical": "...",
      "stepSize": "...",
      "max": "...",
      "min": "...",
      "maxValueOfDynamic": "...",
      "minValueOfDynamic": "...",
      "avgValueOfDynamic": "..."
    }],
    :
  ],
  "monitoringMode": "...",
  "thresholdValueOfWarning": "..."
}
```

```

        "thresholdValueOfCritical": "...",
        "fixed": "...",
    },
    :
  ],
  "minValue": "...",
  "maxValue": "...",
  "unit": "...",
  "currentTime": "...",
  "pointValues": [{
    "pointValuePeak": "...",
    "pointValueAverage": "...",
    "pointTime": "...",
  },
  :
  ]
}

```

E2EPerformanceGraphData (Type: E2EPerformanceGraphData)

Attribute	Type	Description
metricType	enum	ID of the metric. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricName	string	Name of the metric.
thresholdProfileName	string	Name of the threshold profile used to judge the performance status.
thresholdValueOfWarning	float	Value of the warning threshold.
thresholdValueOfCritical	float	Value of the critical threshold.
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
plans	ThresholdPlan[]	Information about the plans set in the threshold profile. This item is specified only for thresholds of user resources.
minValue	float	Minimum value of the performance information.
maxValue	float	Maximum value of the performance information.

Attribute	Type	Description
unit	string	Unit of measurement used for performance information.
currentTime	dateTime	Start time specified when obtaining performance information.
pointValues	E2EPerformanceGraphPoint[]	Performance value aggregated at the aggregation interval.

plans (Type: ThresholdPlan)

Attribute	Type	Description
instanceID	string	ID of the plan.
planType	enum	Type of the plan. (For details about the valid values, see the table PlanType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> Base Schedule
planName	string	Name of the plan.
schedule	integer[]	Day of the week when to apply the plan. 1: Mon., 2: Tue., 3: Wed., 4: Thu., 5: Fri., 6: Sat., and 7: Sun. The value set here takes effect only if the plan type is "Schedule".
from	string	Start time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
to	string	End time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
priority	int	Priority of the plan.
description	string	Description of the plan.
thresholdValues	ThresholdPlanValue[]	Information about the thresholds specified in the plan.
monitoringMode	enum	Monitoring status of the plan. This item is specified when the thresholds are recalculated for each component.

Attribute	Type	Description
		(For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
thresholdValueOfWarning	float	Value of the warning threshold. This item is specified when the thresholds are recalculated for each component.
thresholdValueOfCritical	float	Value of the critical threshold. This item is specified when the thresholds are recalculated for each component.
fixed	boolean	Specifies whether or not to recalculate the thresholds periodically. If the thresholds are recalculated periodically, "true" is set. If the thresholds are not recalculated periodically, "false" is set. This item is specified if the thresholds are to be recalculated for each component.

thresholdValues (Type: ThresholdPlanValue)

Attribute	Type	Description
instanceID	string	ID of the thresholds for each plan.
monitoringMode	enum	Specifies whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set. (For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
metricType	enum	ID of the metric set for a threshold. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricTypeName	string	Name of the metric set for a threshold.
unit	string	Unit of the metric set for a threshold.
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
thresholdValueOfWarning	float	Value of the warning threshold.

Attribute	Type	Description
thresholdValueOfCritical	float	Value of the critical threshold.
stepSize	float	Increment of the threshold.
max	float	Maximum value of the threshold.
min	float	Minimum value of the threshold.
maxValueOfDynamic	float	Maximum value of the dynamic threshold.
minValueOfDynamic	float	Minimum value of the dynamic threshold.
avgValueOfDynamic	float	Average value of a dynamic threshold.

pointValues (Type: E2EPerformanceGraphPoint)

Attribute	Type	Description
pointValuePeak	float	Peak performance value.
pointValueAverage	float	Average performance value.
pointTime	dateTime	Time when the performance information was collected.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/PerfComponents/cpu%23ABC_172.17.17.115_host-
435%5E0%23ESX_CPU_CPUUSAGE/actions/getGraphData/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getGraphData",
  "href": "http://localhost:22015/Analytics/v1/objects/PerfComponents/cpu
%23ABC_172.17.17.115_host%2d435%5E0/actions/getGraphData/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "pointTimeRange": 10,
    "baseTime": "2016-07-20T11:52:07.426+09:00"
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:52:07 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "da852d65-8b37-41ff-b68a-958d11d756ce",
  "created" : "2016-07-20T11:52:07.567+09:00",
  "updated" : "2016-07-20T11:52:08.481+09:00",
  "completed" : "2016-07-20T11:52:08.481+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "instanceID" : "cpu#ABC_172.17.17.115_host-435^0#ESX_CPU_CPUUSAGE",
    "metricType" : "ESX_CPU_CPUUSAGE",
    "metricName" : "CPU Usage (VMware Host CPU)",
    "thresholdProfileName" : "Default Profile for Hypervisor (VMware)",
```

```

    "thresholdValueOfWarning" : 75.0,
    "thresholdValueOfCritical" : 90.0,
    "proportion" : false,
    "minValue" : 0.0,
    "maxValue" : 99.0,
    "unit" : "%",
    "currentTime" : "2016-07-20T11:52:07.426+09:00",
    "pointValues" : [ ]
  } ]
}

```

Getting a list of operations for resources

You can obtain a list of operations that can obtain resource performance information.

Execution permission

Admin, Modify

Request line

GET baseUrl/v1/services/PerfComponents/actions

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```

{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}

```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/PerfComponents/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:52:02 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "getFromNode",
    "href" : "http://localhost:22015/Analytics/v1/services/PerfComponents/
actions/getFromNode/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 1
}
```

Preparing to obtain a list of metrics related to resources

The following operation is the initial step to obtain a list of metrics for a specific resource.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/PerfComponents/actions/getFromNode
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2ENodeDetailParam objects necessary to execute an operation. For details about E2ENodeDetailParam, see the table below.

E2ENodeDetailParam

```
{
  "targetNodeID": "...",
```

```
"targetNodeType": "..."  
}
```

E2ENodeDetailParam (Type: E2ENodeDetailParam)

Attribute	Type	Description
targetNodeID	string	ID of the resources for which details are to be obtained
targetNodeType	enum	Type of the resources for which details are to be obtained (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]  
GET /Analytics/v1/services/PerfComponents/actions/getFromNode  
Authorization: Basic c3lzdGVtOmlhbmFnZXI=  
Host: localhost:22015  
Accept: application/json  
Content-Type: application/json  
  
[Response Header]  
HTTP/1.1 200 OK  
Date: Wed, 20 Jul 2016 02:52:01 GMT  
Server: Cosminexus HTTP Server  
Cache-Control: no-cache  
WWW-Authenticate: HSSO  
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810  
X-Frame-Options: SAMEORIGIN  
X-XSS-Protection: 1; mode=block  
X-Content-Type-Options: nosniff
```



```
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "name" : "getFromNode",
  "href" : "http://localhost:22015/Analytics/v1/services/PerfComponents/
actions/getFromNode/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "targetNodeID" : "0",
    "targetNodeType" : "TAG"
  } ]
}
```

Getting a list of metrics related to resources

You can obtain a list of metrics for specific resources.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/services/PerfComponents/actions/getFromNode/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2ENodeDetailParam objects necessary to execute an operation. For details about E2ENodeDetailParam, see the table below.

E2ENodeDetailParam

```
{
  "targetNodeID": "...",
  "targetNodeType": "..."
}
```

E2ENodeDetailParam (Type: E2ENodeDetailParam)

Attribute	Type	Description
targetNodeID	string	ID of the resources for which details are to be obtained
targetNodeType	enum	Type of the resources for which details are to be obtained (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of E2EPerfComponent objects. For details about E2EPerfComponent, see the table below.

E2EPerfComponent

```
{
  "instanceID": "...",
  "componentID": "...",
  "componentName": "...",
  "metricType": "...",
  "metricOrder": "...",
  "metricName": "...",
  "status": "..."
}
```

E2EPerfComponent (Type: E2EPerfComponent)

Attribute	Type	Description
instanceID	string	ID of the performance information for a component
componentID	string	ID of the component
componentName	string	Name of the component
metricType	enum	ID of the metric

Attribute	Type	Description
		(For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricOrder	long	Order of displaying metric types
metricName	string	Name of the metric
status	enum	Status of the performance information (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ LinkDown ▪ Unknown ▪ NA ▪ NotMonitored ▪ NotCollected ▪ Info

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/services/PerfComponents/actions/getFromNode/invoke
```

```

Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getFromNode",
  "href": "http://localhost:22015/Analytics/v1/services/PerfComponents/
actions/getFromNode/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "targetNodeID": "vm#ABC_172.17.17.115_vm-449",
    "targetNodeType": "CPU"
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:52:01 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "b20f2b2b-99dd-4bc6-b585-c63a8ce60168",
  "created" : "2016-07-20T11:52:01.909+09:00",
  "updated" : "2016-07-20T11:52:02.095+09:00",
  "completed" : "2016-07-20T11:52:02.095+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ ]
}

```

Getting a list of metrics for components

You can obtain a list of metrics for a selected component type, such as STORAGE_CACHE.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/PerformanceComponent?
$query={HQL}&type={E2ENodeType}&basePointNodeID={nodeID}&basePointNodeType=
{E2ENodeType}&pointTimeRange={range}&page={page}&pageSize={size}&baseTime={
dateTime}&conflict={conflict}
```

Query parameters

The following table describes the values for the supported parameters of a query string:

Parameter	Description
\$query={HQL}	(Required) Using HQL. Specify the following parameters. MetricType ((Required) Only one value can be specified.) componentID ((Optional) Multiple values can be specified.) Filtering conditions: Specify using HQL standard.
type={E2ENodeType}	(Required) Specify the E2E node type. Filtering conditions: Checks whether the comparison target is equal to the value
basePointNodeID={nodeID}	(Required) Specify 1 or more base IDs. Filtering conditions: Checks whether the value is included in the comparison target. Multiple values separated by a comma (,) can be specified.
basePointNodeType={E2ENodeType}	(Required) Specify the E2E node type. Filtering conditions: Checks whether the comparison target is equal to the value
pointTimeRange={range}	(Required) Specify the time period to be displayed. Filtering conditions: Checks whether the comparison target is equal to the value

Parameter	Description
page={page}	(Optional) Specify the paging information (page to be obtained). Filtering conditions: Checks whether the comparison target is equal to the value
pageSize={size}	(Optional) Specify the number of items that can be displayed on 1 page. Filtering conditions: Checks whether the comparison target is equal to the value
baseTime={dateTime}	(Optional) Specify the display start time. Filtering conditions: Checks whether the comparison target is equal to the value
conflict={conflict}	(Optional) Specify the method used for calculating the aggregation value ("null" or "peak" or "average"). Filtering conditions: Checks whether the comparison target is equal to the value

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of PerformanceComponent objects. For details about PerformanceComponent, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

PerformanceComponent

```
{
  "instanceID": "...",
  "componentID": "...",
  "componentName": "...",
  "metricType": "...",
  "status": "...",
  "parentNodeID": "...",
  "parentNodeName": "...",
  "clusterName": "...",
  "description": "...",
  "thresholdProfileName": "...",
  "performancePeakLatest": "...",
  "performancePeakWorst": "...",
  "performanceAverageLatest": "...",
  "performanceAverageWorst": "..."
}
```

PerformanceComponent (Type: PerformanceComponent)

Attribute	Type	Description
instanceID	string	ID of the performance information of the component

Attribute	Type	Description
componentID	string	ID of a component that has performance information
componentName	string	Name of a component that has performance information
metricType	enum	ID of the metric (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
status	enum	Status of the performance information (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ LinkDown ▪ Unknown ▪ NA ▪ NotMonitored ▪ NotCollected ▪ Info
parentNodeID	string	ID of the device that a component belongs to
parentNodeName	string	Name of the device that a component belongs to
clusterName	string	Name of the cluster
description	string	Description
thresholdProfileName	string	Name of the threshold profile
performancePeakLatest	float	Latest peak performance value within the specified period
performancePeakWorst	float	Peak performance value that is closest to the abnormality line within the specified period
performanceAverageLatest	float	Latest average performance value within the specified period
performanceAverageWorst	float	Average performance value that is closest to the abnormality line within the specified period

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	A query parameter is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/PerformanceComponent?%24query=metricType%20eq%20%27RAID_STORAGE_RAIDPORT_TRANSFERRATE%27&componentID%20eq%20%27raidPort%23470182-CL7-D%27&type=STORAGE_PORT&basePointNodeID=raidPort%23470182-CL7-D&basePointNodeType=STORAGE_PORT&pointTimeRange=86400000
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 10 Aug 2016 03:54:15 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
3ee59bb16b5aa61a596112ff8f602692d799e75d_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "instanceID" : "raidPort#470182-CL7-D#RAID_STORAGE_RAIDPORT_TRANSFERRATE",
```

```
"componentID" : "raidPort#470182-CL7-D",
"componentName" : "CL7-D",
"metricType" : "RAID_STORAGE_RAIDPORT_TRANSFERRATE",
"status" : "Unknown",
"parentNodeID" : "raidStorage#470182",
"parentNodeName" : "470182",
"thresholdProfileName" : "Default Profile for Volume",
"performancePeakLatest" : 135.0,
"performancePeakWorst" : 416.0,
"performanceAverageLatest" : 135.0,
"performanceAverageWorst" : 416.0
} ],
"count" : 1
}
```

Chapter 18: Getting a list of metrics

You can obtain performance information for metrics. You can also obtain a list of metrics for devices, virtual machines, and volumes.

Getting a list of operations for performance information

You can obtain a list of operations related to performance information, such as the operation to obtain performance information.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/PerformanceData/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/PerformanceData/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:00 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "getMetricData",
    "href" : "http://localhost:22015/Analytics/v1/services/PerformanceData/
actions/getMetricData/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  }, {
    "name" : "getPerformanceData",
```

```

    "href" : "http://localhost:22015/Analytics/v1/services/PerformanceData/
actions/getPerformanceData/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 2
}

```

Preparing to obtain performance information for metrics

The following operation is the initial step to obtain performance graph information such as performance data and thresholds.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/PerformanceData/actions/getPerformanceData
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```

{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.

Attribute	Type	Description
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2EGetGraphDataParam objects necessary to execute an operation. For details about E2EGetGraphDataParam, see the table below.

E2EGetGraphDataParam

```
{
  "pointTimeRange": "...",
  "baseTime": "...",
  "conflict": "...",
  "perfComponents": [{
    "instanceID": "...",
    "nodeType": "...",
    "metricType": "..."
  }],
  :
],
  "timespan": "...",
  "cullTimespan": "..."
}
```

E2EGetGraphDataParam (Type: E2EGetGraphDataParam)

Attribute	Type	Description
pointTimeRange	long	Period during which performance information is obtained (ms).
baseTime	dateTime	Start time for obtaining performance information. The performance information for a certain period before the specified start time is obtained. The period is specified by pointTimeRange. If this item is omitted, the time that the API was executed is used as the start time.

Attribute	Type	Description
conflict	string	Specifies the type of performance information to be obtained. As the type, "average" or "peak" can be specified. The average value is the average of performance information collected at the interval specified by timespan. The peak value is the most abnormal value in the performance information collected at the interval specified by timespan. If this item is omitted, both the average and peak values are obtained.
perfComponents	PerformanceDataParam[]	Information identifying the performance information to be obtained
timespan	long	Interval (in minutes) of aggregating performance data. This item is used for calculating the average or worst value in performance information.
cullTimespan	long	Interval (in minutes) of cull performance data.

perfComponents (Type: PerformanceDataParam)

Attribute	Type	Description
instanceID	string	ID of the component from which performance information is obtained
nodeType	enum	Type of the device that the component, from which performance information is obtained, belongs to (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
metricType	enum	Type of the metric from which performance information is obtained (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.

Status code	Reason phrase	Description
403	Forbidden	No reference privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/PerformanceData/actions/getPerformanceData
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:00 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getPerformanceData",
  "href" : "http://localhost:22015/Analytics/v1/services/PerformanceData/
actions/getPerformanceData/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "pointTimeRange" : 3600000,
    "baseTime" : "2016-08-12T02:56:00.819+09:00",
    "perfComponents" : [ {
      "instanceID" : "",
      "nodeType" : "VIRTUAL_MACHINE",
      "metricType" : "ESX_VM_VM_CPUREADY"
```

```

    } ],
    "timespan" : 1
  } ]
}

```

Getting performance information for metrics

You can obtain performance graph information such as performance data and thresholds.

Execution permission

Admin, Modify

Request line

POST baseURL/v1/services/PerformanceData/actions/getPerformanceData/invoke

Request body

The structure of the request body and the object attributes are as follows:

Action

```

{
    "name": "...",
    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of E2EGetGraphDataParam objects necessary to execute an operation. For details about E2EGetGraphDataParam, see the table below.

E2EGetGraphDataParam

```

{
    "pointTimeRange": "...",
    "baseTime": "...",
    "conflict": "...",
    "perfComponents": [{
        "instanceID": "...",
        "nodeType": "...",
        "metricType": "..."
    }],
    "timespan": "...",
    "cullTimespan": "..."
}

```

E2EGetGraphDataParam (Type: E2EGetGraphDataParam)

Attribute	Type	Description
pointTimeRange	long	Period during which performance information is obtained (ms).
baseTime	dateTime	Start time for obtaining performance information. The performance information for a certain period before the specified start time is obtained. The period is specified by pointTimeRange. If this item is omitted, the time that the API was executed is used as the start time.
conflict	string	Specifies the type of performance information to be obtained. As the type, "average" or "peak" can be specified. The average value is the average of performance information collected at the interval specified by timespan. The peak value is the most abnormal value in the performance information collected at the interval specified by timespan. If this item is omitted, both the average and peak values are obtained.
perfComponents	PerformanceDataParam[]	Information identifying the performance information to be obtained
timespan	long	Interval (in minutes) of aggregating performance data. This item is used for calculating the average or worst value in performance information.
cullTimespan	long	Interval (in minutes) of cull performance data.

perfComponents (Type: PerformanceDataParam)

Attribute	Type	Description
instanceID	string	ID of the component from which performance information is obtained
nodeType	enum	Type of the device that the component, from which performance information is obtained, belongs to (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
metricType	enum	Type of the metric from which performance information is obtained (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).

Attribute	Type	Description
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of Collections objects. For details about Collections, see the table below.

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	Collections resource list containing the following E2EPerformanceGraphData resources that have the following structure: { "<componentID>":{ "<metricType>": E2EPerformanceGraphData } }
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

E2EPerformanceGraphData

```
{
  "metricType": "...",
  "metricName": "...",
  "thresholdProfileName": "...",
  "thresholdValueOfWarning": "...",
  "thresholdValueOfCritical": "...",
  "proportion": "...",
  "plans": [{
    "instanceID": "...",
    "planType": "...",
    "planName": "...",
    "schedule": ["...", ...],
    "from": "...",
    "to": "...",
    "priority": "...",
    "description": "...",
    "thresholdValues": [{
      "instanceID": "...",
      "monitoringMode": "...",
      "metricType": "...",
      "metricTypeName": "...",
      "unit": "...",
      "proportion": "...",
      "thresholdValueOfWarning": "...",
      "thresholdValueOfCritical": "...",
      "stepSize": "...",
      "max": "...",
      "min": "...",
      "maxValueOfDynamic": "...",
      "minValueOfDynamic": "...",
      "avgValueOfDynamic": "..."
    }],
    :
  ],
  "monitoringMode": "...",
  "thresholdValueOfWarning": "...",
  "thresholdValueOfCritical": "...",
  "fixed": "..."
}
```

```

    },
    :
  ],
  "minValue": "...",
  "maxValue": "...",
  "unit": "...",
  "currentTime": "...",
  "pointValues": [{
    "pointValuePeak": "...",
    "pointValueAverage": "...",
    "pointTime": "..."
  }],
  :
]
}

```

E2EPerformanceGraphData (Type: E2EPerformanceGraphData)

Attribute	Type	Description
metricType	enum	ID of the metric. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricName	string	Name of the metric.
thresholdProfileName	string	Name of the threshold profile used to judge the performance status.
thresholdValueOfWarning	float	Value of the warning threshold.
thresholdValueOfCritical	float	Value of the critical threshold.
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
plans	ThresholdPlan[]	Information about the plans set in the threshold profile. This item is specified only for thresholds of user resources.
minValue	float	Minimum value of the performance information.
maxValue	float	Maximum value of the performance information.
unit	string	Unit of measurement used for performance information.

Attribute	Type	Description
currentTime	dateTime	Start time specified when obtaining performance information.
pointValues	E2EPerformanceGraphPoint[]	Performance value aggregated at the aggregation interval.

plans (Type: ThresholdPlan)

Attribute	Type	Description
instanceID	string	ID of the plan.
planType	enum	Type of the plan. (For details about the valid values, see the table PlanType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> Base Schedule
planName	string	Name of the plan.
schedule	integer[]	Day of the week when to apply the plan. 1: Mon., 2: Tue., 3: Wed., 4: Thu., 5: Fri., 6: Sat., and 7: Sun. The value set here takes effect only if the plan type is "Schedule".
from	string	Start time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
to	string	End time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
priority	int	Priority of the plan.
description	string	Description of the plan.
thresholdValues	ThresholdPlanValue[]	Information about the thresholds specified in the plan.
monitoringMode	enum	Monitoring status of the plan. This item is specified when the thresholds are recalculated for each component.

Attribute	Type	Description
		(For details about the valid values, see the table <i>MonitoringMode</i> in <i>List of enumerators</i> .)
thresholdValueOfWarning	float	Value of the warning threshold. This item is specified when the thresholds are recalculated for each component.
thresholdValueOfCritical	float	Value of the critical threshold. This item is specified when the thresholds are recalculated for each component.
fixed	boolean	Specifies whether or not to recalculate the thresholds periodically. If the thresholds are recalculated periodically, "true" is set. If the thresholds are not recalculated periodically, "false" is set. This item is specified if the thresholds are to be recalculated for each component.

thresholdValues (Type: ThresholdPlanValue)

Attribute	Type	Description
instanceID	string	ID of the thresholds for each plan.
monitoringMode	enum	Specifies whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set. (For details about the valid values, see the table <i>MonitoringMode</i> in <i>List of enumerators</i> .)
metricType	enum	ID of the metric set for a threshold. (For details about the valid values, see the table <i>MetricType</i> in <i>List of enumerators</i> .)
metricTypeName	string	Name of the metric set for a threshold.
unit	string	Unit of the metric set for a threshold.
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
thresholdValueOfWarning	float	Value of the warning threshold.

Attribute	Type	Description
thresholdValueOfCritical	float	Value of the critical threshold.
stepSize	float	Increment of the threshold.
max	float	Maximum value of the threshold.
min	float	Minimum value of the threshold.
maxValueOfDynamic	float	Maximum value of the dynamic threshold.
minValueOfDynamic	float	Minimum value of the dynamic threshold.
avgValueOfDynamic	float	Average value of a dynamic threshold.

pointValues (Type: E2EPerformanceGraphPoint)

Attribute	Type	Description
pointValuePeak	float	Peak performance value.
pointValueAverage	float	Average performance value.
pointTime	dateTime	Time when the performance information was collected.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/PerformanceData/actions/getPerformanceData/
invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getPerformanceData",
  "href": "http://localhost:22015/Analytics/v1/services/PerformanceData/
actions/getPerformanceData/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [
    {
      "pointTimeRange": 3600000,
      "baseTime": "2016-08-22T14:03:55.971+09:00",
      "perfComponents": [
        {
          "instanceID": "vm#ITPDLab_172.17.17.115_vm-247",
          "nodeType": "VIRTUAL_MACHINE",
          "metricType": "ESX_VM_VM_CPUREADY"
        }
      ],
      "timespan": 1
    }
  ]
}

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 22 Aug 2016 05:03:56 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
94e91ec387da8fb0c24e41fbaed4106e50b4121_Y2UOI2pkMXQ=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID": "d326a9b0-cd1f-46d6-9e44-b39eda3f0c42",
  "created": "2016-08-22T14:03:59.710+09:00",
```

```

    "updated": "2016-08-22T14:03:59.710+09:00",
    "completed": "2016-08-22T14:03:59.710+09:00",
    "state": "success",
    "affectedResource": [

],
    "result": [
        {
            "data": {
                "vm#ITPDLab_172.17.17.115_vm-247": {
                    "ESX_VM_VM_CPUREADY": {
                        "instanceID": "vm#ITPDLab_172.17.17.115_vm-
247#ESX_VM_VM_CPUREADY",
                        "metricType": "ESX_VM_VM_CPUREADY",
                        "metricName": "CPU Ready (VMware Virtual Machine)",
                        "thresholdProfileName": "Default Profile for VM
(VMware)",
                        "proportion": false,
                        "plans": [
                            {
                                "instanceID": "thPlan#ESX_VM",
                                "planType": "Base",
                                "planName": "Base",
                                "schedule": [
                                    1,
                                    2,
                                    3,
                                    4,
                                    5,
                                    6,
                                    7
                                ],
                                "from": "00:00",
                                "to": "24:00",
                                "priority": 1,
                                "description": "Base Plan",
                                "monitoringMode": "Dynamic",
                                "fixed": false
                            }
                        ],
                        "minValue": 0.0,
                        "maxValue": 1.0,
                        "unit": "msec",
                        "currentTime": "2016-08-22T14:03:55.971+09:00",
                        "pointValues": [

                    ]
                }
            }
        }
    ]
}

```

```
]
}
```

Preparing to obtain metric information

The following operation is the initial step to obtain information related to metrics, such as the display name and unit.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/PerformanceData/actions/getMetricData
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.

Attribute	Type	Description
parameters	anyType[]	A list of MetricDataParam objects necessary to execute an operation. For details about MetricDataParam, see the table below.

MetricDataParam

```
{
  "resourceType": "...",
  "componentType": "...",
  "priority": "...",
  "metricType": "..."
}
```

MetricDataParam (Type: MetricDataParam)

Attribute	Type	Description
resourceType	enum	Type of resource that the metric belongs to (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
componentType	enum	Type of component that the metric belongs to (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
priority	enum	Priority of the metric (For details about the valid values, see the table MetricPriorityType in <i>List of enumerators</i> .)
metricType	enum	Type of the metric (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.

Status code	Reason phrase	Description
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/PerformanceData/actions/getMetricData
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:01 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getMetricData",
  "href" : "http://localhost:22015/Analytics/v1/services/PerformanceData/
actions/getMetricData/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "resourceType" : "ESX_VM",
    "componentType" : "VIRTUAL_MACHINE",
    "priority" : "Basic",
    "metricType" : "ESX_VM_VM_CPUREADY"
  } ]
}
```


Getting metric information

You can obtain information related to metrics, such as the display name and unit.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/services/PerformanceData/actions/getMetricData/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of MetricDataParam objects necessary to execute an operation. For details about MetricDataParam, see the table below.

MetricDataParam

```
{
  "resourceType": "...",
  "componentType": "...",
  "priority": "..."
}
```

MetricDataParam (Type: MetricDataParam)

Attribute	Type	Description
resourceType	enum	Type of resource that the metric belongs to (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
componentType	enum	Type of component that the metric belongs to (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
priority	enum	Priority of the metric (For details about the valid values, see the table MetricPriorityType in <i>List of enumerators</i> .)

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).

Attribute	Type	Description
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of Collections objects. For details about Collections, see the table below.

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of MetricType objects. For details about MetricType, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.

Attribute	Type	Description
totalCount	integer	Number of objects.

MetricType

```
{
  "metricType": "...",
  "metricName": "...",
  "displayOrder": "...",
  "unit": "...",
  "priority": "...",
  "resourceType": "...",
  "componentType": "...",
  "status": "...",
  "proportion": "..."
}
```

MetricType (Type: MetricType)

Attribute	Type	Description
metricType	enum	Type of the metric (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricName	string	Name of the metric
displayOrder	int	Order of displaying metric
unit	string	Unit of the metric
priority	enum	Priority of the metric (For details about the valid values, see the table MetricPriorityType in <i>List of enumerators</i> .)
resourceType	enum	Type of resource that the metric belongs to (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
componentType	enum	Type of component that the metric belongs to (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
status	enum	Status of the performance information (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .)

Attribute	Type	Description
proportion	boolean	Direction of a performance value. If a warning or critical is generated when the value goes up, "true" is set. If a warning or critical is generated when the value goes down, "false" is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/services/PerformanceData/actions/getMetricData/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getMetricData",
  "href": "http://localhost:22015/Analytics/v1/services/PerformanceData/
actions/getMetricData/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "resourceType": "ESX_VM",
    "componentType": "VIRTUAL_MACHINE",
    "priority": "Basic",
    "metricType": "ESX_VM_VM_CPUREADY"
  }]
}
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:01 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "instanceID" : "df788f95-e53f-48e1-b666-8c6e23fe78c4",
  "created" : "2016-08-12T02:56:01.736+09:00",
  "updated" : "2016-08-12T02:56:01.737+09:00",
  "completed" : "2016-08-12T02:56:01.737+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "data" : [ {
      "metricType" : "ESX_VM_VM_CPUREADY",
      "metricName" : "CPU Ready (VMware Virtual Machine)",
      "displayOrder" : 41700,
      "unit" : "msec",
      "priority" : "Basic",
      "resourceType" : "ESX_VM",
      "componentType" : "VIRTUAL_MACHINE",
      "status" : "Unknown",
      "proportion" : false
    } ]
  } ]
}
```

Getting a list of metrics for devices

You can obtain a list of metrics for a selected device type.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/PerformanceNode?
$query={HQL}&type={E2ENodeType}&basePointNodeID={nodeID}&basePointNodeType=
{E2ENodeType}&pointTimeRange={range}&page={page}&pageSize={size}&baseTime={
dateTime}&conflict={conflict}
```

Query parameters

The following table describes the values for the supported parameters of a query string:

Parameter	Description
\$query={HQL}	(Required) Using HQL. Specify the following parameters. MetricType ((Required) Only one value can be specified.) parentNodeID ((Optional) Multiple values can be specified.) Filtering conditions: Specify using HQL standard.
type={E2ENodeType}	(Required) Specify the E2E node type. Filtering conditions: Checks whether the comparison target is equal to the value
basePointNodeID={nodeID}	(Required) Specify 1 or more base IDs. Filtering conditions: Checks whether the value is included in the comparison target. Multiple values separated by a comma (,) can be specified.
basePointNodeType={E2ENodeType}	(Required) Specify the E2E node type. Filtering conditions: Checks whether the comparison target is equal to the value
pointTimeRange={range}	(Required) Specify the time period to be displayed. Filtering conditions: Checks whether the comparison target is equal to the value
page={page}	(Optional) Specify the paging information (page to be obtained). Filtering conditions:

Parameter	Description
	Checks whether the comparison target is equal to the value
pageSize={size}	(Optional) Specify the number of items that can be displayed on 1 page. Filtering conditions: Checks whether the comparison target is equal to the value
baseTime={dateTime}	(Optional) Specify the display start time. Filtering conditions: Checks whether the comparison target is equal to the value
conflict={conflict}	(Optional) Specify the method used for calculating the aggregation value ("null" or "peak" or "average"). Filtering conditions: Checks whether the comparison target is equal to the value

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of PerformanceNode objects. For details about PerformanceNode, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

PerformanceNode

```
{
  "instanceID": "...",
  "componentID": "...",
  "componentName": "...",
  "metricType": "...",
  "status": "...",
  "parentNodeID": "...",
  "parentNodeName": "...",
  "clusterName": "...",
  "description": "...",
  "thresholdProfileName": "...",
  "performancePeakLatest": "...",
  "performancePeakWorst": "...",
  "performanceAverageLatest": "...",
  "performanceAverageWorst": "..."
}
```

PerformanceNode (Type: PerformanceNode)

Attribute	Type	Description
instanceID	string	ID of the performance information of the device

Attribute	Type	Description
componentID	string	ID of the component of the device that has performance information
componentName	string	Name of the component of the device that has performance information
metricType	enum	ID of the metric (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
status	enum	Status of the performance information (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ LinkDown ▪ Unknown ▪ NA ▪ NotMonitored ▪ NotCollected ▪ Info
parentNodeID	string	ID of the device
parentNodeName	string	Name of the device
clusterName	string	Name of the cluster
description	string	Description
thresholdProfileName	string	Name of the threshold profile
performancePeakLatest	float	Latest peak performance value within the specified period
performancePeakWorst	float	Peak performance value that is closest to the abnormality line within the specified period
performanceAverageLatest	float	Latest average performance value within the specified period
performanceAverageWorst	float	Average performance value that is closest to the abnormality line within the specified period

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	A query parameter is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/PerformanceNode/?%24query=metricType%20eq
%20%27ESX_H_MEMUSAGE%27&type=HYPERVISOR&basePointNodeID=h
%23ITPDLab_172.17.17.115_host-
190&basePointNodeType=HYPERVISOR&pointTimeRange=86400000
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 10 Aug 2016 03:54:00 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
3ee59bb16b5aa61a596112ff8f602692d799e75d_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "instanceID" : "h#ITPDLab_172.17.17.115_host-190#HV_ESX_H_MEMUSAGE",
    "componentID" : "h#ITPDLab_172.17.17.115_host-190",
```

```

    "componentName" : "Physical memory : 7.99 GB",
    "metricType" : "ESX_H_MEMUSAGE",
    "status" : "Warning",
    "parentNodeID" : "h#ITPDLab_172.17.17.115_host-190",
    "parentNodeName" : "172.17.17.118",
    "thresholdProfileName" : "Default Profile for Hypervisor (VMware)",
    "performancePeakLatest" : 90.0,
    "performancePeakWorst" : 90.0,
    "performanceAverageLatest" : 90.0,
    "performanceAverageWorst" : 90.0
  } ],
  "count" : 1
}

```

Getting a list of metrics for virtual machines

You can obtain a list of metrics for virtual machines.

Execution permission

Admin, Modify

Request line

```

GET baseUrl/v1/objects/PerformanceVirtualMachine?
$query={HQL}&basePointNodeID={nodeID}&basePointNodeType={E2ENodeType}&point
TimeRange={range}&page={page}&pageSize={size}&baseTime={dateTime}&conflict=
{conflict}

```

Query parameters

The following table describes the values for the supported parameters of a query string:

Parameter	Description
\$query={HQL}	(Required) Using HQL. Specify the following parameters. MetricType ((Required) Only one value can be specified.) parentNodeID ((Optional) Multiple values can be specified.) Filtering conditions: Specify using HQL standard.
basePointNodeID={nodeID}	(Required) Specify 1 or more base IDs. Filtering conditions:

Parameter	Description
	Checks whether the value is included in the comparison target. Multiple values separated by a comma (,) can be specified.
basePointNodeType={E2ENodeType}	(Required) Specify the E2E node type. Filtering conditions: Checks whether the comparison target is equal to the value
pointTimeRange={range}	(Required) Specify the time period to be displayed. Filtering conditions: Checks whether the comparison target is equal to the value
page={page}	(Optional) Specify the paging information (page to be obtained). Filtering conditions: Checks whether the comparison target is equal to the value
pageSize={size}	(Optional) Specify the number of items that can be displayed on 1 page. Filtering conditions: Checks whether the comparison target is equal to the value
baseTime={dateTime}	(Optional) Specify the display start time. Filtering conditions: Checks whether the comparison target is equal to the value
conflict={conflict}	(Optional) Specify the method used for calculating the aggregation value ("null" or "peak" or "average"). Filtering conditions: Checks whether the comparison target is equal to the value

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of PerformanceVirtualMachine objects. For details about PerformanceVirtualMachine, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

PerformanceVirtualMachine

```
{
  "instanceID":"...",
  "componentID":"...",
  "componentName":"...",
  "metricType":"...",
  "status":"...",
  "parentNodeID":"...",
  "parentNodeName":"...",
  "hypervisorName":"...",
```

```

    "clusterName": "...",
    "thresholdProfileName": "...",
    "performancePeakLatest": "...",
    "performancePeakWorst": "...",
    "performanceAverageLatest": "...",
    "performanceAverageWorst": "..."
  }

```

PerformanceVirtualMachine (Type: PerformanceVirtualMachine)

Attribute	Type	Description
instanceID	string	ID of the performance information of the virtual machine
componentID	string	ID of a component that has performance information
componentName	string	Name of a component that has performance information
metricType	enum	ID of the metric (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
status	enum	Status of the performance information (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ LinkDown ▪ Unknown ▪ NA ▪ NotMonitored ▪ NotCollected ▪ Info
parentNodeID	string	ID of the virtual machine
parentNodeName	string	Name of the virtual machine
hypervisorName	string	Name of the hypervisor
clusterName	string	Name of the cluster
thresholdProfileName	string	Name of the threshold profile

Attribute	Type	Description
performancePeakLatest	float	Latest peak performance value within the specified period
performancePeakWorst	float	Peak performance value that is closest to the abnormality line within the specified period
performanceAverageLatest	float	Latest average performance value within the specified period
performanceAverageWorst	float	Average performance value that is closest to the abnormality line within the specified period

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	A query parameter is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/PerformanceVirtualMachine/?%24query=metricType%20eq%20%27ESX_VM_VM_CPUREADY%27&basePointNodeID=vm%23ABC_172.17.17.115_vm-142&basePointNodeType=STORAGE_VOLUME&pointTimeRange=86400000
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:52:15 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
```



```

WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

```

[Response Body]

```

{
  "data" : [ {
    "instanceID" : "vm#ABC_172.17.17.115_vm-142#ESX_VM_VM_CPUREADY",
    "componentID" : "vm#ABC_172.17.17.115_vm-142",
    "componentName" : "CPU",
    "metricType" : "ESX_VM_VM_CPUREADY",
    "status" : "Unknown",
    "parentNodeID" : "vm#ABC_172.17.17.115_vm-142",
    "parentNodeName" : "perf_vm",
    "hypervisorName" : "172.17.17.181",
    "thresholdProfileName" : "Default Profile for VM (VMware)",
    "performancePeakLatest" : 0.0,
    "performancePeakWorst" : 0.0,
    "performanceAverageLatest" : 0.0,
    "performanceAverageWorst" : 0.0
  } ],
  "count" : 1
}

```

Getting a list of metrics for volumes

You can obtain a list of metrics for volumes.

Execution permission

Admin, Modify

Request line

```

GET baseURL/v1/objects/PerformanceVolume?
$query={HQL}&basePointNodeID={nodeID}&basePointNodeType={E2ENodeType}&point
TimeRange={range}&page={page}&pageSize={size}&baseTime={dateTime}&conflict=
{conflict}

```

Query parameters

The following table describes the values for the supported parameters of a query string:

Parameter	Description
\$query={HQL}	<p>(Required) Using HQL. Specify the following parameters.</p> <p>MetricType ((Required) Only one value can be specified.)</p> <p>componentID ((Optional) Only one value can be specified.)</p> <p>Filtering conditions:</p> <p>Specify using HQL standard.</p>
basePointNodeID={nodeID}	<p>(Required) Specify 1 or more base IDs.</p> <p>Filtering conditions:</p> <p>Checks whether the value is included in the comparison target. Multiple values separated by a comma (,) can be specified.</p>
basePointNodeType={E2ENode eType}	<p>(Required) Specify the E2E node type.</p> <p>Filtering conditions:</p> <p>Checks whether the comparison target is equal to the value</p>
pointTimeRange={range}	<p>(Required) Specify the time period to be displayed.</p> <p>Filtering conditions:</p> <p>Checks whether the comparison target is equal to the value</p>
page={page}	<p>(Optional) Specify the paging information (page to be obtained).</p> <p>Filtering conditions:</p> <p>Checks whether the comparison target is equal to the value</p>
pageSize={size}	<p>(Optional) Specify the number of items that can be displayed on 1 page.</p> <p>Filtering conditions:</p> <p>Checks whether the comparison target is equal to the value</p>
baseTime={dateTime}	<p>(Optional) Specify the display start time.</p> <p>Filtering conditions:</p> <p>Checks whether the comparison target is equal to the value</p>

Parameter	Description
conflict={conflict}	(Optional) Specify the method used for calculating the aggregation value ("null" or "peak" or "average"). Filtering conditions: Checks whether the comparison target is equal to the value

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of PerformanceVolume objects. For details about PerformanceVolume, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.

Attribute	Type	Description
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

PerformanceVolume

```
{
  "instanceID": "...",
  "componentID": "...",
  "componentName": "...",
  "metricType": "...",
  "status": "...",
  "parentNodeID": "...",
  "parentNodeName": "...",
  "poolName": "...",
  "pgName": "...",
  "thresholdProfileName": "...",
  "performancePeakLatest": "...",
  "performancePeakWorst": "...",
  "performanceAverageLatest": "...",
  "performanceAverageWorst": "...",
  "hostGroupIDs": ["...", ...],
  "hostGroupNames": ["...", ...],
  "vssbComputeNodeNames": ["...", ...],
  "nvmHostNicknames": ["...", ...],
  "lunOwnerIDs": ["...", ...],
  "lunOwnerNames": ["...", ...]
}
```

PerformanceVolume (Type: PerformanceVolume)

Attribute	Type	Description
instanceID	string	ID of the performance information of the volume.
componentID	string	ID of the volume.
componentName	string	Name of the volume.
metricType	enum	ID of the metric. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
status	enum	Status of the performance information.

Attribute	Type	Description
		<p>(For details about the valid values, see the table <code>ElementStatusType</code> in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ LinkDown ▪ Unknown ▪ NA ▪ NotMonitored ▪ NotCollected ▪ Info
parentNodeID	string	ID of the storage system.
parentNodeName	string	Name of the storage system.
poolName	string	Name of the pool.
pgName	string	Name of the parity group.
thresholdProfileName	string	Name of the threshold profile.
performancePeakLatest	float	Latest peak performance value within the specified period.
performancePeakWorst	float	Peak performance value that is closest to the abnormality line within the specified period.
performanceAverageLatest	float	Latest average performance value within the specified period.
performanceAverageWorst	float	Average performance value that is closest to the abnormality line within the specified period.
hostGroupIDs	string[]	ID of the host group that a volume belongs to.
hostGroupNames	string[]	Name of the host group that a volume belongs to.
vssbComputeNodeNames	string[]	The Compute Node of the VSSB volume.
nvmHostNicknames	string[]	NVM host nickname of the volume.
lunOwnerIDs	string[]	ID of the LUN Owner that a volume is associated with.

Attribute	Type	Description
lunOwnerNames	string[]	Name of the LUN Owner that a volume is associated with.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	A query parameter is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/PerformanceVolume?%24query=metricType%20eq%20%27RAID_VOLUME_RAIDLDEV_TOTALIOPS%27&basePointNodeID=raidLdev%2310000-00%5E00%5E63&basePointNodeType=STORAGE_VOLUME&pointTimeRange=86400000
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Wed, 10 Aug 2016 10:11:48 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
4f5dd90606cb15e3c72928995be8eb650f2de69_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "data" : [ {
    "instanceID" : "raidLdev#10000-
00^00^63#RAID_VOLUME_RAIDLDEV_TOTALIOPS",
    "componentID" : "raidLdev#10000-00^00^63",
    "componentName" : "00:00:63",
    "metricType" : "RAID_VOLUME_RAIDLDEV_TOTALIOPS",
    "status" : "Normal",
    "parentNodeID" : "raidStorage#10000",
    "parentNodeName" : "VSP 5500H (10000)",
    "label" : "BasicVol_00099",
    "pgName" : "01-29",
    "thresholdProfileName" : "Default Profile for Volume",
    "performancePeakLatest" : 154.0,
    "performancePeakWorst" : 741.0,
    "performanceAverageLatest" : 154.0,
    "performanceAverageWorst" : 741.0 } ],
  "count" : 1
}
```

Chapter 19: Performing operations related to predictive histories

You can obtain or delete the items in the task history for a predictive operation, obtain the execution results of tasks, and re-execute tasks that are in the task history.

Getting a list of task histories for a predictive operation

You can obtain a historical list of tasks for a predictive operation.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/PredictionHistory
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of PredictionHistory objects. For details about PredictionHistory, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

PredictionHistory

```
{
  "name": "...",
  "description": "...",
  "reportID": "...",
  "userName": "...",
  "execState": "...",
  "execDate":,
  "status": "...",
  "statusDetail":{
    "numOfCriticals": "...",
    "numOfWarnings": "...",
    "numOfNormals": "...",
    "numOfUnknowns": "...",
    "numOfNAs": "..."
  },
  "numOfTargets": "...",
  "lastActionDate":,
  "errorMessage": "...",
  "metricResults": [{
    "metricType": "...",
    "metricName": "...",
    "nodeType": "...",
    "componentType": "...",
    "nodeName": "..."
  ]
}
```

```

    "execState": "...",
    "status": "...",
    "numOfTargets": "...",
    "statusDetail": {
      "numOfCriticals": "...",
      "numOfWarnings": "...",
      "numOfNormals": "...",
      "numOfUnknowns": "...",
      "numOfNAs": "..."
    }
  },
  :
],
"profileResults": [{
  "profileID": "...",
  "profileName": "...",
  "metricResults": [{
    "metricType": "...",
    "metricName": "...",
    "nodeType": "...",
    "componentType": "...",
    "nodeName": "...",
    "execState": "...",
    "status": "...",
    "numOfTargets": "...",
    "statusDetail": {
      "numOfCriticals": "...",
      "numOfWarnings": "...",
      "numOfNormals": "...",
      "numOfUnknowns": "...",
      "numOfNAs": "..."
    }
  ]
},
:
],
"profileID": "..."
}

```

PredictionHistory (Type: PredictionHistory)

Attribute	Type	Description
name	string	Name of the predictive report result.
description	string	Description of the predictive report result.

Attribute	Type	Description
reportID	string	ID of the predictive report result.
userName	string	Name of the user associated with the executed predictive operation.
execState	enum	Task status. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)
execDate	datetime	Date and time when this task started executing.
status	enum	Aggregated status of all the performance resources for the predictive report result. (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown ▪ NA
statusDetail	PredictionStatusDetail	Detail of the status.
numOfTargets	integer	Total number of targets.
lastActionDate	datetime	Date and time when the last action executed.
errorMessage	string	Error message for the result.
metricResults	PredictionTargetMetric[]	Result information per metric.
profileResults	PredictionProfileResult[]	Result information per profile.
profileID	string	Profile ID of this profile result for the history.

statusDetail (Type: PredictionStatusDetail)

Attribute	Type	Description
numOfCriticals	integer	Number of critical status incidents.
numOfWarnings	integer	Number of warning status incidents.
numOfNormals	integer	Number of normal status incidents.
numOfUnknowns	integer	Number of unknown status incidents.
numOfNAs	integer	Number of NA status incidents.

metricResults (Type: PredictionTargetMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricName	string	Metric name.
nodeType	enum	Node type for this resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type for this resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
nodeName	string	Node name.
execState	enum	Status of the task. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)
status	enum	Status of the predictive result. (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .)
numOfTargets	integer	Total number of targets for this metric.
statusDetail	PredictionStatusDetail	Details for the predictive status.

statusDetail (Type: PredictionStatusDetail)

Attribute	Type	Description
numOfCriticals	integer	Number of critical status incidents.
numOfWarnings	integer	Number of warning status incidents.
numOfNormals	integer	Number of normal status incidents.
numOfUnknowns	integer	Number of unknown status incidents.
numOfNAs	integer	Number of NA status incidents.

profileResults (Type: PredictionProfileResult)

Attribute	Type	Description
profileID	string	Profile ID.
profileName	string	Profile name.
metricResults	PredictionTargetMetric[]	Result information associated with each metric.

metricResults (Type: PredictionTargetMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricName	string	Metric name.
nodeType	enum	Node type for this resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type for this resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
nodeName	string	Node name.
execState	enum	Status of the task. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)

Attribute	Type	Description
status	enum	Status of the predictive result. (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .)
numOfTargets	integer	Total number of targets for this metric.
statusDetail	PredictionStatusDetail	Details for the predictive status.

statusDetail (Type: PredictionStatusDetail)

Attribute	Type	Description
numOfCriticals	integer	Number of critical status incidents.
numOfWarnings	integer	Number of warning status incidents.
numOfNormals	integer	Number of normal status incidents.
numOfUnknowns	integer	Number of unknown status incidents.
numOfNAs	integer	Number of NA status incidents.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	- The format of the request body is invalid. - A query parameter is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Getting predictive history information

You can obtain historical information for the results of a predictive operation.

Execution permission

Admin, Modify

Request line**GET** baseUrl/v1/objects/PredictionHistory/{id}**Request body**

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

PredictionHistory

```

{
  "name": "...",
  "description": "...",
  "reportID": "...",
  "userName": "...",
  "execState": "...",
  "execDate":,
  "status": "...",
  "statusDetail":{
    "numOfCriticals": "...",
    "numOfWarnings": "...",
    "numOfNormals": "...",
    "numOfUnknowns": "...",
    "numOfNAs": "..."
  },
  "numOfTargets": "...",
  "lastActionDate":,
  "errorMessage": "...",
  "metricResults": [{
    "metricType": "...",
    "metricName": "...",
    "nodeType": "...",
    "componentType": "...",
    "nodeName": "...",
    "execState": "...",
    "status": "...",
    "numOfTargets": "...",
    "statusDetail":{
      "numOfCriticals": "...",
      "numOfWarnings": "...",
      "numOfNormals": "...",
      "numOfUnknowns": "...",
      "numOfNAs": "..."
    }
  ]
}

```

```

    },
    :
  ],
  "profileResults": [{
    "profileID": "...",
    "profileName": "...",
    "metricResults": [{
      "metricType": "...",
      "metricName": "...",
      "nodeType": "...",
      "componentType": "...",
      "nodeName": "...",
      "execState": "...",
      "status": "...",
      "numOfTargets": "...",
      "statusDetail": {
        "numOfCriticals": "...",
        "numOfWarnings": "...",
        "numOfNormals": "...",
        "numOfUnknowns": "...",
        "numOfNAs": "..."
      }
    }
  ]
},
:
]
},
:
],
"profileID": "..."
}

```

PredictionHistory (Type: PredictionHistory)

Attribute	Type	Description
name	string	Name of the predictive report result.
description	string	Description of the predictive report result.
reportID	string	ID of the predictive report result.
userName	string	Name of the user associated with the executed predictive operation.
execState	enum	Task status. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)
execDate	datetime	Date and time when this task started executing.

Attribute	Type	Description
status	enum	Aggregated status of all the performance resources for the predictive report result. (For details about the valid values, see the table <code>ElementStatusType</code> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown ▪ NA
statusDetail	PredictionStatusDetail	Detail of the status.
numOfTargets	integer	Total number of targets.
lastActionDate	datetime	Date and time when the last action executed.
errorMessage	string	Error message for the result.
metricResults	PredictionTargetMetric[]	Result information per metric.
profileResults	PredictionProfileResult[]	Result information per profile.
profileID	string	Profile ID of this profile result for the history.

statusDetail (Type: PredictionStatusDetail)

Attribute	Type	Description
numOfCriticals	integer	Number of critical status incidents.
numOfWarnings	integer	Number of warning status incidents.
numOfNormals	integer	Number of normal status incidents.
numOfUnknowns	integer	Number of unknown status incidents.
numOfNAs	integer	Number of NA status incidents.

metricResults (Type: PredictionTargetMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricName	string	Metric name.
nodeType	enum	Node type for this resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type for this resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
nodeName	string	Node name.
execState	enum	Status of the task. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)
status	enum	Status of the predictive result. (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .)
numOfTargets	integer	Total number of targets for this metric.
statusDetail	PredictionStatusDetail	Details for the predictive status.

statusDetail (Type: PredictionStatusDetail)

Attribute	Type	Description
numOfCriticals	integer	Number of critical status incidents.
numOfWarnings	integer	Number of warning status incidents.
numOfNormals	integer	Number of normal status incidents.
numOfUnknowns	integer	Number of unknown status incidents.
numOfNAs	integer	Number of NA status incidents.

profileResults (Type: PredictionProfileResult)

Attribute	Type	Description
profileID	string	Profile ID.
profileName	string	Profile name.
metricResults	PredictionTargetMetric[]	Result information associated with each metric.

metricResults (Type: PredictionTargetMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricName	string	Metric name.
nodeType	enum	Node type for this resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type for this resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
nodeName	string	Node name.
execState	enum	Status of the task. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)
status	enum	Status of the predictive result. (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .)
numOfTargets	integer	Total number of targets for this metric.
statusDetail	PredictionStatusDetail	Details for the predictive status.

statusDetail (Type: PredictionStatusDetail)

Attribute	Type	Description
numOfCriticals	integer	Number of critical status incidents.
numOfWarnings	integer	Number of warning status incidents.
numOfNormals	integer	Number of normal status incidents.
numOfUnknowns	integer	Number of unknown status incidents.
numOfNAs	integer	Number of NA status incidents.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Deleting a predictive history

You can delete a specific predictive history.

Execution permission

Admin, Modify

Request line

```
DELETE baseURL/v1/objects/PredictionHistory/{id}
```

Request body

Not applicable.

Response body

Not applicable.

Status codes

Status code	Reason phrase	Description
204	No Content	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No delete privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Getting a list of predictive history actions

You can obtain a historical list of actions related to a predictive operation.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/PredictionHistory/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
}
```

```

    "count": "...
  }

```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```

{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.

Attribute	Type	Description
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Getting the parameter used to obtain predictive results

The following operation is the initial step to get information for predictive results.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/PredictionHistory/actions/getResult
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
```

```

    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetPredictionResultParam objects necessary to execute an operation. For details about GetPredictionResultParam, see the table below.

GetPredictionResultParam

```

{
  "historyID": "...",
  "targetIDs": "...",
  "cullTimespan": "...",
  "rangeFrom": "...",
  "rangeTo": "...",
  "onlyModelData": "..."
}

```

GetPredictionResultParam (Type: GetPredictionResultParam)

Attribute	Type	Description
historyID	string	ID of the predictive report result.
targetIDs	string	Target ID list.
cullTimespan	int	Interval (in minutes) for culling display data.
rangeFrom	long	Start time of the performance data range.
rangeTo	long	End time of the performance data range.
onlyModelData	boolean	Whether the response will have performance data and predictive report results.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Getting predictive results

You can obtain predictive results.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/services/PredictionHistory/actions/getResult/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.

Attribute	Type	Description
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetPredictionResultParam objects necessary to execute an operation. For details about GetPredictionResultParam, see the table below.

GetPredictionResultParam

```
{
  "historyID": "...",
  "targetIDs": "...",
  "cullTimespan": "...",
  "rangeFrom": "...",
  "rangeTo": "...",
  "onlyModelData": "..."
}
```

GetPredictionResultParam (Type: GetPredictionResultParam)

Attribute	Type	Description
historyID	string	ID of the predictive report result.
targetIDs	string	Target ID list.
cullTimespan	int	Interval (in minutes) for culling display data.
rangeFrom	long	Start time of the performance data range.
rangeTo	long	End time of the performance data range.
onlyModelData	boolean	Whether the response will have performance data and predictive report results.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
```

```

    "completed": "...",
    "state": "...",
    "affectedResource":["...", ...],
    "result":["...", ...]
  }

```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of Collections objects. For details about Collections, see the table below.

Collections

```

{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}

```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of PredictionTargetResult objects. For details about PredictionTargetResult, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

PredictionTargetResult

```

{
  "originalData":{
    "metricType":"...",
    "metricName":"...",
    "thresholdProfileName":"...",
    "thresholdValueOfWarning":"...",
    "thresholdValueOfCritical":"...",
    "proportion":"...",
    "plans":[{
      "instanceID":"...",
      "planType":"...",
      "planName":"...",
      "schedule":["...", ...],
      "from":"...",
      "to":"...",
      "priority":"...",
      "description":"...",
      "thresholdValues":[{
        "instanceID":"...",
        "monitoringMode":"...",
        "metricType":"...",
        "metricTypeName":"...",
        "unit":"...",
        "proportion":"...",

```

```

        "thresholdValueOfWarning": "...",
        "thresholdValueOfCritical": "...",
        "stepSize": "...",
        "max": "...",
        "min": "...",
        "maxValueOfDynamic": "...",
        "minValueOfDynamic": "...",
        "avgValueOfDynamic": "...",
    },
    :
  ],
  "monitoringMode": "...",
  "thresholdValueOfWarning": "...",
  "thresholdValueOfCritical": "...",
  "fixed": "...",
},
:
],
"minValue": "...",
"maxValue": "...",
"unit": "...",
"currentTime": "...",
"pointValues": [{
  "pointValuePeak": "...",
  "pointValueAverage": "...",
  "pointTime": "..."
},
:
]
},
"resultData": [{
  "label": "...",
  "description": "...",
  "resultType": "...",
  "data": {
    "metricType": "...",
    "metricName": "...",
    "thresholdProfileName": "...",
    "thresholdValueOfWarning": "...",
    "thresholdValueOfCritical": "...",
    "proportion": "...",
    "plans": [{
      "instanceID": "...",
      "planType": "...",
      "planName": "...",
      "schedule": ["...", ...],
      "from": "...",
      "to": "...",
      "priority": "...",
      "description": "...",
      "thresholdValues": [{

```

```

        "instanceID":"...",
        "monitoringMode":"...",
        "metricType":"...",
        "metricTypeName":"...",
        "unit":"...",
        "proportion":"...",
        "thresholdValueOfWarning":"...",
        "thresholdValueOfCritical":"...",
        "stepSize":"...",
        "max":"...",
        "min":"...",
        "maxValueOfDynamic":"...",
        "minValueOfDynamic":"...",
        "avgValueOfDynamic":"..."
    },
    :
  ],
  "monitoringMode":"...",
  "thresholdValueOfWarning":"...",
  "thresholdValueOfCritical":"...",
  "fixed":"..."
},
:
],
"minValue":"...",
"maxValue":"...",
"unit":"...",
"currentTime":"...",
"pointValues":[{"
  "pointValuePeak":"...",
  "pointValueAverage":"...",
  "pointTime":"..."
}],
:
],
},
"thresholdScore":"...",
"thresholdAlertDate":,
"status":"..."
},
:
],
"execState":"...",
"errorMessage":"...",
"model":{
  "instanceID":"...",
  "componentID":"...",
  "componentName":"...",
  "label":"...",
  "metricType":"...",
  "status":"...",

```

```

    "predictionStatus": "...",
    "parentNodeID": "...",
    "parentNodeName": "...",
    "hypervisorName": "...",
    "clusterName": "...",
    "thresholdProfileName": "...",
    "poolName": "...",
    "pgName": "...",
    "nvmHostNicknames": ["...", ...],
    "hostGroupIDs": ["...", ...],
    "hostGroupNames": ["...", ...],
    "realPerformanceLatest": "...",
    "realPerformanceWorst": "...",
    "predictionPerformanceWorst": "...",
    "firstAlertDate":
  }
}

```

PredictionTargetResult (Type: PredictionTargetResult)

Attribute	Type	Description
originalData	E2EPerformanceGraphData	Original data.
resultData	PredictionResult[]	A list of the predictive report results.
execState	enum	Status of the task. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)
errorMessage	string	Error message of the result.
model	PredictionPerfModel	Resource information.

originalData (Type: E2EPerformanceGraphData)

Attribute	Type	Description
metricType	enum	ID of the metric. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)

Attribute	Type	Description
metricName	string	Name of the metric.
thresholdProfileName	string	Name of the threshold profile used to judge the performance status.
thresholdValueOfWarning	float	Value of the warning threshold.
thresholdValueOfCritical	float	Value of the critical threshold.
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
plans	ThresholdPlan[]	Information about the plans set in the threshold profile. This item is specified only for thresholds of user resources.
minValue	float	Minimum value of the performance information.
maxValue	float	Maximum value of the performance information.
unit	string	Unit of measurement used for performance information.
currentTime	dateTime	Start time specified when obtaining performance information.
pointValues	E2EPerformanceGraphPoint[]	Performance value aggregated at the aggregation interval.

plans (Type: ThresholdPlan)

Attribute	Type	Description
instanceID	string	ID of the plan.
planType	enum	Type of the plan. (For details about the valid values, see the table PlanType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Base ▪ Schedule
planName	string	Name of the plan.

Attribute	Type	Description
schedule	integer[]	Day of the week when to apply the plan. 1: Mon., 2: Tue., 3: Wed., 4: Thu., 5: Fri., 6: Sat., and 7: Sun. The value set here takes effect only if the plan type is "Schedule".
from	string	Start time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
to	string	End time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
priority	int	Priority of the plan.
description	string	Description of the plan.
thresholdValues	ThresholdPlanValue[]	Information about the thresholds specified in the plan.
monitoringMode	enum	Monitoring status of the plan. This item is specified when the thresholds are recalculated for each component. (For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
thresholdValueOfWarning	float	Value of the warning threshold. This item is specified when the thresholds are recalculated for each component.
thresholdValueOfCritical	float	Value of the critical threshold. This item is specified when the thresholds are recalculated for each component.
fixed	boolean	Specifies whether or not to recalculate the thresholds periodically. If the thresholds are recalculated periodically, "true" is set. If the thresholds are not recalculated periodically, "false" is set. This item is specified if the thresholds are to be recalculated for each component.

thresholdValues (Type: ThresholdPlanValue)

Attribute	Type	Description
instanceID	string	ID of the thresholds for each plan.

Attribute	Type	Description
monitoringMode	enum	Specifies whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set. (For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
metricType	enum	ID of the metric set for a threshold. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricTypeName	string	Name of the metric set for a threshold.
unit	string	Unit of the metric set for a threshold.
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
thresholdValueOfWarning	float	Value of the warning threshold.
thresholdValueOfCritical	float	Value of the critical threshold.
stepSize	float	Increment of the threshold.
max	float	Maximum value of the threshold.
min	float	Minimum value of the threshold.
maxValueOfDynamic	float	Maximum value of the dynamic threshold.
minValueOfDynamic	float	Minimum value of the dynamic threshold.
avgValueOfDynamic	float	Average value of a dynamic threshold.

pointValues (Type: E2EPerformanceGraphPoint)

Attribute	Type	Description
pointValuePeak	float	Peak performance value.
pointValueAverage	float	Average performance value.
pointTime	dateTime	Time when the performance information was collected.

resultData (Type: PredictionResult)

Attribute	Type	Description
label	string	Label of the predictive results.
description	string	Description of the predictive results.
resultType	enum	Type of the predictive result. (For details about the valid values, see the table PredictionResultType in <i>List of enumerators</i> .)
data	E2EPerformanceGraphData	Data of the predictive result.
thresholdScore	float	Score of the predictive result for threshold.
thresholdAlertDate	datetime	Estimated date when the specified threshold is violated.
status	enum	Status of the predictive result. (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ NA

data (Type: E2EPerformanceGraphData)

Attribute	Type	Description
metricType	enum	ID of the metric. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricName	string	Name of the metric.
thresholdProfileName	string	Name of the threshold profile used to judge the performance status.
thresholdValueOfWarning	float	Value of the warning threshold.
thresholdValueOfCritical	float	Value of the critical threshold.

Attribute	Type	Description
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
plans	ThresholdPlan[]	Information about the plans set in the threshold profile. This item is specified only for thresholds of user resources.
minValue	float	Minimum value of the performance information.
maxValue	float	Maximum value of the performance information.
unit	string	Unit of measurement used for performance information.
currentTime	dateTime	Start time specified when obtaining performance information.
pointValues	E2EPerformanceGraphPoint[]	Performance value aggregated at the aggregation interval.

plans (Type: ThresholdPlan)

Attribute	Type	Description
instanceID	string	ID of the plan.
planType	enum	Type of the plan. (For details about the valid values, see the table PlanType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Base ▪ Schedule
planName	string	Name of the plan.
schedule	integer[]	Day of the week when to apply the plan. 1: Mon., 2: Tue., 3: Wed., 4: Thu., 5: Fri., 6: Sat., and 7: Sun. The value set here takes effect only if the plan type is "Schedule".
from	string	Start time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".

Attribute	Type	Description
to	string	End time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
priority	int	Priority of the plan.
description	string	Description of the plan.
thresholdValues	ThresholdPlanValue[]	Information about the thresholds specified in the plan.
monitoringMode	enum	Monitoring status of the plan. This item is specified when the thresholds are recalculated for each component. (For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
thresholdValueOfWarning	float	Value of the warning threshold. This item is specified when the thresholds are recalculated for each component.
thresholdValueOfCritical	float	Value of the critical threshold. This item is specified when the thresholds are recalculated for each component.
fixed	boolean	Specifies whether or not to recalculate the thresholds periodically. If the thresholds are recalculated periodically, "true" is set. If the thresholds are not recalculated periodically, "false" is set. This item is specified if the thresholds are to be recalculated for each component.

thresholdValues (Type: ThresholdPlanValue)

Attribute	Type	Description
instanceID	string	ID of the thresholds for each plan.
monitoringMode	enum	Specifies whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set. (For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
metricType	enum	ID of the metric set for a threshold.

Attribute	Type	Description
		(For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricTypeName	string	Name of the metric set for a threshold.
unit	string	Unit of the metric set for a threshold.
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
thresholdValueOfWarning	float	Value of the warning threshold.
thresholdValueOfCritical	float	Value of the critical threshold.
stepSize	float	Increment of the threshold.
max	float	Maximum value of the threshold.
min	float	Minimum value of the threshold.
maxValueOfDynamic	float	Maximum value of the dynamic threshold.
minValueOfDynamic	float	Minimum value of the dynamic threshold.
avgValueOfDynamic	float	Average value of a dynamic threshold.

pointValues (Type: E2EPerformanceGraphPoint)

Attribute	Type	Description
pointValuePeak	float	Peak performance value.
pointValueAverage	float	Average performance value.
pointTime	dateTime	Time when the performance information was collected.

model (Type: PredictionPerfModel)

Attribute	Type	Description
instanceID	string	ID of the performance resource.
componentID	string	ID of a resource.

Attribute	Type	Description
componentName	string	Name of a resource.
label	string	Label of a resource.
metricType	enum	ID of the metric. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
status	enum	Status of the performance information. (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ LinkDown ▪ Unknown ▪ NA ▪ NotMonitored ▪ NotCollected ▪ Info
predictionStatus	enum	Status of each predictive result line. (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ NA
parentNodeID	string	ID of the device that a component belongs to.
parentNodeName	string	Name of the device that a component belongs to.
hypervisorName	string	Name of the hypervisor.
clusterName	string	Name of the cluster.
thresholdProfileName	string	Name of the threshold profile.
poolName	string	Name of the pool.
pgName	string	Name of the parity group.

Attribute	Type	Description
nvmHostNicknames	string[]	NVM host nickname of the volume.
hostGroupIDs	string[]	ID of the host group that a volume belongs to.
hostGroupNames	string[]	Name of the host group that a volume belongs to.
realPerformanceLatest	float	Latest real performance value.
realPerformanceWorst	float	Worst real performance value.
predictionPerformanceWorst	float	Worst performance value of predictive results.
firstAlertDate	datetime	First date and time when the performance value exceeds the threshold.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Getting the parameter used to get metrics for the predictive result

The following operation performs the initial step to get metrics for a predictive result.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/PredictionHistory/actions/getTargets
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of PredictionHistory objects necessary to execute an operation. For details about PredictionHistory, see the table below.

PredictionHistory

```
{
  "name": "...",
  "description": "...",
  "reportID": "...",
  "userName": "...",
  "execState": "...",
  "execDate":,
  "status": "...",
  "statusDetail":{
    "numOfCriticals": "...",
```

```

        "numOfWarnings": "...",
        "numOfNormals": "...",
        "numOfUnknowns": "...",
        "numOfNAs": "...",
    },
    "numOfTargets": "...",
    "lastActionDate":,
    "errorMessage": "...",
    "metricResults": [{
        "metricType": "...",
        "metricName": "...",
        "nodeType": "...",
        "componentType": "...",
        "nodeName": "...",
        "execState": "...",
        "status": "...",
        "numOfTargets": "...",
        "statusDetail": {
            "numOfCriticals": "...",
            "numOfWarnings": "...",
            "numOfNormals": "...",
            "numOfUnknowns": "...",
            "numOfNAs": "...",
        }
    }],
    :
],
"profileResults": [{
    "profileID": "...",
    "profileName": "...",
    "metricResults": [{
        "metricType": "...",
        "metricName": "...",
        "nodeType": "...",
        "componentType": "...",
        "nodeName": "...",
        "execState": "...",
        "status": "...",
        "numOfTargets": "...",
        "statusDetail": {
            "numOfCriticals": "...",
            "numOfWarnings": "...",
            "numOfNormals": "...",
            "numOfUnknowns": "...",
            "numOfNAs": "...",
        }
    }],
    :
],
},
:

```

```

    ],
    "profileID":"..."
  }

```

PredictionHistory (Type: PredictionHistory)

Attribute	Type	Description
name	string	Name of the predictive report result.
description	string	Description of the predictive report result.
reportID	string	ID of the predictive report result.
userName	string	Name of the user associated with the executed predictive operation.
execState	enum	Task status. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)
execDate	datetime	Date and time when this task started executing.
status	enum	Aggregated status of all the performance resources for the predictive report result. (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown ▪ NA
statusDetail	PredictionStatusDetail	Detail of the status.
numOfTargets	integer	Total number of targets.
lastActionDate	datetime	Date and time when the last action executed.
errorMessage	string	Error message for the result.
metricResults	PredictionTargetMetric[]	Result information per metric.

Attribute	Type	Description
profileResults	PredictionProfileResult[]	Result information per profile.
profileID	string	Profile ID of this profile result for the history.

statusDetail (Type: PredictionStatusDetail)

Attribute	Type	Description
numOfCriticals	integer	Number of critical status incidents.
numOfWarnings	integer	Number of warning status incidents.
numOfNormals	integer	Number of normal status incidents.
numOfUnknowns	integer	Number of unknown status incidents.
numOfNAs	integer	Number of NA status incidents.

metricResults (Type: PredictionTargetMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricName	string	Metric name.
nodeType	enum	Node type for this resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type for this resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
nodeName	string	Node name.
execState	enum	Status of the task. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)
status	enum	Status of the predictive result.

Attribute	Type	Description
		(For details about the valid values, see the table <code>ElementStatusType</code> in <i>List of enumerators</i> .)
numOfTargets	integer	Total number of targets for this metric.
statusDetail	PredictionStatusDetail	Details for the predictive status.

statusDetail (Type: PredictionStatusDetail)

Attribute	Type	Description
numOfCriticals	integer	Number of critical status incidents.
numOfWarnings	integer	Number of warning status incidents.
numOfNormals	integer	Number of normal status incidents.
numOfUnknowns	integer	Number of unknown status incidents.
numOfNAs	integer	Number of NA status incidents.

profileResults (Type: PredictionProfileResult)

Attribute	Type	Description
profileID	string	Profile ID.
profileName	string	Profile name.
metricResults	PredictionTargetMetric[]	Result information associated with each metric.

metricResults (Type: PredictionTargetMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table <code>MetricType</code> in <i>List of enumerators</i> .)
metricName	string	Metric name.

Attribute	Type	Description
nodeType	enum	Node type for this resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type for this resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
nodeName	string	Node name.
execState	enum	Status of the task. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)
status	enum	Status of the predictive result. (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .)
numOfTargets	integer	Total number of targets for this metric.
statusDetail	PredictionStatusDetail	Details for the predictive status.

statusDetail (Type: PredictionStatusDetail)

Attribute	Type	Description
numOfCriticals	integer	Number of critical status incidents.
numOfWarnings	integer	Number of warning status incidents.
numOfNormals	integer	Number of normal status incidents.
numOfUnknowns	integer	Number of unknown status incidents.
numOfNAs	integer	Number of NA status incidents.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.

Status code	Reason phrase	Description
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Getting metrics for the predictive result

You can get the metrics associated with results of a predictive operation.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/services/PredictionHistory/actions/getTargets/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.

Attribute	Type	Description
parameters	anyType[]	A list of PredictionTargetMetric objects necessary to execute an operation. For details about PredictionTargetMetric, see the table below.

PredictionTargetMetric

```
{
  "metricType": "...",
  "metricName": "...",
  "nodeType": "...",
  "componentType": "...",
  "nodeName": "...",
  "execState": "...",
  "status": "...",
  "numOfTargets": "...",
  "statusDetail": {
    "numOfCriticals": "...",
    "numOfWarnings": "...",
    "numOfNormals": "...",
    "numOfUnknowns": "...",
    "numOfNAs": "..."
  }
}
```

PredictionTargetMetric (Type: PredictionTargetMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricName	string	Metric name.
nodeType	enum	Node type for this resource. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
componentType	enum	Component type for this resource. (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .)
nodeName	string	Node name.
execState	enum	Status of the task.

Attribute	Type	Description
		(For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)
status	enum	Status of the predictive result. (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .)
numOfTargets	integer	Total number of targets for this metric.
statusDetail	PredictionStatusDetail	Details for the predictive status.

statusDetail (Type: PredictionStatusDetail)

Attribute	Type	Description
numOfCriticals	integer	Number of critical status incidents.
numOfWarnings	integer	Number of warning status incidents.
numOfNormals	integer	Number of normal status incidents.
numOfUnknowns	integer	Number of unknown status incidents.
numOfNAs	integer	Number of NA status incidents.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of Collections objects. For details about Collections, see the table below.

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of PredictionTarget objects. For details about PredictionTarget, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.

Attribute	Type	Description
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

PredictionTarget

```
{
  "execState": "...",
  "status": "...",
  "firstAlertDate":
}
```

PredictionTarget (Type: PredictionTarget)

Attribute	Type	Description
execState	enum	Status of the task. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)
status	enum	Status of the predictive result. (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .)
firstAlertDate	datetime	Estimated date and time when the value exceeds or falls below the threshold.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Chapter 20: Getting the license status of the Predictive Analytics feature

You can obtain the license status of the Predictive Analytics feature that is applicable for any monitored resource in Ops Center Analyzer.

Getting the license status of the Predictive Analytics feature

You can obtain the status (enable or not) of the Predictive Analytics feature.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/PredictionLicense
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of PredictionLicense objects. For details about PredictionLicense, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

PredictionLicense

```
{
  "enable": "... "
}
```

PredictionLicense (Type: PredictionLicense)

Attribute	Type	Description
enable	boolean	License status.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	- The format of the request body is invalid. - A query parameter is invalid.
401	Unauthorized	No login privilege.

Status code	Reason phrase	Description
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Chapter 21: Performing operations related to analytics engines

You can obtain a list of analytics engines for the Predictive Analytics feature, including information about each analytics engine.

Getting a list of analytics engines

You can obtain a list of analytics engines.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/PredictionModule
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of PredictionModule objects. For details about PredictionModule, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

PredictionModule

```
{
  "label": "...",
  "description": "...",
  "predictionTypes": [{
    "label": "...",
    "description": "...",
    "selected": "..."
  }],
  :
],
  "params": [{
    "label": "...",
    "description": "...",
    "type": "...",
    "required": "...",
    "defaultValue":,
    "rangeMin":,
    "rangeMax":,
    "selectionItems": [{
      "label": "...",
      "description": "...",
      "selected": "..."
    }],
    },
  :
}
```

```

    ],
    "multiSelection": "...",
  },
  :
]
}

```

PredictionModule (Type: PredictionModule)

Attribute	Type	Description
label	string	Label of the analytics engine.
description	string	Description of the analytics engine.
predictionTypes	PredictionModuleValue[]	Predictive modeling type list.
params	PredictionModuleParam[]	Parameter list.

predictionTypes (Type: PredictionModuleValue)

Attribute	Type	Description
label	string	Label of the value.
description	string	Description of the value.
selected	boolean	Indicates whether or not this value is selected.

params (Type: PredictionModuleParam)

Attribute	Type	Description
label	string	Name of parameter.
description	string	Description of parameter.
type	string	Class name of parameter value.
required	boolean	Indicates whether or not this parameter is specified.
defaultValue	Object	Default value.
rangeMin	Object	Minimum value of value range.

Attribute	Type	Description
rangeMax	Object	Maximum value of value range.
selectionItems	PredictionModuleValue[]	Item list of selection.
multiSelection	boolean	Indicates whether or not multiple items can be selected.

selectionItems (Type: PredictionModuleValue)

Attribute	Type	Description
label	string	Label of the value.
description	string	Description of the value.
selected	boolean	Indicates whether or not this value is selected.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	- The format of the request body is invalid. - A query parameter is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Getting information about an analytics engine

You can obtain information about an analytics engine.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/PredictionModule/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

PredictionModule

```
{
  "label": "...",
  "description": "...",
  "predictionTypes": [{
    "label": "...",
    "description": "...",
    "selected": "..."
  }],
  :
  ],
  "params": [{
    "label": "...",
    "description": "...",
    "type": "...",
    "required": "...",
    "defaultValue": ,
    "rangeMin": ,
    "rangeMax": ,
    "selectionItems": [{
      "label": "...",
      "description": "...",
      "selected": "..."
    }],
    :
  ],
  "multiSelection": "..."
},
:
]
```

PredictionModule (Type: PredictionModule)

Attribute	Type	Description
label	string	Label of the analytics engine.
description	string	Description of the analytics engine.
predictionTypes	PredictionModuleValue[]	Predictive modeling type list.
params	PredictionModuleParam[]	Parameter list.

predictionTypes (Type: PredictionModuleValue)

Attribute	Type	Description
label	string	Label of the value.
description	string	Description of the value.
selected	boolean	Indicates whether or not this value is selected.

params (Type: PredictionModuleParam)

Attribute	Type	Description
label	string	Name of parameter.
description	string	Description of parameter.
type	string	Class name of parameter value.
required	boolean	Indicates whether or not this parameter is specified.
defaultValue	Object	Default value.
rangeMin	Object	Minimum value of value range.
rangeMax	Object	Maximum value of value range.
selectionItems	PredictionModuleValue[]	Item list of selection.
multiSelection	boolean	Indicates whether or not multiple items can be selected.

selectionItems (Type: PredictionModuleValue)

Attribute	Type	Description
label	string	Label of the value.
description	string	Description of the value.
selected	boolean	Indicates whether or not this value is selected.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Chapter 22: Executing a predictive operation

You can execute and cancel tasks for the predictive operation. In addition, you can obtain a list of task-related actions for the predictive operation.

Getting a list of predictive tasks

You can obtain a list of predictive tasks.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/PredictionTask
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of PredictionTask objects. For details about PredictionTask, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

PredictionTask

```
{
  "name": "...",
  "taskState": "..."}

```

PredictionTask (Type: PredictionTask)

Attribute	Type	Description
name	string	Name of the task.
taskState	enum	Executing status of the task. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.

Status code	Reason phrase	Description
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Getting information about a predictive task

You can obtain information about a predictive task.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/PredictionTask/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

PredictionTask

```
{
  "name": "...",
  "taskState": "..."
}
```

PredictionTask (Type: PredictionTask)

Attribute	Type	Description
name	string	Name of the task.
taskState	enum	Executing status of the task.

Attribute	Type	Description
		(For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Getting a list of predictive-related operations

You can obtain a list of predictive-related operations.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/PredictionTask/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
```

```

        "pageSize": "...",
        "numPages": "...",
        "totalCount": "...",
    },
    "count": "...",
}

```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```

{
    "name": "...",
    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
}

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.

Attribute	Type	Description
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Preparing to predict a result

Following is the initial step required to predict a result.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/PredictionTask/actions/execute
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of PredictionExecParam objects necessary to execute an operation. For details about PredictionExecParam, see the table below.

PredictionExecParam

```
{
  "reportID": "...",
  "profileIDs": ["...", ...],
  "targetConds": [{
    "nodeType": "...",
    "resourceIDs": ["...", ...],
    "withRelated": "..."
  }],
  :
  ],
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  :
  ],
  "withRelated": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "..."
}
```

PredictionExecParam (Type: PredictionExecParam)

Attribute	Type	Description
reportID	string	ID of the predictive risk report.
profileIDs	string[]	List of predictive risk profile IDs.
targetConds	PredictionTargetCond[]	Target condition list.
metrics	PredictionMetric[]	Target metric information list.
withRelated	boolean	Whether or not the related resources are included in the targets.
predictionPeriod	long	Time period of the predictive result.
calculationPeriod	long	Time period it took to predict the result.

targetConds (Type: PredictionTargetCond)

Attribute	Type	Description
nodeType	enum	Node type. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
resourceIDs	string[]	Resource ID list.
withRelated	boolean	Indicates whether the related resource is the same as the target.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
threshold	float	A threshold value.
proportion	boolean	Direction of threshold.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Predicting a result

You can predict a result.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/services/PredictionTask/actions/execute/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.

Attribute	Type	Description
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of PredictionExecParam objects necessary to execute an operation. For details about PredictionExecParam, see the table below.

PredictionExecParam

```
{
  "reportID": "...",
  "profileIDs": ["...", ...],
  "targetConds": [{
    "nodeType": "...",
    "resourceIDs": ["...", ...],
    "withRelated": "..."
  }],
  :
  ],
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  :
  ],
  "withRelated": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "..."
}
```

PredictionExecParam (Type: PredictionExecParam)

Attribute	Type	Description
reportID	string	ID of the predictive risk report.
profileIDs	string[]	List of predictive risk profile IDs.
targetConds	PredictionTargetCond[]	Target condition list.

Attribute	Type	Description
metrics	PredictionMetric[]	Target metric information list.
withRelated	boolean	Whether or not the related resources are included in the targets.
predictionPeriod	long	Time period of the predictive result.
calculationPeriod	long	Time period it took to predict the result.

targetConds (Type: PredictionTargetCond)

Attribute	Type	Description
nodeType	enum	Node type. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
resourceIDs	string[]	Resource ID list.
withRelated	boolean	Indicates whether the related resource is the same as the target.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
threshold	float	A threshold value.
proportion	boolean	Direction of threshold.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
```

```

    "state": "...",
    "affectedResource": ["...", ...],
    "result": ["...", ...]
  }

```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of PredictionTask objects. For details about PredictionTask, see the table below.

PredictionTask

```

{
    "name": "...",
    "taskState": "..."
}

```

PredictionTask (Type: PredictionTask)

Attribute	Type	Description
name	string	Name of the task.
taskState	enum	Executing status of the task. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Preparing to cancel a predictive operation

Following is the initial step required to cancel a predictive operation.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/PredictionTask/actions/cancel
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of PredictionTask objects necessary to execute an operation. For details about PredictionTask, see the table below.

PredictionTask

```
{
  "name": "...",
  "taskState": "..."}

```

PredictionTask (Type: PredictionTask)

Attribute	Type	Description
name	string	Name of the task.
taskState	enum	Executing status of the task. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Canceling a predictive operation

You can cancel a predictive operation.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/services/PredictionTask/actions/cancel/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of PredictionTask objects necessary to execute an operation. For details about PredictionTask, see the table below.

PredictionTask

```
{
  "name": "...",
  "taskState": "..."
}
```

PredictionTask (Type: PredictionTask)

Attribute	Type	Description
name	string	Name of the task.
taskState	enum	Executing status of the task. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.

Attribute	Type	Description
result	anyType[]	A list of PredictionTask objects. For details about PredictionTask, see the table below.

PredictionTask

```
{
  "name": "...",
  "taskState": "..."}

```

PredictionTask (Type: PredictionTask)

Attribute	Type	Description
name	string	Name of the task.
taskState	enum	Executing status of the task. (For details about the valid values, see the table PredictionExecState in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Chapter 23: Performing operations related to predictive profiles

You can create, update, and delete predictive profiles.

Getting a list of predictive profiles

You can obtain a list of predictive profiles.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/PredictiveProfile
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of PredictiveProfile objects. For details about PredictiveProfile, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

PredictiveProfile

```
{
  "name": "...",
  "description": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "...",
  "dataInterval": "...",
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  :
],
  "moduleID": "...",
  "predictionTypes": ["...", ...],
  "withRelated": "...",
  "params": [{
    "value": ,
    "items": ["...", ...]
  }],
  :
],
  "owner": "...",
  "lastUpdated": ,
```

```

    "systemDefined": "...",
    "isOndemand": "...",
    "numOfReports": "...",
  }

```

PredictiveProfile (Type: PredictiveProfile)

Attribute	Type	Description
name	string	Name of the profile.
description	string	Description of the profile.
predictionPeriod	long	Time period of the predictive operation.
calculationPeriod	long	Time period of the original data.
dataInterval	long	Data acquisition interval (in minutes).
metrics	Predictio nMetric[]	Metric settings list.
moduleID	string	Module ID.
predictionTypes	string[]	Predictive modeling types.
withRelated	boolean	Whether or not the related resources are included in the targets.
params	Predictio nModule Setting[]	Parameter settings for the analytics engine.
owner	string	Name of the user who created the profile.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this profile is system defined.
isOndemand	boolean	Whether or not this profile was created for an ad hoc execution.
numOfReports	boolean	Number of reports using this profile.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)

Attribute	Type	Description
threshold	float	A threshold value.
proportion	boolean	Direction of threshold.

params (Type: PredictionModuleSetting)

Attribute	Type	Description
value	Object	Value for the analytics engine.
items	string[]	Key list for the possible selection.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	- The format of the request body is invalid. - A query parameter is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Creating a new predictive profile

You can create a new predictive profile.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/objects/PredictiveProfile
```

Request body

The structure of the request body and the object attributes are as follows:

PredictiveProfile

```
{
  "name": "...",
  "description": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "...",
  "dataInterval": "...",
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  "moduleID": "...",
  "predictionTypes": ["...", ...],
  "withRelated": "...",
  "params": [{
    "value": ...,
    "items": ["...", ...]
  }],
  "owner": "...",
  "lastUpdated": ...,
  "systemDefined": "...",
  "isOndemand": "...",
  "numOfReports": "..."
}
```

PredictiveProfile (Type: PredictiveProfile)

Attribute	Type	Description
name	string	Name of the profile.
description	string	Description of the profile.
predictionPeriod	long	Time period of the predictive operation.
calculationPeriod	long	Time period of the original data.
dataInterval	long	Data acquisition interval (in minutes).
metrics	Predictio nMetric[]	Metric settings list.

Attribute	Type	Description
moduleID	string	Module ID.
predictionTypes	string[]	Predictive modeling types.
withRelated	boolean	Whether or not the related resources are included in the targets.
params	PredictionModuleSetting[]	Parameter settings for the analytics engine.
owner	string	Name of the user who created the profile.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this profile is system defined.
isOndemand	boolean	Whether or not this profile was created for an ad hoc execution.
numOfReports	boolean	Number of reports using this profile.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
threshold	float	A threshold value.
proportion	boolean	Direction of threshold.

params (Type: PredictionModuleSetting)

Attribute	Type	Description
value	Object	Value for the analytics engine.
items	string[]	Key list for the possible selection.

Response body

The structure of the response body and the object attributes is as follows:

PredictiveProfile

```

{
  "name": "...",
  "description": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "...",
  "dataInterval": "...",
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  :
  ],
  "moduleID": "...",
  "predictionTypes": ["...", ...],
  "withRelated": "...",
  "params": [{
    "value": ,
    "items": ["...", ...]
  }],
  :
  ],
  "owner": "...",
  "lastUpdated": ,
  "systemDefined": "...",
  "isOndemand": "...",
  "numOfReports": "..."
}

```

PredictiveProfile (Type: PredictiveProfile)

Attribute	Type	Description
name	string	Name of the profile.
description	string	Description of the profile.
predictionPeriod	long	Time period of the predictive operation.
calculationPeriod	long	Time period of the original data.
dataInterval	long	Data acquisition interval (in minutes).
metrics	Predictio nMetric[]	Metric settings list.
moduleID	string	Module ID.
predictionTypes	string[]	Predictive modeling types.

Attribute	Type	Description
withRelated	boolean	Whether or not the related resources are included in the targets.
params	PredictionModuleSetting[]	Parameter settings for the analytics engine.
owner	string	Name of the user who created the profile.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this profile is system defined.
isOndemand	boolean	Whether or not this profile was created for an ad hoc execution.
numOfReports	boolean	Number of reports using this profile.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
threshold	float	A threshold value.
proportion	boolean	Direction of threshold.

params (Type: PredictionModuleSetting)

Attribute	Type	Description
value	Object	Value for the analytics engine.
items	string[]	Key list for the possible selection.

Status codes

Status code	Reason phrase	Description
201	Created	Success.
400	Bad Request	The format of the request body is invalid.

Status code	Reason phrase	Description
401	Unauthorized	No login privilege.
403	Forbidden	No create privilege.
409	Conflict	A resource with the same name exists.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Getting information about a predictive profile

You can obtain information about a predictive profile.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/PredictiveProfile/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

PredictiveProfile

```
{
  "name": "...",
  "description": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "...",
  "dataInterval": "...",
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  :
  ],
```



```

    "moduleID":"...",
    "predictionTypes":["...", ...],
    "withRelated":"...",
    "params":[{"
      "value":,
      "items":["...", ...]
    },
    :
  ],
  "owner":"...",
  "lastUpdated":,
  "systemDefined":"...",
  "isOndemand":"...",
  "numOfReports":"..."
}

```

PredictiveProfile (Type: PredictiveProfile)

Attribute	Type	Description
name	string	Name of the profile.
description	string	Description of the profile.
predictionPeriod	long	Time period of the predictive operation.
calculationPeriod	long	Time period of the original data.
dataInterval	long	Data acquisition interval (in minutes).
metrics	Predictio nMetric[]	Metric settings list.
moduleID	string	Module ID.
predictionTypes	string[]	Predictive modeling types.
withRelated	boolean	Whether or not the related resources are included in the targets.
params	Predictio nModule Setting[]	Parameter settings for the analytics engine.
owner	string	Name of the user who created the profile.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this profile is system defined.
isOndemand	boolean	Whether or not this profile was created for an ad hoc execution.

Attribute	Type	Description
numOfReports	boolean	Number of reports using this profile.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
threshold	float	A threshold value.
proportion	boolean	Direction of threshold.

params (Type: PredictionModuleSetting)

Attribute	Type	Description
value	Object	Value for the analytics engine.
items	string[]	Key list for the possible selection.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Updating a predictive profile

You can update the settings associated with a predictive profile.

Execution permission

Admin, Modify

Request line**PUT** baseUrl/v1/objects/PredictiveProfile/{id}**Request body**

The structure of the request body and the object attributes are as follows:

PredictiveProfile

```

{
  "name": "...",
  "description": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "...",
  "dataInterval": "...",
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  :
  ],
  "moduleID": "...",
  "predictionTypes": ["...", ...],
  "withRelated": "...",
  "params": [{
    "value": ,
    "items": ["...", ...]
  }],
  :
  ],
  "owner": "...",
  "lastUpdated": ,
  "systemDefined": "...",
  "isOndemand": "...",
  "numOfReports": "..."
}

```

PredictiveProfile (Type: PredictiveProfile)

Attribute	Type	Description
name	string	Name of the profile.

Attribute	Type	Description
description	string	Description of the profile.
predictionPeriod	long	Time period of the predictive operation.
calculationPeriod	long	Time period of the original data.
dataInterval	long	Data acquisition interval (in minutes).
metrics	PredictionMetric[]	Metric settings list.
moduleID	string	Module ID.
predictionTypes	string[]	Predictive modeling types.
withRelated	boolean	Whether or not the related resources are included in the targets.
params	PredictionModuleSetting[]	Parameter settings for the analytics engine.
owner	string	Name of the user who created the profile.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this profile is system defined.
isOndemand	boolean	Whether or not this profile was created for an ad hoc execution.
numOfReports	boolean	Number of reports using this profile.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
threshold	float	A threshold value.
proportion	boolean	Direction of threshold.

params (Type: PredictionModuleSetting)

Attribute	Type	Description
value	Object	Value for the analytics engine.
items	string[]	Key list for the possible selection.

Response body

The structure of the response body and the object attributes is as follows:

PredictiveProfile

```
{
  "name": "...",
  "description": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "...",
  "dataInterval": "...",
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  :
  ],
  "moduleID": "...",
  "predictionTypes": ["...", ...],
  "withRelated": "...",
  "params": [{
    "value": ,
    "items": ["...", ...]
  }],
  :
  ],
  "owner": "...",
  "lastUpdated": ,
  "systemDefined": "...",
  "isOndemand": "...",
  "numOfReports": "..."
}
```

PredictiveProfile (Type: PredictiveProfile)

Attribute	Type	Description
name	string	Name of the profile.
description	string	Description of the profile.

Attribute	Type	Description
predictionPeriod	long	Time period of the predictive operation.
calculationPeriod	long	Time period of the original data.
dataInterval	long	Data acquisition interval (in minutes).
metrics	PredictionMetric[]	Metric settings list.
moduleID	string	Module ID.
predictionTypes	string[]	Predictive modeling types.
withRelated	boolean	Whether or not the related resources are included in the targets.
params	PredictionModuleSetting[]	Parameter settings for the analytics engine.
owner	string	Name of the user who created the profile.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this profile is system defined.
isOndemand	boolean	Whether or not this profile was created for an ad hoc execution.
numOfReports	boolean	Number of reports using this profile.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
threshold	float	A threshold value.
proportion	boolean	Direction of threshold.

params (Type: PredictionModuleSetting)

Attribute	Type	Description
value	Object	Value for the analytics engine.

Attribute	Type	Description
items	string[]	Key list for the possible selection.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Deleting a predictive profile

You can delete a specific predictive profile.

Execution permission

Admin, Modify

Request line

```
DELETE baseURL/v1/objects/PredictiveProfile/{id}
```

Request body

Not applicable.

Response body

Not applicable.

Status codes

Status code	Reason phrase	Description
204	No Content	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No delete privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Chapter 24: Performing operations related to predictive reports

You can create, update, and delete predictive reports.

Getting a list of predictive reports

You can obtain a list of predictive reports.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/PredictiveReport
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of PredictiveReport objects. For details about PredictiveReport, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

PredictiveReport

```
{
  "name":"...",
  "description":"...",
  "profileIDs":["...", ...],
  "targets":[{
    "nodeType":"...",
    "resourceIDs":["...", ...],
    "withRelated":"..."
  },
  :
  ],
  "withRelated":"...",
  "owner":"...",
  "lastUpdated":,
  "systemDefined":"...",
  "isOndemand":"...",
  "actionIDs":,
  "lastHistoryID":"..."
}
```

PredictiveReport (Type: PredictiveReport)

Attribute	Type	Description
name	string	Name of the report.
description	string	Description of the report.
profileIDs	string[]	List of profile IDs.
targets	PredictionTargetCond[]	Target condition list.
withRelated	boolean	Whether or not the related resources are included in the targets.
owner	string	Name of the user who created the report.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this report is system defined.
isOndemand	boolean	Whether or not this report was created for an ad hoc execution.
actionIDs	List	Action ID list.
lastHistoryID	string	Latest predictive report result ID.

targets (Type: PredictionTargetCond)

Attribute	Type	Description
nodeType	enum	Node type. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
resourceIDs	string[]	Resource ID list.
withRelated	boolean	Indicates whether the related resource is the same as the target.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	- The format of the request body is invalid. - A query parameter is invalid.

Status code	Reason phrase	Description
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Creating a new predictive report

You can create a new predictive report.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/objects/PredictiveReport
```

Request body

The structure of the request body and the object attributes are as follows:

PredictiveReport

```
{
  "name": "...",
  "description": "...",
  "profileIDs": ["...", ...],
  "targets": [{
    "nodeType": "...",
    "resourceIDs": ["...", ...],
    "withRelated": "..."
  }],
  "withRelated": "...",
  "owner": "...",
  "lastUpdated": ...,
  "systemDefined": "...",
  "isOndemand": "...",
  "actionIDs": ...,
  "lastHistoryID": "..."
}
```

PredictiveReport (Type: PredictiveReport)

Attribute	Type	Description
name	string	Name of the report.
description	string	Description of the report.
profileIDs	string[]	List of profile IDs.
targets	PredictionTargetCond[]	Target condition list.
withRelated	boolean	Whether or not the related resources are included in the targets.
owner	string	Name of the user who created the report.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this report is system defined.
isOndemand	boolean	Whether or not this report was created for an ad hoc execution.
actionIDs	List	Action ID list.
lastHistoryID	string	Latest predictive report result ID.

targets (Type: PredictionTargetCond)

Attribute	Type	Description
nodeType	enum	Node type. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
resourceIDs	string[]	Resource ID list.
withRelated	boolean	Indicates whether the related resource is the same as the target.

Response body

The structure of the response body and the object attributes is as follows:

PredictiveReport

```
{
  "name": "...",
  "description": "...",
```

```

    "profileIDs":["...", ...],
    "targets":[{"
      "nodeType":"...",
      "resourceIDs":["...", ...],
      "withRelated":"..."
    }],
    :
  ],
  "withRelated":"...",
  "owner":"...",
  "lastUpdated":,
  "systemDefined":"...",
  "isOndemand":"...",
  "actionIDs":,
  "lastHistoryID":"..."
}

```

PredictiveReport (Type: PredictiveReport)

Attribute	Type	Description
name	string	Name of the report.
description	string	Description of the report.
profileIDs	string[]	List of profile IDs.
targets	PredictionTargetCond[]	Target condition list.
withRelated	boolean	Whether or not the related resources are included in the targets.
owner	string	Name of the user who created the report.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this report is system defined.
isOndemand	boolean	Whether or not this report was created for an ad hoc execution.
actionIDs	List	Action ID list.
lastHistoryID	string	Latest predictive report result ID.

targets (Type: PredictionTargetCond)

Attribute	Type	Description
nodeType	enum	Node type. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
resourceIDs	string[]	Resource ID list.
withRelated	boolean	Indicates whether the related resource is the same as the target.

Status codes

Status code	Reason phrase	Description
201	Created	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No create privilege.
409	Conflict	A resource with the same name exists.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Getting information about a predictive report

You can obtain information about a predictive report.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/PredictiveReport/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

PredictiveReport

```
{
  "name": "...",
  "description": "...",
  "profileIDs": ["...", ...],
  "targets": [{
    "nodeType": "...",
    "resourceIDs": ["...", ...],
    "withRelated": "..."
  }],
  "withRelated": "...",
  "owner": "...",
  "lastUpdated":,
  "systemDefined": "...",
  "isOndemand": "...",
  "actionIDs":,
  "lastHistoryID": "..."
}
```

PredictiveReport (Type: PredictiveReport)

Attribute	Type	Description
name	string	Name of the report.
description	string	Description of the report.
profileIDs	string[]	List of profile IDs.
targets	PredictionTargetCondition[]	Target condition list.
withRelated	boolean	Whether or not the related resources are included in the targets.
owner	string	Name of the user who created the report.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this report is system defined.
isOndemand	boolean	Whether or not this report was created for an ad hoc execution.
actionIDs	List	Action ID list.

Attribute	Type	Description
lastHistoryID	string	Latest predictive report result ID.

targets (Type: PredictionTargetCond)

Attribute	Type	Description
nodeType	enum	Node type. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
resourceIDs	string[]	Resource ID list.
withRelated	boolean	Indicates whether the related resource is the same as the target.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Updating a predictive report

You can update the settings of a predictive report.

Execution permission

Admin, Modify

Request line

```
PUT baseURL/v1/objects/PredictiveReport/{id}
```

Request body

The structure of the request body and the object attributes are as follows:

PredictiveReport

```
{
  "name": "...",
  "description": "...",
  "profileIDs": ["...", ...],
  "targets": [{
    "nodeType": "...",
    "resourceIDs": ["...", ...],
    "withRelated": "..."
  }],
  "withRelated": "...",
  "owner": "...",
  "lastUpdated":,
  "systemDefined": "...",
  "isOndemand": "...",
  "actionIDs":,
  "lastHistoryID": "..."
}
```

PredictiveReport (Type: PredictiveReport)

Attribute	Type	Description
name	string	Name of the report.
description	string	Description of the report.
profileIDs	string[]	List of profile IDs.
targets	PredictionTargetCondition[]	Target condition list.
withRelated	boolean	Whether or not the related resources are included in the targets.
owner	string	Name of the user who created the report.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this report is system defined.
isOndemand	boolean	Whether or not this report was created for an ad hoc execution.
actionIDs	List	Action ID list.

Attribute	Type	Description
lastHistoryID	string	Latest predictive report result ID.

targets (Type: PredictionTargetCond)

Attribute	Type	Description
nodeType	enum	Node type. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
resourceIDs	string[]	Resource ID list.
withRelated	boolean	Indicates whether the related resource is the same as the target.

Response body

The structure of the response body and the object attributes is as follows:

PredictiveReport

```
{
  "name": "...",
  "description": "...",
  "profileIDs": ["...", ...],
  "targets": [{
    "nodeType": "...",
    "resourceIDs": ["...", ...],
    "withRelated": "..."
  }],
  "withRelated": "...",
  "owner": "...",
  "lastUpdated": ...,
  "systemDefined": "...",
  "isOndemand": "...",
  "actionIDs": ...,
  "lastHistoryID": "..."
}
```

PredictiveReport (Type: PredictiveReport)

Attribute	Type	Description
name	string	Name of the report.
description	string	Description of the report.
profileIDs	string[]	List of profile IDs.
targets	PredictionTargetCond[]	Target condition list.
withRelated	boolean	Whether or not the related resources are included in the targets.
owner	string	Name of the user who created the report.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this report is system defined.
isOndemand	boolean	Whether or not this report was created for an ad hoc execution.
actionIDs	List	Action ID list.
lastHistoryID	string	Latest predictive report result ID.

targets (Type: PredictionTargetCond)

Attribute	Type	Description
nodeType	enum	Node type. (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
resourceIDs	string[]	Resource ID list.
withRelated	boolean	Indicates whether the related resource is the same as the target.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.

Status code	Reason phrase	Description
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Deleting a predictive report

You can delete a predictive report.

Execution permission

Admin, Modify

Request line

```
DELETE baseURL/v1/objects/PredictiveReport/{id}
```

Request body

Not applicable.

Response body

Not applicable.

Status codes

Status code	Reason phrase	Description
204	No Content	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No delete privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.

Status code	Reason phrase	Description
500	Internal Server Error	Server processing error.

Chapter 25: Getting a list of the recovery action history

You can obtain a historical list of recovery actions.

Getting a list of recovery action history

You can obtain a list of recovery actions history.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/RecoveryActionHistory
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of PredictiveProfile objects. For details about PredictiveProfile, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

PredictiveProfile

```

{
  "name": "...",
  "description": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "...",
  "dataInterval": "...",
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  :
],
  "moduleID": "...",
  "predictionTypes": ["...", ...],
  "withRelated": "...",
  "params": [{
    "value": ,
    "items": ["...", ...]
  }],
  :
],
  "owner": "...",
  "lastUpdated": ,

```



```

    "systemDefined": "...",
    "isOndemand": "...",
    "numOfReports": "...",
  }

```

PredictiveProfile (Type: PredictiveProfile)

Attribute	Type	Description
name	string	Name of the profile.
description	string	Description of the profile.
predictionPeriod	long	Time period of the predictive operation.
calculationPeriod	long	Time period of the original data.
dataInterval	long	Data acquisition interval (in minutes).
metrics	Predictio nMetric[]	Metric settings list.
moduleID	string	Module ID.
predictionTypes	string[]	Predictive modeling types.
withRelated	boolean	Whether or not the related resources are included in the targets.
params	Predictio nModule Setting[]	Parameter settings for the analytics engine.
owner	string	Name of the user who created the profile.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this profile is system defined.
isOndemand	boolean	Whether or not this profile was created for an ad hoc execution.
numOfReports	boolean	Number of reports using this profile.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)

Attribute	Type	Description
threshold	float	A threshold value.
proportion	boolean	Direction of threshold.

params (Type: PredictionModuleSetting)

Attribute	Type	Description
value	Object	Value for the analytics engine.
items	string[]	Key list for the possible selection.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	- The format of the request body is invalid. - A query parameter is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Chapter 26: Performing operations related to recovery action

You can obtain, save, update, and delete history information about recovery actions.

Creating a new recovery action history

You can create a new recovery action history.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/objects/RecoveryAction
```

Request body

The structure of the request body and the object attributes are as follows:

PredictiveProfile

```
{
  "name": "...",
  "description": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "...",
  "dataInterval": "...",
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  :
  ],
  "moduleID": "...",
  "predictionTypes": ["...", ...],
  "withRelated": "...",
  "params": [{
    "value": ,
    "items": ["...", ...]
  }]
```

```

    },
    :
  ],
  "owner": "...",
  "lastUpdated":,
  "systemDefined": "...",
  "isOndemand": "...",
  "numOfReports": "...",
}

```

PredictiveProfile (Type: PredictiveProfile)

Attribute	Type	Description
name	string	Name of the profile.
description	string	Description of the profile.
predictionPeriod	long	Time period of the predictive operation.
calculationPeriod	long	Time period of the original data.
dataInterval	long	Data acquisition interval (in minutes).
metrics	PredictionMetric[]	Metric settings list.
moduleID	string	Module ID.
predictionTypes	string[]	Predictive modeling types.
withRelated	boolean	Whether or not the related resources are included in the targets.
params	PredictionModuleSetting[]	Parameter settings for the analytics engine.
owner	string	Name of the user who created the profile.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this profile is system defined.
isOndemand	boolean	Whether or not this profile was created for an ad hoc execution.
numOfReports	boolean	Number of reports using this profile.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
threshold	float	A threshold value.
proportion	boolean	Direction of threshold.

params (Type: PredictionModuleSetting)

Attribute	Type	Description
value	Object	Value for the analytics engine.
items	string[]	Key list for the possible selection.

Response body

The structure of the response body and the object attributes is as follows:

PredictiveProfile

```
{
  "name": "...",
  "description": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "...",
  "dataInterval": "...",
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  :
  ],
  "moduleID": "...",
  "predictionTypes": ["...", ...],
  "withRelated": "...",
  "params": [{
    "value": ,
    "items": ["...", ...]
  }],
  :
  ],
  "owner": "...",
  "lastUpdated": ,
  "systemDefined": "...",
```

```

    "isOndemand": "...",
    "numOfReports": "...",
  }

```

PredictiveProfile (Type: PredictiveProfile)

Attribute	Type	Description
name	string	Name of the profile.
description	string	Description of the profile.
predictionPeriod	long	Time period of the predictive operation.
calculationPeriod	long	Time period of the original data.
dataInterval	long	Data acquisition interval (in minutes).
metrics	PredictionMetric[]	Metric settings list.
moduleID	string	Module ID.
predictionTypes	string[]	Predictive modeling types.
withRelated	boolean	Whether or not the related resources are included in the targets.
params	PredictionModuleSetting[]	Parameter settings for the analytics engine.
owner	string	Name of the user who created the profile.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this profile is system defined.
isOndemand	boolean	Whether or not this profile was created for an ad hoc execution.
numOfReports	boolean	Number of reports using this profile.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
threshold	float	A threshold value.

Attribute	Type	Description
proportion	boolean	Direction of threshold.

params (Type: PredictionModuleSetting)

Attribute	Type	Description
value	Object	Value for the analytics engine.
items	string[]	Key list for the possible selection.

Status codes

Status code	Reason phrase	Description
201	Created	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No create privilege.
409	Conflict	A resource with the same name exists.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Getting information about recovery action history

You can obtain information about recovery action history.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/RecoveryAction/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

PredictiveProfile

```
{
  "name": "...",
  "description": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "...",
  "dataInterval": "...",
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  "moduleID": "...",
  "predictionTypes": ["...", ...],
  "withRelated": "...",
  "params": [{
    "value": ...,
    "items": ["...", ...]
  }],
  "owner": "...",
  "lastUpdated": ...,
  "systemDefined": "...",
  "isOndemand": "...",
  "numOfReports": "..."
}
```

PredictiveProfile (Type: PredictiveProfile)

Attribute	Type	Description
name	string	Name of the profile.
description	string	Description of the profile.
predictionPeriod	long	Time period of the predictive operation.
calculationPeriod	long	Time period of the original data.
dataInterval	long	Data acquisition interval (in minutes).

Attribute	Type	Description
metrics	PredictionMetric[]	Metric settings list.
moduleID	string	Module ID.
predictionTypes	string[]	Predictive modeling types.
withRelated	boolean	Whether or not the related resources are included in the targets.
params	PredictionModuleSetting[]	Parameter settings for the analytics engine.
owner	string	Name of the user who created the profile.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this profile is system defined.
isOndemand	boolean	Whether or not this profile was created for an ad hoc execution.
numOfReports	boolean	Number of reports using this profile.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
threshold	float	A threshold value.
proportion	boolean	Direction of threshold.

params (Type: PredictionModuleSetting)

Attribute	Type	Description
value	Object	Value for the analytics engine.
items	string[]	Key list for the possible selection.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Updating recovery action history

You can update recovery action history.

Execution permission

Admin, Modify

Request line

```
PUT baseUrl/v1/objects/RecoveryAction/{id}
```

Request body

The structure of the request body and the object attributes are as follows:

PredictiveProfile

```
{
  "name": "...",
  "description": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "...",
  "dataInterval": "...",
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  :
],
  "moduleID": "...",
  "predictionTypes": ["...", ...],
```

```

    "withRelated": "...",
    "params": [{
      "value": ,
      "items": ["...", ...]
    },
    :
  ],
  "owner": "...",
  "lastUpdated": ,
  "systemDefined": "...",
  "isOndemand": "...",
  "numOfReports": "..."
}

```

PredictiveProfile (Type: PredictiveProfile)

Attribute	Type	Description
name	string	Name of the profile.
description	string	Description of the profile.
predictionPeriod	long	Time period of the predictive operation.
calculationPeriod	long	Time period of the original data.
dataInterval	long	Data acquisition interval (in minutes).
metrics	Predictio nMetric[]	Metric settings list.
moduleID	string	Module ID.
predictionTypes	string[]	Predictive modeling types.
withRelated	boolean	Whether or not the related resources are included in the targets.
params	Predictio nModule Setting[]	Parameter settings for the analytics engine.
owner	string	Name of the user who created the profile.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this profile is system defined.
isOndemand	boolean	Whether or not this profile was created for an ad hoc execution.
numOfReports	boolean	Number of reports using this profile.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
threshold	float	A threshold value.
proportion	boolean	Direction of threshold.

params (Type: PredictionModuleSetting)

Attribute	Type	Description
value	Object	Value for the analytics engine.
items	string[]	Key list for the possible selection.

Response body

The structure of the response body and the object attributes is as follows:

PredictiveProfile

```
{
  "name": "...",
  "description": "...",
  "predictionPeriod": "...",
  "calculationPeriod": "...",
  "dataInterval": "...",
  "metrics": [{
    "metricType": "...",
    "threshold": "...",
    "proportion": "..."
  }],
  :
  ],
  "moduleID": "...",
  "predictionTypes": ["...", ...],
  "withRelated": "...",
  "params": [{
    "value": ,
    "items": ["...", ...]
  }],
  :
  ],
  "owner": "...",
```

```

    "lastUpdated":,
    "systemDefined":"...",
    "isOndemand":"...",
    "numOfReports":"..."
  }

```

PredictiveProfile (Type: PredictiveProfile)

Attribute	Type	Description
name	string	Name of the profile.
description	string	Description of the profile.
predictionPeriod	long	Time period of the predictive operation.
calculationPeriod	long	Time period of the original data.
dataInterval	long	Data acquisition interval (in minutes).
metrics	Predictio nMetric[]	Metric settings list.
moduleID	string	Module ID.
predictionTypes	string[]	Predictive modeling types.
withRelated	boolean	Whether or not the related resources are included in the targets.
params	Predictio nModule Setting[]	Parameter settings for the analytics engine.
owner	string	Name of the user who created the profile.
lastUpdated	datetime	Last updated time.
systemDefined	boolean	Whether or not this profile is system defined.
isOndemand	boolean	Whether or not this profile was created for an ad hoc execution.
numOfReports	boolean	Number of reports using this profile.

metrics (Type: PredictionMetric)

Attribute	Type	Description
metricType	enum	Metric type.

Attribute	Type	Description
		(For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
threshold	float	A threshold value.
proportion	boolean	Direction of threshold.

params (Type: PredictionModuleSetting)

Attribute	Type	Description
value	Object	Value for the analytics engine.
items	string[]	Key list for the possible selection.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Deleting recovery action history

You can delete recovery action history.

Execution permission

Admin, Modify

Request line

```
DELETE baseUrl/v1/objects/RecoveryAction/{id}
```

Request body

Not applicable.

Response body

Not applicable.

Status codes

Status code	Reason phrase	Description
204	No Content	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No delete privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Chapter 27: Getting information about storage systems

You can obtain a list of storage system models and storage system pools.

Getting a list of storage system models

You can obtain a list of storage system models that Ops Center Analyzer is monitoring.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/StorageSystemModels
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of StorageSystemModel objects. For details about StorageSystemModel, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

StorageSystemModel

```
{
  "modelID": "...",
  "modelName": "...",
  "profileResourceType": "..."
}
```

StorageSystemModel (Type: StorageSystemModel)

Attribute	Type	Description
modelID	string	ID of the storage system model
modelName	string	Name of the storage system model
profileResourceType	enum	Resource type of the threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

Status codes

Status code	Reason phrase	Description
201	Created	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/StorageSystemModels
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Fri, 12 Aug 2016 02:23:14 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
3a9b57bff1fdbcl6e83ca7fd4a2a9f6a7d542d_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "modelID" : "VSP 5500H",
    "modelName" : "Hitachi - VSP 5500H",
    "profileResourceType" : "RAID_STORAGE"
  } ],
  "count" : 1
}
```

Getting a list of storage system pools

You can obtain a list of storage system pools.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/StorageSystemPools
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of StorageSystemPool objects. For details about StorageSystemPool, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

StorageSystemPool

```
{
  "poolName": "...",
  "poolID": "...",
  "storageSystemID": "...",
  "storageSystemName": "...",
  "poolType": "...",
  "volumeLocation": ["...", ...],
  "driveType": ["...", ...],
  "raidLevel": ["...", ...]
}
```

StorageSystemPool (Type: StorageSystemPool)

Attribute	Type	Description
poolName	string	Name of the storage system pool
poolID	string	ID of the pool
storageSystemID	string	ID of the storage system that the pool belongs to
storageSystemName	string	Name of the storage system that the pool belongs to
poolType	enum	Type of the pool (For details about the valid values, see the table E2EPoolType in <i>List of enumerators</i> .)
volumeLocation	enum[]	Location of the storage system in which the volume is created (For details about the valid values, see the table VolumeLocation in <i>List of enumerators</i> .)
driveType	enum[]	Drive type of the storage system (For details about the valid values, see the table E2EDriveType in <i>List of enumerators</i> .)
raidLevel	string[]	RAID level of the storage pool

Status codes

Status code	Reason phrase	Description
201	Created	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/StorageSystemPools
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Fri, 12 Aug 2016 02:23:14 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
3a9b57bff1fdbcl6e83ca7fd4a2a9f6a7d542d_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "instanceID" : "raidPool#10000-8",
    "poolName" : "8",
    "poolID" : "8",
    "storageSystemID" : "raidStorage#10000",
    "storageSystemName" : "VSP 5500H (10000)",
    "poolType" : "HDP",
    "volumeLocation" : [ "INTERNAL" ],
    "driveType" : [ ],
```

```

    "raidLevel" : [ "RAID5 (3D+1P)" ]
  }, {
    "instanceID" : "raidPool#10000-9",
    "poolName" : "9",
    "poolID" : "9",
    "storageSystemID" : "raidStorage#10000",
    "storageSystemName" : "VSP 5500H (10000)",
    "poolType" : "HDP",
    "volumeLocation" : [ "INTERNAL" ],
    "driveType" : [ ],
    "raidLevel" : [ "RAID5 (3D+1P)" ]
    ..... } ],
    "count" : 2
  }

```

Chapter 28: Performing operations related to suggestions

You can obtain a list of suggestions on how to resolve a performance problem.

Getting a list of operations related to suggestions

You can obtain a list of operations related to generating recovery plans.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/Suggestion/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/Suggestion/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 23 Jan 2017 09:49:45 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
f61a9fad64f2451def69ea9ea934d9b3be5f2f87_UQV8dA9cIGw=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "getSuggestion",
    "href" : "http://localhost:22015/Analytics/v1/services/Suggestion/
actions/getSuggestion/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 1
}
```

Preparing to obtain the suggestions

The following operation is the initial step to obtain recovery plans for resolving performance problems.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/Suggestion/actions/getSuggestion
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of Suggestion objects necessary to execute an operation. For details about Suggestion, see the table below.

Suggestion

```

{
  "resourceType": "...",
  "resourceID": "...",
  "alertTime": "...",
  "startTime": "...",
  "endTime": "...",
  "metricType": "...",
  "target": "...",
  "checkConsumer": "...",
  "planRecords": [{
    "planID": "...",
    "contentID": "...",
    "title": "...",
    "planActionType": "...",
    "summary": "...",
    "actions": [{
      "actionIdNum": "...",
      "summary": "...",
      "steps": ["...", ...]
    }],
    :
  ],
  "evaluation": {
    "evaluationIdNum": "...",
    "certainty": {
      "level": "...",
      "details": "..."
    },
    "expectedFinishTime": {
      "timeValue": "...",
      "unit": "...",
      "qualifier": "...",
      "annotation": "..."
    },
    "sideEffects": [{
      "possibleImpact": "...",
      "resourceData": {
        "name": "...",
        "e2eViewParam": {
          "basePointNodeID": ["...", ...],
          "basePointNodeType": "..."
        }
      }
    }],
    :
  ],
  "undoability": {
    "level": "...",
    "conditions": ["...", ...]
  }
}

```

```

    }
    },
    "remarks": "...",
  },
  :
  ]
}

```

Suggestion (Type: Suggestion)

Attribute	Type	Description
resourceType	enum	Type of resource to be analyzed (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
resourceID	string	ID of the resource to be analyzed
alertTime	dateTime	Time at which the event to be analyzed occurred
startTime	dateTime	Beginning of the period to be analyzed
endTime	dateTime	End of the period to be analyzed
metricType	enum	Type of metric to be analyzed (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
target	double	Target value of the metric to be analyzed
checkConsumer	boolean	Whether to consider ConsumerGroup during analysis
planRecords	SuggestionPlan[]	Action plan

planRecords (Type: SuggestionPlan)

Attribute	Type	Description
planID	long	ID of the action plan
contentID	string	ID of the content that output the action plan
title	string	Title of the action plan
planActionType	string	ID of the methods to be used by the action plan
summary	string	Summary of the action plan

Attribute	Type	Description
actions	SuggestionAction[]	Information about the methods used to implement the plan
evaluation	Evaluation	Information about the plan details
remarks	string	Notes on the action plan

actions (Type: SuggestionAction)

Attribute	Type	Description
actionIdNum	long	ID of the methods used to implement the plan
summary	string	Summary of the methods used to implement the plan
steps	string[]	Procedure for implementing the plan

evaluation (Type: Evaluation)

Attribute	Type	Description
evaluationIdNum	long	ID of the plan evaluation
certainty	Certainty	Information about the probability of success
expectedFinishTime	EvalTimeDef	Information about the time to recover
sideEffects	SideEffect[]	Information about the impact
undoability	Undoability	Information about the evaluation of whether the plan can do rollback

certainty (Type: Certainty)

Attribute	Type	Description
level	enum	Probability of success (For details about the valid values, see the table CertaintyLevel in <i>List of enumerators</i> .)

Attribute	Type	Description
details	string	Details about factors that lower the probability of success

expectedFinishTime (Type: EvalTimeDef)

Attribute	Type	Description
timeValue	int	Value for the time to recover
unit	enum	Unit of the time to recover (For details about the valid values, see the table TimeUnit in <i>List of enumerators</i> .)
qualifier	enum	Modifier used for the time to recover (For details about the valid values, see the table Qualifier in <i>List of enumerators</i> .)
annotation	string	Notes on the time to recover

sideEffects (Type: SideEffect)

Attribute	Type	Description
possibleImpact	string	Explanation of the impact
resourceData	Impacted ResourceData	Resources affected by the impact

resourceData (Type: ImpactedResourceData)

Attribute	Type	Description
name	string	Type of resources affected by the impact
e2eViewParam	E2EViewParam	Information about the resource IDs for the resources affected by the impact

e2eViewParam (Type: E2EViewParam)

Attribute	Type	Description
basePointNodeID	string[]	ID of the base resource. Multiple IDs can be specified if the resources are of the same type.
basePointNodeType	enum	Type of base resource (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

undoability (Type: Undoability)

Attribute	Type	Description
level	enum	Level at which the plan can be rollback (For details about the valid values, see the table UndoabilityLevel in <i>List of enumerators</i> .)
conditions	string[]	Conditions under which the plan can do rollback

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/Suggestion/actions/getSuggestion
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 23 Jan 2017 09:51:53 GMT
Server: Cosminexus HTTP Server
```

```

Cache-Control: no-cache
WWW-Authenticate: HSSO
384d86cd8397edfd44e093e28ff2dcf1b563e471_UQV8dA9cIGw=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getSuggestion",
  "href" : "http://localhost:22015/Analytics/v1/services/Suggestion/
actions/getSuggestion/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "resourceType" : "STORAGE_VOLUME",
    "resourceID" : "ID of bottleneck resource",
    "alertTime" : "2017-01-23T18:51:54.355+09:00",
    "startTime" : "2017-01-23T18:51:54.355+09:00",
    "endTime" : "2017-01-23T18:51:54.355+09:00",
    "metricType" : "RAID_VOLUME_RAIDLDEV_TOTALIOPS",
    "target" : 30.0,
    "checkConsumer" : false
  } ]
}

```

Getting suggestions for resolving performance problems

You can obtain recovery plans for resolving performance problems.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/services/Suggestion/actions/getSuggestion/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
```



```

    "href": "...",
    "method": "...",
    "type": "...",
    "parameters": ["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of Suggestion objects necessary to execute an operation. For details about Suggestion, see the table below.

Suggestion

```

{
  "resourceType": "...",
  "resourceID": "...",
  "alertTime": "...",
  "startTime": "...",
  "endTime": "...",
  "metricType": "...",
  "target": "...",
  "checkConsumer": "..."
}

```

Suggestion (Type: Suggestion)

Attribute	Type	Description
resourceType	enum	Type of resource to be analyzed (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
resourceID	string	ID of the resource to be analyzed
alertTime	dateTime	Time at which the event to be analyzed occurred
startTime	dateTime	Beginning of the period to be analyzed

Attribute	Type	Description
endTime	dateTime	End of the period to be analyzed
metricType	enum	Type of metric to be analyzed (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
target	double	Target value of the metric to be analyzed
checkConsumer	boolean	Whether to consider ConsumerGroup during analysis

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.

Attribute	Type	Description
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of Suggestion objects. For details about Suggestion, see the table below.

Suggestion

```
{
  "resourceType": "...",
  "resourceID": "...",
  "alertTime": "...",
  "startTime": "...",
  "endTime": "...",
  "metricType": "...",
  "target": "...",
  "checkConsumer": "...",
  "planRecords": [{
    "planID": "...",
    "contentID": "...",
    "title": "...",
    "planActionType": "...",
    "summary": "...",
    "actions": [{
      "actionIdNum": "...",
      "summary": "...",
      "steps": ["...", ...]
    }],
    :
  ],
  "evaluation": {
    "evaluationIdNum": "...",
    "certainty": {
      "level": "...",
      "details": "..."
    },
    "expectedFinishTime": {
      "timeValue": "...",
      "unit": "...",
      "qualifier": "...",
      "annotation": "..."
    },
    "sideEffects": [{
      "possibleImpact": "...",
      "resourceData": {
        "name": "...",
        "e2eViewParam": {
          "basePointNodeID": ["...", ...],

```

```

        "basePointNodeType": "...",
      },
    },
  ],
  :
],
  "undoability": {
    "level": "...",
    "conditions": ["...", ...]
  },
},
"remarks": "...",
},
:
]
}

```

Suggestion (Type: Suggestion)

Attribute	Type	Description
resourceType	enum	Type of resource to be analyzed (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)
resourceID	string	ID of the resource to be analyzed
alertTime	dateTime	Time at which the event to be analyzed occurred
startTime	dateTime	Beginning of the period to be analyzed
endTime	dateTime	End of the period to be analyzed
metricType	enum	Type of metric to be analyzed (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
target	double	Target value of the metric to be analyzed
checkConsumer	boolean	Whether to consider ConsumerGroup during analysis
planRecords	SuggestionPlan[]	Action plan

planRecords (Type: SuggestionPlan)

Attribute	Type	Description
planID	long	ID of the action plan

Attribute	Type	Description
contentID	string	ID of the content that output the action plan
title	string	Title of the action plan
planActionType	string	ID of the methods to be used by the action plan
summary	string	Summary of the action plan
actions	SuggestionAction[]	Information about the methods used to implement the plan
evaluation	Evaluation	Information about the plan details
remarks	string	Notes on the action plan

actions (Type: SuggestionAction)

Attribute	Type	Description
actionIdNum	long	ID of the methods used to implement the plan
summary	string	Summary of the methods used to implement the plan
steps	string[]	Procedure for implementing the plan

evaluation (Type: Evaluation)

Attribute	Type	Description
evaluationIdNum	long	ID of the plan evaluation
certainty	Certainty	Information about the probability of success
expectedFinishTime	EvalTimeDef	Information about the time to recover
sideEffects	SideEffect[]	Information about the impact
undoability	Undoability	Information about the evaluation of whether the plan can do rollback

certainty (Type: Certainty)

Attribute	Type	Description
level	enum	Probability of success (For details about the valid values, see the table CertaintyLevel in <i>List of enumerators</i> .)
details	string	Details about factors that lower the probability of success

expectedFinishTime (Type: EvalTimeDef)

Attribute	Type	Description
timeValue	int	Value for the time to recover
unit	enum	Unit of the time to recover (For details about the valid values, see the table TimeUnit in <i>List of enumerators</i> .)
qualifier	enum	Modifier used for the time to recover (For details about the valid values, see the table Qualifier in <i>List of enumerators</i> .)
annotation	string	Notes on the time to recover

sideEffects (Type: SideEffect)

Attribute	Type	Description
possibleImpact	string	Explanation of the impact
resourceData	Impacted ResourceData	Resources affected by the impact

resourceData (Type: ImpactedResourceData)

Attribute	Type	Description
name	string	Type of resources affected by the impact
e2eViewParam	E2EViewParam	Information about the resource IDs for the resources affected by the impact

e2eViewParam (Type: E2EViewParam)

Attribute	Type	Description
basePointNodeID	string[]	ID of the base resource. Multiple IDs can be specified if the resources are of the same type.
basePointNodeType	enum	Type of base resource (For details about the valid values, see the table E2ENodeType in <i>List of enumerators</i> .)

undoability (Type: Undoability)

Attribute	Type	Description
level	enum	Level at which the plan can be rollback (For details about the valid values, see the table UndoabilityLevel in <i>List of enumerators</i> .)
conditions	string[]	Conditions under which the plan can do rollback

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	- The format of the request body is invalid. - No suggestions pertaining to the request were found.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
500	Internal Server Error	- Server processing error. - Suggestion processing error.

Example code

```
[Request Header]
POST /Analytics/v1/services/Suggestion/actions/getSuggestion/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Request Body]
{
  "name" : "getSuggestion",
  "href" : "http://localhost:22015/Analytics/v1/services/Suggestion/
actions/getSuggestion/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "resourceType" : "STORAGE_MP",
    "resourceID" : "raidMPB#53038-MPB-2MC",
    "alertTime" : "2017-01-23T17:55:53.258+09:00",
    "startTime" : "2017-01-23T17:55:53.258+09:00",
    "endTime" : "2017-01-23T17:55:53.258+09:00",
    "metricType" : "RAID_STORAGE_RAIDMPB_UTILIZATION",
    "target" : 30.0,
    "checkConsumer" : false
  } ]
}
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Mon, 23 Jan 2017 09:00:58 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
42e4c1b3a553126bd3fab3bebd4ceaa67719af_ZA1DR1YdfRJUBwFo_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "instanceID" : "c158def9-48ab-4ad8-bb82-598965b60d0f",
  "created" : "2017-01-23T19:11:44.326+09:00",
  "updated" : "2017-01-23T19:11:44.327+09:00",
  "completed" : "2017-01-23T19:11:44.327+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "resourceType" : "STORAGE_MP",
    "resourceID" : "raidMPB#53038-MPB-2MC",
    "alertTime" : "2016-12-01T12:32:00.033+09:00",
    "startTime" : "2016-12-01T12:32:00.033+09:00",
    "endTime" : "2016-12-20T13:32:00.033+09:00",
    "metricType" : "RAID_STORAGE_RAIDMPB_UTILIZATION",
    "target" : 30.0,
    "checkConsumer" : false,
    "planRecords" : [ ]
  } ]
}
```



```
} ]  
}
```

Chapter 29: Getting information about the system

You can obtain information about the system.

Getting system information

You can obtain information about system settings, such as the time zone and locale.

Execution permission

Admin, Modify, User Management

Request line

```
GET baseUrl/v1/objects/SystemProperties
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of SystemProperty objects. For details about SystemProperty, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

SystemProperty

```
{
  "type": "...",
  "value": "..."
}
```

SystemProperty (Type: SystemProperty)

Attribute	Type	Description
type	enum	Type of the system information (For details about the valid values, see the table SystemPropertyType in <i>List of enumerators</i> .)
value	string	Value of the system information

Status codes

Status code	Reason phrase	Description
200	OK	Success.

Status code	Reason phrase	Description
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/SystemProperties
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 03 Aug 2016 02:01:33 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
a61560c2eac97b0564aec48d2883daf39c0dfdf_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "type" : "GroupDescriptionTemplate",
    "value" : "Company:\r\nSystem: \r\nTel:\r\nAddress:\r\nContact Person:\r\n",
  }, {
    "type" : "SystemTimeZone",
    "value" : "Asia/Tokyo"
  }, {
    .....
  } ],
  "count" : 13
}
```

Chapter 30: Performing operations related to system summary information

You can obtain summary information about the system.

Getting a list of system summary informations

You can obtain a list of operations that retrieve system summary information (status summaries of consumers and user resources).

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/SystemSummary/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/SystemSummary/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Fri, 12 Aug 2016 02:18:53 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
3a9b57bff1fdbcl6e83ca7fd4a2a9f6a7d542d_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "getSystemStatusSummary",
    "href" : "http://localhost:22015/Analytics/v1/services/SystemSummary/
actions/getSystemStatusSummary/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 1
}
```

Preparing to obtain a system summary information

The following operation is the initial step to retrieve system summary information (status summaries of consumers and user resources).

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/services/SystemSummary/actions/getSystemStatusSummary
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/SystemSummary/actions/getSystemStatusSummary
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Fri, 12 Aug 2016 02:18:53 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
3a9b57bfff1fdbcl6e83ca7fd4a2a9f6a7d542d_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getSystemStatusSummary",
  "href" : "http://localhost:22015/Analytics/v1/services/SystemSummary/
actions/getSystemStatusSummary/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ ]
}
```

Getting system summary information

You can obtain system summary information (summaries of the status of consumers and user resources).

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/services/SystemSummary/actions/getSystemStatusSummary/
invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of GetSystemStatusSummary objects. For details about GetSystemStatusSummary, see the table below.

GetSystemStatusSummary

```
{
  "status": "...",
  "statusMessage": "...",
  "messageHighlightParams": ["...", ...],
  "groupSummaries": [{
    "key": "...",
    "name": "...",
    "critical": "...",
    "warning": "...",

```

```

        "total": "...",
    },
    :
  ],
  "vmSummary": {
    "key": "...",
    "name": "...",
    "critical": "...",
    "warning": "...",
    "total": "...",
  },
  "hostSummary": {
    "key": "...",
    "name": "...",
    "critical": "...",
    "warning": "...",
    "total": "...",
  },
  "volumeSummary": {
    "key": "...",
    "name": "...",
    "critical": "...",
    "warning": "...",
    "total": "...",
  }
}

```

GetSystemStatusSummary (Type: GetSystemStatusSummary)

Attribute	Type	Description
status	enum	<p>Most severe one of the statuses in the entire system</p> <p>(For details about the valid values, see the table SystemSummaryStatus in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ CRITICAL ▪ WARNING ▪ NORMAL ▪ INFORMATION
statusMessage	string	<p>Message indicating the status of the entire system. The specified message might include variables. Each variable is specified in {n} format, where "n" is an argument sequence number that is 0 or a larger integer. (Example: Status is {0}.)</p>

Attribute	Type	Description
messageHighlightParams	string[]	Variables used in a message that indicates the status of the entire system. The specified variables are set in the message in the order they are specified. (Example: Critical)
groupSummaries	CategorySummary[]	Status aggregated by consumer
vmSummary	CategorySummary	Status aggregated by virtual machine
hostSummary	CategorySummary	Status aggregated by host
volumeSummary	CategorySummary	Status aggregated by volume

groupSummaries (Type: CategorySummary)

Attribute	Type	Description
key	string	Key used for aggregation. This item is set only if the category is Consumer.
name	string	Name of the category used for aggregation. This item is set only if the category is Consumer.
critical	long	Number of criticals
warning	long	Number of warnings
total	long	Total

vmSummary (Type: CategorySummary)

Attribute	Type	Description
key	string	Key used for aggregation. This item is set only if the category is Consumer.
name	string	Name of the category used for aggregation. This item is set only if the category is Consumer.

Attribute	Type	Description
critical	long	Number of criticals
warning	long	Number of warnings
total	long	Total

hostSummary (Type: CategorySummary)

Attribute	Type	Description
key	string	Key used for aggregation. This item is set only if the category is Consumer.
name	string	Name of the category used for aggregation. This item is set only if the category is Consumer.
critical	long	Number of criticals
warning	long	Number of warnings
total	long	Total

volumeSummary (Type: CategorySummary)

Attribute	Type	Description
key	string	Key used for aggregation. This item is set only if the category is Consumer.
name	string	Name of the category used for aggregation. This item is set only if the category is Consumer.
critical	long	Number of criticals
warning	long	Number of warnings
total	long	Total

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.

Status code	Reason phrase	Description
401	Unauthorized	No login privilege.
403	Forbidden	No execute privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/services/SystemSummary/actions/getSystemStatusSummary/
invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```

```
[Request Body]
{
  "name": "getSystemStatusSummary",
  "href": "http://localhost:22015/Analytics/v1/services/SystemSummary/
actions/getSystemStatusSummary/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": []
}
```

```
[Response Header]
HTTP/1.1 200 OK
Date: Fri, 12 Aug 2016 02:18:54 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
3a9b57bff1fdbcl6e83ca7fd4a2a9f6a7d542d_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json
```

```
[Response Body]
{
  "instanceID" : "61a0f99c-c0ce-44e2-b1dd-0241b00"
  "created" : "2016-08-12T11:18:54.628+09:00",
  "updated" : "2016-08-12T11:18:54.628+09:00",
  "completed" : "2016-08-12T11:18:54.628+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "status" : "NORMAL",
    "statusMessage" : "The system is normal",
    "messageHighlightParams" : [ ],
    "groupSummaries" : [ {
      "key" : "grade#Platinum",
      "name" : "Platinum",
      "critical" : 0,
      "warning" : 0,
      "total" : 0
    }, {
      "key" : "grade#Gold",
      "name" : "Gold",
      "critical" : 0,
      "warning" : 0,
      "total" : 0
    }, {
      "key" : "grade#Silver",
      "name" : "Silver",
      "critical" : 0,
      "warning" : 0,
      "total" : 0
    }, {
      "key" : "grade#Bronze",
      "name" : "Bronze",
      "critical" : 0,
      "warning" : 0,
      "total" : 0
    } ],
    "vmSummary" : {
      "critical" : 0,
      "warning" : 0,
      "total" : 59
    },
    "hostSummary" : {
      "critical" : 0,
      "warning" : 0,
      "total" : 0
    },
    "volumeSummary" : {
      "critical" : 0,
```



```
    "warning" : 0,  
    "total" : 1570  
  }  
} ]  
}
```

Chapter 31: Getting the information needed to calculate dynamic thresholds

You can obtain margin information used for dynamic threshold calculations.

Getting margin information used for dynamic threshold calculations

You can obtain a list of the types of margins used for dynamic threshold calculations and display names.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/ThresholdProfileMargins
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of ThresholdMarginInfo objects. For details about ThresholdMarginInfo, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

ThresholdMarginInfo

```
{
  "marginLevel": "...",
  "marginName": "...",
  "isDefault": "..."
}
```

ThresholdMarginInfo (Type: ThresholdMarginInfo)

Attribute	Type	Description
marginLevel	string	ID of the margin
marginName	string	Display name of the margin
isDefault	boolean	Whether or not the margin is used as an initial value. If the margin is used as an initial value, "true" is set. If the margin is not used as an initial value, "false" is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET
http://10.197.198.241:22015/Analytics/v1/objects/ThresholdProfileMargins
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:56:02 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "marginLevel" : "Severe",
    "marginName" : "Severe"
  }, {
    "marginLevel" : "Normal",
    "marginName" : "Normal",
    "isDefault" : true
  }, {
    "marginLevel" : "Rough",
```

```
    "marginName" : "Rough"  
  } ],  
  "count" : 3  
}
```

Chapter 32: Performing operations related to threshold properties files

You can create, update or delete threshold profiles. You can also assign threshold profiles to resources. In addition, by specifying profiles and resources, you can obtain threshold information or set dynamic thresholds.

Getting a list of threshold profiles

You can obtain a list of information about threshold profiles, such as the profile names and thresholds.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/ThresholdProfiles
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of ThresholdProfile objects. For details about ThresholdProfile, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

ThresholdProfile

```
{
  "instanceID": "...",
  "profileName": "...",
  "description": "...",
  "resourceType": "...",
  "profileType": "...",
  "profileResourceType": "...",
  "representativeProfileId": "...",
  "isRepresentativeProfile": "...",
  "thresholdValues": [{
    "instanceID": "...",
    "monitoring": "...",
    "metricType": "...",
    "metricTypeName": "...",
    "unit": "...",
    "proportion": "...",
    "thresholdValueOfWarning": "...",
    "thresholdValueOfCritical": "...",
    "stepSize": "...",
    "max": "...",
    "min": "..."
  }],
  :
}
```

```

"margin": "...",
"marginName": "...",
"plans": [{
  "instanceID": "...",
  "planType": "...",
  "planName": "...",
  "schedule": ["...", ...],
  "from": "...",
  "to": "...",
  "priority": "...",
  "description": "...",
  "thresholdValues": [{
    "instanceID": "...",
    "monitoringMode": "...",
    "metricType": "...",
    "metricTypeName": "...",
    "unit": "...",
    "proportion": "...",
    "thresholdValueOfWarning": "...",
    "thresholdValueOfCritical": "...",
    "stepSize": "...",
    "max": "...",
    "min": "...",
    "maxValueOfDynamic": "...",
    "minValueOfDynamic": "...",
    "avgValueOfDynamic": "..."
  }],
  :
],
"monitoringMode": "...",
"thresholdValueOfWarning": "...",
"thresholdValueOfCritical": "...",
"fixed": "..."
},
:
],
"numOfResources": "...",
"autoAssignFilters": ["...", ...]
}

```

ThresholdProfile (Type: ThresholdProfile)

Attribute	Type	Description
instanceID	string	ID of the threshold profile
profileName	string	Name of the threshold profile
description	string	Description

Attribute	Type	Description
resourceType	enum	Type of the threshold profile (For details about the valid values, see the table PerfThresholdResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> User System Reserve
profileType	enum	Type determining whether the threshold profile can be edited. The threshold profile can be edited only if the type is "User" or "Default". (For details about the valid values, see the table TemplateCreatorType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> User Preset Default
profileResourceType	enum	Resource type of the threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
representativeProfileId	string	The Signature of the representative profile among the split profiles.
isRepresentativeProfile	boolean	Flag whether the profile is representative or not
thresholdValues	ThresholdValue[]	Information about the thresholds set in the threshold profile. This item is specified only for the thresholds for system resources.
margin	string	ID of the margin set in the threshold profile. This item is specified only for the thresholds for user resources.
marginName	string	Display name of the margin set in the threshold profile. This item is specified only for the thresholds for user resources.
plans	ThresholdPlan[]	Information about the plans set in the threshold profile. This item is specified only for the thresholds for user resources.
numOfResources	int	Number of resources to which the threshold profile is assigned

Attribute	Type	Description
autoAssignFilters	string[]	Rules of automatic assignment to the resources set in the threshold profile. This item is specified only for the thresholds for user resources.

thresholdValues (Type: ThresholdValue)

Attribute	Type	Description
instanceID	string	ID of the threshold
monitoring	boolean	Whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set.
metricType	enum	Type of the metric set for a threshold (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricTypeName	string	Name of the metric set for a threshold
unit	string	Unit of the metric set for a threshold
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
thresholdValueOfWarning	float	Value of the warning threshold
thresholdValueOfCritical	float	Value of the critical threshold
stepSize	float	Increment of the threshold
max	float	Maximum value of the threshold
min	float	Minimum value of the threshold

plans (Type: ThresholdPlan)

Attribute	Type	Description
instanceID	string	ID of the plan.
planType	enum	Type of the plan.

Attribute	Type	Description
		<p>(For details about the valid values, see the table PlanType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Base ▪ Schedule
planName	string	Name of the plan.
schedule	integer[]	Day of the week when to apply the plan. 1: Mon., 2: Tue., 3: Wed., 4: Thu., 5: Fri., 6: Sat., and 7: Sun. The value set here takes effect only if the plan type is "Schedule".
from	string	Start time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
to	string	End time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
priority	int	Priority of the plan.
description	string	Description of the plan.
thresholdValues	ThresholdPlanValue[]	Information about the thresholds specified in the plan.
monitoringMode	enum	<p>Monitoring status of the plan. This item is specified when the thresholds are recalculated for each component.</p> <p>(For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i>.)</p>
thresholdValueOfWarning	float	Value of the warning threshold. This item is specified when the thresholds are recalculated for each component.
thresholdValueOfCritical	float	Value of the critical threshold. This item is specified when the thresholds are recalculated for each component.
fixed	boolean	Specifies whether or not to recalculate the thresholds periodically. If the thresholds are recalculated periodically, "true" is set. If the thresholds are not recalculated periodically, "false" is set. This item is specified if the thresholds are to be recalculated for each component.

thresholdValues (Type: ThresholdPlanValue)

Attribute	Type	Description
instanceID	string	ID of the thresholds for each plan.
monitoringMode	enum	Specifies whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set. (For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
metricType	enum	ID of the metric set for a threshold. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricTypeName	string	Name of the metric set for a threshold.
unit	string	Unit of the metric set for a threshold.
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
thresholdValueOfWarning	float	Value of the warning threshold.
thresholdValueOfCritical	float	Value of the critical threshold.
stepSize	float	Increment of the threshold.
max	float	Maximum value of the threshold.
min	float	Minimum value of the threshold.
maxValueOfDynamic	float	Maximum value of the dynamic threshold.
minValueOfDynamic	float	Minimum value of the dynamic threshold.
avgValueOfDynamic	float	Average value of a dynamic threshold.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.

Status code	Reason phrase	Description
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/ThresholdProfiles
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:12:10 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "instanceID" : "thProfile#RAID_STORAGE_PRESET",
    "profileName" : "#Preset Profile for Storage",
    "description" : "#Preset Profile for Storage",
    "resourceType" : "System",
    "profileType" : "Preset",
    "profileResourceType" : "RAID_STORAGE",
    "thresholdValues" : [ {
      "instanceID" : "th#RAID_STORAGE_RAIDPORT_TOTALIOPS_PRESET",
      "monitoring" : false,
      "metricType" : "RAID_STORAGE_RAIDPORT_TOTALIOPS",
      "metricTypeName" : "Total IOPS (Port)",
```

```

    "unit" : "Ops",
    "proportion" : false,
    "thresholdValueOfWarning" : 0.0,
    "thresholdValueOfCritical" : 0.0,
    "stepSize" : 1.0,
    "max" : 3.4028235E38,
    "min" : 0.0
  }, {
    .....
  } ],
  "margin" : "Normal",
  "marginName" : "Normal",
  "numOfResources" : 0,
  "autoAssignFilters" : [ ]
}, {
  .....
} ],
"count" : 26
}

```

Creating threshold profile

You can create a new threshold profile by specifying information such as the profile name and thresholds.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/objects/ThresholdProfiles
```

Request body

The structure of the request body and the object attributes are as follows:

ThresholdProfile

```

{
  "instanceID": "...",
  "profileName": "...",
  "description": "...",
  "resourceType": "...",
  "profileType": "...",
  "profileResourceType": "...",
  "representativeProfileId": "...",
  "isRepresentativeProfile": "...",
  "thresholdValues": [{

```

```

        "instanceID": "...",
        "monitoring": "...",
        "metricType": "...",
        "thresholdValueOfWarning": "...",
        "thresholdValueOfCritical": "..."
    },
    :
  ],
  "margin": "...",
  "plans": [{
    "instanceID": "...",
    "planType": "...",
    "planName": "...",
    "schedule": ["...", ...],
    "from": "...",
    "to": "...",
    "priority": "...",
    "description": "...",
    "thresholdValues": [{
      "instanceID": "...",
      "monitoringMode": "...",
      "metricType": "...",
      "thresholdValueOfWarning": "...",
      "thresholdValueOfCritical": "..."
    }],
    :
  ]
},
:
]
}

```

ThresholdProfile (Type: ThresholdProfile)

Attribute	Type	Description
instanceID	string	ID of the threshold profile
profileName	string	Name of the threshold profile
description	string	Description
resourceType	enum	Type of the threshold profile (For details about the valid values, see the table PerfThresholdResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ User ▪ System ▪ Reserve

Attribute	Type	Description
profileType	enum	Type determining whether the threshold profile can be edited. The threshold profile can be edited only if the type is "User" or "Default". (For details about the valid values, see the table TemplateCreatorType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ User ▪ Preset ▪ Default
profileResourceType	enum	Resource type of the threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
representativeProfileId	string	The Signature of the representative profile among the split profiles.
isRepresentativeProfile	boolean	Flag whether the profile is representative or not
thresholdValues	ThresholdValue[]	Information about the thresholds set in the threshold profile. This item is specified only for the thresholds for system resources.
margin	string	ID of the margin set in the threshold profile. This item is specified only for the thresholds for user resources.
plans	ThresholdPlan[]	Information about the plans set in the threshold profile. This item is specified only for the thresholds for user resources.

thresholdValues (Type: ThresholdValue)

Attribute	Type	Description
instanceID	string	ID of the threshold
monitoring	boolean	Whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set.
metricType	enum	Type of the metric set for a threshold (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
thresholdValueOfWarning	float	Value of the warning threshold

Attribute	Type	Description
thresholdValueOfCritical	float	Value of the critical threshold

plans (Type: ThresholdPlan)

Attribute	Type	Description
instanceID	string	ID of the plan.
planType	enum	Type of the plan. (For details about the valid values, see the table PlanType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> Base Schedule
planName	string	Name of the plan.
schedule	integer[]	Day of the week when to apply the plan. 1: Mon., 2: Tue., 3: Wed., 4: Thu., 5: Fri., 6: Sat., and 7: Sun. The value set here takes effect only if the plan type is "Schedule".
from	string	Start time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
to	string	End time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
priority	int	Priority of the plan.
description	string	Description of the plan.
thresholdValues	ThresholdPlanValue[]	Information about the thresholds specified in the plan.

thresholdValues (Type: ThresholdPlanValue)

Attribute	Type	Description
instanceID	string	ID of the thresholds for each plan.

Attribute	Type	Description
monitoringMode	enum	Specifies whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set. (For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
metricType	enum	ID of the metric set for a threshold. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
thresholdValueOfWarning	float	Value of the warning threshold.
thresholdValueOfCritical	float	Value of the critical threshold.

Response body

The structure of the response body and the object attributes is as follows:

ThresholdProfile

```
{
  "instanceID": "...",
  "profileName": "...",
  "description": "...",
  "resourceType": "...",
  "profileType": "...",
  "profileResourceType": "...",
  "representativeProfileId": "...",
  "isRepresentativeProfile": "...",
  "thresholdValues": [{
    "instanceID": "...",
    "monitoring": "...",
    "metricType": "...",
    "metricTypeName": "...",
    "unit": "...",
    "proportion": "...",
    "thresholdValueOfWarning": "...",
    "thresholdValueOfCritical": "...",
    "stepSize": "...",
    "max": "...",
    "min": "..."
  }],
  "margin": "...",
  "marginName": "..."
}
```

```

    "plans": [{
      "instanceID": "...",
      "planType": "...",
      "planName": "...",
      "schedule": ["...", ...],
      "from": "...",
      "to": "...",
      "priority": "...",
      "description": "...",
      "thresholdValues": [{
        "instanceID": "...",
        "monitoringMode": "...",
        "metricType": "...",
        "metricTypeName": "...",
        "unit": "...",
        "proportion": "...",
        "thresholdValueOfWarning": "...",
        "thresholdValueOfCritical": "...",
        "stepSize": "...",
        "max": "...",
        "min": "...",
        "maxValueOfDynamic": "...",
        "minValueOfDynamic": "...",
        "avgValueOfDynamic": "..."
      }],
      :
    ],
    "monitoringMode": "...",
    "thresholdValueOfWarning": "...",
    "thresholdValueOfCritical": "...",
    "fixed": "..."
  },
  :
],
"numOfResources": "...",
"autoAssignFilters": ["...", ...]
}

```

ThresholdProfile (Type: ThresholdProfile)

Attribute	Type	Description
instanceID	string	ID of the threshold profile
profileName	string	Name of the threshold profile
description	string	Description
resourceType	enum	Type of the threshold profile

Attribute	Type	Description
		<p>(For details about the valid values, see the table PerfThresholdResourceType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> User System Reserve
profileType	enum	<p>Type determining whether the threshold profile can be edited. The threshold profile can be edited only if the type is "User" or "Default".</p> <p>(For details about the valid values, see the table TemplateCreatorType in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> User Preset Default
profileResourceType	enum	<p>Resource type of the threshold profile</p> <p>(For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i>.)</p>
representativeProfileId	string	The Signature of the representative profile among the split profiles.
isRepresentativeProfile	boolean	Flag whether the profile is representative or not
thresholdValues	ThresholdValue[]	Information about the thresholds set in the threshold profile. This item is specified only for the thresholds for system resources.
margin	string	ID of the margin set in the threshold profile. This item is specified only for the thresholds for user resources.
marginName	string	Display name of the margin set in the threshold profile. This item is specified only for the thresholds for user resources.
plans	ThresholdPlan[]	Information about the plans set in the threshold profile. This item is specified only for the thresholds for user resources.
numOfResources	int	Number of resources to which the threshold profile is assigned
autoAssignFilters	string[]	Rules of automatic assignment to the resources set in the threshold profile. This item is specified only for the thresholds for user resources.

thresholdValues (Type: ThresholdValue)

Attribute	Type	Description
instanceID	string	ID of the threshold
monitoring	boolean	Whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set.
metricType	enum	Type of the metric set for a threshold (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricTypeName	string	Name of the metric set for a threshold
unit	string	Unit of the metric set for a threshold
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
thresholdValueOfWarning	float	Value of the warning threshold
thresholdValueOfCritical	float	Value of the critical threshold
stepSize	float	Increment of the threshold
max	float	Maximum value of the threshold
min	float	Minimum value of the threshold

plans (Type: ThresholdPlan)

Attribute	Type	Description
instanceID	string	ID of the plan.
planType	enum	Type of the plan. (For details about the valid values, see the table PlanType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Base ▪ Schedule
planName	string	Name of the plan.

Attribute	Type	Description
schedule	integer[]	Day of the week when to apply the plan. 1: Mon., 2: Tue., 3: Wed., 4: Thu., 5: Fri., 6: Sat., and 7: Sun. The value set here takes effect only if the plan type is "Schedule".
from	string	Start time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
to	string	End time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
priority	int	Priority of the plan.
description	string	Description of the plan.
thresholdValues	ThresholdPlanValue[]	Information about the thresholds specified in the plan.
monitoringMode	enum	Monitoring status of the plan. This item is specified when the thresholds are recalculated for each component. (For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
thresholdValueOfWarning	float	Value of the warning threshold. This item is specified when the thresholds are recalculated for each component.
thresholdValueOfCritical	float	Value of the critical threshold. This item is specified when the thresholds are recalculated for each component.
fixed	boolean	Specifies whether or not to recalculate the thresholds periodically. If the thresholds are recalculated periodically, "true" is set. If the thresholds are not recalculated periodically, "false" is set. This item is specified if the thresholds are to be recalculated for each component.

thresholdValues (Type: ThresholdPlanValue)

Attribute	Type	Description
instanceID	string	ID of the thresholds for each plan.

Attribute	Type	Description
monitoringMode	enum	Specifies whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set. (For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
metricType	enum	ID of the metric set for a threshold. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricTypeName	string	Name of the metric set for a threshold.
unit	string	Unit of the metric set for a threshold.
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
thresholdValueOfWarning	float	Value of the warning threshold.
thresholdValueOfCritical	float	Value of the critical threshold.
stepSize	float	Increment of the threshold.
max	float	Maximum value of the threshold.
min	float	Minimum value of the threshold.
maxValueOfDynamic	float	Maximum value of the dynamic threshold.
minValueOfDynamic	float	Minimum value of the dynamic threshold.
avgValueOfDynamic	float	Average value of a dynamic threshold.

Status codes

Status code	Reason phrase	Description
201	Created	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.

Status code	Reason phrase	Description
409	Conflict	A resource with the same name exists.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/ThresholdProfiles
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "profileName": "ESX Profile-0",
  "description": "xxxxxxxxxxxxxxxx",
  "resourceType": "System",
  "profileResourceType": "RAID_STORAGE",
  "thresholdValues": [{
    "metricType": "RAID_STORAGE_RAIDPORT_TOTALIOPS",
    "metricTypeName": "Total IOPS (Port)",
    "unit": "Ops",
    "instanceID": "th#092967a9-5451-48dd-94fd-ec8b1ef4ae51",
    "min": 0.0,
    "proportion": false,
    "max": 3.4028235E38,
    "stepSize": 1.0,
    "thresholdValueOfWarning": 0.0,
    "thresholdValueOfCritical": 0.0,
    "monitoring": false
  }]
}

[Response Header]
HTTP/1.1 201 Created
Date: Wed, 20 Jul 2016 02:27:12 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
```



```

WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

```

[Response Body]

```

{
  "instanceID" : "thProfile#ce4cc49a-a5e7-4b0e-9467-46476d425f27",
  "profileName" : "ESX Profile-0",
  "description" : "xxxxxxxxxxxxxxxxxx",
  "resourceType" : "System",
  "profileType" : "User",
  "profileResourceType" : "RAID_STORAGE",
  "thresholdValues" : [ {
    "instanceID" : "th#eb34659a-0ebe-44b1-a95e-53af269ee679",
    "monitoring" : false,
    "metricType" : "RAID_STORAGE_RAIDPORT_TOTALIOPS",
    "metricTypeName" : "Total IOPS (Port)",
    "unit" : "Ops",
    "proportion" : false,
    "thresholdValueOfWarning" : 0.0,
    "thresholdValueOfCritical" : 0.0,
    "stepSize" : 1.0,
    "max" : 3.4028235E38,
    "min" : 0.0
  } ],
  "numOfResources" : 0,
  "autoAssignFilters" : [ ]
}

```

Getting specific threshold profile information

You can obtain information about a specific threshold profile, such as the profile name and thresholds.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/ThresholdProfiles/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

ThresholdProfile

```
{
  "instanceID": "...",
  "profileName": "...",
  "description": "...",
  "resourceType": "...",
  "profileType": "...",
  "profileResourceType": "...",
  "representativeProfileId": "...",
  "isRepresentativeProfile": "...",
  "thresholdValues": [{
    "instanceID": "...",
    "monitoring": "...",
    "metricType": "...",
    "metricTypeName": "...",
    "unit": "...",
    "proportion": "...",
    "thresholdValueOfWarning": "...",
    "thresholdValueOfCritical": "...",
    "stepSize": "...",
    "max": "...",
    "min": "..."
  }],
  :
],
  "margin": "...",
  "marginName": "...",
  "plans": [{
    "instanceID": "...",
    "planType": "...",
    "planName": "...",
    "schedule": ["...", ...],
    "from": "...",
    "to": "...",
    "priority": "...",
    "description": "...",
    "thresholdValues": [{
      "instanceID": "...",
      "monitoringMode": "...",
      "metricType": "...",
      "metricTypeName": "...",
      "unit": "...",
      "proportion": "...",
```

```

        "thresholdValueOfWarning": "...",
        "thresholdValueOfCritical": "...",
        "stepSize": "...",
        "max": "...",
        "min": "...",
        "maxValueOfDynamic": "...",
        "minValueOfDynamic": "...",
        "avgValueOfDynamic": "...",
    },
    :
    ],
    "monitoringMode": "...",
    "thresholdValueOfWarning": "...",
    "thresholdValueOfCritical": "...",
    "fixed": "..."
},
:
],
"numOfResources": "...",
"autoAssignFilters": ["...", ...]
}

```

ThresholdProfile (Type: ThresholdProfile)

Attribute	Type	Description
instanceID	string	ID of the threshold profile
profileName	string	Name of the threshold profile
description	string	Description
resourceType	enum	Type of the threshold profile (For details about the valid values, see the table PerfThresholdResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> User System Reserve
profileType	enum	Type determining whether the threshold profile can be edited. The threshold profile can be edited only if the type is "User" or "Default".

Attribute	Type	Description
		(For details about the valid values, see the table TemplateCreatorType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> User Preset Default
profileResourceType	enum	Resource type of the threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
representativeProfileId	string	The Signature of the representative profile among the split profiles.
isRepresentativeProfile	boolean	Flag whether the profile is representative or not
thresholdValues	ThresholdValue[]	Information about the thresholds set in the threshold profile. This item is specified only for the thresholds for system resources.
margin	string	ID of the margin set in the threshold profile. This item is specified only for the thresholds for user resources.
marginName	string	Display name of the margin set in the threshold profile. This item is specified only for the thresholds for user resources.
plans	ThresholdPlan[]	Information about the plans set in the threshold profile. This item is specified only for the thresholds for user resources.
numOfResources	int	Number of resources to which the threshold profile is assigned
autoAssignFilters	string[]	Rules of automatic assignment to the resources set in the threshold profile. This item is specified only for the thresholds for user resources.

thresholdValues (Type: ThresholdValue)

Attribute	Type	Description
instanceID	string	ID of the threshold
monitoring	boolean	Whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set.

Attribute	Type	Description
metricType	enum	Type of the metric set for a threshold (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricTypeName	string	Name of the metric set for a threshold
unit	string	Unit of the metric set for a threshold
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
thresholdValueOfWarning	float	Value of the warning threshold
thresholdValueOfCritical	float	Value of the critical threshold
stepSize	float	Increment of the threshold
max	float	Maximum value of the threshold
min	float	Minimum value of the threshold

plans (Type: ThresholdPlan)

Attribute	Type	Description
instanceID	string	ID of the plan.
planType	enum	Type of the plan. (For details about the valid values, see the table PlanType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Base ▪ Schedule
planName	string	Name of the plan.
schedule	integer[]	Day of the week when to apply the plan. 1: Mon., 2: Tue., 3: Wed., 4: Thu., 5: Fri., 6: Sat., and 7: Sun. The value set here takes effect only if the plan type is "Schedule".

Attribute	Type	Description
from	string	Start time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
to	string	End time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
priority	int	Priority of the plan.
description	string	Description of the plan.
thresholdValues	ThresholdPlanValue[]	Information about the thresholds specified in the plan.
monitoringMode	enum	Monitoring status of the plan. This item is specified when the thresholds are recalculated for each component. (For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
thresholdValueOfWarning	float	Value of the warning threshold. This item is specified when the thresholds are recalculated for each component.
thresholdValueOfCritical	float	Value of the critical threshold. This item is specified when the thresholds are recalculated for each component.
fixed	boolean	Specifies whether or not to recalculate the thresholds periodically. If the thresholds are recalculated periodically, "true" is set. If the thresholds are not recalculated periodically, "false" is set. This item is specified if the thresholds are to be recalculated for each component.

thresholdValues (Type: ThresholdPlanValue)

Attribute	Type	Description
instanceID	string	ID of the thresholds for each plan.
monitoringMode	enum	Specifies whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set.

Attribute	Type	Description
		(For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
metricType	enum	ID of the metric set for a threshold. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricTypeName	string	Name of the metric set for a threshold.
unit	string	Unit of the metric set for a threshold.
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
thresholdValueOfWarning	float	Value of the warning threshold.
thresholdValueOfCritical	float	Value of the critical threshold.
stepSize	float	Increment of the threshold.
max	float	Maximum value of the threshold.
min	float	Minimum value of the threshold.
maxValueOfDynamic	float	Maximum value of the dynamic threshold.
minValueOfDynamic	float	Minimum value of the dynamic threshold.
avgValueOfDynamic	float	Average value of a dynamic threshold.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Status code	Reason phrase	Description
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/ThresholdProfiles
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:29:40 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "instanceID" : "thProfile#ESX_PRESET",
    "profileName" : "#Preset Profile for Hypervisor (VMware)",
    "description" : "#Preset Profile for Hypervisor (VMware)",
    "resourceType" : "System",
    "profileType" : "Preset",
    "profileResourceType" : "ESX",
    "thresholdValues" : [ {
      "instanceID" : "th#ESX_H_CPUUSAGE_PRESET",
      "monitoring" : true,
      "metricType" : "ESX_H_CPUUSAGE",
      "metricTypeName" : "CPU Usage (VMware Host)",
      "unit" : "%",
      "proportion" : false,
      "thresholdValueOfWarning" : 75.0,
      "thresholdValueOfCritical" : 90.0,
      "stepSize" : 1.0,
      "max" : 3.4028235E38,
```



```

        "min" : 0.0
      }, {
        .....
      } ],
      "margin" : "Normal",
      "marginName" : "Normal",
      "numOfResources" : 0,
      "autoAssignFilters" : [ ]
    }, {
      .....
    } ],
    "count" : 26
  }

```

Updating specific threshold profile

You can update information about a specific threshold profile, such as the profile name and thresholds.

Execution permission

Admin, Modify

Request line

```
PUT baseUrl/v1/objects/ThresholdProfiles/{id}
```

Request body

The structure of the request body and the object attributes are as follows:

ThresholdProfile

```

{
  "instanceID": "...",
  "profileName": "...",
  "description": "...",
  "resourceType": "...",
  "profileType": "...",
  "profileResourceType": "...",
  "representativeProfileId": "...",
  "isRepresentativeProfile": "...",
  "thresholdValues": [{
    "instanceID": "...",
    "monitoring": "...",
    "metricType": "...",
    "thresholdValueOfWarning": "...",
    "thresholdValueOfCritical": "..."
  }],

```

```

:
],
"margin":"...",
"plans":[{"instanceID":"...",
"planType":"...",
"planName":"...",
"schedule":["...", ...],
"from":"...",
"to":"...",
"priority":"...",
"description":"...",
"thresholdValues":[{"instanceID":"...",
"monitoringMode":"...",
"metricType":"...",
"thresholdValueOfWarning":"...",
"thresholdValueOfCritical":"..."
}],
:
]
},
:
]
}

```

ThresholdProfile (Type: ThresholdProfile)

Attribute	Type	Description
instanceID	string	ID of the threshold profile
profileName	string	Name of the threshold profile
description	string	Description
resourceType	enum	Type of the threshold profile (For details about the valid values, see the table PerfThresholdResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> User System Reserve
profileType	enum	Type determining whether the threshold profile can be edited. The threshold profile can be edited only if the type is "User" or "Default".

Attribute	Type	Description
		(For details about the valid values, see the table TemplateCreatorType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> User Preset Default
profileResourceType	enum	Resource type of the threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
representativeProfileId	string	The Signature of the representative profile among the split profiles.
isRepresentativeProfile	boolean	Flag whether the profile is representative or not
thresholdValues	ThresholdValue[]	Information about the thresholds set in the threshold profile. This item is specified only for the thresholds for system resources.
margin	string	ID of the margin set in the threshold profile. This item is specified only for the thresholds for user resources.
plans	ThresholdPlan[]	Information about the plans set in the threshold profile. This item is specified only for the thresholds for user resources.

thresholdValues (Type: ThresholdValue)

Attribute	Type	Description
instanceID	string	ID of the threshold
monitoring	boolean	Whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set.
metricType	enum	Type of the metric set for a threshold (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
thresholdValueOfWarning	float	Value of the warning threshold
thresholdValueOfCritical	float	Value of the critical threshold

plans (Type: ThresholdPlan)

Attribute	Type	Description
instanceID	string	ID of the plan.
planType	enum	Type of the plan. (For details about the valid values, see the table PlanType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Base ▪ Schedule
planName	string	Name of the plan.
schedule	integer[]	Day of the week when to apply the plan. 1: Mon., 2: Tue., 3: Wed., 4: Thu., 5: Fri., 6: Sat., and 7: Sun. The value set here takes effect only if the plan type is "Schedule".
from	string	Start time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
to	string	End time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
priority	int	Priority of the plan.
description	string	Description of the plan.
thresholdValues	ThresholdPlanValue[]	Information about the thresholds specified in the plan.

thresholdValues (Type: ThresholdPlanValue)

Attribute	Type	Description
instanceID	string	ID of the thresholds for each plan.
monitoringMode	enum	Specifies whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set. (For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
metricType	enum	ID of the metric set for a threshold.

Attribute	Type	Description
		(For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
thresholdValueOfWarning	float	Value of the warning threshold.
thresholdValueOfCritical	float	Value of the critical threshold.

Response body

The structure of the response body and the object attributes is as follows:

ThresholdProfile

```
{
  "instanceID": "...",
  "profileName": "...",
  "description": "...",
  "resourceType": "...",
  "profileType": "...",
  "profileResourceType": "...",
  "representativeProfileId": "...",
  "isRepresentativeProfile": "...",
  "thresholdValues": [{
    "instanceID": "...",
    "monitoring": "...",
    "metricType": "...",
    "metricTypeName": "...",
    "unit": "...",
    "proportion": "...",
    "thresholdValueOfWarning": "...",
    "thresholdValueOfCritical": "...",
    "stepSize": "...",
    "max": "...",
    "min": "..."
  }],
  "margin": "...",
  "marginName": "...",
  "plans": [{
    "instanceID": "...",
    "planType": "...",
    "planName": "...",
    "schedule": ["...", ...],
    "from": "...",
    "to": "...",
    "priority": "..."
  }]
```

```

    "description": "...",
    "thresholdValues": [{
      "instanceID": "...",
      "monitoringMode": "...",
      "metricType": "...",
      "metricTypeName": "...",
      "unit": "...",
      "proportion": "...",
      "thresholdValueOfWarning": "...",
      "thresholdValueOfCritical": "...",
      "stepSize": "...",
      "max": "...",
      "min": "...",
      "maxValueOfDynamic": "...",
      "minValueOfDynamic": "...",
      "avgValueOfDynamic": "..."
    },
    :
  ],
  "monitoringMode": "...",
  "thresholdValueOfWarning": "...",
  "thresholdValueOfCritical": "...",
  "fixed": "..."
},
:
],
"numOfResources": "...",
"autoAssignFilters": ["...", ...]
}

```

ThresholdProfile (Type: ThresholdProfile)

Attribute	Type	Description
instanceID	string	ID of the threshold profile
profileName	string	Name of the threshold profile
description	string	Description
resourceType	enum	Type of the threshold profile (For details about the valid values, see the table PerfThresholdResourceType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ User ▪ System ▪ Reserve

Attribute	Type	Description
profileType	enum	Type determining whether the threshold profile can be edited. The threshold profile can be edited only if the type is "User" or "Default". (For details about the valid values, see the table TemplateCreatorType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> User Preset Default
profileResourceType	enum	Resource type of the threshold profile (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
representativeProfileId	string	The Signature of the representative profile among the split profiles.
isRepresentativeProfile	boolean	Flag whether the profile is representative or not
thresholdValues	ThresholdValue[]	Information about the thresholds set in the threshold profile. This item is specified only for the thresholds for system resources.
margin	string	ID of the margin set in the threshold profile. This item is specified only for the thresholds for user resources.
marginName	string	Display name of the margin set in the threshold profile. This item is specified only for the thresholds for user resources.
plans	ThresholdPlan[]	Information about the plans set in the threshold profile. This item is specified only for the thresholds for user resources.
numOfResources	int	Number of resources to which the threshold profile is assigned
autoAssignFilters	string[]	Rules of automatic assignment to the resources set in the threshold profile. This item is specified only for the thresholds for user resources.

thresholdValues (Type: ThresholdValue)

Attribute	Type	Description
instanceID	string	ID of the threshold

Attribute	Type	Description
monitoring	boolean	Whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set.
metricType	enum	Type of the metric set for a threshold (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricTypeName	string	Name of the metric set for a threshold
unit	string	Unit of the metric set for a threshold
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
thresholdValueOfWarning	float	Value of the warning threshold
thresholdValueOfCritical	float	Value of the critical threshold
stepSize	float	Increment of the threshold
max	float	Maximum value of the threshold
min	float	Minimum value of the threshold

plans (Type: ThresholdPlan)

Attribute	Type	Description
instanceID	string	ID of the plan.
planType	enum	Type of the plan. (For details about the valid values, see the table PlanType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Base ▪ Schedule
planName	string	Name of the plan.
schedule	integer[]	Day of the week when to apply the plan. 1: Mon., 2: Tue., 3: Wed., 4: Thu., 5: Fri., 6: Sat., and 7: Sun. The value set here takes effect only if the plan type is "Schedule".

Attribute	Type	Description
from	string	Start time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
to	string	End time of the plan. Specified in "hh:mm" format. The value set here takes effect only if the plan type is "Schedule".
priority	int	Priority of the plan.
description	string	Description of the plan.
thresholdValues	ThresholdPlanValue[]	Information about the thresholds specified in the plan.
monitoringMode	enum	Monitoring status of the plan. This item is specified when the thresholds are recalculated for each component. (For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
thresholdValueOfWarning	float	Value of the warning threshold. This item is specified when the thresholds are recalculated for each component.
thresholdValueOfCritical	float	Value of the critical threshold. This item is specified when the thresholds are recalculated for each component.
fixed	boolean	Specifies whether or not to recalculate the thresholds periodically. If the thresholds are recalculated periodically, "true" is set. If the thresholds are not recalculated periodically, "false" is set. This item is specified if the thresholds are to be recalculated for each component.

thresholdValues (Type: ThresholdPlanValue)

Attribute	Type	Description
instanceID	string	ID of the thresholds for each plan.
monitoringMode	enum	Specifies whether or not to enable threshold-based monitoring. If enabled, "true" is set. If disabled, "false" is set.

Attribute	Type	Description
		(For details about the valid values, see the table MonitoringMode in <i>List of enumerators</i> .)
metricType	enum	ID of the metric set for a threshold. (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricTypeName	string	Name of the metric set for a threshold.
unit	string	Unit of the metric set for a threshold.
proportion	boolean	Threshold setting. If a warning or critical alert is generated when the measurement value goes above the threshold, "true" is set. If a warning or critical alert is generated when the measurement value goes below the threshold, "false" is set.
thresholdValueOfWarning	float	Value of the warning threshold.
thresholdValueOfCritical	float	Value of the critical threshold.
stepSize	float	Increment of the threshold.
max	float	Maximum value of the threshold.
min	float	Minimum value of the threshold.
maxValueOfDynamic	float	Maximum value of the dynamic threshold.
minValueOfDynamic	float	Minimum value of the dynamic threshold.
avgValueOfDynamic	float	Average value of a dynamic threshold.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
409	Conflict	A resource with the same name exists.

Status code	Reason phrase	Description
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
PUT /Analytics/v1/objects/ThresholdProfiles/thProfile%23b46e902b-23fc-4a16-9c1b-757e0a669b94
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "instanceID":"thProfile#b46e902b-23fc-4a16-9c1b-757e0a669b94",
  "profileName":"ESX Profile-20160720113617720",
  "description":"zzzzzzzzzzzzzzzzzzzz",
  "resourceType":"System",
  "thresholdValues":[{
    "metricType":"DF_STORAGE_DFPORT_CTL0TRANSRATE",
    "metricTypeName":"CTL 0 Transfer Rate (Port)",
    "unit":"KBps",
    "instanceID":"th#54103f66-2c22-4347-8cad-bf204b260762",
    "min":0.0,
    "proportion":false,
    "max":3.4028235E38,
    "stepSize":1.0,
    "thresholdValueOfWarning":0.0,
    "thresholdValueOfCritical":0.0,
    "monitoring":false
  },{
    .....
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:36:17 GMT
Server: Cosminexus HTTP Server
```

```

Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

```

[Response Body]

```

{
  "instanceID" : "thProfile#b46e902b-23fc-4a16-9c1b-757e0a669b94",
  "profileName" : "ESX Profile-20160720113617720",
  "description" : "zzzzzzzzzzzzzzzzzz",
  "resourceType" : "System",
  "profileType" : "User",
  "profileResourceType" : "DF_STORAGE",
  "thresholdValues" : [ {
    "instanceID" : "th#54103f66-2c22-4347-8cad-bf204b260762",
    "monitoring" : false,
    "metricType" : "DF_STORAGE_DFPORT_CTL0TRANSRATE",
    "metricTypeName" : "CTL 0 Transfer Rate (Port)",
    "unit" : "KBps",
    "proportion" : false,
    "thresholdValueOfWarning" : 0.0,
    "thresholdValueOfCritical" : 0.0,
    "stepSize" : 1.0,
    "max" : 3.4028235E38,
    "min" : 0.0
  }, {
    .....
  } ],
  "numOfResources" : 0,
  "autoAssignFilters" : [ ]
}

```

Deleting specific threshold profile

You can delete a specific threshold profile.

Execution permission

Admin, Modify

Request line

```
DELETE baseUrl/v1/objects/ThresholdProfiles/{id}
```

Request body

Not applicable.

Response body

Not applicable.

Status codes

Status code	Reason phrase	Description
204	No Content	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No delete privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
DELETE /Analytics/v1/objects/ThresholdProfiles/thProfile%23ce4cc49a-a5e7-4b0e-9467-46476d425f27
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 204 No Content
Date: Wed, 20 Jul 2016 02:28:22 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json
```

Getting a list of operations for specific threshold profiles

You can obtain a list of operations that can be performed on a specific threshold profile.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/ThresholdProfiles/{id}/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/ThresholdProfiles/111111/actions
Content-Type: application/json
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:26:05 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "updateTargetResource",
    "href" : "http://localhost:22015/Analytics/v1/objects/ThresholdProfiles/111111/actions/updateTargetResource/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  }, {
    "name" : "getResourceThresholdValues",
    "href" : "http://localhost:22015/Analytics/v1/objects/ThresholdProfiles/111111/actions/getResourceThresholdValues/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  }, {
    "name" : "updateDynamicThreshold",
    "href" : "http://localhost:22015/Analytics/v1/objects/ThresholdProfiles/111111/actions/updateDynamicThreshold/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ]
}
```



```
"count" : 3
}
```

Preparing to assign specific threshold profile

The following operation is the initial step to assign a specific threshold profile to resources to be monitored.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/ThresholdProfiles/{id}/actions/updateTargetResource
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.

Attribute	Type	Description
parameters	anyType[]	A list of InstanceID objects necessary to execute an operation. For details about InstanceID, see the table below.

InstanceID

```
{
  "instanceID": "... "
}
```

InstanceID (Type: InstanceID)

Attribute	Type	Description
instanceID	string	ID of the Instance.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/ThresholdProfiles/thProfile%23fc4cd6cb-0a99-4ee3-9938-228838cceb70/actions/updateTargetResource
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
```

```

HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:43:25 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

```

[Response Body]

```

{
  "name" : "updateTargetResource",
  "href" : "http://localhost:22015/Analytics/v1/objects/ThresholdProfiles/
thProfile%23fc4cd6cb%2d0a99%2d4ee3v9938%2d228838cceb70/actions/
updateTargetResource/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ ]
}

```

Assigning specific threshold profile

You can assign a specific threshold profile to resources to be monitored.

Execution permission

Admin, Modify

Request line

```

POST baseUrl/v1/objects/ThresholdProfiles/{id}/actions/
updateTargetResource/invoke

```

Request body

The structure of the request body and the object attributes are as follows:

Action

```

{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",

```

```

    "parameters":["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of InstanceID objects necessary to execute an operation. For details about InstanceID, see the table below.

InstanceID

```

{
  "instanceID":"..."
}

```

InstanceID (Type: InstanceID)

Attribute	Type	Description
instanceID	string	ID of the Instance.

Response body

The structure of the response body and the object attributes is as follows:

Job

```

{
  "instanceID":"...",
  "created":"...",
  "updated":"...",
  "completed":"...",
  "state":"...",
  "affectedResource":["...", ...],
  "result":["...", ...]
}

```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/ThresholdProfiles/thProfile%23fc4cd6cb-0a99-4ee3-9938-228838cceb70/actions/updateTargetResource/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "updateTargetResource",
  "href" : "http://localhost:22015/Analytics/v1/objects/ThresholdProfiles/thProfile%23fc4cd6cb%2d0a99%2d4ee3v9938%2d228838cceb70/actions/updateTargetResource/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "instanceID": "vm#ABC_172.17.17.115_vm-142"
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:43:27 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "d10bd225-2b4d-4ea7-90e0-aa5d",
  "created" : "2016-07-20T11:43:28.212+09:00",
  "updated" : "2016-07-20T11:46:37.504+09:00",
  "completed" : "2016-07-20T11:46:37.504+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ ]
}
```

Preparing to obtain a threshold information with profiles and resources specified

The following operation is the initial step to obtain information about dynamic or static thresholds by specifying threshold profiles and resources.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/ThresholdProfiles/{id}/actions/  
getResourceThresholdValues
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{  
  "name": "...",  
  "href": "...",  
  "method": "...",  
  "type": "...",  
  "parameters": ["...", ...]  
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of ResourceThresholdParam objects necessary to execute an operation. For details about ResourceThresholdParam, see the table below.

ResourceThresholdParam

```
{
  "metricType": "...",
  "resourceType": "...",
  "resourceIds": ["...", ...]
}
```

ResourceThresholdParam (Type: ResourceThresholdParam)

Attribute	Type	Description
metricType	enum	ID of the metric to be obtained (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
resourceType	enum	Type of the metric to be obtained (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
resourceIds	string[]	ID of the resource to be obtained. To obtain multiple resources at the same time, specify the IDs of those resources.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/ThresholdProfiles/thProfile%23fe428a12-35a8-4210-8e9d-d0d28fe38d5d/actions/getResourceThresholdValues
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json
```



```
[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:54:28 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getResourceThresholdValues",
  "href" : "http://localhost:22015/Analytics/v1/objects/ThresholdProfiles/
thProfile%23fe428a12%2d35a8%2d4210%2d8e9d%2dd0d28fe38d5d/actions/
getResourceThresholdValues/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "instanceID" : "",
    "metricType" : "WIN_CPU_LOAD",
    "resourceType" : "INVALID_MEMBER",
    "resourceIds" : [ ]
  } ]
}
```

Getting a list of threshold informations with profiles and resources specified

You can obtain dynamic or static threshold information by specifying a threshold profile and resources.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/objects/ThresholdProfiles/{id}/actions/
getResourceThresholdValues/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of ResourceThresholdParam objects necessary to execute an operation. For details about ResourceThresholdParam, see the table below.

ResourceThresholdParam

```
{
  "metricType": "...",
  "resourceType": "...",
  "resourceIds": ["...", ...]
}
```

ResourceThresholdParam (Type: ResourceThresholdParam)

Attribute	Type	Description
metricType	enum	ID of the metric to be obtained (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
resourceType	enum	Type of the metric to be obtained (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)

Attribute	Type	Description
resourceIds	string[]	ID of the resource to be obtained. To obtain multiple resources at the same time, specify the IDs of those resources.

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/ThresholdProfiles/thProfile%23fe428a12-35a8-4210-8e9d-d0d28fe38d5d/actions/getResourceThresholdValues/invoke
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "getResourceThresholdValues",
  "href" : "http://localhost:22015/Analytics/v1/objects/ThresholdProfiles/thProfile%23fe428a12%2d35a8%2d4210%2d8e9d%2dd0d28fe38d5d/actions/getResourceThresholdValues/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "resourceType": "ESX_VM",
    "metricType": "ESX_VM_VM_CPUREADY",
    "resourceIds": ["vm#ABC_172.17.17.115_vm-142"]
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:54:28 GMT
```

```

Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

```

[Response Body]

```

{
  "instanceID" : "21735e31-eb30-4c9d-b049-9c8f161619b4",
  "created" : "2016-07-20T11:54:29.279+09:00",
  "updated" : "2016-07-20T11:54:31.282+09:00",
  "completed" : "2016-07-20T11:54:31.282+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ {
    "instanceID" : "vm#ABC_172.17.17.115_vm-142",
    "metricType" : "ESX_VM_VM_CPUREADY",
    "metricTypeName" : "CPU Ready (VMware Virtual Machine)",
    "resourceType" : "ESX_VM",
    "resourceId" : "vm#ABC_172.17.17.115_vm-142",
    "resourceName" : "exampleVM",
    "profileId" : "thProfile#ESX_VM",
    "profileName" : "Default Profile for VM (VMware)",
    "values" : [ {
      "instanceID" : "thPlan#ESX_VM",
      "planType" : "Base",
      "planName" : "Base",
      "schedule" : [ 1, 2, 3, 4, 5, 6, 7 ],
      "from" : "00:00",
      "to" : "24:00",
      "priority" : 1,
      "description" : "Base Plan",
      "monitoringMode" : "Dynamic",
      "unit" : "msec",
      "proportion" : false,
      "stepSize" : 1.0,
      "max" : 3.4028235E38,
      "min" : 0.0,
      "fixed" : false
    } ]
  } ]
}

```

Preparing to set dynamic thresholds with profiles and resources specified

The following operation is the initial step to set dynamic thresholds by specifying user profiles and resources.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/objects/ThresholdProfiles/{id}/actions/  
updateDynamicThreshold
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{  
  "name": "...",  
  "href": "...",  
  "method": "...",  
  "type": "...",  
  "parameters": ["...", ...]  
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of ResourceThresholdFixedParam objects necessary to execute an operation. For details about ResourceThresholdFixedParam, see the table below.

ResourceThresholdFixedParam

```
{
  "metricType": "...",
  "resourceID": "...",
  "resourceType": "...",
  "planID": "...",
  "fixed": "...",
  "value": "..."
}
```

ResourceThresholdFixedParam (Type: ResourceThresholdFixedParam)

Attribute	Type	Description
metricType	enum	Type of the metric (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
resourceID	string	ID of the resource
resourceType	enum	Type of the resource (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
planID	string	ID of the plan
fixed	boolean	Whether or not to recalculate the thresholds periodically. If the thresholds are recalculated periodically, "true" is set. If the thresholds are not recalculated periodically, "false" is set. This item is specified if the thresholds are to be manipulated for each component.
value	float	Value of threshold to be set

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/ThresholdProfiles/thProfile%23abcc9fle-b1b8-45f4-
9931-31eedd5905be/actions/updateDynamicThreshold
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 03:03:55 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "updateDynamicThreshold",
  "href" : "http://localhost:22015/Analytics/v1/objects/ThresholdProfiles/
thProfile%23abcc9fle%2db1b8%2d45f4%2d9931%2d31eedd5905be/actions/
updateDynamicThreshold/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "instanceID" : "",
    "metricType" : "WIN_CPU_LOAD",
    "resourceID" : "",
    "resourceType" : "INVALID_MEMBER",
    "planID" : "",
    "fixed" : false,
    "value" : 0.0
  } ]
}
```

Setting dynamic thresholds with profiles and resources specified

You can set dynamic thresholds by specifying a user profile and resources.

Execution permission

Admin, Modify

Request line

```
POST baseUrl/v1/objects/ThresholdProfiles/{id}/actions/
updateDynamicThreshold/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of ResourceThresholdFixedParam objects necessary to execute an operation. For details about ResourceThresholdFixedParam, see the table below.

ResourceThresholdFixedParam

```
{
  "metricType": "...",
  "resourceID": "...",
  "resourceType": "...",
  "planID": "...",
  "fixed": "...",
  "value": "..."
}
```

ResourceThresholdFixedParam (Type: ResourceThresholdFixedParam)

Attribute	Type	Description
metricType	enum	Type of the metric (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
resourceID	string	ID of the resource
resourceType	enum	Type of the resource (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
planID	string	ID of the plan
fixed	boolean	Whether or not to recalculate the thresholds periodically. If the thresholds are recalculated periodically, "true" is set. If the thresholds are not recalculated periodically, "false" is set. This item is specified if the thresholds are to be manipulated for each component.
value	float	Value of threshold to be set

Response body

The structure of the response body and the object attributes is as follows:

Job

```
{
  "instanceID": "...",
  "created": "...",
  "updated": "...",
  "completed": "...",
  "state": "...",
  "affectedResource": ["...", ...],
  "result": ["...", ...]
}
```

Job (Type: Job)

Attribute	Type	Description
instanceID	string	ID of the Instance.
created	string	Date the object is generated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).

Attribute	Type	Description
updated	string	Time the object is updated in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
completed	string	Time the processing completed in "yyyy-mm-ddThh:mm:ss.mmmTZD" format (e.g., 2017-08-25T20:07:39.472+09:00).
state	string	One of the following values is set: "failed": The operation failed. "success": The operation completed successfully.
affectedResource	string[]	A blank space is set.
result	anyType[]	A list of objects. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/ThresholdProfiles/thProfile%236e5c28ee-0b19-46da-a48b-6b340dc0e329/actions/updateDynamicThreshold/invoke
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
```

```

Accept: application/json
Content-Type: application/json

[Request Body]
{
  "name": "updateDynamicThreshold",
  "href": "http://localhost:22015/Analytics/v1/objects/ThresholdProfiles/
thProfile%236e5c28ee%2d0b19%2d46da%2da48b52d6b340dc0e329/actions/
updateDynamicThreshold/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [
    {
      "metricType": "ESX_VM_VM_CPUREADY",
      "resourceID": "vm#ITPDLab_172.17.17.115_vm-247",
      "resourceType": "ESX_VM",
      "planID": "thPlan#6ffc32af-b18d-4afe-bc65-449ceda5c443",
      "fixed": false,
      "value": 90.0
    }
  ]
}

[Response Header]
HTTP/1.1 200 OK
Date: Mon, 22 Aug 2016 04:30:33 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
a27ec87fb489127695fb5c88fcbe68e697ff3e87_Y2UOI2pkMXQ=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID": "23e9ef9a-045c-4593-bb24-2ba9a0f9e545",
  "created": "2016-08-22T13:30:34.925+09:00",
  "updated": "2016-08-22T13:30:37.490+09:00",
  "completed": "2016-08-22T13:30:37.490+09:00",
  "state": "success",
  "affectedResource": [

  ],
  "result": [

  ]
}

```

Chapter 33: Performing operations related to user resources

You can obtain the total number of user resources for each metric and each status.

Getting a list of operations for user resources

You can obtain a list of operations related to user resources, such as volumes and virtual machines.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/UserResource/actions
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Action objects. For details about Action, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
  "type": "...",
  "parameters": ["...", ...]
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of objects necessary to execute an operation. No value is set.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/UserResource/actions
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:54:25 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "name" : "getComponentStatusCountByMetric",
    "href" : "http://localhost:22015/Analytics/v1/services/UserResource/
actions/getComponentStatusCountByMetric/invoke",
    "method" : "POST",
    "type" : "application/json",
    "parameters" : [ ]
  } ],
  "count" : 1
}
```

Preparing to obtain the number of user resources counted for each metric and for each status

The following operation is the initial step to obtain the number of user resources counted for each metric and for each status.

Execution permission

Admin, Modify

Request line

```
GET baseURL/v1/services/UserResource/actions/  
getComponentStatusCountByMetric
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Action

```
{  
  "name": "...",  
  "href": "...",  
  "method": "...",  
  "type": "...",  
  "parameters": ["...", ...]  
}
```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetComponentStatusCountByMetricParam objects necessary to execute an operation. For details about GetComponentStatusCountByMetricParam, see the table below.

GetComponentStatusCountByMetricParam

```
{
  "componentType": "...",
  "metricTypes": ["...", ...],
  "metricMonitorStatuses": ["...", ...],
  "componentMonitorStatuses": ["...", ...],
  "parentNodeMonitorStatuses": ["...", ...],
  "metricStatuses": ["...", ...]
}
```

GetComponentStatusCountByMetricParam (Type: GetComponentStatusCountByMetricParam)

Attribute	Type	Description
componentType	enum	Type of user resources to be aggregated (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> STORAGE_VOLUME VIRTUAL_MACHINE
metricTypes	enum[]	ID of the metric to be aggregated (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)
metricMonitorStatuses	enum[]	Monitoring status of metric to be aggregated. (For details about the valid values, see the table MetricMonitorStatus in <i>List of enumerators</i> .) <ul style="list-style-type: none"> Monitor MonitorOff
componentMonitorStatuses	enum[]	Monitoring status of user resources to be aggregated. Always specify "InUse". (For details about the valid values, see the table ComponentMonitorType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> InUse NotMonitored
parentNodeMonitorStatuses	enum[]	Monitoring status of the device that the aggregation-target user resources belong to. Always specify "Manage". (For details about the valid values, see the table ManagementLevelType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> Manage

Attribute	Type	Description
metricStatuses	enum[]	<p>Status of metrics to be aggregated</p> <p>(For details about the valid values, see the table <code>ElementStatusType</code> in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown ▪ NotMonitored

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/services/UserResource/actions/
getComponentStatusCountByMetric
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:54:25 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
```

```
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "name" : "getComponentStatusCountByMetric",
  "href" : "http://localhost:22015/Analytics/v1/services/UserResource/
actions/getComponentStatusCountByMetric/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ {
    "componentType" : "VIRTUAL_MACHINE",
    "metricTypes" : [ "ESX_VM_DISKPART_DISKREAD",
"ESX_VM_DISKPART_DISKWRITE" ],
    "metricMonitorStatuses" : [ "Monitor", "MonitorOff" ],
    "componentMonitorStatuses" : [ "InUse", "NotMonitored" ],
    "parentNodeMonitorStatuses" : [ "Manage", "MonitorOff" ],
    "metricStatuses" : [ "Critical", "Warning", "Normal" ]
  } ]
}
```

Getting the number of user resources counted for each metric and for each status

You can obtain the number of user resources counted for each metric and for each status.

Execution permission

Admin, Modify

Request line

```
POST baseURL/v1/services/UserResource/actions/
getComponentStatusCountByMetric/invoke
```

Request body

The structure of the request body and the object attributes are as follows:

Action

```
{
  "name": "...",
  "href": "...",
  "method": "...",
```

```

    "type": "...",
    "parameters": ["...", ...]
  }

```

Action (Type: Action)

Attribute	Type	Description
name	string	Name of the action.
href	string	URL for the action.
method	string	Name of the method.
type	string	Data format for the object.
parameters	anyType[]	A list of GetComponentStatusCountByMetricParam objects necessary to execute an operation. For details about GetComponentStatusCountByMetricParam, see the table below.

GetComponentStatusCountByMetricParam

```

{
  "componentType": "...",
  "metricTypes": ["...", ...],
  "metricMonitorStatuses": ["...", ...],
  "componentMonitorStatuses": ["...", ...],
  "parentNodeMonitorStatuses": ["...", ...],
  "metricStatuses": ["...", ...]
}

```

GetComponentStatusCountByMetricParam (Type: GetComponentStatusCountByMetricParam)

Attribute	Type	Description
componentType	enum	Type of user resources to be aggregated (For details about the valid values, see the table ComponentType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> STORAGE_VOLUME VIRTUAL_MACHINE
metricTypes	enum[]	ID of the metric to be aggregated (For details about the valid values, see the table MetricType in <i>List of enumerators</i> .)

Attribute	Type	Description
metricMonitorStatuses	enum[]	Monitoring status of metric to be aggregated. (For details about the valid values, see the table MetricMonitorStatus in <i>List of enumerators</i> .) <ul style="list-style-type: none"> Monitor MonitorOff
componentMonitorStatuses	enum[]	Monitoring status of user resources to be aggregated. Always specify "InUse". (For details about the valid values, see the table ComponentMonitorType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> InUse NotMonitored
parentNodeMonitorStatuses	enum[]	Monitoring status of the device that the aggregation-target user resources belong to. Always specify "Manage". (For details about the valid values, see the table ManagementLevelType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> Manage
metricStatuses	enum[]	Status of metrics to be aggregated (For details about the valid values, see the table ElementStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> Normal Warning Critical Unknown NotMonitored

Response body

The structure of the response body and the object attributes is as follows:

ComponentStatusCountByMetric

```
{
  "componentStatus": "...",
  "count": "...",
  "componentIds": ["...", ...]
}
```

ComponentStatusCountByMetric (Type: ComponentStatusCountByMetric)

Attribute	Type	Description
componentStatus	enum	Status of the user resource (For details about the valid values, see the table <code>ElementStatusType</code> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown ▪ NotMonitored
count	int	Number of user resources
componentIds	string[]	ID of the user resource

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/services/UserResource/actions/
getComponentStatusCountByMetric/invoke
Authorization: Basic c3lzdGVtOm1hbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
```

```

{
  "name": "getComponentStatusCountByMetric",
  "href": "http://localhost:22015/Analytics/v1/services/UserResource/
actions/getComponentStatusCountByMetric/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{
    "componentType": "VIRTUAL_MACHINE",
    "metricTypes": ["ESX_VM_VM_NETDROPPEDRX", "ESX_VM_VM_NETDROPPEDTX"],
    "metricMonitorStatuses": ["Monitor"],
    "componentMonitorStatuses": ["InUse"],
    "parentNodeMonitorStatuses": ["Manage"],
    "metricStatuses": ["Warning", "Critical"]
  }]
}

[Response Header]
HTTP/1.1 200 OK
Date: Thu, 11 Aug 2016 17:54:25 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
8113b75377dac59b7c48ee2b947b20d3bbc11f_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "52bddd9f9-6b3b-437f-b954-43536a11ede6",
  "created" : "2016-08-12T02:54:29.467+09:00",
  "updated" : "2016-08-12T02:54:29.467+09:00",
  "completed" : "2016-08-12T02:54:29.467+09:00",
  "state" : "success",
  "affectedResource" : [ ],
  "result" : [ ]
}

```

Chapter 34: Performing operations related to user information

You can create, update, or delete user information.

Getting a list of users

You can obtain a list of users and user-related information, such as user IDs and permissions. If you use an external authorization server to perform user authentication, you have to manage users on an external authorization server.

Execution permission

User Management

Request line

```
GET baseURL/v1/objects/Users
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of UserInfo objects. For details about UserInfo, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

UserInfo

```
{
  "instanceID":"...",
  "userId":"...",
  "analyticsPermissions":["...", ...],
  "userManagementPermissions":["...", ...],
  "fullName":"...",
  "description":"...",
  "email":"...",
  "customGuiProperties":[{"key":"...", "value":"..."}],
  :
],
  "defaultGuiProperties":[{"key":"...", "value":"..."}],
  :
]
```

UserInfo (Type: UserInfo)

Attribute	Type	Description
instanceID	string	Instance ID.
userId	string	User ID used for authentication.
analyticsPermissions	string[]	User permission for Ops Center Analyzer operations. "Admin" and "Modify" are set.
userManagementPermissions	string[]	User permission for manipulating user information. "Admin" can be set.
fullName	string	Name of the user (full name). Two consecutive dollar signs (\$\$) are converted into a single space.
description	string	Description.
email	string	Mail Address.
customGuiProperties	KeyValue[]	Acquires the properties used to customize the GUI (for example, the dashboard). The contents of the properties change with each version. Do not specify the properties in the body of the request because these properties are only used with the Ops Center Analyzer GUI.
defaultGuiProperties	KeyValue[]	Specifies the data that is acquired from the server in order to customize the Ops Center Analyzer GUI (for example, the dashboard). The contents of the properties change with the version.

customGuiProperties (Type: KeyValue)

Attribute	Type	Description
key	string	Key of a property
value	string	Value of a property

defaultGuiProperties (Type: KeyValue)

Attribute	Type	Description
key	string	Key of a property
value	string	Value of a property

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/Users
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:10:42 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "instanceID" : "USER_0",
    "userId" : "System",
    "analyticsPermissions" : [ "Admin", "Modify" ],
    "userManagementPermissions" : [ "Admin" ],
    "fullName" : "",
    "description" : "Built-in account",
    "email" : ""
  } ],
}
```

```
"count" : 1
}
```

Creating a user

You can create a new user by specifying information such as the user ID and permissions. If you use an external authorization server to perform user authentication, you have to manage users on an external authorization server.

Execution permission

User Management

Request line

```
POST baseURL/v1/objects/Users
```

Request body

The structure of the request body and the object attributes are as follows:

UserInfo

```
{
  "userId":"...",
  "analyticsPermissions":["...", ...],
  "userManagementPermissions":["...", ...],
  "fullName":"...",
  "description":"...",
  "email":"...",
  "password":"...",
  "customGuiProperties":[{"key":"...",
    "value":"..."}],
  :
}
```

UserInfo (Type: UserInfo)

Attribute	Type	Description
userId	string	User ID used for authentication.
analyticsPermissions	string[]	User permission for Ops Center Analyzer operations. "Admin" and "Modify" are set.

Attribute	Type	Description
userManagementPermissions	string[]	User permission for manipulating user information. "Admin" can be set.
fullName	string	Name of the user (full name). Two consecutive dollar signs (\$\$) are converted into a single space.
description	string	Description.
email	string	Mail Address.
password	string	Password. Specify a string encoded in Base64.
customGuiProperties	KeyValue[]	Acquires the properties used to customize the GUI (for example, the dashboard). The contents of the properties change with each version. Do not specify the properties in the body of the request because these properties are only used with the Ops Center Analyzer GUI.

customGuiProperties (Type: KeyValue)

Attribute	Type	Description
key	string	Key of a property
value	string	Value of a property

Response body

The structure of the response body and the object attributes is as follows:

UserInfo

```
{
  "instanceID": "...",
  "userId": "...",
  "analyticsPermissions": ["...", ...],
  "userManagementPermissions": ["...", ...],
  "fullName": "...",
  "description": "...",
  "email": "...",
  "customGuiProperties": [{
    "key": "...",
    "value": "..."
  }],
  :
],
  "defaultGuiProperties": [{
    "key": "...",
```

```

        "value": "...",
      },
    ],
  ]
}

```

UserInfo (Type: UserInfo)

Attribute	Type	Description
instanceID	string	Instance ID.
userId	string	User ID used for authentication.
analyticsPermissions	string[]	User permission for Ops Center Analyzer operations. "Admin" and "Modify" are set.
userManagementPermissions	string[]	User permission for manipulating user information. "Admin" can be set.
fullName	string	Name of the user (full name). Two consecutive dollar signs (\$\$) are converted into a single space.
description	string	Description.
email	string	Mail Address.
customGuiProperties	KeyValue[]	Acquires the properties used to customize the GUI (for example, the dashboard). The contents of the properties change with each version. Do not specify the properties in the body of the request because these properties are only used with the Ops Center Analyzer GUI.
defaultGuiProperties	KeyValue[]	Specifies the data that is acquired from the server in order to customize the Ops Center Analyzer GUI (for example, the dashboard). The contents of the properties change with the version.

customGuiProperties (Type: KeyValue)

Attribute	Type	Description
key	string	Key of a property
value	string	Value of a property

defaultGuiProperties (Type: KeyValue)

Attribute	Type	Description
key	string	Key of a property
value	string	Value of a property

Status codes

Status code	Reason phrase	Description
201	Created	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
409	Conflict	A resource with the same userId exists.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
POST /Analytics/v1/objects/Users
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "userId":"Test_UserId",
  "analyticsPermissions":[ "Admin", "Modify" ],
  "userManagementPermissions":[ "Admin" ],
  "fullName":"FullFull",
  "description":"template",
  "email":"admin@example.com",
  "password":"YWJjZGVm"
}

[Response Header]
HTTP/1.1 201 Created
```

```

Date: Wed, 20 Jul 2016 02:10:42 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

```

[Response Body]

```

{
  "instanceID" : "USER_146898064241918",
  "userId" : "Test_UserId",
  "analyticsPermissions" : [ "Admin", "Modify" ],
  "userManagementPermissions" : [ "Admin" ],
  "fullName" : "FullFull",
  "description" : "template",
  "email" : "admin@example.com"
}

```

Getting specific user information

You can obtain information about a specific user, such as the user ID and permissions. To obtain an authenticated user's own information, specify an underscore (_) for {id}. User management permissions are not needed to obtain the user's own information. If you use an external authorization server to perform user authentication, you have to manage users on an external authorization server.

Execution permission

User Management

Request line

```
GET baseUrl/v1/objects/Users/{id}
```

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

UserInfo

```

{
  "instanceID": "...",
  "userId": "...",
  "analyticsPermissions": ["...", ...],
  "userManagementPermissions": ["...", ...],
  "fullName": "...",
  "description": "...",
  "email": "...",
  "customGuiProperties": [{
    "key": "...",
    "value": "..."
  }],
  :
],
  "defaultGuiProperties": [{
    "key": "...",
    "value": "..."
  }],
  :
]
}

```

UserInfo (Type: UserInfo)

Attribute	Type	Description
instanceID	string	Instance ID.
userId	string	User ID used for authentication.
analyticsPermissions	string[]	User permission for Ops Center Analyzer operations. "Admin" and "Modify" are set.
userManagementPermissions	string[]	User permission for manipulating user information. "Admin" can be set.
fullName	string	Name of the user (full name). Two consecutive dollar signs (\$\$) are converted into a single space.
description	string	Description.
email	string	Mail Address.
customGuiProperties	KeyValue[]	Acquires the properties used to customize the GUI (for example, the dashboard). The contents of the properties change with each version. Do not specify the properties in the body of the request because these properties are only used with the Ops Center Analyzer GUI.

Attribute	Type	Description
defaultGuiProperties	KeyValue[]	Specifies the data that is acquired from the server in order to customize the Ops Center Analyzer GUI (for example, the dashboard). The contents of the properties change with the version.

customGuiProperties (Type: KeyValue)

Attribute	Type	Description
key	string	Key of a property
value	string	Value of a property

defaultGuiProperties (Type: KeyValue)

Attribute	Type	Description
key	string	Key of a property
value	string	Value of a property

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/Users/USER_14689806179850
```

```

Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:10:18 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "instanceID" : "USER_14689806179850",
  "userId" : "put_test_UserId",
  "analyticsPermissions" : [ "Admin", "Modify" ],
  "userManagementPermissions" : [ "Admin" ],
  "fullName" : "FullFull",
  "description" : "template",
  "email" : "admin@example.com"
}

```

Updating specific user information

You can update information about a specific user, such as the user ID and permissions. To modify an authenticated user's own information, specify an underscore (_) for {id}. User management permissions are not needed to modify the user's own information. However, user management permissions are needed to modify permission settings. If you use an external authorization server to perform user authentication, you have to manage users on an external authorization server.

Execution permission

User Management

Request line

```
PUT baseUrl/v1/objects/Users/{id}
```

Request body

The structure of the request body and the object attributes are as follows:

UserInfo

```
{
  "userId": "...",
  "analyticsPermissions": ["...", ...],
  "userManagementPermissions": ["...", ...],
  "fullName": "...",
  "description": "...",
  "email": "...",
  "password": "...",
  "customGuiProperties": [{
    "key": "...",
    "value": "..."
  }],
  :
}
```

UserInfo (Type: UserInfo)

Attribute	Type	Description
userId	string	User ID used for authentication.
analyticsPermissions	string[]	User permission for Ops Center Analyzer operations. "Admin" and "Modify" are set.
userManagementPermissions	string[]	User permission for manipulating user information. "Admin" can be set.
fullName	string	Name of the user (full name). Two consecutive dollar signs (\$\$) are converted into a single space.
description	string	Description.
email	string	Mail Address.
password	string	Password. Specify a string encoded in Base64.
customGuiProperties	KeyValue[]	Acquires the properties used to customize the GUI (for example, the dashboard). The contents of the properties change with each version. Do not specify the properties in the body of the request because these properties are only used with the Ops Center Analyzer GUI.

customGuiProperties (Type: KeyValue)

Attribute	Type	Description
key	string	Key of a property
value	string	Value of a property

Response body

The structure of the response body and the object attributes is as follows:

UserInfo

```
{
  "instanceID": "...",
  "userId": "...",
  "analyticsPermissions": ["...", ...],
  "userManagementPermissions": ["...", ...],
  "fullName": "...",
  "description": "...",
  "email": "...",
  "customGuiProperties": [{
    "key": "...",
    "value": "..."
  }],
  :
],
  "defaultGuiProperties": [{
    "key": "...",
    "value": "..."
  }],
  :
]
```

UserInfo (Type: UserInfo)

Attribute	Type	Description
instanceID	string	Instance ID.
userId	string	User ID used for authentication.
analyticsPermissions	string[]	User permission for Ops Center Analyzer operations. "Admin" and "Modify" are set.
userManagementPermissions	string[]	User permission for manipulating user information. "Admin" can be set.

Attribute	Type	Description
fullName	string	Name of the user (full name). Two consecutive dollar signs (\$\$) are converted into a single space.
description	string	Description.
email	string	Mail Address.
customGuiProperties	KeyValue[]	Acquires the properties used to customize the GUI (for example, the dashboard). The contents of the properties change with each version. Do not specify the properties in the body of the request because these properties are only used with the Ops Center Analyzer GUI.
defaultGuiProperties	KeyValue[]	Specifies the data that is acquired from the server in order to customize the Ops Center Analyzer GUI (for example, the dashboard). The contents of the properties change with the version.

customGuiProperties (Type: KeyValue)

Attribute	Type	Description
key	string	Key of a property
value	string	Value of a property

defaultGuiProperties (Type: KeyValue)

Attribute	Type	Description
key	string	Key of a property
value	string	Value of a property

Status codes

Status code	Reason phrase	Description
200	OK	Success.
400	Bad Request	The format of the request body is invalid.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.

Status code	Reason phrase	Description
404	Not Found	The resource was not found.
409	Conflict	A resource with the same userId exists.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
PUT /Analytics/v1/objects/Users/USER_146898063592417
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Request Body]
{
  "userId":"User26",
  "analyticsPermissions":[ "Admin", "Modify" ],
  "userManagementPermissions":[ "Admin" ],
  "fullName":"FullFull",

  "description":"1234567890123456789012345678901234567890123456789012345678901234567890
12345678901234567890",
  "email":"admin@example.com",
  "password":"YWJjZGVmZW=="
}

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:10:41 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
```

```
{
  "instanceID" : "USER_146898063592417",
  "userId" : "Put_test_UserId",
  "analyticsPermissions" : [ "Admin", "Modify" ],
  "userManagementPermissions" : [ "Admin" ],
  "fullName" : "FullFull",
  "description" :
"1234567890123456789012345678901234567890123456789012345678901234
567890",
  "email" : "admin@example.com"
}
```

Deleting specific user

You can delete a specific user. If you use an external authorization server to perform user authentication, you have to manage users on an external authorization server.

Execution permission

User Management

Request line

```
DELETE baseURL/v1/objects/Users/{id}
```

Request body

Not applicable.

Response body

Not applicable.

Status codes

Status code	Reason phrase	Description
204	No Content	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No update privilege.
404	Not Found	The resource was not found.
412	Precondition Failed	The server is not available.

Status code	Reason phrase	Description
500	Internal Server Error	Server processing error.

Example code

```
[Request Header]
DELETE /Analytics/v1/objects/Users/USER_146898064241918
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 204 No Content
Date: Wed, 20 Jul 2016 02:10:42 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Content-Type: application/json
```

Chapter 35: Performing operations related to virtual machines

You can obtain information, including details such as the name and status of virtual machines.

Getting a list of virtual machines

You can obtain a list of virtual machines and information about virtual machines, such as names and status.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/VirtualMachines?page={page}&pageSize={size}
```

Query parameters

The following table describes the values for the supported parameters of a query string:

Parameter	Description
page={page}	(Optional) Specify the paging information (page to be obtained). Filtering conditions: Checks whether the comparison target is equal to the value
pageSize={size}	(Optional) Specify the number of items that can be displayed on 1 page. Filtering conditions: Checks whether the comparison target is equal to the value

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of VirtualMachine objects. For details about VirtualMachine, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

VirtualMachine

```
{
  "instanceID":"...",
  "name":"...",
```

```

    "ipAddress": "...",
    "status": "...",
    "monitorStatus": "...",
    "description": "...",
    "clusterName": "...",
    "hypervisorType": "...",
    "hypervisorID": "...",
    "hypervisorName": "...",
    "hostName": "...",
    "thresholdProfileID": "...",
    "thresholdProfileName": "...",
    "groupIDs": ["...", ...],
    "groupNames": ["...", ...],
    "gradeNames": ["...", ...],
    "gradeOrders": ["...", ...],
    "managementToolNames": ["...", ...],
    "managementToolIDs": ["...", ...],
    "profileResourceType": "...",
    "assignmentSchedule": "..."
  }

```

VirtualMachine (Type: VirtualMachine)

Attribute	Type	Description
instanceID	string	ID of the virtual machine.
name	string	Name of the virtual machine.
ipAddress	string	IP Address set for the virtual machine.
status	enum	Status of the virtual machine. (For details about the valid values, see the table <i>NodeStatusType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown
monitorStatus	enum	Monitoring status of the virtual machine. (For details about the valid values, see the table <i>ComponentMonitorType</i> in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ InUse ▪ NotMonitored
description	string	Description of the virtual machine.

Attribute	Type	Description
clusterName	string	Name of the Cluster that the virtual machine belongs to.
hypervisorType	enum	Type of hypervisor that the virtual machine belongs to. (For details about the valid values, see the table ArgusNodeType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> SERVER_ESX SERVER_HYPERV
hypervisorID	string	ID of the hypervisor that the virtual machine belongs to.
hypervisorName	string	Name of the hypervisor that the virtual machine belongs to.
hostName	string	The name of host which is installed on virtual machine.
thresholdProfileID	string	ID of the threshold profile assigned to the virtual machine.
thresholdProfileName	string	Name of the threshold profile assigned to the virtual machine.
groupIDs	string[]	ID of the consumer assigned to the virtual machine.
groupNames	string[]	Name of the consumer assigned to the virtual machine.
gradeNames	string[]	ID of the grade of the consumer assigned to the virtual machine.
gradeOrders	integer[]	Priority of the grade of the consumer assigned to the virtual machine.
managementToolNames	string[]	Name of the data center that the virtual machine belongs to.
managementToolIDs	string[]	ID of the data center that the virtual machine belongs to.
profileResourceType	enum	Resource type of the threshold profile. (For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
assignmentSchedule	dateTime	Scheduled Assignment Time

Status codes

Status code	Reason phrase	Description
200	OK	Success.

Status code	Reason phrase	Description
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/VirtualMachines
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:18:11 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "instanceID" : "vm#ABC_172.17.17.115_vm-413",
    "name" : "%2fvdfs%2fvolumes%2f85e4a185-ce22303c%2fv0301_vMhot_vmonly%2fv0301_vMhot_vmonl",
    "status" : "Unknown",
    "monitorStatus" : "InUse",
    "description" : "",
    "hypervisorType" : "SERVER_ESX",
    "hypervisorID" : "h#ABC_172.17.17.115_host-276",
```

```

    "hypervisorName" : "172.17.17.118",
    "hostName" : "vm0301vMhotvmonly",
    "thresholdProfileID" : "thProfile#ESX_VM",
    "thresholdProfileName" : "Default Profile for VM (VMware)",
    "groupIDs" : [ "group#0" ],
    "groupNames" : [ "#Unassigned Resources" ],
    "gradeNames" : [ "-" ],
    "gradeOrders" : [ 2147483647 ],
    "managementToolNames" : [ "DataCenter" ],
    "managementToolIDs" : [ "dc#ABC_172.17.17.115_datacenter-21" ],
    "profileResourceType" : "ESX_VM"
  }, {
    .....
  } ],
  "count" : 68
}

```

Chapter 36: Performing operations related to volumes

You can obtain information, including details such as the name and status of volumes.

Getting a list of volumes

You can obtain a list of volumes and volume-related information, such as volume names and status.

Execution permission

Admin, Modify

Request line

```
GET baseUrl/v1/objects/Volumes?page={page}&pageSize={size}
```

Query parameters

The following table describes the values for the supported parameters of a query string:

Parameter	Description
page={page}	(Optional) Specify the paging information (page to be obtained). Filtering conditions: Checks whether the comparison target is equal to the value
pageSize={size}	(Optional) Specify the number of items that can be displayed on 1 page. Filtering conditions: Checks whether the comparison target is equal to the value

Request body

Not applicable.

Response body

The structure of the response body and the object attributes is as follows:

Collections

```
{
  "data":["...", ...],
  "pagination":{
    "page":"...",
    "pageSize":"...",
    "numPages":"...",
    "totalCount":"..."
  },
  "count":"..."
}
```

Collections (Type: Collections)

Attribute	Type	Description
data	anyType[]	A list of Volume objects. For details about Volume, see the table below.
pagination	Pagination	Page information. This parameter is displayed only when the relevant resource exists.
count	int	Number of data items that meet the conditions related to this query(API).

pagination (Type: Pagination)

Attribute	Type	Description
page	integer	Page.
pageSize	integer	Size of page.
numPages	integer	Number of pages.
totalCount	integer	Number of objects.

Volume

```
{
  "instanceID":"...",
  "status":"...",
```

```

    "ldev":"...",
    "storageSubsystemID":"...",
    "storageSubsystem":"...",
    "storageSubsystemMonitorStatus":"...",
    "parityGroup":"...",
    "storageSubsystemModel":"...",
    "hostGroupIDs":["...", ...],
    "hostGroupNames":["...", ...],
    "vssbComputeNodeNames":["...", ...],
    "thresholdProfileID":"...",
    "thresholdProfileName":"...",
    "groupIDs":["...", ...],
    "groupNames":["...", ...],
    "gradeNames":["...", ...],
    "gradeOrders":["...", ...],
    "profileResourceType":"...",
    "virtualMachineIDs":["...", ...],
    "virtualMachineNames":["...", ...],
    "hostIDs":["...", ...],
    "hostNames":["...", ...],
    "groupIDsOfRelatedResources":["...", ...],
    "groupNamesOfRelatedResources":["...", ...],
    "lunOwnerIDs":["...", ...],
    "lunOwnerNames":["...", ...],
    "volumeLocation":"...",
    "ioControlSupportType":"...",
    "ioControlTaskIDs":["...", ...],
    "ioControlTaskNames":["...", ...],
    "ioControlLimitvalIOPS":"...",
    "ioControlLimitvalTransferRate":"...",
    "mixed":"...",
    "automationDirectorTaskIDs":["...", ...],
    "assignmentSchedule":"...",
    "virtualLdev":"...",
    "virtualStorageSubsystem":"...",
    "virtualStorageSubsystemModel":"...",
    "virtualStorageSubsystemSerialNumber":"...",
    "copyType":"...",
    "nvmSubsystemNQn":"...",
    "nvmNamespaceID":"...",
    "nvmHostNQns":["...", ...],
    "nvmHostNicknames":["...", ...]
  }

```

Volume (Type: Volume)

Attribute	Type	Description
instanceID	string	ID of the volume.

Attribute	Type	Description
status	enum	Status of the volume. (For details about the valid values, see the table NodeStatusType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Normal ▪ Warning ▪ Critical ▪ Unknown
ldev	string	Name of the LDEV.
storageSubsystemID	string	ID of the storage system that the volume belongs to.
storageSubsystem	string	Name of the storage system that the volume belongs to.
storageSubsystemMonitorStatus	enum	Monitoring status of the storage system that the volume belongs to. (For details about the valid values, see the table ManagementLevelType in <i>List of enumerators</i> .) <ul style="list-style-type: none"> ▪ Manage
parityGroup	string	Name of the parity group that the volume belongs to.
storageSubsystemModel	string	Model name of the storage system that the volume belongs to.
hostGroupIDs	string[]	ID of the host group that the volume belongs to.
hostGroupNames	string[]	Name of the host group that the volume belongs to.
vssbComputeNodeNames	string[]	The Compute Node of the VSSB volume
thresholdProfileID	string	ID of the threshold profile assigned to the volume.
thresholdProfileName	string	Name of the threshold profile assigned to the volume.
groupIDs	string[]	ID of the consumer assigned to the volume.
groupNames	string[]	Name of the consumer assigned to the volume.
gradeNames	string[]	Name of the grade of the consumer assigned to the volume.
gradeOrders	integer[]	Priority of the grade of the consumer assigned to the volume
profileResourceType	enum	Resource type of the threshold profile.

Attribute	Type	Description
		(For details about the valid values, see the table PerformanceResourceType in <i>List of enumerators</i> .)
virtualMachineIDs	string[]	ID of the virtual machine that uses the volume.
virtualMachineNames	string[]	Name of the virtual machine that uses the volume.
hostIDs	string[]	ID of the host that uses the volume.
hostNames	string[]	ID of the host that uses the volume.
groupIDsOfRelatedResources	string[]	ID of the consumer assigned to the resource associated with the volume.
groupNamesOfRelatedResources	string[]	Name of the consumer assigned to the resource associated with the volume.
lunOwnerIDs	string[]	ID of LUN Owner associated with the volume.
lunOwnerNames	string[]	Name of LUN Owner associated with the volume.
volumeLocation	enum	<p>The location of the volume.</p> <p>(For details about the valid values, see the table VolumeLocation in <i>List of enumerators</i>.)</p> <ul style="list-style-type: none"> ▪ INTERNAL ▪ EXTERNAL_HIGH ▪ EXTERNAL_MID ▪ EXTERNAL_LOW ▪ EXTERNAL
ioControlSupportType	enum	<p>I/O control support status.</p> <p>(For details about the valid values, see the table ioControlSupportType in <i>List of enumerators</i>.)</p>
ioControlTaskIDs	string[]	ID of the I/O control task assigned to the volume.
ioControlTaskNames	string[]	Name of the I/O control task assigned to the volume.
ioControlLimitvalIOPS	long	Limit value(IOPS) of the I/O control task assigned to the volume.
ioControlLimitvalTransferRate	long	Upper limit for the transfer rate, in KBp set to the volume.
mixed	boolean	true if a path that is assigned I/O control and a path that is not assigned I/O control are mixed.

Attribute	Type	Description
automationDirectorTaskIDs	string[]	Task IDs of Ops Center Automator
assignmentSchedule	dateTime	Scheduled Assignment Time
virtualLdev	string	Name of the virtual LDEV.
virtualStorageSubsystem	string	Name of the virtual storage system that the volume belongs to.
virtualStorageSubsystemModel	string	Model name of the virtual storage system that the volume belongs to.
virtualStorageSubsystemSerialNumber	string	Serial number of the virtual storage system that the volume belongs to.
copyType	string	Copy Type
nvmSubsystemNQN	string	NVM subsystem NQN of volume.
nvmNamespaceID	string	NVM namespace ID of volume.
nvmHostNQNs	string[]	NVM host NQN of volume.
nvmHostNicknames	string[]	NVM host nickname of volume.

Status codes

Status code	Reason phrase	Description
200	OK	Success.
401	Unauthorized	No login privilege.
403	Forbidden	No reference privilege.
412	Precondition Failed	The server is not available.
500	Internal Server Error	Server processing error.
503	Service Unavailable	Analyzer detail view server communication error.

Example code

```
[Request Header]
GET /Analytics/v1/objects/Volumes
```

```

Authorization: Basic c3lzdGVtOmlhbmFnZXI=
Host: localhost:22015
Accept: application/json
Content-Type: application/json

[Response Header]
HTTP/1.1 200 OK
Date: Wed, 20 Jul 2016 02:26:03 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
WWW-Authenticate: HSSO
33659a74fcee4358dc272b34eca6ded1bf1131ec_YXZvNFIMehp3UB4jbmVyPGUgT3Q=_V0810
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
Content-Type: application/json

[Response Body]
{
  "data" : [ {
    "instanceID" : "raidLdev#10000-00^00^63",
    "status" : "Normal",
    "ldev" : "00:00:63",
    "storageSubsystemID" : "raidStorage#10000",
    "storageSubsystem" : "VSP 5500H (10000)",
    "storageSubsystemMonitorStatus" : "Manage",
    "parityGroup" : "01-29",
    "storageSubsystemModel" : "VSP 5500H",
    "hostGroupIDs" : [ ],
    "hostGroupNames" : [ ],
    "vssbComputeNodeNames" : [ ],
    "label" : "BasicVol_00099",
    "thresholdProfileID" : "thProfile#RAID_VOLUME",
    "thresholdProfileName" : "Default Profile for Volume",
    "groupIDs" : [ "group#0" ],
    "groupNames" : [ "#Unassigned Resources" ],
    "gradeNames" : [ "-" ],
    "gradeOrders" : [ 2147483647 ],
    "profileResourceType" : "RAID_VOLUME",
    "virtualMachineIDs" : [ ],
    "virtualMachineNames" : [ ],
    "hostIDs" : [ ],
    "hostNames" : [ ],
    "groupIDsOfRelatedResources" : [ ],
    "groupNamesOfRelatedResources" : [ ],
    "lunOwnerIDs" : [ ],
    "lunOwnerNames" : [ ],
    "volumeLocation" : "INTERNAL",
    "ioControlSupportType" : "supported",
  } ]
}

```

```
"ioControlTaskIDs" : [ ],
"ioControlTaskNames" : [ ],
"automationDirectorTaskIDs" : [ ],
"nvmHostNQNs" : [ ],
"nvmHostNicknames" : [ ] }, {
.....
} ],
"count" : 100
}
```

Chapter 37: Accessing RAID Agent

By using API functions that access RAID Agent, you can manually refresh RAID Agent, or obtain a list of RAID Agent instances, performance data of monitored hosts, or a list of administrative actions.

Notes on using API functions that access RAID Agent

The API functions that access RAID Agent can obtain performance data collected from the storage system that RAID Agent will monitor. You can execute API functions even if you are using Tuning Manager - Agent for RAID or the RAID Agent that is bundled in Ops Center Analyzer.

Note that there are differences in the performance information that can be acquired by using RAID Agent bundled with Ops Center Analyzer and the performance information that can be acquired by using Tuning Manager - Agent for RAID. For details, see [Types of performance information that can be acquired depending on the Access Type \(on page 998\)](#).

Note the following before using API functions that access RAID Agent:

- Make sure that communication that uses port 24221/tcp can be established between the Analyzer server and either RAID Agent or Tuning Manager - Agent for RAID.
- The Analyzer server uses the IP address of RAID Agent or Tuning Manager - Agent for RAID registered for the Hitachi Enterprise Storage probe. Make certain that the Analyzer server can reach the IP address.
- You can enhance security by restricting servers that have access to the performance data of RAID Agent. For details, refer to the *Hitachi Ops Center Analyzer Installation and Configuration Guide*, and read the information about the function for restricting the servers that can connect to RAID Agent.
- After changing the instance environment for RAID Agent, you must manually refresh the RAID Agent list.

Maximum number of concurrent API requests that can access RAID Agent

This section describes the maximum number of concurrent API requests that can access RAID Agent.

The maximum number of concurrent requests that can be executed to the Analyzer server from an API client is 40. However, note that the maximum number of concurrent requests that can be executed to an agent host from the Analyzer server is eight.

If the maximum number of requests is exceeded, an error response is returned. Set the execution intervals so that the number of concurrent requests does not exceed the maximum.

Common specifications of the API functions that access RAID Agent

The following are the specifications common to the API functions provided by Ops Center Analyzer that access RAID Agent.

Transmission in compressed format

There are some cases in which access uses a low-throughput line (for example, access from a remote location), or the data required by one request is too large. In such cases, the transmission time can be reduced by compressing the content. However, if a small amount of data is acquired over a high-throughput line, the compression process might cause a bottleneck. Therefore, be sure to compress and transfer the content according to the data capacity.

Note that content compression can be used only when the version of the HTTP protocol is 1.1. The supported encoding methods are `gzip` and `identity`. Note that content is not compressed when encoded by using the `identity` encoding method.

The API client includes the `Accept-Encoding` header in a request message to report the encoding methods. You can specify multiple encoding methods in the API client and then assign a priority level to each method.

If an asterisk (*) is reported in the `Accept-Encoding` header, `gzip` is used as the encoding method.

For example, if you want either the `gzip` or `identity` method to be used as the compression method, you can specify the `Accept-Encoding` header in the request message as follows:

```
Accept-Encoding: gzip, identity
```

You can use content compression for all URIs, but the contents are only compressed if the size of the response body exceeds 100 bytes.

If content is compressed, the `Content-Encoding` header and the `Vary` header are included in the response message. The `Content-Encoding` header reports the used encoding method to the client. Similarly, the `Vary` header reports that the response body was changed because of compression. However, if the encoding method is `identity`, the response message does not include the `Content-Encoding` header and the `Vary` header.

The following shows the `Content-Encoding` header and the `Vary` header included in the response message if content is compressed by using the `gzip` encoding method:

```
Content-Encoding:  
gzip Vary: Accept-Encoding
```

Common objects

The following common objects can be used independently of API resources. Note that the items in the field for all JSON objects (including common objects) are displayed in random order.

Collection object

The `Collection` object is used to contain a set of objects to be returned. The following table describes the schema of the `Collection` object.

Variable name	Type	Description
items	Object array	A set of objects

The following shows an example of the `Collection` object.

```
{ "items" : [{"type":"string", "value": "instance101"},
...
{"type":"string", "value": "instance200"}] }
```

Error object

If an error occurs in a request, both an `Error` object defined by the schema in the following table and a status code are returned. However, note that for API that return `Job` objects, the `Job` object might be returned depending on where the error occurred.

Variable name	Type	Description
errorSource	string	The URI sent by the API client
message	string	The error message (same message that is logged)
messageID	string	The message ID (same ID that is logged)
actions	string array	Actions that the API client must take

The following shows an example of the `Error` object.

```
{ "errorSource": "http://localhost:22015/Analytics/RAIDAgent/v1/objects/
RAID_PD_LDC?hostName=HOST1&agentInstanceName=instance1",
"message": "The specified agent does not exist. (agent type = RAID,
instance name = instance1, host name = HOST1)",
"messageID": "KNAQ35000-E",
"actions":["Check whether the agent information for the specified agent
exists."]}
```

Action object

The `Action` object is a container for the parameters for executing an action of a resource or service. The following table describes the schema of the `Action` object.

Variable name	Type	Description
<code>name</code>	string	The action name
<code>url</code>	string	The URI of the action to be executed
<code>method</code>	string	The HTTP method used to execute the action
<code>type</code>	string	The media type specified in the <code>Content-Type</code> header of the request to execute the action
<code>parameters</code>	PrimitiveValue object array	The parameters needed for executing the action. The number of elements and the meaning of each element are defined for each action (API).

PrimitiveValue object

The `PrimitiveValue` object is a container that is used to treat a non-object variable as an object. The following table describes the schema of the `PrimitiveValue` object.

Variable name	Type	Description
<code>type</code>	string	The type of the variable
<code>value</code>	string	The value of the variable

The following shows an example of the `PrimitiveValue` object:

```
{ "type" : "string",
  "value" : "Agent" }
```

API resources and requests for accessing RAID Agent

The following table lists and describes API resources and requests for accessing RAID Agent. Note that the resources are indicated by their URLs.

Use of the API	Request		Reference	
	HTTP method	URI		
APIs that must be executed before obtaining performance data				
This request obtains parameters when the list of RAID Agent instances is refreshed manually.	GET	/<application>/v1/services/AgentManager/actions/refresh	Obtaining the RAID Agent list parameter when the manual refresh process is executed (on page 967)	
This request executes the process to manually refresh the list of RAID Agent instances.	POST	/<application> /v1/services/AgentManager/actions/refresh/invoke	Manually refreshing the RAID Agent list (on page 969)	
This request obtains a list of RAID Agent instances.	GET	/<application>/v1/objects/Agents	Obtaining a list of RAID Agent instances (on page 971)	
	GET	/<application>/v1/objects/AgentForRAID	Obtaining a list of RAID Agent instances (on page 974)	
API functions that obtain performance data collected via a command device ^{1, 2}				
This request obtains the performance data of a logical device.	PD_ELC records	GET	/<application>/v1/objects/RAID_PD_ELC	Obtaining performance data (on page 977)
	PD_LDC records	GET	/<application>/v1/objects/RAID_PD_LDC	
	PD_LSEC records	GET	/<application>/v1/objects/RAID_PD_LSEC	
	PI_LDE records	GET	/<application>/v1/objects/RAID_PI_LDE	
	PI_LDS records	GET	/<application>/v1/objects/RAID_PI_LDS	

Use of the API		Request		Reference
		HTTP method	URI	
This request obtains the performance data of a port.	PD_PTC records	GET	/<application>/v1/objects/RAID_PD_PTC	Obtaining performance data (on page 977)
	PI_PTS records	GET	/<application>/v1/objects/RAID_PI_PTS	
This request obtains the performance data of a parity group.	PD_RGC records	GET	/<application>/v1/objects/RAID_PD_RGC	Obtaining performance data (on page 977)
	PI_RGS records	GET	/<application>/v1/objects/RAID_PI_RGS	
This request obtains the performance data of a storage system.	PD records	GET	/<application>/v1/objects/RAID_PD	Obtaining performance data (on page 977)
	PI records	GET	/<application>/v1/objects/RAID_PI	
	PI_LDA records	GET	/<application>/v1/objects/RAID_PI_LDA	
This request obtains the performance data of a cache logical partition (CLPR).	PD_CLP C records	GET	/<application>/v1/objects/RAID_PD_CLPC	Obtaining performance data (on page 977)
	PI_CLPS records	GET	/<application>/v1/objects/RAID_PI_CLPS	
This request obtains the performance data of CLPR Per MP Blade.	PI_CLM S records	GET	/<application>/v1/objects/RAID_PI_CLMS	Obtaining performance data (on page 977)
This request obtains the performance data of a processor.	PD_UMS records	GET	/<application>/v1/objects/RAID_PD_UMS	Obtaining performance data (on page 977)
	PI_PRC S records	GET	/<application>/v1/objects/RAID_PI_PRCS	

Use of the API		Request		Reference
		HTTP method	URI	
This request obtains the performance data of a channel adapter (CHA).	PI_CHS records	GET	/<application>/v1/objects/RAID_PI_CHS	Obtaining performance data (on page 977)
	PI_JNLS records ⁴	GET	/<application>/v1/objects/RAID_PI_JNLS	
This request obtains the performance data of a pool.	PD_PLC records	GET	/<application>/v1/objects/RAID_PD_PLC	Obtaining performance data (on page 977)
	PD_PLF records	GET	/<application>/v1/objects/RAID_PD_PLF	
	PD_PLR records	GET	/<application>/v1/objects/RAID_PD_PLR	
	PI_PLS records	GET	/<application>/v1/objects/RAID_PI_PLS	
This request obtains the performance data of a V-VOL.	PD_VVC records	GET	/<application>/v1/objects/RAID_PD_VVC	Obtaining performance data (on page 977)
	PD_VVF records	GET	/<application>/v1/objects/RAID_PD_VVF	
This request obtains the performance data of a tier (pool).	PD_PLT C records	GET	/<application>/v1/objects/RAID_PD_PLTC	Obtaining performance data (on page 977)
	PD_PLT R records	GET	/<application>/v1/objects/RAID_PD_PLTR	
	PD_PLT S records	GET	/<application>/v1/objects/RAID_PD_PLTS	

Use of the API		Request		Reference
		HTTP method	URI	
	PI_PLTI records	GET	/<application>/v1/objects/RAID_PI_PLTI	
This request obtains the performance data of a tier (V-VOL).	PD_VVTC records	GET	/<application>/v1/objects/RAID_PD_VVTC	Obtaining performance data (on page 977)
	PI_VVTI records	GET	/<application>/v1/objects/RAID_PI_VVTI	
This request obtains the performance data indicating the ratio of the total saving effect (excluding system data) achieved by accelerated compression, capacity saving, snapshot, and Dynamic Provisioning.	PD_PEFF records	GET	/<application>/v1/objects/RAID_PD_PEFF	Obtaining performance data (on page 977)
	PD_SEFF records	GET	/<application>/v1/objects/RAID_PD_SEFF	
API functions that obtain performance data collected via an SVP (by using a TCP/IP connection) ^{1, 3}				
This request obtains the performance data of a logical device.	PI_ELDS records	GET	/<application>/v1/objects/RAID_PI_ELDS	Obtaining performance data (on page 977)
	PI_LSP records ⁴	GET	/<application>/v1/objects/RAID_PI_LSP	
	PI_LDSX records	GET	/<application>/v1/objects/RAID_PI_LDSX	
	PI_LDTC records	GET	/<application>/v1/objects/RAID_PI_LDTC	

Use of the API		Request		Reference
		HTTP method	URI	
	PI_LDUR records	GET	/<application>/v1/objects/RAID_PI_LDUR	
	PI_LTSP records ⁴	GET	/<application>/v1/objects/RAID_PI_LTSP	
	PI_LDU records ⁴	GET	/<application>/v1/objects/RAID_PI_LDU	
	PI_LUSP records ⁴	GET	/<application>/v1/objects/RAID_PI_LUSP	
This request obtains the performance data of a port.	PI_MPT S records	GET	/<application>/v1/objects/RAID_PI_MPTS	Obtaining performance data (on page 977)
	PI_PTSX records	GET	/<application>/v1/objects/RAID_PI_PTSX	
This request obtains the performance data of access paths.	PI_CBM B records	GET	/<application>/v1/objects/RAID_PI_CBMB	Obtaining performance data (on page 977)
	PI_CCM S records	GET	/<application>/v1/objects/RAID_PI_CCMS	
	PI_CHA C records	GET	/<application>/v1/objects/RAID_PI_CHAC	
	PI_CPS records	GET	/<application>/v1/objects/RAID_PI_CPS	
	PI_DBM B records	GET	/<application>/v1/objects/RAID_PI_DBMB	
	PI_DKA C records	GET	/<application>/v1/objects/RAID_PI_DKAC	

Use of the API		Request		Reference
		HTTP method	URI	
	PI_MBD R records	GET	/<application>/v1/objects/RAID_PI_MBDR	
	PI_MPC S records	GET	/<application>/v1/objects/RAID_PI_MPCS	
This request obtains the performance data of a parity group.	PI_EVGS records	GET	/<application>/v1/objects/RAID_PI_EVGS	Obtaining performance data (on page 977)
	PI_RGSX records	GET	/<application>/v1/objects/RAID_PI_RGSX	
	PI_RGU records ⁴	GET	/<application>/v1/objects/RAID_PI_RGU	
This request obtains the performance data of a storage system.	PD_PDX records	GET	/<application>/v1/objects/RAID_PD_PDX	Obtaining performance data (on page 977)
	PI_SCPS records	GET	/<application>/v1/objects/RAID_PI_SCPS	
	PI_SCS records	GET	/<application>/v1/objects/RAID_PI_SCS	
This request obtains the performance data of CLPR Per MP Blade.	PI_CLMX records ⁴	GET	/<application>/v1/objects/RAID_PI_CLMX	Obtaining performance data (on page 977)
This request obtains the performance data of a processor.	PD_UMSX records ⁴	GET	/<application>/v1/objects/RAID_PD_UMSX	Obtaining performance data (on page 977)
	PI_MPS records ⁴	GET	/<application>/v1/objects/RAID_PI_MPS	

Use of the API		Request		Reference
		HTTP method	URI	
This request obtains the performance data of CHA.	PI_CHDR records	GET	/<application>/v1/objects/RAID_PI_CHDR	Obtaining performance data (on page 977)
This request obtains the performance data of disk adapters.	PI_DKDR records	GET	/<application>/v1/objects/RAID_PI_DKDR	Obtaining performance data (on page 977)
	PI_HWSP records ⁴	GET	/<application>/v1/objects/RAID_PI_HWSP	
	PI_HBAS records	GET	/<application>/v1/objects/RAID_PI_HBAS	
This request obtains the performance data of a journal group.	PI_JNLX records	GET	/<application>/v1/objects/RAID_PI_JNLX	Obtaining performance data (on page 977)
Other APIs				
This request obtains a list of RAID Agent management actions.		GET	/<application>/v1/services/AgentManager/actions	Obtaining a list of RAID Agent administrative actions (on page 987)
This request obtains the detailed version information of the API.		GET	/<application>/v1/configuration/Version	Obtaining the detailed version information of the API (on page 989)
This request obtains metadata of the <code>Collection</code> object.		GET	/<application>/v1/domain-types/Collection	Obtaining metadata (on page 991)
This request obtains metadata of the <code>Error</code> object.		GET	/<application>/v1/domain-types/Error	
This request obtains metadata of the <code>Version</code> object.		GET	/<application>/v1/domain-types/Version	
This request obtains metadata of the <code>Action</code> object.		GET	/<application>/v1/domain-types/Action	

Use of the API	Request		Reference
	HTTP method	URI	
This request obtains metadata of the <code>Job</code> object.	GET	/<application>/v1/domain-types/Job	
This request obtains metadata of the <code>Agents</code> object.	GET	/<application>/v1/domain-types/Agents	
This request obtains metadata of the <code>AgentForRAID</code> object.	GET	/<application>/v1/domain-types/AgentForRAID	

Notes:

1. Outputs the record information corresponding to the type of object specified in object-type under the objects domain.
2. If the `Access Type` is 3 or 4, some values can be obtained via the REST API.

For details, see [Types of performance information that can be acquired depending on the Access Type \(on page 998\)](#).
3. If the `Access Type` is 2 or 4, some values can be obtained via the REST API.

For details, see [Types of performance information that can be acquired depending on the Access Type \(on page 998\)](#).
4. In the following cases, records are not created. For this reason, performance data cannot be obtained by using the API.
 - If performance data is collected by using RAID Agent bundled with Ops Center Analyzer
 - If performance data is collected by using Tuning Manager - Agent for RAID and the value of the log setting has not been changed from the default value (No)

Obtaining the RAID Agent list parameter when the manual refresh process is executed

You can obtain the parameter that is necessary for executing the manual refresh process for the RAID Agent list.

For an action provided by the Ops Center Analyzer API, this API function returns (to the API client) the Action object whose default value has been specified in the parameters field. This Action object can be used, without change, as an argument of the API described in [Manually refreshing the RAID Agent list \(on page 969\)](#).

HTTP request syntax (URI)

```
GET <scheme>://<host>:<port>/<application>/<version>/services/AgentManager/
actions/refresh
```

Request structure

Not applicable.

Response structure

The configuration of the response body is as follows:

```
{
  "name": "RefreshAgentInstancesParameters",
  "url": "<scheme>://<host>:<port>/<application>/<version>/services/
AgentManager/actions/refresh/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{"type": "string", "value": "All"}]
}
```

Example (obtaining the RAID Agent list parameter when the manual refresh process is executed)

Request message by using the curl command

```
curl -v -H "Content-Type: application/json" -u system:manager -X GET
https://server_1:22016/Analytics/RAIDAgent/v1/services/AgentManager/
actions/refresh
```

Execution result for the request:

Request header

```
GET /Analytics/RAIDAgent/v1/services/AgentManager/actions/refresh HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7
NSS/3.12.9.0 zlib/1.2.3 libidn/1.18 libssh2/1.2.2
Host: server_1:22016
Accept: */*
Content-Type: application/json
```

Response header

```
HTTP/1.1 200 OK
Date: Thu, 19 Jun 2014 04:53:01 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
Transfer-Encoding: chunked
Content-Type: application/json;charset=utf-8
```

Response body

```
{
  "name": "RefreshAgentInstancesParameters",
  "url": "https://server_1:22016/Analytics/RAIDAgent/v1/services/
AgentManager/actions/refresh/invoke",
  "method": "POST",
  "type": "application/json",
  "parameters": [{"type": "string", "value": "All"}]
}
```

Manually refreshing the RAID Agent list

Use this function to manually refresh the RAID Agent list.

When you change any configuration settings in RAID Agent such as monitored storage systems or instance information, you must manually refresh the list information in RAID Agent before acquiring performance data.

HTTP request syntax (URI)

```
POST <scheme>://<host>:<port>/<application>/<version>/services/
AgentManager/actions/refresh/invoke
```

Request structure

The configuration of the request body is as follows:

```
{
  "name" : "RefreshAgentInstancesParameters",
  "url" : "<scheme>://<host>:<port>/<application>/<version>/services/
AgentManager/actions/refresh/invoke",
  "method" : "POST",
  "type" : "application/json",
  "parameters" : [ { ... } ]
}
```

The following table shows the values that can be specified in `parameters`.

Variable name	Value		Number of arguments	Description
parameters	type	string: Indicates the variable type.	1	If more than two arguments are specified, the arguments after the first argument are ignored.
	value	Specify either "All" or "AgentForRAID".		

Response structure

The configuration of the response body is as follows:

```
{"status": "Completed"}
```

When the update processing completes normally, the response body includes the `Job` objects indicated in the following table. If an error occurs, the response body might include the `Job` object or the `Error` object, depending on the cause of the error. The response body object can be determined from the status code.

Variable name	Type	Description
status	string	The status indicating the result of processing. If the processing is completed normally, <code>Completed</code> is set. If an error occurs, <code>Error</code> is set.
errorID	string	The information that uniquely identifies the error that occurred. If an error occurs, the same string as the error ID output to the log is set. This variable is not added if processing ends normally.
errorDescription	string	An explanation of the error that occurred. If an error occurs, the same string that is output to the log is set. This variable is not added if processing ends normally.

Example (manually refreshing the RAID Agent list)

Request message by using the `curl` command

```
curl -v -u system:manager -H "Content-Type: application/json" -H "Content-Length: *" -H "Transfer-Encoding: chunked" -X
POST https://server_1:22016/Analytics/RAIDAgent/v1/services/AgentManager/
actions/refresh/invoke -d
'{ "name" : "RefreshAgentInstancesParameters",
"url" : "https://server_1:22016/Analytics/RAIDAgent/v1/services/
AgentManager/actions/refresh/invoke",
"method" : "POST", "type" : "application/json",
"parameters" : [ { "type" : "string", "value" : "All" } ] }'
```

Execution result for the request:

Request header

```
POST /Analytics/RAIDAgent/v1/services/AgentManager/actions/refresh/invoke
HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7
NSS/3.12.9.0 zlib/1.2.3 libidn/1.18 libssh2/1.2.2
Host: server_1:22016
Accept: */*
Content-Type: application/json
Content-Length: *
Transfer-Encoding: chunked
```

Response header

```
HTTP/1.1 200 OK
Date: Fri, 20 Jun 2014 12:32:14 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
Transfer-Encoding: chunked
Content-Type: application/json;charset=utf-8
```

Response body

```
{"status": "Completed"}
```

Obtaining a list of RAID Agent instances

You can obtain a list of RAID Agent instances.

HTTP request syntax (URI)

```
GET <scheme>://<host>:<port>/<application>/<version>/objects/Agents?<query-string>
```

Query string**Example of specifying the query strings:**

```
agentType=RAID
```

The following table describes the key and values of the query strings that can be specified when obtaining a list of RAID Agent instances.

Key	Value		Required
	Specifiable value	Remarks	
agentType	Specify either "ALL" or "RAID".	The agent type of RAID Agent	Yes

Request structure

Not applicable.

Response structure

The configuration of the response body is as follows:

```
{
  "items": [{
    "agentType": "RAID",
    "instanceName": "...",
    "hostName": "...",
    "ipAddr": "...",
    "dataModelVersion": "...",
    "storageVendor": "...",
    "storageModel": "...",
    "storageSerialNumber": "...",
    "lastUpdateTime": "...",
  },
  :
  :
  ]
}
```

The following table describes the format of the data included in the response body.

Object name			Number of objects	Description
Collection			1	The <code>Collection</code> object that is the parent object of <code>Agents</code> objects
-	Agents		-	Generic name of <code>AgentForRAID</code> objects
	-	AgentForRAID	0 to <i>n</i>	<code>AgentForRAID</code> objects For details about the schema, see the following table.

The following table lists and describes the schema for the `Agents` objects.

Variable name	Whether agentType is displayed	Type	Description
agentType	Y	string	The agent type of the RAID Agent
instanceName	Y	string	The name of a RAID Agent instance
hostName	Y	string	The monitoring host name of the host that runs the RAID Agent
ipAddr	Y	string	The IP address of the host on which the RAID Agent is running
dataModelVersion	Y	decimal	This is always set to 0.0.
storageVendor	Y	string	The vendor name of the storage system*
storageModel	Y	string	The model name of the storage system*
storageSerialNumber	Y	string	The serial number of the storage system*
lastUpdateTime	Y	string	<p>The last time the RAID Agent information was successfully updated.</p> <p>The value is set in the extended ISO8601 format (YYYY-MM-DDThh:mm:ssZ). hh is specified in 24-hour format. Z indicates the UTC time.</p>
Legend: Y: Displayed			
* Virtual storage systems are not included in the storage system being monitored.			

Example (obtaining a list of RAID Agent instances)

Request message by using the curl command

```
curl -v -u system:manager -H Content-Type: application/json -X GET http://server_1:22015/Analytics/RAIDAgent/v1/objects/Agents?agentType=ALL
```

Execution result for the request:

Request header

```
GET /Analytics/RAIDAgent/v1/objects/Agents?agentType=ALL HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.19.7 (x86_64-redhat-linux-gnu) libcurl/7.19.7
NSS/3.18 Basic ECC zlib/1.2.3 libidn/1.18 libssh2/1.4.2
Host: server_1:22015
Host: :22016
Accept: */*
Content-Type: application/json
```

Response header

```
HTTP/1.1 200 OK
Date: Mon, 28 Sep 2015 06:41:14 GMT
Server: Cosminexus HTTP Server
Last-Modified: Mon, 28 Sep 2015 06:41:03 GMT
Cache-Control: no-cache
X-Frame-Options: SAMEORIGIN
Transfer-Encoding: chunked
Content-Type: application/json;charset=utf-8
```

Response body

```
{
  "items": [{
    "agentType": "RAID",
    "instanceName": "MONITOR1",
    "hostName": "esxi4VM02",
    "ipAddr": "<IP-address-of-MONITOR1>",
    "dataModelVersion": 0.0,
    "storageVendor": "HITACHI",
    "storageModel": "VSP G1000",
    "storageSerialNumber": "10051",
    "lastUpdateTime": "2015-09-09T04:47:16Z"
  }]
}
```

Obtaining a list of RAID Agent instances

You can obtain a list of RAID Agent instances.

HTTP request syntax (URI)

```
GET <scheme>://<host>:<port>/<application>/<version>/objects/AgentForRAID
```

Request structure

Not applicable.

Response structure

The configuration of the response body is as follows:

```
{
  "items": [{
    "instanceName": "...",
    "hostName": "...",
    "ipAddr": "...",
    "dataModelVersion": "...",
    "lastUpdateTime": "...",
    "storageVendor": "...",
    "storageModel": "...",
    "storageSerialNumber": "..."
  },
  :
  :
  ]
}
```

The following table describes the format of the data included in the response body.

Object name		Number of objects	Description
Collection		1	The <code>Collection</code> object that is the parent object of <code>AgentForRAID</code> objects
—	<code>AgentForRAID</code>	0 to n	<code>AgentForRAID</code> objects For details about the schema, see the following table.

The following table lists and describes the schema for the `AgentForRAID` objects.

Variable name	Type	Description
<code>instanceName</code>	string	The name of a RAID Agent instance
<code>hostName</code>	string	The monitoring host name of the host that runs the RAID Agent
<code>ipAddr</code>	string	The IP address of the host on which the RAID Agent is operating

Variable name	Type	Description
dataModelVersion	decimal	This is always set to 0.0.
lastUpdateTime	string	The last time the RAID Agent information was successfully updated. The value is set in the extended ISO8601 format (YYYY-MM-DDThh:mm:ssZ). hh is specified in 24-hour format. Z indicates the UTC time.
storageVendor	string	The vendor name of the storage system*
storageModel	string	The model name of the storage system*
storageSerialNumber	string	The serial number of the storage system*
* Virtual storage systems are not included in the storage system being monitored.		

Example (obtaining a list of RAID Agent instances)

Request message by using the curl command

```
curl -v -u system:manager -X GET https://server_1:22016/Analytics/RAIDAgent/v1/objects/AgentForRAID
```

Execution result for the request:

Request header

```
GET /Analytics/RAIDAgent/v1/objects/AgentForRAID HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7
NSS/3.12.9.0 zlib/1.2.3 libidn/1.18 libssh2/1.2.2
Host: server_1:22016
Accept: */*
```

Response header

```
HTTP/1.1 200 OK
Date: Fri, 20 Jun 2014 12:32:53 GMT
Server: Cosminexus HTTP Server
Last-Modified: Fri, 20 Jun 2014 12:32:14 GMT
Cache-Control: no-cache
Transfer-Encoding: chunked
Content-Type: application/json;charset=utf-8
```

Response body

```
{
  "items": [{
    "instanceName": "VSPG1000_instance",
    "hostName": "agent_1",
    "ipAddr": "<IP-address-of-agent_1>",
    "dataModelVersion": 0.0,
    "storageVendor": "HITACHI",
    "storageModel": "VSP G1000",
    "storageSerialNumber": "10051",
    "lastUpdateTime": "2014-06-20T12:32:14Z"
  },
  :
  :
  {
    "instanceName": "HUSVM_instance",
    "hostName": "agent_2",
    "ipAddr": "<IP-address-of-agent_2>",
    "dataModelVersion": 0.0,
    "storageVendor": "HITACHI",
    "storageModel": "HUS VM",
    "storageSerialNumber": "210944",
    "lastUpdateTime": "2014-06-20T12:32:14Z"
  }
  ]
}
```

Obtaining performance data

You can obtain the performance data that RAID Agent collected from the monitored targets. Note that performance data is provided in CSV format.

HTTP request syntax (URI)

```
GET <scheme>://<host>:<port>/<application>/<version>/objects/<object-type>?<query-string>
```

Additional note

- The `object-type` under the `objects` domain is formatted as `"RAID_record-name"`. For example, if the `object-type` is `RAID_PD_RGC`, you can obtain the `PD_RGC` record information from RAID Agent.
- For `query-string`, enter a key and its value in pairs in the `key=value` format. You can enter multiple query strings. To enter multiple query strings, use an ampersand (&) as a separator. An example of specifying the query strings is indicated in "Query string". In addition, the keys and types of values that can be specified are indicated in "Specifiable keys and values in the query strings for obtaining performance data". Note that query strings must be percent-encoded.

Query string**Example of specifying the query strings:**

```

hostName=HOST
&agentInstanceName=AgentInstance
&startTime=2013-12-01T13:00Z
&endTime=2013-12-01T15:00Z
&fields=RECORD_TIME%1FLDEV_NUMBER%1FRANDOM_TOTAL_IO_RATE
&LDEV_NUMBER=00:00:01
&LDEV_NUMBER=00:00:02

```

Table 1 Specifiable keys and values in the query strings for obtaining performance data

Key	Value		Required
	Specifiable value	Remarks	
hostName	Host name	The name of the RAID Agent host	Yes
agentInstanceName	RAID Agent instance name	The value that uniquely identifies a RAID Agent instance	Yes
startTime ¹	<p>A value that follows the following convention (the extended ISO8601 format) can be specified (Example: <code>startTime=2013-11-20T19:54Z</code>):</p> <p><i>value = year-month-dayThour:minuteZ²</i></p> <ul style="list-style-type: none"> ▪ year = 4DIGIT (0000-9999) ▪ month = 2DIGIT (01-12) ▪ day = 2DIGIT (01-31) ▪ hour = 2DIGIT (00-23) ▪ minute = 2DIGIT (00-59) <p>Note: DIGIT represents a decimal number (0-9) in the ABNF convention.</p>	The start time (in UTC) of the period for which performance data is to be obtained	No

Key	Value		Required
	Specifiable value	Remarks	
endTime ¹	Same as <code>startTime</code> (Example: <code>endTime=2013-11-21T19:54Z</code>)	The end time (in UTC) of the period for which performance data is to be obtained	No
fields	A value that has the following convention can be specified. <i>value</i> = 1*VCHAR / <i>value</i> %1F <i>value</i> ; ² To specify multiple values ³ , use %1F as a separator ⁴ .	Record field names For details, see RAID Agent records (collection via the command device) (on page 1014) and RAID Agent records (collection via the SVP by using a TCP/IP connection) (on page 1105).	No
record-field-name	A value that follows the following convention can be specified. <i>value</i> = *VCHAR ; ^{2, 5} To specify multiple values ³ , use %1F as a separator ⁴ .	Specify the name of a field as a key, and the value of the field as the value for the key.	No
granularity	Specify <code>raw</code> or specify no value. When no value is specified, <code>raw</code> is assumed. Note that this value is not case-sensitive. If you are using Tuning Manager - Agent for RAID, you can obtain summary data. For details about the values that can be specified, see the <i>Hitachi Command Suite Tuning Manager API Reference Guide</i> .	The time granularity of the performance data to be obtained	No
accessMode	Specify <code>s</code> . Note that this value is not case-sensitive.	Obtaining data by executing a query	No

Key	Value		Required
	Specifiable value	Remarks	
	If you are using Tuning Manager - Agent for RAID, you can specify other values. For details about the values that can be specified, see the <i>Hitachi Command Suite Tuning Manager API Reference Guide</i> .		

Notes:

- When you specify startTime and endTime, note the following:
 - Specify both startTime and endTime, or neither of them. You cannot specify only one of these keys.
If you specify neither startTime nor endTime, the performance data of the latest date (for one snapshot) is returned.
 - For startTime, specify a value smaller than that for endTime.
- Augmented Backus-Naur Form (ABNF).
- If multiple values can be specified for a key, you can separate the values by %1F, and you can also specify the values by specifying the same key name on multiple lines. These different notations have the same meaning. The different notations can be mixed in one request.
The following shows examples of specifying multiple values.
 - When separating the values by using %1F:


```
fields=WRITE_IO_COUNT%1FWRITE_XFER_RATE
LDEV_NUMBER=00:00:01%1F00:00:02
```
 - When separating the values by using %1F:


```
fields=WRITE_IO_COUNT&fields=WRITE_XFER_RATE
LDEV_NUMBER=00:00:01&LDEV_NUMBER=00:00:02
```
- %1F is a unit separator in ASCII code (non-printable).
- When specifying a type (double and float) that includes a decimal point as a value for a condition, regardless of the Web server or the Web client locale, use a period (.) for a decimal point. If a comma (,) is used for a decimal point, an error occurs.

Request structure

Not applicable.

Response structure

The configuration of the response body is as follows:

```
FILE = NAME <RecordDelimiter> TYPE <RecordDelimiter> DATA_LINES
<RecordDelimiter> <RecordDelimiter> ;
NAME = <SelectedFieldName> | NAME <FieldDelimiter> NAME ;
TYPE = <DataType> | TYPE <FieldDelimiter> TYPE ;
DATA_LINES = DATA | DATA_LINES <RecordDelimiter> DATA_LINES ;
DATA = <SelectedFieldValue> | DATA <FieldDelimiter> DATA ;
```

The response body contains performance data in CSV format. The following table describes the variables used in the response body.

Variable name	Description
SelectedFieldName_m	The name of a specific field ¹
FieldDelimiter	The field separator. A comma (0x09) is used as recommended by RFC4180.
RecordDelimiter	The data line separator. An extra delimiter is added to the end of the data to show that the data ends. A CR-LF code (0x0D 0x0A) is used as recommended by RFC4180.
DataType_m	The data type of a specific field ¹
SelectedFieldValue_lm	The value of a specific field that is selected by the function that selects data to be obtained ^{1, 2, 3, 4}
Notes: <ol style="list-style-type: none"> 1. m represents the selected field number. 2. l represents the line number of the selection results. 3. If a value of a type (double and float) that includes a decimal point is obtained, regardless of the Web server or the Web client locale, a period (.) is used as the decimal point. 4. If the data model of the storage system to be monitored is upgraded and a new field is added to the existing records, an empty character string (a zero byte character string) will be output to the added field. 	

Example 1 (when obtaining the PD record information)**Request message by using the curl command**

```
curl -v -u system:manager -X GET https://server_1:22016/Analytics/
RAIDAgent/v1/objects/RAID_PD?
hostName=agent_1%26agentInstanceName=VSPG1000_instance
```

Execution result for the request:**Request header**

```
GET /Analytics/RAIDAgent/v1/objects/RAID_PD?
hostName=agent_1%26agentInstanceName=VSPG1000_instance HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7
NSS/3.12.9.0 zlib/1.2.3 libidn/1.18 libssh2/1.2.2
Host: server_1:22016
Accept: */*
```

Response header

```
HTTP/1.1 200 OK
Date: Fri, 20 Jun 2014 13:09:05 GMT
Server: Cosminexus HTTP Server
Last-Modified: Fri, 20 Jun 2014 13:00:07 GMT
Keep-Alive: timeout=3, max=100
Cache-Control: no-cache
Transfer-Encoding: chunked
Content-Type: text/csv; charset=utf-8
X-Pad: avoid browser bug
```

Response body

```
DKC_SERIAL_NUMBER,VENDOR_ID,DKC_NAME,CACHE_MEMORY_CAPACITY,
CACHE_MEMORY_INSTALLED_SIZE,MONITORED_SLPR_NUMBER,COLLECTION_TIME,INTERVAL,
INPUT_RECORD_TYPE,RECORD_TIME
string(32),string(64),string(64),ulong,ulong,string(8),time_t,ulong,
string(8),time_t
"10051","HITACHI","VSP G1000",469504,0,"",2014-06-20 13:00:07,3600,"PD",
2014-06-20 13:00:07
```

Example 2 (when obtaining the PI_LDS record information)**Request message by using the curl command**

```
curl -v -u system:manager -X GET https://server_1:22016/Analytics/
RAIDAgent/v1/objects/RAID_PI_LDS?
hostName=agent_1%26agentInstanceName=VSPG1000_instance
```

Execution result for the request:

Request header

```
GET /Analytics/RAIDAgent/v1/objects/RAID_PI_LDS?
hostName=agent_1%26agentInstanceName=VSPG1000_instance HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7
NSS/3.12.9.0 zlib/1.2.3 libidn/1.18 libssh2/1.2.2
Host: server_1:22016
Accept: */*
```

Response header

```
HTTP/1.1 200 OK
Date: Fri, 20 Jun 2014 13:20:15 GMT
Server: Cosminexus HTTP Server
Last-Modified: Fri, 20 Jun 2014 13:20:01 GMT
Keep-Alive: timeout=3, max=100
Cache-Control: no-cache
Transfer-Encoding: chunked
Content-Type: text/csv;charset=utf-8
X-Pad: avoid browser bug
```

Response body

```

LDEV_NUMBER,READ_IO_COUNT,READ_IO_RATE,READ_HIT_IO_COUNT,READ_HIT_RATE,
WRITE_IO_COUNT,WRITE_IO_RATE,WRITE_HIT_IO_COUNT,WRITE_HIT_RATE,READ_MBYTES,
READ_XFER_RATE,WRITE_MBYTES,WRITE_XFER_RATE,READ_TOTAL_RESPONSE,
READ_RESPONSE_RATE,WRITE_TOTAL_RESPONSE,WRITE_RESPONSE_RATE,
TOTAL_RESPONSE_RATE,RANDOM_TOTAL_IO_RATE,SEQUENTIAL_TOTAL_IO_RATE,
RANDOM_TOTAL_XFER_RATE,SEQUENTIAL_TOTAL_XFER_RATE,VIRTUAL_SERIAL_NUMBER,
VIRTUAL_DKC_NAME,VIRTUAL_LDEV_NUMBER,INTERVAL,INPUT_RECORD_TYPE,RECORD_TIME
string(16),ulong,float,ulong,float,ulong,float,ulong,float,ulong,float,
ulong,float,double,float,double,float,float,float,float,float,float,
string(32),string(32),string(16),ulong,string(8),time_t
"00:00:00",0,0.0000000E+000,0,0.0000000E+000,0,0.0000000E+000,0,0.0000000E
+000,0,0.0000000E+000,0,0.0000000E+000,0.0000000000000000E+000,0.0000000E
+000,0.0000000000000000E+000,0.0000000E+000,0.0000000E+000,0.0000000E+000,
0.0000000E+000,0.0000000E+000,0.0000000E+000,"","","",301,"LDS",2014-06-20
13:20:01
"00:00:01",0,0.0000000E+000,0,0.0000000E+000,0,0.0000000E+000,0,0.0000000E
+000,0,0.0000000E+000,0,0.0000000E+000,0.0000000000000000E+000,0.0000000E
+000,0.0000000000000000E+000,0.0000000E+000,0.0000000E+000,0.0000000E+000,
0.0000000E+000,0.0000000E+000,0.0000000E+000,"","","",301,"LDS",2014-06-20
13:20:01
"00:00:02",0,0.0000000E+000,0,0.0000000E+000,0,0.0000000E+000,0,0.0000000E
+000,0,0.0000000E+000,0,0.0000000E+000,0.0000000000000000E+000,0.0000000E
+000,0.0000000000000000E+000,0.0000000E+000,0.0000000E+000,0.0000000E+000,
0.0000000E+000,0.0000000E+000,0.0000000E+000,"","","",301,"LDS",2014-06-20
13:20:01
:
:
"00:AF:00",0,0.0000000E+000,0,0.0000000E+000,0,0.0000000E+000,0,0.0000000E
+000,0,0.0000000E+000,0,0.0000000E+000,0.0000000000000000E+000,0.0000000E
+000,0.0000000000000000E+000,0.0000000E+000,0.0000000E+000,0.0000000E+000,
0.0000000E+000,0.0000000E+000,0.0000000E+000,"","","",301,"LDS2",2014-06-20
13:20:01

```

Example 3 (when obtaining the PD_PTC record information)**Request message by using the curl command**

```

curl -v -u system:manager -X GET https://server_1:22016/Analytics/
RAIDAgent/v1/objects/RAID_PD_PTC?
hostName=agent_1%26agentInstanceName=VSPG1000_instance

```

Execution result for the request:

Request header

```
GET /Analytics/RAIDAgent/v1/objects/RAID_PD_PTC?
hostName=agent_1%26agentInstanceName=VSPG1000_instance HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7
NSS/3.12.9.0 zlib/1.2.3 libidn/1.18 libssh2/1.2.2
Host: server_1:22016
Accept: */*
```

Response header

```
HTTP/1.1 200 OK
Date: Fri, 20 Jun 2014 12:36:36 GMT
Server: Cosminexus HTTP Server
Last-Modified: Fri, 20 Jun 2014 12:00:07 GMT
Keep-Alive: timeout=3, max=100
Cache-Control: no-cache
Transfer-Encoding: chunked
Content-Type: text/csv;charset=utf-8
X-Pad: avoid browser bug
```

Response body

```
PORT_NUMBER,PORT_NAME,CHA_NAME,PORT_WWN,PORT_TYPE,PORT_ROLE,PORT_SPEED,
SLPR_NUMBER,COLLECTION_TIME,INTERVAL,INPUT_RECORD_TYPE,RECORD_TIME
string(8),string(64),string(16),string(32),string(8),string(16),string(8),
string(8),time_t,ulong,string(8),time_t
"0","CL1-A","CHA-1EU","50060E8007274300","FIBRE","Target","Auto","",2014-06-
20 12:00:07,3600,"PTC",2014-06-20 12:00:07
"1","CL1-B","CHA-1EU","50060E8007274301","FIBRE","Target","Auto","",2014-06-
20 12:00:07,3600,"PTC",2014-06-20 12:00:07
"2","CL1-C","CHA-1EL","50060E8007274302","FIBRE","External","8Gbps","",2014-
06-20 12:00:07,3600,"PTC",2014-06-20 12:00:07
"3","CL1-D","CHA-1EL","50060E8007274303","FIBRE","Target","Auto","",2014-06-
20 12:00:07,3600,"PTC",2014-06-20 12:00:07
:
:
"116","CL8-E","CHA-2RU","", "FICON","Target","", "",2014-06-20 12:00:07,3600,
"PTC",2014-06-20 12:00:07
"117","CL8-F","CHA-2RU","", "FICON","Target","", "",2014-06-20 12:00:07,3600,
"PTC",2014-06-20 12:00:07
"118","CL8-G","CHA-2RL","50060E8007274376","FCoE","Target","10Gbps","",2014-
06-20 12:00:07,3600,"PTC",2014-06-20 12:00:07
"119","CL8-H","CHA-2RL","50060E8007274377","FCoE","Target","10Gbps","",2014-
06-20 12:00:07,3600,"PTC",2014-06-20 12:00:07
```

Example 4 (when obtaining the PI_PRCS record information by specifying startTime and endTime)**Request message by using the curl command**

```
curl -v -u system:manager -X GET https://server_1:22016/Analytics/
RAIDAgent/v1/objects/RAID_PI_PRCS?
hostName=agent_1%26agentInstanceName=VSPG1000_instance
%26startTime=2014-06-19T01:00Z%26endTime=2014-06-19T02:30Z
```

Execution result for the request:**Request header**

```
GET /Analytics/RAIDAgent/v1/objects/RAID_PI_PRCS?
hostName=agent_1%26agentInstanceName=VSPG1000_instance
%26startTime=2014-06-19T01:00Z%26endTime=2014-06-19T02:30Z HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7
NSS/3.12.9.0 zlib/1.2.3 libidn/1.18 libssh2/1.2.2
Host: server_1:22016
Accept: */*
```

Response header

```
HTTP/1.1 200 OK
Date: Fri, 20 Jun 2014 13:10:42 GMT
Server: Cosminexus HTTP Server
Last-Modified: Thu, 19 Jun 2014 02:29:01 GMT
Keep-Alive: timeout=3, max=100
Cache-Control: private, max-age=864000
Transfer-Encoding: chunked
Content-Type: text/csv;charset=utf-8
```

Response body

```

PROCESSOR_ID,ADAPTOR_ID,CONTROLLER,PROCESSOR_TYPE,PROCESSOR_BUSY_RATE,
MAX_PROCESSOR_BUSY_RATE,MAX_BUFFER_LENGTH,BUFFER_IO_COUNT,
MAX_BUFFER_IO_COUNT,BUFFER_IO_RATE,MAX_BUFFER_IO_RATE,INTERVAL,
INPUT_RECORD_TYPE,RECORD_TIME
string(16),string(16),string(8),string(8),float,float,float,float,float,
float,float,ulong,string(8),time_t
"00","MPB0","", "MP",8.8735523E-001,8.8735523E-001,6.5535002E+004,1.0000000E
+000,1.0000000E+000,1.5259022E-003,1.5259022E-003,54,"PRCS",2014-06-19
01:14:01
"01","MPB0","", "MP",1.2086518E+000,1.2086518E+000,6.5535002E+004,1.0000000E
+000,1.0000000E+000,1.5259022E-003,1.5259022E-003,54,"PRCS",2014-06-19
01:14:01
"02","MPB0","", "MP",9.0272198E-001,9.0272198E-001,6.5535002E+004,1.0000000E
+000,1.0000000E+000,1.5259022E-003,1.5259022E-003,54,"PRCS",2014-06-19
01:14:01
:
:
"2E","MPB5","", "MP",3.0648675E+000,3.0648675E+000,6.5535002E+004,1.0000000E
+000,1.0000000E+000,1.5259022E-003,1.5259022E-003,61,"PRCS",2014-06-19
02:29:01
"2F","MPB5","", "MP",3.1383426E+000,3.1383426E+000,6.5535002E+004,1.0000000E
+000,1.0000000E+000,1.5259022E-003,1.5259022E-003,61,"PRCS",2014-06-19
02:29:01
"_Total","MPB5","", "MPB",3.0528414E+000,3.0528414E+000,6.5535002E+004,
1.0000000E+000,1.0000000E+000,1.5259022E-003,1.5259022E-003,61,"PRCS",2014-
06-19 02:29:01

```

Obtaining a list of RAID Agent administrative actions

You can obtain a list of actions available in RAID Agent.

For all actions available in RAID Agent, this API function stores the `Action` objects for the objects with omitted parameter fields to the `Collection` object, and then returns the object to the API client. You can use this `Collection` object (list of actions) to find out what kinds of actions are available.

HTTP request syntax (URI)

```
GET <scheme>://<host>:<port>/<application>/<version>/services/AgentManager/
actions
```

Request structure

Not applicable.

Response structure

The configuration of the response body is as follows:

```
{
  "items": [{"name": "<action-name>",
    "url": "<URI-of-the-action>",
    "method": "<HTTP-method-used-to-execute-the-action>",
    "type": "<media-type-specified-in-the-Content-Type-header-of-the-
request-to-execute-the-action>"
    }]
}
```

The following table describes the format of the data included in the response body.

Object name		Number of instances	Description
Collection		1	The <code>Collection</code> object that is the parent object of <code>Action</code> objects
—	Action	0 to <i>n</i>	Action objects (without the parameters variables)

Example (obtaining RAID Agent administrative actions)**Request message by using the `curl` command**

```
curl -v -H "Content-Type: application/json" -u system:manager -X GET
https://server_1:22016/Analytics/RAIDAgent/v1/services/AgentManager/actions
```

Execution result for the request:**Request header**

```
GET /Analytics/RAIDAgent/v1/services/AgentManager/actions HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7
NSS/3.12.9.0 zlib/1.2.3 libidn/1.18 libssh2/1.2.2
Host: server_1:22016
Accept: */*
Content-Type: application/json
```


Response header

```

HTTP/1.1 200 OK
Date: Thu, 19 Jun 2014 04:52:26 GMT
Server: Cosminexus HTTP Server
Cache-Control: no-cache
Transfer-Encoding: chunked
Content-Type: application/json;charset=utf-8

```

Response body

```

{
  "items": [{"name": "RefreshAgentInstancesParameters",
    "url": "https://server_1:22016/Analytics/RAIDAgent/v1/services/
AgentManager/actions/refresh/invoke",
    "method": "POST",
    "type": "application/json"
  }]
}

```

Obtaining the detailed version information of the API

You can obtain the detailed version information of the API that accesses RAID Agent.

HTTP request syntax (URI)

```
GET <scheme>://<host>:<port>/<application>/<version>/configuration/Version
```

Request structure

Not applicable.

Response structure

The configuration of the response body is as follows:

```

{
  "productName": "<product-name>",
  "productVersion": "<product-version>",
  "apiVersion": "<api-version>",
  "description": "<explanation-of-the-API-version>"
}

```

The following table describes the format of the data included in the response body.

Variable name	Type	Description
productName	string	The product name of Ops Center Analyzer.
productVersion	string	The product version of Ops Center Analyzer.
apiVersion	string	The version of the API that accesses the RAID Agent.
description	string	Description of the version of the API that accesses the RAID Agent.

Example (obtaining the detailed version information of the API)

Request message by using the `curl` command

```
curl -v -H "Content-Type: application/json" -u system:manager -X GET
https://server_1:22016/Analytics/RAIDAgent/v1/configuration/Version
```

Execution result for the request:

Request header

```
GET /Analytics/RAIDAgent/v1/configuration/Version HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7
NSS/3.12.9.0 zlib/1.2.3 libidn/1.18 libssh2/1.2.2
Host:server_1:22016
Accept: */*
Content-Type: application/json
```

Response header

```
HTTP/1.1 200 OK
Date: Thu, 19 Jun 2014 04:51:52 GMT
Server: Cosminexus HTTP Server
Last-Modified: Thu, 29 May 2014 16:22:18 GMT
Cache-Control: private, max-age=86400
Transfer-Encoding: chunked
Content-Type: application/json;charset=utf-8
```

Response body

```
{
  "productName": "Hitachi Ops Center Analyzer",
  "productVersion": "10.00.00",
  "apiVersion": "1.0",
  "description": "The initial version for supporting RAID Agent API"
}
```

Obtaining metadata

You can obtain the metadata for JSON objects that are used by data-acquisition API resources (for example, the API resource for obtaining a list of RAID Agent instances) other than the resource for obtaining performance data. The representation of metadata follows the JSON Schema. Note that the metadata for resources that obtain performance data is always provided together with CSV headers. You cannot obtain only metadata.

HTTP request syntax (URI)

```
GET <scheme>://<host>:<port>/<application>/<version>/domain-types/<object-type>
```

Values that can be specified for <object-type>

Specify one of the following values for <object-type> below the domain-types domain:

Metadata to be obtained	Value to be specified for <object-type>
Metadata of the Collection object	Collection
Metadata of the Error object	Error
Metadata of the Version object	Version
Metadata of the Action object	Action
Metadata of the Job object	Job
Metadata of the Agents object	Agents
Metadata of the AgentForRAID object	AgentForRAID

Request structure

Not applicable.

Response structure

The schema follows the JSON Schema for the individual object.

The following shows the configuration of the response body received when metadata on the AgentForRAID object is obtained.

```
{ "title" : "AgentForRAID", "type" : "object", "properties" :
  {
    "instanceName"      : { "type" : "string" },
    "hostName"          : { "type" : "string" },
    "ipAddr"            : { "type" : "string" },
    "dataModelVersion"  : { "type" : "decimal"},
    "lastUpdateTime"    : { "type" : "string" },
    "storageVendor"     : { "type" : "string" },
    "storageModel"      : { "type" : "string" },
    "storageSerialNumber" : { "type" : "string" }
  },
  "required" : [ "instanceName", "hostName" ] }
```

Example (obtaining metadata for an AgentForRAID object)

Request message by using the curl command

```
curl -v -u system:manager -X GET https://server_1:22016/Analytics/
RAIDAgent/v1/domain-types/AgentForRAID
```

Execution result for the request:

Request header

```
GET /Analytics/RAIDAgent/v1/domain-types/AgentForRAID HTTP/1.1
Authorization: Basic c3lzdGVtOmlhbmFnZXI=
User-Agent: curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7 NSS/
3.12.9.0 zlib/1.2.3 libidn/1.18 libssh2/1.2.2
Host: server_1:22016
Accept: */*
```

Response header

```
HTTP/1.1 200 OK
Date: Fri, 20 Jun 2014 12:37:25 GMT
Server: Cosminexus HTTP Server
Last-Modified: Thu, 29 May 2014 16:22:18 GMT
Cache-Control: private, max-age=86400
Transfer-Encoding: chunked
Content-Type: application/schema+json;charset=utf-8
```

Response body

```
{ "title" : "AgentForRAID", "type" : "object", "properties" :
  {
    "instanceName"      : { "type" : "string" },
    "hostName"          : { "type" : "string" },
    "ipAddr"            : { "type" : "string" },
    "dataModelVersion"  : { "type" : "decimal"},
    "lastUpdateTime"    : { "type" : "string" },
    "storageVendor"     : { "type" : "string" },
    "storageModel"      : { "type" : "string" },
    "storageSerialNumber" : { "type" : "string" }
  },
  "required" : [ "instanceName", "hostName" ] }
```

Appendix A: Supplemental information on performance data collected by RAID Agent using APIs

Performance data is collected in units called records. By using APIs, you can obtain necessary information in such record units.

Records are categorized into two types depending on their features.

- Records starting with PD are of the PD (product detail) record type. PD-type records collect performance data, information indicating the system status at a certain time (such as detailed information about processes that are currently running). You can use PD-type records to identify the status of the system at a certain time.
- Records starting with PI are of the PI (product interval) record type. PI-type records collect performance data over a fixed interval, such as the number of processes that are running per minute. You can use PI-type records to analyze the changes or trends in the system status over time.

Format of record explanations

Records are listed in alphabetical order. Each record includes the following information.

Function

Provides an overview of the performance data that is stored in the record and includes important notes.

Collection Interval

Indicates the performance data collection interval (in seconds).

Sync Collection With

Indicates a record that is synchronized during performance data collection.

Key Fields

Indicates fields that work as keys to identify an instance of a multi-instance record. There are two types of key fields: those common to all records, and those unique to a record. Key Fields only indicates the fields unique to the record.

Lifetime

Indicates the period during which consistency is guaranteed for the performance data that is collected in the record.

Fields

Provides a table that describes the fields of each record. The table contains the following items.

Reserved fields are indicated by "--" in columns other than the Field Name column or the Description column.

- **Field Name:** Indicates the field name.
- **Description:** Explanation of the value stored in the field.
- **Format:** Data type of the field value, such as `double`.
- **Delta:** In contrast to data collected as cumulative values, data that indicates the amount of difference between values is called the delta.
- **Data Source:** Source of the obtained value. If the field value is the result of a calculation based on the values of other fields, the formula used is shown in the Data Source column. For example, if the Data Source column of a field shows `READ_IO_COUNT / INTERVAL`, the value of the `READ_IO_COUNT` field of this record is divided by the value of the `INTERVAL` field (of the same record), and the resulting value is stored in this field.

--" means that the method used to obtain the field value or the source of the value is not disclosed.

List of common key fields

The following table lists key fields that are common to all records. For details about key fields specific to particular records, see the descriptions of those records.

Field name	Description
DEVICEID	Names of the instance and host on which the RAID Agent is running
PROD_INST	Instance name of the RAID Agent
PRODID	Product ID of the RAID Agent, which is always set to D
DATE	Record creation date (in GMT)
DATETIME	Combination of the DATE and TIME fields
DRAWER_TYPE	Drawer type. Valid values are as follows: m: Minute H: Hour D: Day

Field name	Description
	W: Week M: Month Y: Year
INPUT_RECORD_TYPE	A 4-byte identifier indicating the record type
TIME	The time when the record was created (in GMT)

List of data types

The following table lists the data types for field values and the corresponding C and C++ data types. The values shown in the Format column of each field table are those shown below in the Field column under Data type.

Data type		Bytes	Description
Field	C or C++		
char(<i>n</i>)	char[]	Number in parentheses	Character data with a length of <i>n</i> bytes
double	double	8	Numeric value (1.7E±308 (15 digits))
float	float	4	Numeric value (3.4E±38 (7 digits))
long	long	4	Numeric value (-2,147,483,648 to 2,147,483,647)
short	short	2	Numeric value (-32,768 to 32,767)
string(<i>n</i>)	char[]	Number in parentheses	Character string with a length of <i>n</i> bytes. The last character is null.
time_t	unsigned long	4	Numeric value (0 to 4,294,967,295)
timeval	Various structures	8	Numeric value (first 4 bytes are seconds, next 4 bytes are microseconds)
ulong	unsigned long	4	Numeric value (0 to 4,294,967,295)
utime	Various structures	8	Numeric value (first 4 bytes are seconds, next 4 bytes are microseconds)
word	unsigned short	2	Numeric value (0 to 65,535)

Data type		Bytes	Description
Field	C or C++		
(Not applicable)	unsigned char	1	Numeric value (0 to 255)

Delta

The difference between the values of the previously collected data and currently collected data for the performance data of a field is called delta. The data source of the field is the information that is managed as cumulative values.

For example, suppose a field whose data source is a counter for I/O processing, where the counter value obtained during the first collection is 3 and the counter value obtained during the second collection is 7. The output value of this field at the second collection is 7 (the counter value at the second collection) if the delta attribute is not applied to the field or 4 (the difference between the first value and the second value) if the delta attribute is applied to the field.

As shown in the following table, which performance data values are collected varies depending on the conditions.

Record type	Delta	Data source	Does the data source include fields for which (Delta = Yes)?	Value
PI	Yes	Not available	Not applicable	Difference
		Available	Yes	Result of calculation based on difference
	No	Not available	Not applicable	Value at the time of collection
		Available	No	Result of calculation based on the value at the time of collection
			Yes	Result of calculation based on difference
PD	No	Not available	Not applicable	Value at the time of collection
		Available	No	Result of calculation based on the value at the time of collection
			Yes	

Review the following points about the collection of performance data:

- Because performance data of the PI record type includes data (such as delta values) that requires differences from data obtained during the previous collection, data from two or more collections is required. This means that the amount of time required to store performance data in a Performance database (RAID Agent database) from the time when the RAID Agent service starts is, at a maximum, twice the time that is set for Collection Interval.

For example, if you start RAID Agent whose performance data collection interval is set to 300 seconds (5 minutes) at 6:32 PM, the first data collection will start at 6:35 PM.

However, the record to be stored in the Performance database is not created at this time, because the data required for calculating the difference does not exist. At the next data collection (which starts at 6:40 PM), performance data will be created based on the data collected at 6:35 PM and 6:40 PM, and then stored in the Performance database.

- If you change the time on a machine on which RAID Agent is installed, performance data is collected as follows:
 - **When the time on a computer is changed to a time that is earlier than the last time the RAID Agent collected performance data:** The performance data that was previously collected from the new set time to the last collection time is overwritten.
 - **When the time on a computer is changed to a time that is later than the present time:** The performance data ranging from the currently set time to the new set time is not collected.

Notes on collecting records

For notes specific to each record, see the explanation of each record.

Types of performance information that can be acquired depending on the Access Type

When using RAID Agent bundled with Ops Center Analyzer to monitor VSP E series, VSP 5000 series, VSP G350, G370, G700, G900, VSP F350, F370, F700, F900 storage systems, the type of performance information that can be acquired and the path via which the information is acquired varies depending on the `Access Type` you specify when you configure an instance.

Access Type	Path via which RAID Agent acquires performance information
1: Command-Device and SVP(TCP/IP)	<ul style="list-style-type: none"> ▪ Via the command device ▪ Via the SVP (by using a TCP/IP connection)

Access Type	Path via which RAID Agent acquires performance information
2: Command-Device and REST-API	<ul style="list-style-type: none"> Via the command device Via the REST API (by using a TCP/IP connection)
3: SVP(TCP/IP) and REST-API	<ul style="list-style-type: none"> Via the SVP (by using a TCP/IP connection) Via the REST API (by using a TCP/IP connection)
4: REST-API	<ul style="list-style-type: none"> Via the REST API (by using a TCP/IP connection)

Note that, in the following cases, RAID Agent acquires the performance information collected via both the command device and the SVP (by using a TCP/IP connection).

- When RAID Agent bundled with Ops Center Analyzer is used to monitor storage systems for models other than the following: VSP E series, VSP 5000 series, VSP G350, G370, G700, G900, VSP F350, F370, F700, F900
- When Tuning Manager - Agent for RAID is used

The performance information that can be acquired via the REST API (by using a TCP/IP connection) is the same as the performance information that can be acquired via the command device or via the SVP (by using a TCP/IP connection). As such, information on whether performance information can be collected via the REST API (by using a TCP/IP connection) for a particular record or field is provided in [RAID Agent records \(collection via the command device\)](#) (on page 1014) or [RAID Agent records \(collection via the SVP by using a TCP/IP connection\)](#) (on page 1105).

Notes on values acquired from VSP N series

Storage systems in the VSP N series are equivalent to those in the VSP F series or VSP G series. As such, the values that can be acquired for VSP N series by using RAID Agent are the same as those that can be acquired for VSP F series and VSP G series. Descriptions of storage system models in the VSP F series or VSP G series also apply to the corresponding storage system models in the VSP N series.

The following table lists each model in the VSP N series and the corresponding model in the VSP F series or VSP G series.

Storage system model in the VSP N series	Corresponding storage system model in the VSP F series or VSP G series
VSP N400	VSP F400 or VSP G400
VSP N600	VSP F600 or VSP G600

Storage system model in the VSP N series	Corresponding storage system model in the VSP F series or VSP G series
VSP N800	VSP F800 or VSP G800

Restrictions regarding volumes, ports and parity group for mainframe systems

Some restrictions apply when you monitor volumes, ports and parity group used for mainframe systems.

Restrictions when monitoring volumes and parity group for mainframe systems

When a logical device has an emulation type used for mainframe systems, some performance data cannot be obtained. For details, see the following tables.

Table 2 Records that are not supported when monitoring volumes and parity group for mainframe systems (for VSP 5000 series)

Record ID	Field	Access Type			
		1	2	3	4
PI_LDE	RANDOM_READ_XFER_RATE	N ¹	N ¹	N ²	N ²
	RANDOM_WRITE_XFER_RATE				
	SEQUENTIAL_READ_XFER_RATE				
	SEQUENTIAL_WRITE_XFER_RATE				
	Fields other than the above	Y	Y	N ²	N ²
PI_LDS	RANDOM_TOTAL_XFER_RATE	N ¹	N ¹	N ²	N ²
	SEQUENTIAL_TOTAL_XFER_RATE				
	Fields other than the above	Y	Y	N ²	N ²
PI_LDSX	--	Y	N ²	Y	N ²
PI_RGS	RANDOM_READ_XFER_PCT	N ¹	N ¹	N ²	N ²

Record ID	Field	Access Type			
		1	2	3	4
	RANDOM_READ_XFER_RATE				
	RANDOM_TOTAL_XFER_RATE				
	RANDOM_WRITE_XFER_PCT				
	RANDOM_WRITE_XFER_RATE				
	SEQUENTIAL_READ_XFER_PCT				
	SEQUENTIAL_READ_XFER_RATE				
	SEQUENTIAL_TOTAL_XFER_RATE				
	SEQUENTIAL_WRITE_XFER_PCT				
	SEQUENTIAL_WRITE_XFER_RATE				
	Fields other than the above	Y	Y	N ²	N ²
Legend: Y: Can be collected N: Cannot be collected					
Notes: 1. The value is 0. 2. This record is not created.					

Table 3 Records that are not supported when monitoring volumes for mainframe systems (for VSP G1000 (80-03 or later), G1500, and VSP F1500)

Record ID	Field
PI_LDE	RANDOM_READ_XFER_RATE
	RANDOM_WRITE_XFER_RATE

Record ID	Field
	SEQUENTIAL_READ_XFER_RATE
	SEQUENTIAL_WRITE_XFER_RATE
PI_LDS	RANDOM_TOTAL_XFER_RATE
	SEQUENTIAL_TOTAL_XFER_RATE
PI_RGS	RANDOM_READ_XFER_PCT
	RANDOM_READ_XFER_RATE
	RANDOM_TOTAL_XFER_RATE
	RANDOM_WRITE_XFER_PCT
	RANDOM_WRITE_XFER_RATE
	SEQUENTIAL_READ_XFER_PCT
	SEQUENTIAL_READ_XFER_RATE
	SEQUENTIAL_TOTAL_XFER_RATE
	SEQUENTIAL_WRITE_XFER_PCT
	SEQUENTIAL_WRITE_XFER_RATE

Table 4 Records that are not supported when monitoring volumes for mainframe systems (for VSP G1000 (earlier than 80-03))

Record ID	Field
PI_LDE PI_LDA	RANDOM_READ_XFER_RATE
	RANDOM_WRITE_XFER_RATE
	SEQUENTIAL_READ_XFER_RATE
	SEQUENTIAL_WRITE_XFER_RATE
	READ_MBYTES
	READ_XFER_RATE
	WRITE_MBYTES
	WRITE_XFER_RATE
PI_LDS	RANDOM_TOTAL_XFER_RATE
	READ_MBYTES

Record ID	Field
	READ_RESPONSE_RATE
	READ_TOTAL_RESPONSE
	READ_XFER_RATE
	SEQUENTIAL_TOTAL_XFER_RATE
	TOTAL_RESPONSE_RATE
	WRITE_MBYTES
	WRITE_RESPONSE_RATE
	WRITE_TOTAL_RESPONSE
	WRITE_XFER_RATE
PI_PLS	READ_RESPONSE_RATE
	READ_XFER_RATE
	WRITE_RESPONSE_RATE
	WRITE_XFER_RATE
PI_RGS	RANDOM_READ_XFER_PCT
	RANDOM_READ_XFER_RATE
	RANDOM_TOTAL_XFER_RATE
	RANDOM_WRITE_XFER_PCT
	RANDOM_WRITE_XFER_RATE
	READ_MBYTES
	READ_AVG_RESPONSE
	READ_TOTAL_RESPONSE
	READ_XFER_PCT
	READ_XFER_RATE
	SEQUENTIAL_READ_XFER_PCT
	SEQUENTIAL_READ_XFER_RATE
	SEQUENTIAL_TOTAL_XFER_RATE
	SEQUENTIAL_WRITE_XFER_PCT
	SEQUENTIAL_WRITE_XFER_RATE

Record ID	Field
	TOTAL_RESPONSE_RATE
	WRITE_MBYTES
	WRITE_AVG_RESPONSE
	WRITE_TOTAL_RESPONSE
	WRITE_XFER_PCT
	WRITE_XFER_RATE

Restrictions when monitoring ports for mainframe systems

For ports that are used to connect to mainframe systems, there are some fields for which configuration information and performance data cannot be collected, depending on certain storage system and port attributes. Note that, regarding the PI_PTSX record, you cannot collect performance data about mainframe systems, irrespective of the storage system or port attributes. The PI_MPTS record is not created for ports with FNP attributes.

Table 5 Records that are not supported when monitoring ports for mainframe systems (for VSP 5000 series)

Record ID	Field	Access Type			
		1	2	3	4
PD_PTC	PORT_WWN	N ¹	Y	Y	Y
PI_PTS	--	Y	Y	N ²	N ²
Legend: Y: Can be collected N: Cannot be collected					
Notes: 1. The value cannot be collected. 2. This record will not be created.					

Table 6 Records Whose Field Values Are Always 0 When Monitoring Ports for Mainframes (for VSP G1000 (earlier than 80-03) or for ports with FNP attributes)

Record ID	Field
PI_PTS	AVG_IO_RATE
	AVG_XFER_RATE

Record ID	Field
	MAX_IO_RATE
	MAX_XFER_RATE
	MIN_IO_RATE
	MIN_XFER_RATE

Whether performance information is collectible when using a storage system management program

The following table lists the I/O types and whether performance information can be collected by RAID Agent when a program for managing storage systems is used.

Program name	I/O Type	Types of performance information	Can/cannot collect performance information of each resource subject to I/O loads		
			Logical device	Parity group	Port
TrueCopy or Universal Replicator	I/O that occurs between a host and a P-VOL	Performance values of read/write processing	Y	Y	Y
		Usage rate	Y	Y	(Not applicable)
	I/O that occurs between a P-VOL and an S-VOL	Performance values of read/write processing	N	N	Initiator port : Y RCU Target port : N
		Usage rate	Y*	Y*	(Not applicable)
ShadowImage	I/O that occurs between a host and a P-VOL	Performance values of read/write processing	Y	Y	Y
		Usage rate	Y	Y	(Not applicable)
	I/O that occurs between a P-	Performance values of read/write processing	N	N	(Not applicable)

Program name	I/O Type	Types of performance information	Can/cannot collect performance information of each resource subject to I/O loads		
			Logical device	Parity group	Port
	VOL and an S-VOL	Usage rate	Y*	Y*	(Not applicable)
Copy-on-Write Snapshot/Thin Image	I/O that occurs between a host and a P-VOL	Performance values of read/write processing	Y	Y	Y
		Usage rate	Y	Y	(Not applicable)
	I/O that occurs between a P-VOL and a V-VOL	Performance values of read/write processing	N	N	(Not applicable)
		Usage rate	N	N	(Not applicable)
	I/O that occurs at a pool volume	Performance values of read/write processing	N	N	(Not applicable)
		Usage rate	Y*	Y*	(Not applicable)
Dynamic Provisioning	I/O that occurs between a host and a V-VOL	Performance values of read/write processing	Y	N	Y
		Usage rate	N	N	(Not applicable)
	I/O that occurs at a pool volume	Performance values of read/write processing	N	N	(Not applicable)
		Usage rate	Y*	Y*	(Not applicable)
Legend: Y: Can be collected N: Cannot be collected (the value will be indefinite)					

Program name	I/O Type	Types of performance information	Can/cannot collect performance information of each resource subject to I/O loads		
			Logical device	Parity group	Port
* When monitoring a logical device that is not mapped to a port or when monitoring a parity group to which the logical device belongs, the value of Unassigned Open Volume Monitoring must be Y or y.					

Collectability of performance data when using VMware VVol

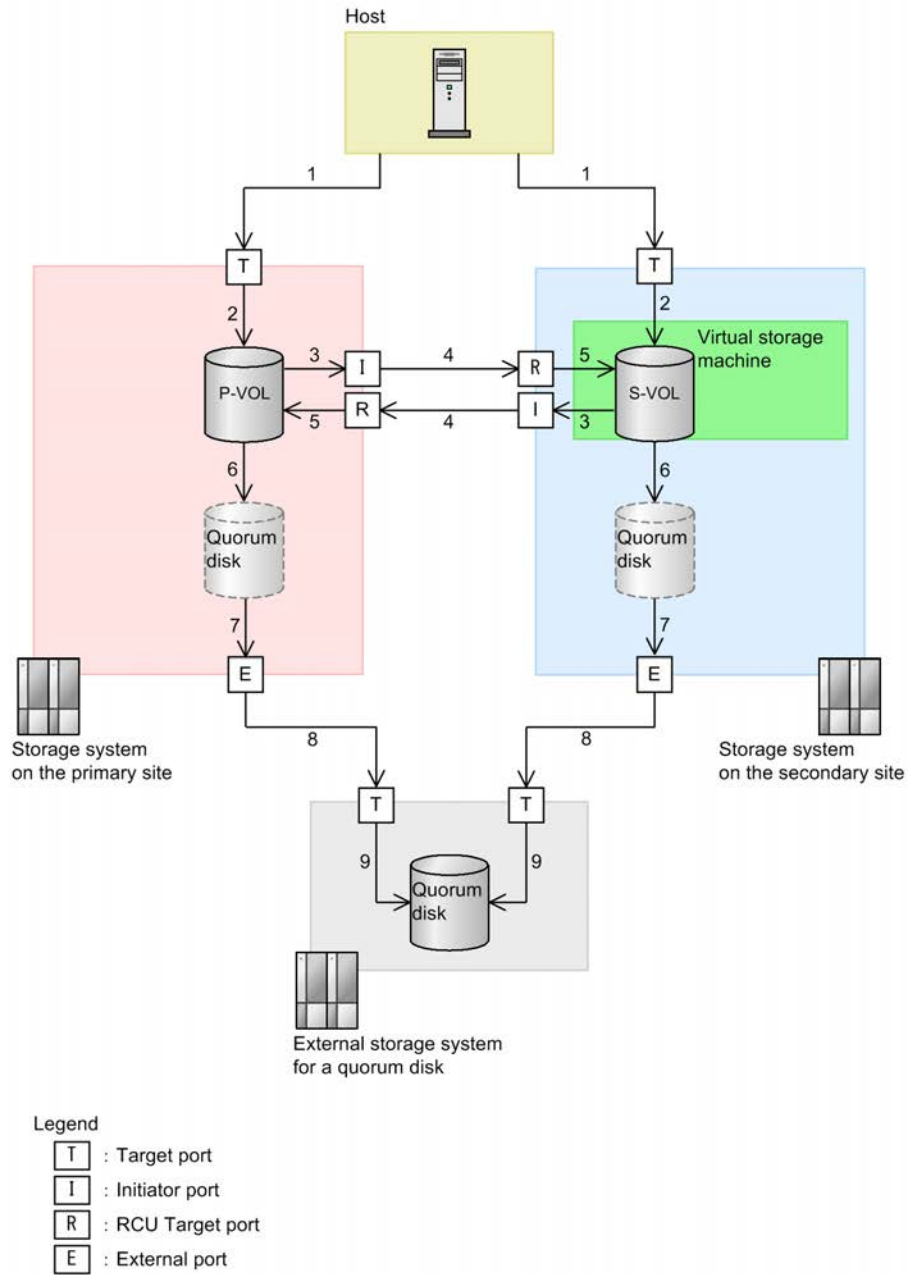
The table below describes whether performance data for each resource can be obtained for an environment that uses VVols of VMware.

Resources	Can/cannot collect performance information	Values that can be collected and those that cannot be collected
Port	Y	Each of the following values can be collected as the total value for the port: <ul style="list-style-type: none"> Frequency of read and write operations from the hosts Amount of data transferred from the hosts
LDEV (ALU)	N	The following values cannot be collected: <ul style="list-style-type: none"> Frequency of read and write operations from the hosts Amount of data transferred from the hosts Average processing time for the write operation requests from the hosts Logical device usage rate Usage rate of resources within MP by logical devices

Resources	Can/cannot collect performance information	Values that can be collected and those that cannot be collected
<ul style="list-style-type: none"> LDEV (SLU) Pool 	Y	The following values can be collected: <ul style="list-style-type: none"> Frequency of read and write operations from the hosts Amount of data transferred from the hosts Average processing time for the write operation requests from the hosts Usage rate of resources within MP by logical devices
	N	The usage rate of logical devices cannot be collected.
Parity group	N	The following values cannot be collected: <ul style="list-style-type: none"> Frequency of read and write operations Usage rate of parity groups
<ul style="list-style-type: none"> MP MP blade Cache memory 	Y	The usage rate of processors that are generated by I/O operations from the hosts can be collected.
Legend: Y: Can be collected N: Cannot be collected (the value will be indefinite)		

Whether performance data is collectible when using global-active device

The following figure shows the configuration when a global-active device is used. Also, the following table shows whether performance data can be collected for each resource within the figure.



I/O type	Resources	Can/cannot collect performance data	Values that can be collected	Resource location	Configuration figure number
I/O from the host	Target port	Y	Displays the I/O from the host for both read and write.	Primary site/ Secondary site	1

I/O type	Resources	Can/cannot collect performance data	Values that can be collected	Resource location	Configuration figure number
	Logical Device	Y	Displays only the I/O from the host for read, and displays the sum of I/O from the host and from the remote site for write.	Primary site/ Secondary site	2
I/O to the remote site	Initiator port	Y	Not only the I/O of the copy pair for a global-active device but the performance value of the entire LU connected to the port.	Primary site/ Secondary site	3
	RCU Target port	Y	In addition to the I/O of the copy pair for a global-active device, this is a performance value of the entire LU that is connected to the port.	Primary site/ Secondary site	4
	Logical Device	Y	Displays only the I/O from the host for read, and displays the sum of I/O from the host and from the remote site for write.	Primary site/ Secondary site	5
I/O to the quorum disk	Logical device (Quorum disk)	N	Performance values cannot be collected because this is an external volume.	Primary site/ Secondary site	6

I/O type	Resources	Can/cannot collect performance data	Values that can be collected	Resource location	Configuration figure number
	External port	Y	In addition to the I/O of the copy pair for a global-active device, this is a performance value of the entire LU that is connected to the port.	Primary site/ Secondary site	7
	Target port	Y	In addition to the I/O of the copy pair for a global-active device, this is a performance value of the entire LU that is connected to the port.	External storage system for a quorum disk	8
	Logical device (Quorum disk)	Y	Displays the I/O from the Quorum disk for both read and write.	External storage system for a quorum disk	9
Legend: Y: Can be collected N: Cannot be collected (the value will be indefinite)					

Whether performance information is collectible when using Compatible PAV or Compatible Hyper PAV

When Compatible PAV or Compatible Hyper PAV is used, records for base volumes can be obtained, but records for alias volumes cannot be obtained.

In addition to I/O performance information for base volumes, performance information in base volumes also contains I/O performance information for alias volumes.

Record creation results when data cannot be obtained

The following describes the record creation results in cases where the data to be stored in a field cannot be obtained. If an error occurs during performance data collection, or if a field

that is not supported by the monitored system is included in the created record, the record creation results are as follows:

- Records are not created when any of the following conditions are met:
 - RAID Agent cannot acquire the performance data to be stored in a field defined as a key field.
 - RAID Agent cannot acquire the performance data to be stored in a field containing performance information about RAID Agent.
 - RAID Agent takes longer than the time specified for Collection Interval while acquiring performance data.
- Records containing blank fields are created if RAID Agent cannot acquire performance data to be stored in a character-type field that contains RAID Agent configuration information.
- Records containing fields with a value of 0 are created when RAID Agent cannot acquire performance data to be stored in a numeric-type field that contains RAID Agent configuration information.

Capacity monitoring of pools

If a pool is configured by a parity group for which accelerated compression is enabled, there is a function that automatically adds pool volumes that pool. If this function is enabled, the logical capacity will increase automatically. To check the capacity of a pool configured by a parity group for which accelerated compression is enabled, check the physical capacity of the pool.



Note:

To check whether to automatically add pool volumes according to the compression ratio of a parity group for which accelerated compression is enabled, you can check the detailed pool information displayed in the `Auto Expansion` field in E2E View.

Table 7 Physical capacity fields corresponding to logical capacity fields

Logical Capacity		Physical Capacity	
Record Name	Field Name	Record Name	Field Name
PD_PLC	USAGE_RATE	PD_PLC	PHYSICAL_CAPACITY_USAGE_RATE
PD_PLC	TOTAL_ACTUAL_CAPACITY	PD_PLC	PHYSICAL_CAPACITY_TOTAL
PD_PLC	FREE_CAPACITY	PD_PLC	PHYSICAL_CAPACITY_FREE
PD_PLC	USED_CAPACITY	PD_PLC	PHYSICAL_CAPACITY_USED

Logical Capacity		Physical Capacity	
Record Name	Field Name	Record Name	Field Name
PD_PLC	POOL_CAPACITY_EXPANSION_RATE	none	
PD_PLTC	USED_CAPACITY	PD_PLTC	PHYSICAL_FMC_CAPACITY_USED
PD_PLTC	USAGE_RATE_IN_POOL	PD_PLTC	PD_PLTC_PHYSICAL_FMC_CAPACITY_USED / PD_PLC_PHYSICAL_CAPACITY_TOTAL * 100
PD_PLTC	USAGE_RATE_IN_TIER	PD_PLTC	PHYSICAL_FMC_CAPACITY_USAGE_RATE
PD_PLTC	TOTAL_CAPACITY	PD_PLTC	PHYSICAL_FMC_CAPACITY_TOTAL
PD_PLTC	FREE_CAPACITY	PD_PLTC	PHYSICAL_FMC_CAPACITY_FREE
PD_PLTC	FMC_CAPACITY_EXPANSION_RATE	none	
PD_VVC	POOL_FREE_CAPACITY_RATE	none	

Retention periods for records

The retention periods are as follows:

PI record type

48 hours

PD record type

The retention period varies with the record. The following table shows the retention periods.

Record ID	Retention period (unit: hours)
PD_CLPC	168
PD_ELC	168

Record ID	Retention period (unit: hours)
PD_LDC	168
PD_LSEC	168
PD_PEFF	8784
PD_PLC	8784
PD_PLF	168
PD_PLR	744
PD_PLTR	744
PD_PLTC	744
PD_PLTS	744
PD_PTC	168
PD_RGC	168
PD	168
PD_PDX	168
PD_SEFF	8784
PD_UMSX	168
PD_UMS	168
PD_VVF	168
PD_VVTC	744
PD_VVC	744

RAID Agent records (collection via the command device)

This Appendix describes the records that can be collected via the command device. Note that if VMware Fault Tolerance (VMware vSphere(R) Fault Tolerance) is used, performance data cannot be collected via command devices.

Furthermore, if the `Access Type` is 3 or 4, some values can be obtained via the REST API.

For details, see [Types of performance information that can be acquired depending on the Access Type \(on page 998\)](#).

PD

The PD record stores the performance data indicating the detailed information of the storage system.

Collection Interval

3600

Key Field

None

Lifetime

From when the instance is created to when it is deleted.

Fields

Field Name	Description	Format	Delta	Data Source
CACHE_MEMORY_CAPACITY	Cache memory size for the storage system (of the installed memory, the size of the memory assigned for I/O cache (MB))	ulong	No	--
CACHE_MEMORY_INSTALLED_SIZE*	Cache memory size installed in the storage system (MB)	ulong	No	--
COLLECTION_TIME*	Time (in GMT) when the data was collected from the storage system	time_t	No	--
DKC_DETAIL_NAME	This field cannot be used because it is reserved.	--	--	--
DKC_NAME	Product name of the storage system	string(64)	No	--
DKC_SERIAL_NUMBER	Serial number of the storage system	string(32)	No	--
DKC_STATUS	This field cannot be used because it is reserved.	--	--	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MONITORED_SLPR_NUMBER	This field cannot be used because it is reserved.	--	--	--

Field Name	Description	Format	Delta	Data Source
RECORD_TIME	Time (in GMT) when the record is stored	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to PD	string(8)	No	--
UNIT_ID	This field cannot be used because it is reserved.	--	--	--
VENDOR_ID	Vendor name of the storage system	string(64)	No	--
* If the <code>Access Type</code> is 3 or 4, the information in this field is not obtained.				

PD_CLPC

The PD_CLPC record stores performance data indicating the CLPR configuration information. This is a multi-instance record. If the `Access Type` is 3 or 4, this record will not be created.

Collection Interval

3600

Key Field

CLPR_NUMBER

Lifetime

From when the CLPR is defined to when it is deleted, or to when its definition is changed.

Fields

Field Name	Description	Format	Delta	Data Source
CACHE_MEMORY_CAPACITY	Amount of cache memory allocated for this CLPR (MB)	ulong	No	--
CLPR_NAME	CLPR name	string(20)	No	--
CLPR_NUMBER	CLPR number	string(8)	No	--
COLLECTION_TIME	Time (in GMT) when the data was collected from the storage system	time_t	No	--

Field Name	Description	Format	Delta	Data Source
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
RECORD_TIME	Record creation time (in GMT)	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to CLPC	string(8)	No	--
SLPR_NAME	This field cannot be used because it is reserved.	--	--	--
SLPR_NUMBER	This field cannot be used because it is reserved.	--	--	--

PD_ELC

The PD_ELC record holds performance data indicating configuration information for an externally connected LDEV (logical device). This is a multi-instance record. If the `Access Type` is 3 or 4, this record will not be created.



Note: If there are no externally connected LDEVs mapped in external storage systems, this report cannot be used.

Collection Interval

3600

Key Field

LDEV_NUMBER

Lifetime

From when the externally connected LDEV is set up to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
COLLECTION_TIME	Time (in GMT) when the data was collected from the storage system	time_t	No	--

Field Name	Description	Format	Delta	Data Source
DKC_NAME ²	Product name of the externally connected storage system. ^{1, 4}	string(64)	No	--
EXTERNAL_LDEV_NUMBER	Logical device number of the externally connected LDEV. ¹	string(16)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_NUMBER	Logical device number	string(16)	No	--
PRODUCT_ID	This field cannot be used because it is reserved.	--	--	--
RECORD_TIME	Record creation time (in GMT)	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to ELC	string(8)	No	--
SERIAL_NUMBER ³	Serial number of the externally connected storage system. ¹	string(32)	No	--
UNIT_ID	This field cannot be used because it is reserved.	--	--	--
VENDOR_ID	Vendor name of the externally connected storage system	string(64)	No	--
Notes: <ol style="list-style-type: none"> 1. If virtual IDs are set for volumes in an externally connected storage system, the RAID Agent collects the virtual ID information. 2. If the externally connected storage system is VSP E series or VSP Fx00 model, the value is VSP Gx00. For example, if the externally connected storage system is VSP F400, the value is VSP Gx00. 3. Not supported by HUS VM storage system. 4. If the externally connected storage system is VSP G1000, the value stored in the DKC_NAME field is VSP G1000 G1500 F1500. 				

PD_LDC

The PD_LDC record stores the performance data indicating the configuration information of the logical device. This is a multi-instance record.

Collection Interval

3600

Key Field

LDEV_NUMBER

Lifetime

From when the logical device is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
CLPR_NUMBER	Number of the CLPR to which the logical device has been assigned	string(8)	No	--
COLLECTION_TIME ¹⁵	Time (in GMT) when the data was collected from the storage system	time_t	No	--
EMULATION_TYPE ¹⁵	Emulation type of the logical device For an environment that uses VVols of VMware, depending on whether the logical device is ALU or SLU, the following values are added to the end of the emulation type value. <ul style="list-style-type: none"> ▪ For ALU: "-A" ▪ For SLU: "-S" 	string(64)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_ATTRIBUTE	This field cannot be used because it is reserved.	--	--	--
LDEV_LOCATION	Whether the logical device is an externally connected LDEV: <ul style="list-style-type: none"> ▪ Internal ▪ External 	string(16)	No	--
LDEV_NAME ¹⁵	Nickname set for the logical device	string(64)	No	--

Field Name	Description	Format	Delta	Data Source
LDEV_NUMBER	Logical device number ¹	string(16)	No	--
LDEV_STATUS	This field cannot be used because it is reserved.	--	--	--
LU_PROPERTY	This field cannot be used because it is reserved.	--	--	--
LU_PROPERTY2	This field cannot be used because it is reserved.	--	--	--
LUSE_VOLUME ¹⁵	Information indicating whether the logical device is a component of a LUSE. <ul style="list-style-type: none">▪ LUSE	string(16)	No	--
MP_BLADE	<ul style="list-style-type: none">▪ For VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, or HUS VM: Character string that identifies the MP unit that has ownership rights to the logical device.▪ For VSP G1000, G1500, or VSP F1500: Character string that identifies the MP blade that has ownership rights to the logical device.	string(16)	No	--
NVM_NAMESPACE_ID	This field cannot be used because it is reserved.	--	--	--
NVM_SUBSYSTEM_ID	This field cannot be used because it is reserved.	--	--	--
PDEV_NUMBER	This field cannot be used because it is reserved.	--	--	--

Field Name	Description	Format	Delta	Data Source
POOL_ID	<p>The pool ID of the Dynamic Provisioning pool, Copy-on-Write Snapshot pool, or Thin Image pool to which the logical device belongs. A value is stored in this field only when the logical device is a Dynamic Provisioning V-VOL, Thin Image V-VOL, or a pool volume.²</p> <p>However, the value for Thin Image V-VOL is stored in this field only when the V-VOL is associated with the Dynamic Provisioning pool.</p>	string(8)	No	--
RAID_GROUP_NUMBER ^{3, 4, 5}	Parity group number of the logical device	string(64)	No	--
RAID_LEVEL ^{6, 7, 8, 15}	RAID level of the logical device	unsigned char	No	--
RAID_TYPE ^{3, 4, 5}	<p>Combination of the RAID level and hard disk unit (HDU) of the logical device.</p> <ul style="list-style-type: none"> ▪ Example: RAID5(3D+1P) <p>Note that the following format is used for a volume split from a distributed parity group.</p> <ul style="list-style-type: none"> ▪ Example when the Access Type is 1 or 2: RAID1(4D+4D) ▪ Example when the Access Type is 3 or 4: RAID1(2D+2D)x2 	string(32)	No	--
RECORD_TIME	Time (in GMT) when the record was stored	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to LDC	string(8)	No	--
REPLICATION_ATTRIBUTE	This field cannot be used because it is reserved.	--	--	--

Field Name	Description	Format	Delta	Data Source
SLPR_NUMBER	This field cannot be used because it is reserved.	--	--	--
VIRTUAL_DKC_DETAIL_NAME	This field cannot be used because it is reserved.	--	--	--
VIRTUAL_DKC_NAME ^{9, 10, 11, 12, 14, 15}	Product name of the virtual storage system to which the logical device belongs	string(32)	No	--
VIRTUAL_LDEV_NUMBER ^{9, 10, 13, 15}	Virtualized logical device number associated with the logical device	string(16)	No	--
VIRTUAL_SERIAL_NUMBER ^{9, 10, 11, 15}	Serial number (in decimal) of the virtual storage system to which the logical device belongs	string(32)	No	--
VOLUME_TYPE	<p>Information that indicates whether the logical device is a type of V-VOL (a Dynamic Provisioning V-VOL or Thin Image V-VOL) or a type of pool volume (Dynamic Provisioning pool volume, Copy-on-Write Snapshot pool volume, or Thin Image pool volume). If the logical device is a V-VOL for Dynamic Provisioning or Thin Image pair, information is stored in this field only when the V-VOL is associated with the Dynamic Provisioning pool.²</p> <ul style="list-style-type: none"> ▪ V-VOL ▪ POOL 	string(16)	No	--
Notes:				

Field Name	Description	Format	Delta	Data Source
	<p>1. If the logical device is a component of a LUSE, this field only stores the record for the following logical device:</p> <p>First logical device of the LUSE</p> <p>If the LUSE consists of externally connected logical devices, or logical devices of V-VOLs for Copy-on-Write Snapshot/Thin Image or Dynamic Provisioning, and no LU path is set for the LUSE, the LUSE is not recognized and records are created for individual logical devices. In this case, the PD_LSEC record is not created for individual logical devices.</p> <p>2. Tuning Manager - Agent for RAID does not collect information about Copy-on-Write Snapshot pools or Thin Image pools.</p> <p>When the pool to which the logical device belongs is blocked, this field becomes empty. However, when the pool is blocked because the usage rate of the pool capacity is 100%, a value is stored in this field.</p> <p>3. The value cannot be collected when the logical device is a Dynamic Provisioning V-VOL.</p> <p>4. The value cannot be collected when the logical device is a Copy-on-Write Snapshot V-VOL or a Thin Image V-VOL.</p> <p>5. The value cannot be collected if the logical device is an externally connected LDEV.</p> <p>6. The field value is always 0 when the logical device is a Copy-on-Write Snapshot V-VOL or a Thin Image V-VOL.</p> <p>7. The field value is always 0 when the logical device is a Dynamic Provisioning V-VOL.</p> <p>8. If the logical device is an externally connected LDEV, the field value will always be 0.</p> <p>9. If the logical device does not belong to a virtual storage system, the field value will be NULL.</p> <p>10. The value cannot be collected for the following storage systems: HUS VM.</p> <p>11. If the logical device that composes a copy pair of global-active device is not virtualized, the field value will be NULL.</p> <p>12. If the virtual storage system is VSP F400 or VSP F600, the value is VSP G400 G600. If the virtual storage system is VSP F800, the value is VSP G800.</p> <p>13. If either of the following applies to the logical device, the field value will be NULL.</p> <ul style="list-style-type: none"> ▪ The logical device that is part of a copy pair of a global-active device is not virtualized. ▪ A virtualized logical device number is not set. <p>14. If the virtual storage system is VSP G1000, the value stored in the VIRTUAL_DKC_NAME field is VSP G1000 G1500 F1500.</p> <p>15. If the Access Type is 3 or 4, the information in this field is not obtained.</p>			

PD_LSEC

The PD_LSEC record holds performance data indicating configuration information for logical devices that make up the LUSE. This is a multi-instance record.

In the following cases, this record will not be created.

- If the LUSE consists of externally connected logical devices, or logical devices of V-VOLs for Copy-on-Write Snapshot/Thin Image or Dynamic Provisioning, and no LU path is set for the LUSE
- If no LUSE exists in the storage system
- If the `Access Type` is 3 or 4

Collection Interval

3600

Key Field

LDEV_NUMBER

Lifetime

From when the LUSE is set up to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
CLPR_NUMBER	Number of the CLPR to which the logical device has been assigned	string(8)	No	--
COLLECTION_TIME	Time (in GMT) when the data was collected from the storage system	time_t	No	--
EMULATION_TYPE	Emulation type of the logical device	string(64)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_ATTRIBUTE	This field cannot be used because it is reserved.	--	--	--

Field Name	Description	Format	Delta	Data Source
LDEV_LOCATION	Whether the logical device is an externally connected LDEV: <ul style="list-style-type: none"> Internal External 	string(16)	No	--
LDEV_NAME	This field cannot be used because it is reserved.	--	--	--
LDEV_NUMBER	Logical device number	string(16)	No	--
LDEV_STATUS	This field cannot be used because it is reserved.	--	--	--
LU_PROPERTY	This field cannot be used because it is reserved.	--	--	--
MAIN_LDEV_NUMBER	Logical device number of the first logical device in the LUSE to which the logical device belongs.	string(16)	No	--
POOL_ID	ID of the Dynamic Provisioning pool to which the logical device belongs. A value is stored in this field only when the logical device is a V-VOL. ¹	string(8)	No	--
PDEV_NUMBER	This field cannot be used because it is reserved.	--	--	--
RAID_GROUP_NUMBER ^{2, 3, 4}	Parity group number of logical device	string(64)	No	--
RAID_LEVEL ^{5, 6, 7}	RAID level of logical device	unsigned char	No	--
RAID_TYPE ^{2, 3, 4}	Combination of the RAID level and HDU of the logical device. Example: RAID5(3D+1P)	string(32)	No	--
RECORD_TIME	Record creation time (in GMT)	time_t	No	--

Field Name	Description	Format	Delta	Data Source
INPUT_RECORD_TYPE	Record type identifier, which is always set to LSEC	string(8)	No	--
REPLICATION_ATTRIBUTE	This field cannot be used because it is reserved.	--	--	--
SLPR_NUMBER	This field cannot be used because it is reserved.	--	--	--
VOLUME_TYPE	<p>Information that indicates whether the logical device is a V-VOL for Dynamic Provisioning.</p> <p>Information is stored in this field only when a V-VOL for Dynamic Provisioning is associated with the Dynamic Provisioning pool.¹</p> <ul style="list-style-type: none"> ▪ V-VOL 	string(16)	No	--
<p>Notes:</p> <ol style="list-style-type: none"> 1. When the Dynamic Provisioning pool to which the logical device belongs is blocked, this field becomes empty. However, when the Dynamic Provisioning pool is blocked because the usage rate of the pool capacity is 100%, a value is stored in this field. 2. The value cannot be collected if the logical device is externally connected. 3. The value cannot be collected when the logical device is a Copy-on-Write Snapshot V-VOL or a Thin Image V-VOL. 4. The value cannot be collected when the logical device is a Dynamic Provisioning V-VOL. 5. If the logical device is an externally connected LDEV, the field value will always be 0. 6. The field value is always 0 when the logical device is a Copy-on-Write Snapshot V-VOL or a Thin Image V-VOL. 7. The field value is always 0 when the logical device is a Dynamic Provisioning V-VOL. 				

PD_PEFF

The PD_PEFF record stores performance data indicating the ratio of the total saving effect (excluding system data) achieved by accelerated compression, capacity saving (deduplication and compression), snapshot, and Dynamic Provisioning for the pool. This is a multi-instance record.

**Note:**

- Tuning Manager - Agent for RAID does not collect information about Copy-on-Write Snapshot pools and Thin Image pools.
- If the Dynamic Provisioning pool is blocked, RAID Agent does not collect information about the Dynamic Provisioning pool. However, if the Dynamic Provisioning pool is blocked because the usage rate of the pool capacity is 100%, RAID Agent collects information about the pool.

Collection Interval

3600

Key Field

POOL_ID

Lifetime

From when the Dynamic Provisioning pool is set up to when it is removed.

Fields

Field Name ¹	Description	Format	Delta	Data Source
AC_COMP_RATIO	A ratio of the data saving effect achieved by compression of accelerated compression for a parity group. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
AC_MATCH_RATIO	A ratio of the data saving effect achieved by reclaiming the specified data pattern using accelerated compression of a parity group. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--

Field Name ¹	Description	Format	Delta	Data Source
AC_SAVING_RATIO	A ratio of the data saving effect achieved by accelerated compression of a parity group. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
CALCULATION_END_TIME	The end date and time for calculating (in UTC) ⁴	string(32)	No	--
CALCULATION_START_TIME	The start date and time for calculating (in UTC) ⁴	string(32)	No	--
COLLECTION_TIME ⁵	Time (in GMT) when the data was collected from the storage system	time_t	No	--
DATA_REDUCTION_RATIO	The data reduction ratio before and after accelerated compression of the parity group and capacity saving (deduplication and compression). This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
POOL_ID	ID of the pool	string(8)	No	--
PROVISIONING_EFFICIENCY_RATE	The provisioning effect (%) ²	float	No	--
RECORD_TIME	Time (in GMT) when the record is stored	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to PEFF	string(8)	No	--
SNAPSHOT_EFFICIENCY_RATIO	The efficiency ratio achieved by snapshot. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--

Field Name ¹	Description	Format	Delta	Data Source
SOFTWARE_COMP_RATIO	A ratio of the data saving effect achieved by compression of the capacity saving function. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
SOFTWARE_DEDUP_RATIO	A ratio of the data saving effect achieved by deduplication of the capacity saving function. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
SOFTWARE_MATCH_RATIO	A ratio of the data saving effect achieved by reclaiming the specified data pattern using the capacity saving function. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
SOFTWARE_SAVING_RATIO	The capacity reduction ratio before and after capacity saving (deduplication and compression). This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
TOTAL_EFFICIENCY_RATIO	The ratio of the total saving effect achieved by accelerated compression, capacity saving (deduplication and compression), snapshot, and Dynamic Provisioning. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
Notes: 1. A record cannot be created for storage systems other than VSP E series, VSP 5000 series, VSP G350, G370, G700, G900, VSP F350, F370, F700, F900.				

Field Name ¹	Description	Format	Delta	Data Source
<p>2. If a value cannot be obtained, the field value becomes one of the following:</p> <ul style="list-style-type: none"> ▪ If the micro-version is earlier than 88-03-01, the value is -1. ▪ If the calculation is not complete, the value is -2. ▪ If the information is invalid, the value is -3. <p>3. Under certain circumstances, the field value can display as 99999 (for example: before data has been written to newly-created pool or virtual volume).</p> <p>4. Times are displayed in YYYY-MM-DD hh:mm:ss format. If a value cannot be obtained, an empty character string ("") is displayed.</p> <p>5. If the <code>Access Type</code> is 3 or 4, the information in this field is not obtained.</p>				

PD_PLC

The PD_PLC record stores performance data that indicates the operation status of Dynamic Provisioning pools, Copy-on-Write Snapshot pools, and Thin Image pools. This is a multi-instance record.



Note:

- Tuning Manager - Agent for RAID does not collect information about Copy-on-Write Snapshot pools or Thin Image pools.
- If the pool is blocked, RAID Agent does not collect information about the pool. However, if the pool is blocked because the usage rate of the pool capacity is 100%, RAID Agent collects information about the pool.

Collection Interval

3600

Key Field

POOL_ID

Lifetime

From when the pool is set up to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
ATTRIBUTE	Type of the pool <ul style="list-style-type: none"> ▪ Dynamic Provisioning ▪ Dynamic Provisioning (Tiering) ▪ Data Direct Mapping ▪ Thin Image 	string(32)	No	--
AUTO_EXPANSION ²⁵	Indicates whether to automatically add pool volumes according to the compression ratio of a parity group for which accelerated compression is enabled. <ul style="list-style-type: none"> ▪ Enabled: Automatically adds pool volumes according to the compression ratio of a parity group for which accelerated compression is enabled ▪ Disabled: Pool volumes for which accelerated compression is enabled are not added automatically ▪ "": This function is not supported. 	string(32)	No	--
COLLECTION_TIME ²⁴	Time (in GMT) when the data was collected from the storage system	time_t	No	--

Field Name	Description	Format	Delta	Data Source
DATA_SAVING ¹	<p>Availability of the deduplication function for the pool</p> <ul style="list-style-type: none"> ▪ 0x00: Deduplication Not Available¹¹ ▪ 0x02: Deduplication Not Available¹¹ ▪ 0x03: Deduplication Available 	unsigned char	No	--
DATA_VOLUME_USED_CAPACITY ¹⁹	Capacity used by a virtual volume (GB) ¹²	double	No	--
DKC_COMP_CAPACITY ¹⁹	Capacity compressed by capacity saving (GB) ^{2, 13}	double	No	--
DKC_COMP_RATIO ¹⁹	Ratio of disk space that is saved through compression when using capacity saving. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{13, 21}	float	No	--
DKC_DUP_CAPACITY ¹⁹	Capacity saved by deduplication of capacity saving (GB) ^{2, 13}	double	No	--
DKC_DUP_RATIO ¹⁹	Ratio of disk space that is saved through deduplication when using capacity saving. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{13, 21}	float	No	--

Field Name	Description	Format	Delta	Data Source
DKC_PRE_PROC_CAPACITY ¹⁹	Capacity of data (before reduction) to be reduced by capacity saving (GB) ²	double	No	--
DKC_RECLAIM_CAPACITY ¹⁹	Capacity saved by reclaiming the specified data pattern using capacity saving (GB) ^{2, 13}	double	No	--
DKC_SAVING_CAPACITY ¹	Capacity reduced when deduplication and compression are used in a pool ^{2, 14, 20}	double	No	--
DKC_SAVING_RATIO ¹⁹	Saving effect achieved by capacity saving. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{15, 21}	float	No	--
DKC_SYSTEM_CAPACITY ¹⁹	The amount of consumed system data (GB) ²	double	No	--
EMULATION_TYPE ²⁴	Emulation type of the pool	string(64)	No	--
FMC_CAPACITY_TOTAL ¹⁹	The total logical capacity of the pool volume for FMC or the pool volume that supports accelerated compression used in the pool (GB) ³	double	No	--
FMC_CAPACITY_USED ¹	The logically used capacity of the pool volume for FMC or the pool volume that supports accelerated compression used in the pool (GB) ³	double	No	--

Field Name	Description	Format	Delta	Data Source
FMC_POOL_CAPACITY_COMP ¹	The compressed capacity with the accelerated compression function (GB) ^{3, 22}	double	No	--
FMC_POOL_CAPACITY_COMP_RATIO ¹	Saving effect achieved by accelerated compression. This is the value of N when the ratio of capacity before and after the reduction is N:1. ²¹	float	No	--
FMC_POOL_CAPACITY_RECLAIM ¹⁹	The reclaimed capacity with the accelerated compression function (GB) ^{3, 20}	double	No	--
FMC_POOL_CAPACITY_SAVING ¹	The saved capacity achieved with the accelerated compression function (GB) ^{3, 16, 22}	double	No	--
FMC_POOL_CAPACITY_SAVING_RATE ¹	Reduction rate (%) of capacity reduced by the accelerated compression function ^{3, 17}	float	No	$(\text{FMC_POOL_CAPACITY_SAVING} / (\text{PHYSICAL_CAPACITY_USED} + \text{FMC_POOL_CAPACITY_SAVING})) * 100$
FREE_CAPACITY	Unused capacity remaining in the pool (GB) ^{4, 5}	double	No	--
INTERVAL	Interval (in seconds) when information is collected	ulong	No	--
PHYSICAL_CAPACITY_FREE ¹	Total amount of free capacity in the physical capacity of the parity groups that make up the pool (GB) ⁶	double	No	--

Field Name	Description	Format	Delta	Data Source
PHYSICAL_CAPACITY_TOTAL ¹	Total amount of the physical capacity of the parity groups that make up the pool (GB)	double	No	--
PHYSICAL_CAPACITY_USAGE_RATE ¹	Usage percentage of the physical capacity of the parity groups that make up the pool For the Dynamic Provisioning pool that stores Thin Image snapshot data, the value includes the capacity of the snapshot data of the Thin Image pair using the pool.	float	No	(PHYSICAL_CAPACITY_USED / PHYSICAL_CAPACITY_TOTAL) * 100
PHYSICAL_CAPACITY_USED ¹	Total amount of used capacity in the physical capacity of the parity groups that make up the pool (GB) ⁶ For the Dynamic Provisioning pool that stores Thin Image snapshot data, the value includes the capacity of the snapshot data of the Thin Image pair using the pool.	double	No	--
PHYSICAL_FMC_CAPACITY_TOTAL ¹⁹	The total physical capacity of the pool volume for FMC or the pool volume that supports accelerated compression used in the pool (GB) ³	double	No	--

Field Name	Description	Format	Delta	Data Source
PHYSICAL_FMC_CAPACITY_USED ¹	The actually used capacity of the parity group for FMC or the parity group that supports accelerated compression (GB) ³	double	No	--
POOL_CAPACITY_EXPANSION_RATE ^{1, 24}	Expansion percentage of the pool capacity by using accelerated compression ⁷	float	No	--
POOL_ID	ID of the pool	string(8)	No	--
POOL_NAME	Pool name	string(64)	No	--
POOL_VOLUME_COUNT ²⁴	Number of pool volumes in the pool	ulong	No	--
RECORD_TIME	Time (in GMT) when the record was stored	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to PLC	string(8)	No	--
RESERVED_CAPACITY ^{1, 24}	The capacity for the reserved pages in the pool (GB) ⁵	double	No	--
SAVING_CAPACITY ¹⁹	The capacity saved by capacity saving or accelerate compression of the parity group (GB) ^{18, 20}	double	No	--
SAVING_RATIO ¹⁹	Saving effect achieved by capacity saving or accelerate compression of the parity group. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{21, 23}	float	No	--

Field Name	Description	Format	Delta	Data Source
STATUS ²⁴	Status of the pool <ul style="list-style-type: none"> ▪ NORMAL (the status is normal) ▪ WARNING (the usage rate of the pool capacity has exceeded the value of the THRESHOLD field or the WARNING_THRES HOLD field) ▪ BLOCKED (the usage rate of the pool capacity is 100%, and the pool is blocked) 	string(64)	No	--
THRESHOLD	System threshold or depletion threshold set for the percentage of used pool space ⁸	float	No	--
TOTAL_ACTUAL_CAPACITY	Capacity of the pool (GB) ^{5, 9}	double	No	--
TOTAL_MANAGED_CAPACITY	Virtual capacity of all Dynamic Provisioning V- VOLS mapped to the pool (GB) ⁵ For the Dynamic Provisioning pool that stores Thin Image snapshot data, the reserved capacity of the snapshot data of the Thin Image pair using the pool will be added.	double	No	--
USAGE_RATE	Usage rate of the pool capacity ⁵	float	No	(USED_CAPACITY / TOTAL_ACTUAL_CAPACITY) * 100

Field Name	Description	Format	Delta	Data Source
	<p>For the Dynamic Provisioning V-VOLs for which pool areas are reserved, the percentage includes the capacity for the reserved pages.</p> <p>For the Dynamic Provisioning pool that stores Thin Image snapshot data, the value includes the capacity of the snapshot data of the Thin Image pair using the pool.</p>			
USED_CAPACITY	<p>Amount of pool capacity that is actually being used (GB)^{5, 10}</p> <p>For the Dynamic Provisioning V-VOLs for which pool areas are reserved, the value includes the capacity for the reserved pages.</p> <p>For the Dynamic Provisioning pool that stores Thin Image snapshot data, the value includes the capacity of the snapshot data of the Thin Image pair using the pool.</p>	double	No	TOTAL_ACTUAL_CAPACITY - FREE_CAPACITY
VIRTUAL_VOLUME_COUNT ²⁴	Number of Dynamic Provisioning V-VOLs mapped to the pool	ulong	No	--
WARNING_THRESHOLD ²⁴	User-defined threshold or warning threshold set for the percentage of used pool space ⁸	float	No	--
Notes: 1. Not supported by HUS VM.				

Field Name	Description	Format	Delta	Data Source
	<ol style="list-style-type: none"> 2. The amount is stored only when the capacity saving function (deduplication and compression) is enabled. In other cases, the amount is 0. 3. The amount is stored only when the pool contains a parity group for which accelerated compression is also enabled. In other cases, the amount is 0. 4. <ul style="list-style-type: none"> ▪ If the capacity saving function (deduplication and compression) is enabled, the amount represents the capacity after the capacity size is reduced. ▪ If the pool contains a parity group for which accelerated compression is also enabled, the amount includes the capacity of the expanded area. 5. This value is not exactly the same as the device capacity information that is recognized by the host because this capacity information is managed by the storage system. 6. If the pool contains a parity group for which accelerated compression is also enabled, the value is the amount after compression. 7. If the total amount of pool volumes created from parity groups that support the accelerated compression function is less than the physical capacity of the parity groups that support the accelerated compression function, the value is always 100. If a parity group that supports the accelerated compression function does not exist, the value is 0. 8. For the values to be displayed, see the manual of the storage system being used. 9. If the pool contains a parity group for which accelerated compression is also enabled, the value is the amount that includes the capacity of the expanded area. 10. If the settings of the capacity saving function (deduplication and compression) are enabled, the amount is the amount actually used after the size of the capacity is reduced. Note that if the pool contains a parity group for which accelerated compression is also enabled, the value does not include the compressed amount. 11. For both 0x00 and 0x02, the deduplication function is disabled. 12. The capacity used by the deduplication system data volume is not included. 13. The saved amount does not include the amount of metadata and garbage data. 14. The saved capacity includes the amount of zero data reduction, metadata, and garbage data. If you are using VSP G200, G400, G600, G800, VSP F400, F600, F800, VSP G1000 (earlier than version 80-06-21), G1500 (earlier than version 80-06-21), or VSP F1500 (earlier than version 80-06-21), the saved capacity does not include the amount of zero data reduction, metadata, and garbage data. 15. When the capacity saving function (deduplication and compression) is used, the saving ratio is calculated against the amount of metadata and garbage data generated internally in addition to user data. 16. The compressed capacity with the accelerated compression function for VSP G200, G400, G600, G800, VSP F400, F600, F800, VSP G1000 (earlier than version 80-06-21), G1500 (earlier than version 80-06-21), or VSP F1500 (earlier than version 80-06-21). If the Access Type is 3 or 4, the compressed capacity with the accelerated compression function for VSP G350, G370, G700, G900, VSP F350, F370, F700, F900 (earlier than version 88-03-01). 			

Field Name	Description	Format	Delta	Data Source
17.	Reduction rate (%) of capacity compressed by the accelerated compression function for VSP G200, G400, G600, G800, VSP F400, F600, F800, VSP G1000 (earlier than version 80-06-21), G1500 (earlier than version 80-06-21), or VSP F1500 (earlier than version 80-06-21). If the <code>Access Type</code> is 3 or 4, reduction rate (%) of capacity compressed by the accelerated compression function for VSP G350, G370, G700, G900, VSP F350, F370, F700, F900 (earlier than version 88-03-01).			
18.	The saved capacity includes the amount of zero data reduction, metadata, garbage data, metadata reduction, and garbage data reduction.			
19.	A value cannot be obtained for storage systems other than VSP E series, VSP 5000 series, VSP G350, G370, G700, G900, VSP F350, F370, F700, F900, VSP G1000 (versions 80-06-21 and later), G1500 (versions 80-06-21 and later), and VSP F1500 (versions 80-06-21 and later). If a value cannot be obtained, the value -1 is used.			
20.	If the capacity after the reduction becomes larger than the capacity before the reduction, the value is -2, which indicates an invalid value.			
21.	If the data reduction function is disabled or the timing is just after a pool is created or a volume is deleted, the value might be -2 which indicates an invalid value. If the reduction is highly effective (the capacity after the reduction is close to 0), the value will be 99999.			
22.	The saved capacity includes the amount of metadata reduction and garbage data reduction.			
23.	When the data reduction function is used, the saving ratio is calculated against the amount of metadata, garbage data and parity data generated internally in addition to user data.			
24.	If the <code>Access Type</code> is 3 or 4, the information in this field is not obtained.			
25.	If the <code>Access Type</code> is 1 or 2, a value cannot be obtained for storage systems other than VSP E series, VSP 5000 series, VSP G350, G370, G700, G900, VSP F350, F370, F700, F900, VSP G1000 (versions 80-06-41 and later), G1500 (versions 80-06-41 and later), and VSP F1500 (versions 80-06-41 and later). If the <code>Access Type</code> is 3 or 4, a value cannot be obtained for storage systems other than VSP E series, VSP 5000 series (versions 90-01-42 and later), VSP G350, G370, G700, G900, VSP F350, F370, F700, and F900 (versions 88-03-29 and later).			

PD_PLF

The PD_PLF record stores performance data indicating the page I/O processing status of the Dynamic Provisioning pool. If the `Access Type` is 3 or 4, this record will not be created.

**Note:**

- Information about Copy-on-Write Snapshot pools, Thin Image pools, and Dynamic Provisioning pools that do not have tier management enabled is not collected.
- If the Dynamic Provisioning pool is blocked, RAID Agent does not collect information about the pool. However, if the Dynamic Provisioning pool is blocked because the usage rate of the pool capacity is 100%, RAID Agent collects information about the pool.
- Performance data is saved whenever monitoring information for the storage system is updated. If you collect records immediately after RAID Agent starts, the system might collect the same data it collected earlier.
- Information about Dynamic Provisioning pools is not collected if monitoring information has never been collected by the storage system.
- If RAID Agent is collecting records when the storage system is aggregating monitoring information, the collecting of records is canceled, and the KAVF18514-W message is output to the common log.
- If you stop and then restart the RAID Agent, monitoring information that covers the same time period might be stored twice.

Collection Interval

3600

Key Fields

POOL_ID and PARTITION_NUMBER

Lifetime

From the time when tiers are set up in a Dynamic Provisioning pool with tier management enabled to when they are removed.

Fields

Field Name	Description	Format	Delta	Data Source
AVG_PAGE_IO_RATE	Rate of page read/ write operations (per second) to and from the pool	float	No	--
CAPACITY	Capacity of the pool (GB)	float	No	--
COLLECTION_TIME	Time (in GMT) when data was collected from the storage system	time_t	No	--

Field Name	Description	Format	Delta	Data Source
INTERVAL	Interval (in seconds) at which the information was collected	ulong	No	--
MONITOR_COLLECTION_END_TIME	Time that collection of the monitoring information for the storage system ended. ^{1, 2}	string(32)	No	--
MONITOR_COLLECTION_START_TIME	Time that collection of the monitoring information for the storage system started. ^{1, 2}	string(32)	No	--
PARTITION_NUMBER	Partition number (from 0 to 125)	string(8)	No	--
POOL_ID	Pool ID of the pool	string(8)	No	--
RECORD_TIME	Time (in GMT) when data was collected from the storage system	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to PLF	string(8)	No	--
Notes: <ol style="list-style-type: none"> 1. Times are obtained from the storage system. 2. Times are displayed in YYYY/MM/DD hh:mm:ss format. 				

PD_PLR

The PD_PLR record stores performance data indicating the progress of tier relocations for Dynamic Provisioning pools that have tier management enabled. This is a multi-instance record. If the `Access Type` is 3 or 4, this record will not be created.

**Note:**

- Information about Copy-on-Write Snapshot pools, Thin Image pools, and Dynamic Provisioning pools that do not have tier management enabled is not collected.
- RAID Agent does not collect information about a blocked Dynamic Provisioning pool except when the pool is blocked because of its usage rate reaching 100%.
- Performance data is saved whenever tier relocation information for the storage system is updated. If you collect performance data immediately after RAID Agent starts, the data that was collected the last time might be saved again.
- Information about Dynamic Provisioning pools is not collected if tier relocation information has never been collected by the storage system.
- If RAID Agent is collecting records when the storage system is aggregating monitoring information, the collecting of records is canceled, and the KAVF18514-W message is output to the common log.

Collection Interval

3600

Key Field

POOL_ID

Lifetime

From the time when a Dynamic Provisioning pool that has tier management enabled and tiers are set up until the time they are removed.

Fields

Field Name	Description	Format	Delta	Data Source
COLLECTION_TIME	Time (in GMT) that the data was collected from the storage system	time_t	No	--
INTERVAL	Interval (in seconds) at which the information was collected	ulong	No	--
MOVED_PAGES	Number of pages moved by tier relocation	ulong	No	--
POOL_ID	ID of the pool	string(8)	No	--
PROGRESS_RATE	Progress of tier relocation (%). ¹	double	No	--

Field Name	Description	Format	Delta	Data Source
RECORD_TIME	Time (in GMT) that data was collected from the storage system and the record was generated	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier. The value is always PLR.	string(8)	No	--
RELOCATION_END_TIME	Time that tier relocation of the storage system ended ^{2, 3}	string(32)	No	--
RELOCATION_START_TIME	Time that tier relocation of the storage system started ^{2, 3}	string(32)	No	--
RELOCATION_STATUS	Tier relocation completion statuses <ul style="list-style-type: none"> Finished Interruption 	string(16)	No	--
RELOCATION_TIME	The amount of time required for tier relocation in the storage system ⁴	string(32)	No	--
Notes: <ol style="list-style-type: none"> 1. Depending on the current status of data placement among the tiers, the amount of time required for tier relocation (as predicted by the progress percentage) might not match the actual time required. 2. The time of the storage system is obtained. 3. The value is displayed in YYYY/MM/DD hh:mm:ss format. 4. Times are displayed in hh:mm:ss format. 				

PD_PLTC

The PD_PLTC record stores performance data indicating the operation status for each tier type of a Dynamic Provisioning pool that has tier management enabled. This is a multi-instance record. If the *Access Type* is 3 or 4, this record will not be created.

**Note:**

- RAID Agent does not collect information about a Copy-on-Write Snapshot pool or a Thin Image pool, or a Dynamic Provisioning pool that has tier management disabled.
- If the Dynamic Provisioning pool is blocked, RAID Agent does not collect information about the pool. However, if the Dynamic Provisioning pool is blocked because the usage rate of the pool capacity is 100%, RAID Agent collects information about the pool.
- The capacity information for this record is not exactly the same as the device capacity information that is recognized by the host because this capacity information is managed by the storage system.

Collection Interval

3600

Key Fields

POOL_ID and TIER_TYPE

Lifetime

From when the tier and a Dynamic Provisioning pool that has tier management enabled are set up to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
COLLECTION_TIME	Time (in GMT) that the data was collected from the storage system	time_t	No	--
DISPLAY_DRIVE_TYPE	Type of tier (display name)	string(32)	No	--
FMC_CAPACITY_EXPANSION_RATE ³	Expansion percentage of the FMC capacity by using accelerated compression ^{1, 2}	float	No	--
FMC_POOL_CAPACITY_FREE ³	Total amount of free capacity in the FMC volumes that make up the tier (GB) ^{2, 4}	double	No	--

Field Name	Description	Format	Delta	Data Source
FMC_POOL_CAPACITY_SAVING ³	Amount of used capacity in the tier that was reduced by the FMC compression functionality (GB) ⁵	double	No	--
FMC_POOL_CAPACITY_SAVING_RATE ³	Percentage of used capacity in the tier that was reduced by the FMC compression functionality	float	No	$(\text{FMC_POOL_CAPACITY_SAVING} / \text{FMC_POOL_CAPACITY_USED}) * 100$
FMC_POOL_CAPACITY_TOTAL ³	Total amount of capacity of the FMC volumes that make up the tier (GB) ^{2, 4}	double	No	--
FMC_POOL_CAPACITY_USAGE_RATE ³	Usage percentage of the capacity of the FMC volumes that make up the tier ²	float	No	$(\text{FMC_POOL_CAPACITY_USED} / \text{FMC_POOL_CAPACITY_TOTAL}) * 100$
FMC_POOL_CAPACITY_USED ³	Total amount of capacity of the FMC volumes that make up the tier that is being used by data ^{2, 6}	double	No	--
FREE_CAPACITY	Free capacity of the tier (GB) ⁴	double	No	$\text{PD_PLTC_TOTAL_CAPACITY} - \text{PD_PLTC_USED_CAPACITY}$
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MONITORING_MODE	Monitoring mode <ul style="list-style-type: none"> Period Mode Continuous Mode 	string(32)	No	--
PHYSICAL_FMC_CAPACITY_FREE ³	Total amount of free capacity in the physical capacity of the parity groups that make up the tier (GB) ⁷	double	No	--

Field Name	Description	Format	Delta	Data Source
PHYSICAL_FMC_CAPACITY_TOTAL ³	Total amount of the physical capacity of the parity groups that make up the tier (GB)	double	No	--
PHYSICAL_FMC_CAPACITY_USAGE_RATE ³	Usage percentage of the physical capacity of the parity groups that make up the tier	float	No	(PHYSICAL_FMC_CAPACITY_USED / PHYSICAL_FMC_CAPACITY_TOTAL) * 100
PHYSICAL_FMC_CAPACITY_USED ³	Total amount of used capacity in the physical capacity of the parity groups that make up the tier (GB) ⁷	double	No	--
POOL_ID	ID of the pool	string(8)	No	--
RECORD_TIME	Time (in GMT) that the record was stored	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to PLTC	string(8)	No	--
TIER_NUMBER	Tier number	string(8)	No	--
TIER_TYPE	Tier type ⁸	string(32)	No	--
TOTAL_CAPACITY	Capacity of the tier (GB) ⁴	double	No	--
USAGE_RATE_IN_POOL	Of the total capacity of a Dynamic Provisioning pool that has tier management enabled, the percentage of the pool used by the tier (%)	float	No	(PD_PLTC_USED_CAPACITY / PD_PLTC_TOTAL_ACTUAL_CAPACITY) * 100
USAGE_RATE_IN_TIER	Of the capacity of the tier, the percentage of the capacity used (%)	float	No	(PD_PLTC_USED_CAPACITY / PD_PLTC_TOTAL_CAPACITY) * 100
USED_CAPACITY	Amount of tier capacity that is actually being used (GB) ⁶	double	No	--
Notes:				

Field Name	Description	Format	Delta	Data Source
	<ol style="list-style-type: none"> 1. If the total amount of pool volumes created from parity groups that support the accelerated compression function is less than the physical capacity of the parity groups that support the accelerated compression function, the value is always 100. 2. If a parity group that supports the accelerated compression function does not exist, the value is 0. 3. Not supported by HUS VM. 4. If the pool contains a parity group for which accelerated compression is also enabled, the value is the amount that includes the capacity of the expanded area. 5. A value is stored only when the pool contains a parity group for which accelerated compression is also enabled. In other cases, the value is 0. 6. If the pool contains a parity group for which accelerated compression is also enabled, the value is the amount before compression. 7. If the pool contains a parity group for which accelerated compression is also enabled, the value is the amount after compression. 8. FMC is the value to be stored when the drive type is FMC, FMD DC2, or FMD HDE. SSD Mixed is the value to be stored when different types of flash drives exist. 			

PD_PLTR

The PD_PLTR record stores performance data indicating the number of pages moved by tier relocations for Dynamic Provisioning pools that have tier management enabled. This is a multi-instance record. If the `Access Type` is 3 or 4, this record will not be created.



Note:

- Information about Copy-on-Write Snapshot pools, Thin Image pools, and Dynamic Provisioning pools that do not have tier management enabled is not collected.
- RAID Agent does not collect information about a blocked Dynamic Provisioning pool except when the pool is blocked because of its usage rate reaching 100%.
- Performance data is saved whenever tier relocation information for the storage system is updated. If you collect performance data immediately after RAID Agent starts, the data that was collected the last time might be saved again.
- Information about Dynamic Provisioning pools is not collected if tier relocation information has never been collected by the storage system.
- If RAID Agent is collecting records when the storage system is aggregating monitoring information, the collecting of records is canceled, and the KAVF18514-W message is output to the common log.

Collection Interval

3600

Key Fields

POOL_ID and TIER_TYPE

Lifetime

From the time when a Dynamic Provisioning pool that has tier management enabled and tiers are set up until the time they are removed.

Fields

Field Name	Description	Format	Delta	Data Source
COLLECTION_TIME	Time (in GMT) that the data was collected from the storage system	time_t	No	--
INTERVAL	Interval in seconds at which information was collected	ulong	No	--
DEMOTED_PAGES	Number of pages moved to lower- level tiers	ulong	No	--
DISPLAY_DRIVE_TYPE	Type of tier (display name)	string(32)	No	--
POOL_ID	ID of the pool	string(8)	No	--
PROMOTED_PAGES	Number of pages moved to upper- level tiers	ulong	No	--
RECORD_TIME	Time (in GMT) that data was collected from the storage system and the record was generated	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier. The value is always PLTR.	string(8)	No	--
RELOCATION_END_TIME	Time that tier relocation of the storage system ended ^{1, 2}	string(32)	No	--
RELOCATION_START_TIME	Time that tier relocation of the storage system started ^{1, 2}	string(32)	No	--
RELOCATION_TIME	The amount of time required for tier relocation in the storage system ³	string(32)	No	--
TIER_NUMBER	Tier number	string(8)	No	--
TIER_TYPE	Type of tier ⁴	string(32)	No	--
Notes:				

Field Name	Description	Format	Delta	Data Source
<ol style="list-style-type: none"> 1. The time of the storage system is obtained. 2. The value is displayed in YYYY/MM/DD hh:mm:ss format. 3. Times are displayed in hh:mm:ss format. 4. FMC is the value to be stored when the drive type is FMC, FMD DC2, or FMD HDE. SSD Mixed is the value to be stored when different types of flash drives exist. 				

PD_PLTS

The PD_PLTS record stores performance data indicating the operation status for each tier type of a Dynamic Provisioning pool that has tier management enabled. This is a multi-instance record. If the `Access Type` is 3 or 4, this record will not be created.



Note:

- RAID Agent does not collect information about a Copy-on-Write Snapshot pool, a Thin Image pool, or a Dynamic Provisioning pool that has tier management disabled.
- If the Dynamic Provisioning pool is blocked, RAID Agent does not collect information about the pool. However, if the Dynamic Provisioning pool is blocked because the usage rate of the pool capacity is 100%, RAID Agent collects information about the pool.
- Performance data is stored only when the monitoring information for the storage system is updated. However, if you collect the record immediately after RAID Agent starts, the same data that was collected last might be stored.
- Information about the Dynamic Provisioning pool is not collected if monitoring information has never been collected in the storage system.
- If the storage system aggregates monitoring information while RAID Agent is collecting records, the collection of the records is canceled. In this case, the KAVF18514-W message is output to the common log.

Collection Interval

3600

Key Fields

`POOL_ID` and `TIER_TYPE`

Lifetime

From when the tier and a Dynamic Provisioning pool that has tier management enabled are set up to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
AVG_IO_RATE	Frequency of I/O operations (times per second) processed by the tier within the time period defined in the storage system. ¹	ulong	No	--
AVG_IOPS_UTILIZATION_RATE	Activity rate of the tier (%). Percentage of total I/O that were actually processed by the tier compared to the number of I/O that can be processed by the tier within the time period defined in the storage system. ¹	float	No	--
COLLECTION_TIME	Time (in GMT) that the data was collected from the storage system	time_t	No	--
DISPLAY_DRIVE_TYPE	Type of tier (display name)	string(32)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MONITOR_COLLECTION_END_TIME	Time that collection of the monitoring information for the storage system ended. ^{2, 3}	string(32)	No	--
MONITOR_COLLECTION_START_TIME	Time that collection of the monitoring information for the storage system started. ^{2, 3}	string(32)	No	--
POOL_ID	ID of the pool	string(8)	No	--
RECORD_TIME	Time (in GMT) that the record was stored	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to PLTS	string(8)	No	--
TIER_NUMBER	Tier number	string(8)	No	--

Field Name	Description	Format	Delta	Data Source
TIER_RANGE_IO_RATE	Minimum I/O rate of the tier (operations per second). Pages that do not attain this minimum rate are subject to relocation to a lower-level tier. For the bottom tier, the value is 0.	float	No	--
TIER_TYPE	Tier type ⁴	string(32)	No	--
Notes: <ol style="list-style-type: none"> 1. If the monitoring mode of the Dynamic Provisioning pool is Continuous Mode, the value is predicted based on the trends of past performance values. 2. Times are obtained from the storage system. 3. Times are displayed in YYYY/MM/DD hh:mm:ss format. 4. FMC is the value to be stored when the drive type is FMC, FMD DC2, or FMD HDE. SSD Mixed is the value to be stored when different types of flash drives exist. 				

PD_PTC

The PD_PTC record stores the performance data indicating the configuration information of the port of the storage system. This is a multi-instance record.



Note:

The items in (1) and (2) below all have the same field name (PORT_NUMBER), but the values output to the items in (1) are different from those output to the items in (2).

1. the PORT_NUMBER field of the PD_PTC record or the PI_PTS record
2. the PORT_NUMBER field of the PI_MPTS record or the PI_PTSX record

For this reason, if you want to check whether the port information of one record matches that of another, check the PORT_NAME field.

Collection Interval

3600

Key Field

PORT_NUMBER

Lifetime

From when the port is set up to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
AL_PA	This field cannot be used because it is reserved.	--	--	--
CHA_NAME	Name of the channel adapter	string(16)	No	--
COLLECTION_TIME ³	Time (in GMT) when the data was collected from the storage system	time_t	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
PORT_MODE	This field cannot be used because it is reserved.	--	--	--
PORT_NAME	Name of the storage system port	string(64)	No	--
PORT_NUMBER	Number of the storage system port	string(8)	No	--
PORT_ROLE ^{1, 3}	Role of the storage system port. Example: <ul style="list-style-type: none"> ▪ Target ▪ Initiator ▪ RCU Target ▪ External ▪ Bidirectional ▪ (Null string) : If the port type is FICON 	string(16)	No	--
PORT_SPEED ^{2, 3}	Configured value for the speed of the storage system port	string(8)	No	--
PORT_STATUS	This field cannot be used because it is reserved.	--	--	--
PORT_TYPE ³	Type of storage system port	string(8)	No	--
PORT_WWN ^{2,4}	WWN of the storage system port	string(32)	No	--

Field Name	Description	Format	Delta	Data Source
RECORD_TIME	Time (in GMT) when the record is stored	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to PTC	string(8)	No	--
SLPR_NUMBER	This field cannot be used because it is reserved.	--	--	--
Notes: <ol style="list-style-type: none"> 1. The value cannot be collected if the type of port on the storage system is <code>FICON</code>. 2. The value can be collected only when the type of the port on the storage system is <code>FIBRE</code> or <code>FCoE</code>. 3. If the <code>Access Type</code> is 3 or 4, the information in this field is not obtained. 4. If you are monitoring a VSP 5000 series storage system and the <code>Access Type</code> is 1, you cannot collect values for mainframe systems. 				

PD_RGC

The PD_RGC record holds performance data indicating configuration information for a parity group. This is a multi-instance record. The following records are not generated:

- Records for external volume groups or virtual volume groups (Copy-on- Write Snapshot, Thin Image, and Dynamic Provisioning virtual volume groups)
- Records for parity groups without a logical device

Collection Interval

3600

Key Field

RAID_GROUP_NUMBER

Lifetime

From when the parity group is set up to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
CLPR_NUMBER ¹	Number of the CLPR to which the parity group has been assigned	string(8)	No	--
COLLECTION_TIME ¹	Time (in GMT) when the data was collected from the storage system	time_t	No	--
DISPLAY_DRIVE_TYPE	Type of drive making up the parity group (display name) ³	string(32)	No	--
DRIVE_TYPE	Type of drive making up the parity group ^{2, 3}	string(16)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
POOL_ID	This field cannot be used because it is reserved.	--	--	--
RAID_GROUP_NUMBER	Parity group number	string(64)	No	--
RAID_GROUP_TYPE	This field cannot be used because it is reserved.	--	--	--
RAID_LEVEL	RAID level of the parity group	unsigned char	No	--
RAID_TYPE	<p>Combination of the RAID level and HDU of the parity group.</p> <ul style="list-style-type: none"> ▪ Example: RAID5(3D+1P) <p>Note that the following format is used for a volume split from a distributed parity group.</p> <ul style="list-style-type: none"> ▪ Example when the Access Type is 1 or 2: RAID1(4D+4D) ▪ Example when the Access Type is 3 or 4: RAID1(2D+2D)x2 	string(32)	No	--
RECORD_TIME	Record creation time (in GMT)	time_t	No	--

Field Name	Description	Format	Delta	Data Source
INPUT_RECORD_TYPE	Record type identifier, which is always set to RGC	string(8)	No	--
SLPR_NUMBER	This field cannot be used because it is reserved.	--	--	--
Notes: <ol style="list-style-type: none"> 1. If the <code>Access Type</code> is 3 or 4, the information in this field is not obtained. 2. FMC is the value to store when the drive type is FMC, FMD DC2, or FMD HDE. 3. For VSP 5000 series SCM drives, the information shown differs depending on the storage system microcode version. <ul style="list-style-type: none"> ▪ If the microcode version is earlier than version 90-04-04, an SCM drive is shown as an SSD drive (SSD NVMe). ▪ If the microcode version is 90-04-04 or later, an SCM drive is shown as an SCM drive (SCM NVMe). 				

PD_SEFF

The PD_SEFF record stores performance data indicating the ratio of the total saving effect (excluding system data) achieved by accelerated compression, capacity saving (deduplication and compression), snapshot, and Dynamic Provisioning for the storage system.

Collection Interval

3600

Key Field

None

Lifetime

From when the instance is created to when it is deleted.

Fields

Field Name ¹	Description	Format	Delta	Data Source
AC_COMP_RATIO	A ratio of the data saving effect achieved by compression of accelerated compression for a parity group. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
AC_MATCH_RATIO	A ratio of the data saving effect achieved by reclaiming the specified data pattern using accelerated compression of a parity group. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
AC_SAVING_RATIO	A ratio of the data saving effect achieved by accelerated compression of a parity group. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
CALCULATION_END_TIME	The end date and time for calculating (in UTC) ⁴	string(32)	No	--
CALCULATION_START_TIME	The start date and time for calculating (in UTC) ⁴	string(32)	No	--
COLLECTION_TIME ⁵	Time (in GMT) when the data was collected from the storage system	time_t	No	--
DATA_REDUCTION_RATIO	The data reduction ratio before and after accelerated compression of the parity group and capacity saving (deduplication and compression). This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--

Field Name ¹	Description	Format	Delta	Data Source
DKC_SERIAL_NUMBER	Serial number of the storage system	string(32)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
PROVISIONING_EFFICIENCY_RATE	The provisioning effect (%) ²	float	No	--
RECORD_TIME	Time (in GMT) when the record is stored	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to SEFF	string(8)	No	--
SNAPSHOT_EFFICIENCY_RATIO	The efficiency ratio achieved by snapshot. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
SOFTWARE_COMP_RATIO	A ratio of the data saving effect achieved by compression of the capacity saving function. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
SOFTWARE_DEDUP_RATIO	A ratio of the data saving effect achieved by deduplication of the capacity saving function. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
SOFTWARE_MATCH_RATIO	A ratio of the data saving effect achieved by reclaiming the specified data pattern using the capacity saving function. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--

Field Name ¹	Description	Format	Delta	Data Source
SOFTWARE_SAVING_RATIO	The capacity reduction ratio before and after capacity saving (deduplication and compression). This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
TOTAL_EFFICIENCY_RATIO	The ratio of the total saving effect achieved by accelerated compression, capacity saving (deduplication and compression), snapshot, and Dynamic Provisioning. This is the value of N when the ratio of capacity before and after the reduction is N:1. ^{2, 3}	float	No	--
Notes: <ol style="list-style-type: none"> 1. A record cannot be created for storage systems other than VSP E series, VSP 5000 series, VSP G350, G370, G700, G900, VSP F350, F370, F700, F900. 2. If a value cannot be obtained, the field value becomes one of the following: <ul style="list-style-type: none"> ▪ If the micro-version is earlier than 88-03-01, the value is -1. ▪ If the calculation is not complete, the value is -2. ▪ If the information is invalid, the value is -3. 3. Under certain circumstances, the field value can display as 99999 (for example: before data has been written to newly-created pool or virtual volume). 4. Times are displayed in YYYY-MM-DD hh:mm:ss format. If a value cannot be obtained, an empty character string ("") is displayed. 5. If the <code>Access Type</code> is 3 or 4, the information in this field is not obtained. 				

PD_UMS

The PD_UMS record stores performance data indicating the 20 highest activity rates for the resources allocated to each MP Blade. If the `Access Type` is 3 or 4, this record will not be created.

Collection Interval

300

Key Fields

MP_BLADE_ID, PROCESSOR_ID, and USAGE_RANK

Lifetime

From when the MP Blade is defined to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
COLLECTION_TIME	Time (in GMT) when data was collected from the storage system	time_t	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MP_BLADE_ID	<ul style="list-style-type: none"> ▪ For VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, or HUS VM: ID that identifies the MP unit in the storage system to which the processor belongs. ▪ For VSP G1000, G1500, or VSP F1500: ID that identifies the MP blade in the storage system to which the processor belongs. 	string(16)	No	--
PROCESSOR_ID	Character string that identifies the processor	string(16)	No	--
PROCESSING_TYPE	The type of resource usage.	string(16)	No	--
RECORD_TIME	Time (in GMT) when the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to UMS	string(8)	No	--

Field Name	Description	Format	Delta	Data Source
RESOURCE_ID	Resource ID. The value depends on the type of resource, as follows: <ul style="list-style-type: none"> ▪ For LDEVs: The LDEV number ▪ For journals: The journal group number ▪ For external volumes: The external volume group number 	string(16)	No	--
RESOURCE_TYPE	Type of resource. The value depends on the type of resource, as follows: <ul style="list-style-type: none"> ▪ For LDEVs: LDEV ▪ For journal groups: Journal ▪ For external volume groups: External Volume 	string(16)	No	--
RESOURCE_UTILIZATION	Resource utilization	float	No	--
USAGE_RANK	The rank (from 1 to 20) of this resource compared to other resources in the MP in terms of utilization	string(8)	No	--

PD_VVC

The PD_VVC record stores performance data indicating the operation status of the V-VOL for Dynamic Provisioning. This is a multi-instance record.



Note:

- Information about Copy-on-Write Snapshot V-VOLs, Thin Image V-VOLs, and the V-VOLs that are not associated with the Dynamic Provisioning pool is not collected.
- If the Dynamic Provisioning pool to which the Dynamic Provisioning V-VOL belongs is blocked, RAID Agent does not collect information about the V-VOL. However, if the Dynamic Provisioning pool is blocked because the usage rate of the pool capacity is 100%, RAID Agent collects information about the V-VOL.

Collection Interval

3600

Key Field

LDEV_NUMBER

Lifetime

From when the V-VOL of Dynamic Provisioning is set up to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
ATTRIBUTE ^{1, 4}	<p>An attribute that indicates whether Full Allocation is enabled or disabled and whether the Data Direct Mapping is enabled or disabled</p> <ul style="list-style-type: none"> ▪ If Full Allocation is enabled: Full Allocation ▪ If Data Direct Mapping is enabled: Data Direct Mapping ▪ If Full Allocation and Data Direct Mapping are disabled, or Full Allocation and Data Direct Mapping are not supported by the storage system: (Null string) 	string(20)	No	--
COLLECTION_TIME ⁴	Time (in GMT) when the data was collected from the storage system	time_t	No	--

Field Name	Description	Format	Delta	Data Source
DATA_SAVING ^{1, 4}	<p>Settings of the capacity saving function (deduplication and compression) for a volume</p> <ul style="list-style-type: none"> ▪ 0x00: Disabled ▪ 0x02: The capacity saving function (compression) is enabled. ▪ 0x03: The capacity saving function (compression and deduplication) are enabled. 	unsigned char	No	--
DEDUP_MODE ^{1, 4}	<p>The capacity saving processing mode</p> <ul style="list-style-type: none"> ▪ Inline: Inline mode. ▪ Post-process: Post-process mode. ▪ "": This function is not supported. 	string(32)	No	--
FREE_CAPACITY	Free capacity of the V-VOL (MB). ²	double	No	VIRTUAL_VOLUME_CAPACITY - USED_CAPACITY
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_NUMBER	Logical device number of the V-VOL	string(16)	No	--
POOL_FREE_CAPACITY_RATE ⁴	<p>Percentage of free capacity in the V-VOL for a Dynamic Provisioning pool.²</p> <p>If the free capacity in the V-VOL is small, the value might become extremely large.</p> <p>Example:</p>	double	No	(PD_PLC_FREE_CAPACITY / PD_VVC_FREE_CAPACITY) * 100

Field Name	Description	Format	Delta	Data Source
	If the free capacity in the pool to which the V-VOL belongs is 100 GB and the free capacity in the V-VOL is 10 GB, the value is 1000%.			
POOL_ID ⁴	ID of the Dynamic Provisioning pool to which the V-VOL belongs	string(8)	No	--
RECORD_TIME	Time (in GMT) when the record was stored	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to VVC	string(8)	No	--
RESERVED_CAPACITY ^{1, 4}	The capacity for the reserved pages of the virtual volume (MB)	double	No	--
THRESHOLD ⁴	Threshold value (%) set for the free capacity in the Dynamic Provisioning pool to which the V-VOL belongs, as a percentage of the free capacity in the V-VOL (the value of the POOL_FREE_CAPACITY_RATE field). This value is specified in Storage Navigator.	float	No	--
USAGE_RATE ⁴	Of the virtual capacity of the V-VOL, the percentage of the capacity actually used (the usage rate of the pool capacity). ²	float	No	(USED_CAPACITY / VIRTUAL_VOLUME_CAPACITY) * 100

Field Name	Description	Format	Delta	Data Source
	If pool areas are reserved, the percentage includes the capacity for the reserved pages.			
USED_CAPACITY	The actual amount of V-VOL capacity being used (MB). ² If pool areas are reserved, the value includes the capacity for the reserved pages.	double	No	--
VIRTUAL_VOLUME_CAPACITY ³	The virtual capacity of the V-VOL (MB). ²	double	No	--
Notes: <ol style="list-style-type: none"> 1. Not supported by HUS VM. 2. This value is not exactly the same as the device capacity information that is recognized by the host because this capacity information is managed by the storage system. 3. This value is not exactly the same as the setting value of Storage Navigator because this value is the actual assigned value. 4. If the <code>Access Type</code> is 3 or 4, the information in this field is not obtained. 				

PD_VVF

The PD_VVF record stores performance information indicating the page I/O status for the virtual volumes mapped to the Dynamic Provisioning pool. If the `Access Type` is 3 or 4, this record will not be created.

**Note:**

- Information about Copy-on-Write Snapshot pools, Thin Image pools, and Dynamic Provisioning pools that do not have tier management enabled is not collected.
- RAID Agent does not collect information about a blocked Dynamic Provisioning pool except when the pool is blocked because of its usage rate reaching 100%.
- RAID Agent does not collect information about the V-VOLs that are not associated with the Dynamic Provisioning pool.
- Performance data is saved whenever tier relocation information for the storage system is updated. If you collect performance data immediately after RAID Agent starts, the data that was collected the last time might be saved again.
- Information about Dynamic Provisioning pools is not collected if tier relocation information has never been collected by the storage system.
- If RAID Agent is collecting records when the storage system is aggregating monitoring information, the collecting of records is canceled, and the KAVF18514-W message is output to the common log.
- If you stop and then restart the RAID Agent, monitoring information that covers the same time period might be stored twice.

Collection Interval

3600

Key Fields

LDEV_NUMBER and PARTITION_NUMBER

Lifetime

From when a virtual volume is set up in a Dynamic Provisioning pool with tier management enabled to when the volume is removed.

Fields

Field Name	Description	Format	Delta	Data Source
AVG_PAGE_IO_RATE	Average rate of page read/write operations (per second) to and from the virtual volumes	float	No	--
CAPACITY	Capacity of the virtual volume (GB)	float	No	--

Field Name	Description	Format	Delta	Data Source
COLLECTION_TIME	Time (in GMT) when data was collected from the storage system	time_t	No	--
INTERVAL	Interval (in seconds) at which the information was collected	ulong	No	--
LDEV_NUMBER	Logical device number of the virtual volume	string(16)	No	--
MONITOR_COLLECTION_END_TIME	Time that collection of the monitoring information for the storage system ended. ^{1, 2}	string(32)	No	--
MONITOR_COLLECTION_START_TIME	Time that collection of the monitoring information for the storage system started. ^{1, 2}	string(32)	No	--
PARTITION_NUMBER	Partition number (from 0 to 125)	string(8)	No	--
POOL_ID	Pool ID of the pool	string(8)	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to VVF	string(8)	No	--
Notes: <ol style="list-style-type: none"> 1. Times are obtained from the storage system. 2. Times are displayed in YYYY/MM/DD hh:mm:ss format. 				

PD_VVTC

The PD_VVTC record stores performance data indicating the operation status of the virtual volume for each tier type of a Dynamic Provisioning pool that has tier management enabled. This is a multi-instance record. If the `Access Type` is 3 or 4, this record will not be created.

**Note:**

- RAID Agent does not collect information about a Copy-on-Write Snapshot V-VOL, a Thin Image V-VOL, or a Dynamic Provisioning V-VOL that has tier management disabled.
- If the Dynamic Provisioning pool to which the Dynamic Provisioning V-VOL belongs is blocked, RAID Agent does not collect information about the V-VOL. However, if the Dynamic Provisioning pool is blocked because the usage rate of the pool capacity is 100%, RAID Agent collects information about the V-VOL.
- RAID Agent does not collect information about the V-VOLs that are not associated with the Dynamic Provisioning pool.

Collection Interval

3600

Key Fields

LDEV_NUMBER and TIER_TYPE

Lifetime

From the time the Dynamic Provisioning V-VOL that has tier management enabled is set up to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
COLLECTION_TIME	Time (in GMT) at which the data was collected from the storage system	time_t	No	--
DISPLAY_DRIVE_TYPE	Type of tier (display name)	string(32)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_NUMBER	Logical device number of the V-VOL	string(16)	No	--
POOL_ID	ID of the pool	string(8)	No	--
RECORD_TIME	Time (in GMT) at which the record was stored	time_t	No	--

Field Name	Description	Format	Delta	Data Source
INPUT_RECORD_TYPE	Record type identifier, which is always set to VVTC	string(8)	No	--
TIER_NUMBER	Tier number	string(8)	No	--
TIER_TYPE	Tier type ²	string(32)	No	--
USAGE_RATE	Of the virtual capacity of the V-VOL, the percentage of the capacity used by the tier. ¹	float	No	(PD_VVTC_USED_CAPACITY / PD_VVC_VIRTUAL_VOLUME_CAPACITY) * 100
USED_CAPACITY	Of the virtual capacity of the V-VOL, the actual amount of V-VOL capacity used by the tier (MB). ¹	double	No	--
Notes: <ol style="list-style-type: none"> 1. This value is not exactly the same as the device capacity information that is recognized by the host because this capacity information is managed by the storage system. 2. FMC is the value to be stored when the drive type is FMC, FMD DC2, or FMD HDE. SSD Mixed is the value to be stored when different types of flash drives exist. 				

PI

The PI record stores the performance data indicating the operation status of the storage system.

Collection Interval

60

Key Field

None

Lifetime

From when the instance is created to when it is deleted.

Fields

Field Name	Description	Format	Delta	Data Source
CACHE_MEMORY_CAPACITY ³	Amount of cache memory in the storage system (of the installed memory, the size of the memory assigned for the I/O cache (MB)).	ulong	No	--
CACHE_MEMORY_USAGE ³	Of the cache memory in the storage system, the amount that is being used (MB). ¹	ulong	No	--
CACHE_MEMORY_USAGE_RATE ³	Of the cache memory in the storage system, the percentage that is being used. ¹	float	No	(CACHE_MEMORY_USAGE / CACHE_MEMORY_CAPACITY) * 100
CACHE_SIDE_FILE	This field cannot be used because it is reserved.	--	--	--
CACHE_SIDE_FILE_RATE	This field cannot be used because it is reserved.	--	--	--
CACHE_WRITE_PENDING ³	Of the cache memory, the cache memory size used by write-pending data (MB). ¹	ulong	No	--
CACHE_WRITE_PENDING_RATE ³	Of the cache memory, the percentage of the cache memory used by write-pending data. ¹	float	No	(CACHE_WRITE_PENDING / CACHE_MEMORY_CAPACITY) * 100

Field Name	Description	Format	Delta	Data Source
CHA_CACHE_PATH_USAGE_RATE ²	Average (%) of the access path usage rate in the device between the channel adapter and cache switch	float	No	--
DKA_CACHE_PATH_USAGE_RATE ²	Average (%) of the access path usage rate in the device between the disk adapter and cache switch	float	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_COUNT	This field cannot be used because it is reserved.	--	--	--
MAX_CACHE_MEMORY_USAGE_RATE ³	Of the cache memory in the storage system, the percentage that is being used.	float	No	CACHE_MEMORY_USAGE_RATE
MAX_CACHE_SIDE_FILE_RATE	This field cannot be used because it is reserved.	--	--	--
MAX_CACHE_WRITE_PENDING_RATE ³	Of the cache memory, the percentage used by write-pending data.	float	No	CACHE_WRITE_PENDING_RATE
PORT_COUNT	This field cannot be used because it is reserved.	--	--	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to PI	string(8)	No	--
Notes: <ol style="list-style-type: none"> 1. This field stores the value that was the most recent at the time that the record was created. 2. Not supported by VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, or HUS VM storage systems. 3. If the Access Type is 3 or 4, the information in this field is not obtained. 				

PI_CHS

The PI_CHS record stores performance data indicating the aggregate value of the port performance information for each CHA in a storage system. If the `Access Type` is 3 or 4, this record will not be created.

Collection Interval

60

Key Field

CHA_NAME

Lifetime

From when the port is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
AVG_IO_RATE*	The aggregate value of the average frequency of read and write operations for the storage system port (number of times per second) for each CHA	float	No	--
AVG_XFER_RATE*	The aggregate value of the read and write transfer speed for the storage system port (megabytes per second) for each CHA	float	No	--
CHA_NAME	Name of the channel adapter	string(16)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to CHS	string(8)	No	--
* If the port type is ESCON or FICON, this value can be collected only when the storage system is VSP 5000 series, VSP G1000 (80-03 or later), G1500, or VSP F1500.				

PI_CLMS

The PI_CLMS record stores performance data indicating the write pending rate and cache memory of the CLPR for each MP Blade in a storage system. This is a multi-instance record.

Collection Interval

60

Key Fields

MP_BLADE_ID and CLPR_NUMBER

Lifetime

From the time when the MP Blade and CLPR are set up until the time they are removed

Fields

Field Name	Description	Format	Delta	Data Source
CACHE_MEMORY_USAGE_RATE*	Of the cache memory allocated for each MP blade in the CLPR, the percentage that is being used by the LDEV that is owned by the MP blade of the MP_BLADE_ID field.	float	No	--
CACHE_WRITE_PENDING_RATE	Of the cache memory allocated for each MP blade in the CLPR, the percentage that is being used by the write pending data of the LDEV that is owned by the MP blade of the MP_BLADE_ID field.	float	No	--
CLPR_NUMBER	CLPR number	string(8)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--

Field Name	Description	Format	Delta	Data Source
MAX_CACHE_MEMORY_USAGE_RATE*	Of the cache memory allocated for each MP blade in the CLPR, the percentage that is being used by the LDEV that is owned by the MP blade of the MP_BLADE_ID field.	float	No	CACHE_MEMORY_USAGE_RATE
MAX_CACHE_WRITE_PENDING_RATE*	Of the cache memory allocated for each MP blade in the CLPR, the percentage that is being used by the write pending data of the LDEV that is owned by the MP blade of the MP_BLADE_ID field.	float	No	CACHE_WRITE_PENDING_RATE
MP_BLADE_ID	<ul style="list-style-type: none"> ▪ For VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, or HUS VM: ID that identifies the MP unit to which the processor belongs in the storage system. ▪ For VSP G1000, G1500, or VSP F1500: ID that identifies the MP blade to which the processor belongs in the storage system. 	string(16)	No	--
RECORD_TIME	Time (in GMT) when the data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to CLMS	string(8)	No	--

Field Name	Description	Format	Delta	Data Source
* If the Access Type is 3 or 4, the information in this field is not obtained.				

PI_CLPS

The PI_CLPS record stores performance data indicating the operation status of the cache memory for each CLPR. This is a multi-instance record.

Collection Interval

60

Key Field

CLPR_NUMBER

Lifetime

From when the CLPR is defined to when it is deleted, or to when its definition is changed.

Fields

Field Name	Description	Format	Delta	Data Source
CACHE_MEMORY_CAPACITY ²	Amount of cache memory allocated for this CLPR (MB)	ulong	No	--
CACHE_MEMORY_USAGE ²	Of the cache memory allocated for this CLPR, the amount that is being used (MB). ¹	ulong	No	--
CACHE_MEMORY_USAGE_RATE	Of the cache memory allocated for this CLPR, the percentage that is being used. ¹	float	No	(CACHE_MEMORY_USAGE / CACHE_MEMORY_CAPACITY) * 100
CACHE_SIDE_FILE	This field cannot be used because it is reserved.	--	--	--
CACHE_SIDE_FILE_RATE	This field cannot be used because it is reserved.	--	--	--

Field Name	Description	Format	Delta	Data Source
CACHE_WRITE_PENDING ²	Of the cache memory allocated for this CLPR, the amount that is being used by write-pending data (MB). ¹	ulong	No	--
CACHE_WRITE_PENDING_RATE	Of the cache memory allocated for this CLPR, the percentage that is being used by write-pending data. ¹	float	No	(CACHE_WRITE_PENDING / CACHE_MEMORY_CAPACITY) * 100
CLPR_NUMBER	CLPR number	string(8)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_CACHE_MEMORY_USAGE_RATE ²	Of the cache memory allocated for this CLPR, the percentage that is being used.	float	No	CACHE_MEMORY_USAGE_RATE
MAX_CACHE_SIDE_FILE_RATE	This field cannot be used because it is reserved.	--	--	--
MAX_CACHE_WRITE_PENDING_RATE ²	Of the cache memory allocated for this CLPR, the percentage that is being used by write-pending data.	float	No	CACHE_WRITE_PENDING_RATE
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to CLPS	string(8)	No	--
Notes: <ol style="list-style-type: none"> 1. This field stores the value that was the most recent at the time the record was created. 2. If the Access Type is 3 or 4, the information in this field is not obtained. 				

PI_JNLS

The PI_JNLS record stores performance data indicating the operation status of the journal group. If the `Access Type` is 3 or 4, this record will not be created.

Collection Interval

300

Key Field

JOURNAL_ID

Lifetime

From when the journal group is assigned to when it is released.

Fields

Field Name	Description	Format	Delta	Data Source
ASYNC_COPY_TRANSFER_RATE	The amount of transferred data per second (megabytes per second) for asynchronous replication in the journal group. Sub-journal groups are not supported.	double	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
JOURNAL_ID	ID of the journal group	string(8)	No	--
RECORD_TIME	Time (GMT) at which the record was stored	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to JNLS	string(8)	--	--
RIO_RESPONSE_RATE	Average RIO response time (in microseconds per I/O operation) of the storage system among the journal groups	double	--	--
WRITE_IO_RATE	Number of write I/O operations per second (in IO/sec) to the primary storage system in the journal group.	double	No	--

Field Name	Description	Format	Delta	Data Source
	Secondary journal groups are not supported			
WRITE_XFER_RATE	Amount of data written per second (in MB/sec) to the primary storage system in the journal group. Secondary journal groups are not supported.	double	No	--

PI_LDA

The PI_LDA record stores the performance data indicating the values summarizing the execution status of read and write operations on the logical devices for each storage system. If the `Access Type` is 3 or 4, this record will not be created.



Note: If the logical devices were excluded from the monitoring targets during the setup of the RAID Agent instance environment, information about those logical devices will not be applied to this record.

Collection Interval

300

Key Field

None

Lifetime

From when the instance is created to when it is deleted

Fields

Field Name	Description	Format	Delta	Data Source
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--

Field Name	Description	Format	Delta	Data Source
LDEV_COUNT	Total number of logical devices that can be monitored by the RAID Agent. A LUSE is counted as one logical device.	ulong	No	--
MONITORED_LDEV_COUNT	Number of logical devices currently monitored by the RAID Agent. If the logical devices to be monitored are specified in the logical device definition file (ldev_filter.ini), the number of those logical devices is stored in this field. Note that a LUSE is counted as one logical device.	ulong	No	--
READ_HIT_RATE	Cache hit rate of read operations	double	No	$(\text{READ_HIT_IO_COUNT} / \text{READ_IO_COUNT}) * 100$
READ_HIT_IO_COUNT	Number of times the cache is hit for read operations	double	Yes	--
READ_IO_RATE	Frequency of read operations (number of times per second)	double	No	$\text{READ_IO_COUNT} / \text{INTERVAL}$
READ_IO_COUNT	Number of read operations	double	Yes	--
READ_MBYTES*	Read data transfer size (MB)	double	Yes	--
READ_RESPONSE_RATE	This field cannot be used because it is reserved.	--	--	--
READ_TOTAL_RESPONSE	This field cannot be used because it is reserved.	--	--	--

Field Name	Description	Format	Delta	Data Source
READ_XFER_RATE*	Read transfer speed (MB per second)	double	No	READ_MBYTES / INTERVAL
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to LDA	string(8)	No	--
WRITE_HIT_RATE	Cache hit rate of write operations	double	No	(WRITE_HIT_IO_COUNT / WRITE_IO_COUNT) * 100
WRITE_HIT_IO_COUNT	Number of times the cache is hit for write operations	double	Yes	--
WRITE_IO_RATE	Frequency of write operations (number of times per second)	double	No	WRITE_IO_COUNT / INTERVAL
WRITE_IO_COUNT	Number of write operations	double	Yes	--
WRITE_MBYTES*	Write data transfer size (MB)	double	Yes	--
WRITE_RESPONSE_RATE	This field cannot be used because it is reserved.	--	--	--
WRITE_TOTAL_RESPONSE	This field cannot be used because it is reserved.	--	--	--
WRITE_XFER_RATE*	Write transfer speed (number of MB per second)	double	No	WRITE_MBYTES / INTERVAL
* For logical devices for which the mainframe emulation type is set, this value can be collected only when the storage system is VSP 5000 series, VSP G1000 (80-03 or later), G1500, or VSP F1500.				

PI_LDE

The PI_LDE record stores performance data indicating the execution status of random and sequential read and write operations on the logical device. This is a multi-instance record.

Note that if you are monitoring a VSP 5000 series storage system and the `Access Type` is 3 or 4, you cannot collect performance information about mainframe systems.

Sync Collection With

PI_LDS

Key Field

LDEV_NUMBER

Lifetime

From when the logical device is set up to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
BUSY_RATE ^{1, 2, 3}	Usage rate of the logical device (%) ¹¹	float	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_NUMBER	Logical device number ⁴	string(16)	No	--
MAX_BUSY_RATE ^{1, 2, 3, 13}	Usage rate of the logical device (%) ¹¹	float	No	BUSY_RATE
RANDOM_READ_IO_RATE	Frequency of random read operations (times per second)	float	No	--
RANDOM_READ_XFER_RATE ⁵	Transfer rate of random read operations (megabytes per second)	float	No	--
RANDOM_WRITE_IO_RATE	Frequency of random write operations (times per second)	float	No	--
RANDOM_WRITE_XFER_RATE ⁵	Transfer rate of random write operations (megabytes per second)	float	No	--

Field Name	Description	Format	Delta	Data Source
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier ¹⁴	string(8)	No	--
SEQUENTIAL_READ_IO_RATE	Frequency of sequential read operations (times per second)	float	No	--
SEQUENTIAL_READ_XFER_RATE ⁵	Transfer rate of sequential read operations (megabytes per second)	float	No	--
SEQUENTIAL_WRITE_IO_RATE	Frequency of sequential write operations (times per second)	float	No	--
SEQUENTIAL_WRITE_XFER_RATE ⁵	Transfer rate of sequential write operations (megabytes per second)	float	No	--
VIRTUAL_DKC_DETAIL_NAME	This field cannot be used because it is reserved.	--	--	--
VIRTUAL_DKC_NAME ^{6, 7, 8, 9, 12, 13}	Product name of the virtual storage system to which the logical device belongs	string(32)	No	--
VIRTUAL_LDEV_NUMBER ^{6, 7, 10, 13}	Virtualized logical device number associated with the logical device	string(16)	No	--
VIRTUAL_SERIAL_NUMBER ^{6, 7, 8, 13}	Serial number of the virtual storage system associated with the logical device	string(32)	No	--
Notes: <ol style="list-style-type: none"> 1. If the logical device is an externally connected LDEV, the field value will always be 0. 2. The field value is always 0 when the logical device is a Copy-on-Write Snapshot V-VOL or a Thin Image V-VOL. 3. The field value is always 0 when the logical device is a Dynamic Provisioning V-VOL. 				

Field Name	Description	Format	Delta	Data Source
	<p>4. If the logical device is a component of a LUSE, the value of LDEV_NUMBER indicates the logical device number of the first logical device of the LUSE.</p> <p>Each performance information field contains statistics on random and sequential read or write operations performed on the entire logical device group that makes up the LUSE. No record is created for individual logical devices that are included in the LUSE. If the LUSE consists of externally connected logical devices, or logical devices of V-VOLs for Copy-on-Write Snapshot/Thin Image or Dynamic Provisioning, and no LU path is set for the LUSE, the LUSE is not recognized and records are created for individual logical devices.</p> <p>5. This field is not supported for logical devices for which the mainframe emulation type is set.</p> <p>6. If the logical device does not belong to a virtual storage system, the field value will be NULL.</p> <p>7. The value cannot be collected for the following storage systems: HUS VM.</p> <p>8. If the logical device that composes a copy pair of global-active device is not virtualized, the field value will be NULL.</p> <p>9. If the virtual storage system is VSP F400 or VSP F600, the value is VSP G400 G600. If the virtual storage system is VSP F800, the value is VSP G800.</p> <p>10. If either of the following applies to the logical device, the field value will be NULL.</p> <ul style="list-style-type: none"> ■ The logical device that is part of a copy pair of a global-active device is not virtualized. ■ A virtualized logical device number is not set. <p>11. For storage systems other than those of the following models, if the storage system has a built-in flash drive (FMD, FMC, or SSD), the value displayed as the usage rate of the parity groups of the flash drive might be higher than the actual usage rate, regardless of the load on the flash drive: VSP 5000 series, VSP Gx00, VSP Fx00, VSP G1000, G1500, and VSP F1500.</p> <p>For such storage systems, do not use as reference the value displayed as the usage rate of the parity groups of the flash drive.</p> <p>12. If the virtual storage system is VSP G1000, the value stored in the VIRTUAL_DKC_NAME field is VSP G1000 G1500 F1500.</p> <p>13. If the Access Type is 3 or 4, the information in this field is not obtained.</p> <p>14. Depending on the logical device number, one of the following values is used: LDE, LDE1, LDE2, or LDE3.</p>			

PI_LDS

The PI_LDS record stores the performance data indicating the execution status of read and write operations on the logical device. This is a multi-instance record.

Note that if you are monitoring a VSP 5000 series storage system and the `Access Type` is 3 or 4, you cannot collect performance information about mainframe systems.

Collection Interval

300

Key Field

LDEV_NUMBER

Lifetime

From when the logical device is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_NUMBER	Logical device number. ¹	string(16)	No	--
RANDOM_TOTAL_IO_RATE ¹⁰	Frequency of random operations (sum of processing times for random read and write operations per second)	float	No	--
RANDOM_TOTAL_XFER_RATE ^{2, 10}	Transfer rate of random operations (total megabytes for random read and write operations per second)	float	No	--
READ_HIT_RATE	Cache hit rate of read operations.	float	No	(READ_HIT_IO_COUNT / READ_IO_COUNT) * 100
READ_HIT_IO_COUNT	Number of times the cache is hit for read operations.	ulong	Yes	--
READ_IO_RATE	Frequency of read operations (number of times per second).	float	No	READ_IO_COUNT / INTERVAL
READ_IO_COUNT ¹⁰	Number of read operations.	ulong	Yes	--

Field Name	Description	Format	Delta	Data Source
READ_MBYTES ^{3, 10}	Read data transfer size (MB).	ulong	Yes	--
READ_RESPONSE_RATE ³	Average processing time for each read operation request (in microseconds).	float	No	--
READ_TOTAL_RESPONSE ^{3, 10}	Sum of processing times for read-operation requests processed during the collection period (in microseconds).	double	Yes	--
READ_XFER_RATE ³	Read data transfer rate (MB per second).	float	No	READ_MBYTES / INTERVAL
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier ¹¹	string(8)	No	--
SEQUENTIAL_TOTAL_IO_RATE ¹⁰	Frequency of sequential operations (sum of processing times for sequential read and write operations per second)	float	No	--
SEQUENTIAL_TOTAL_XFER_RATE ^{2, 10}	Transfer rate of sequential operations (total megabytes for sequential read and write operations per second)	float	No	--
TOTAL_RESPONSE_RATE ³	Average processing time for each read and write operation request (in microseconds).	float	No	--
VIRTUAL_DKC_DETAIL_NAME	This field cannot be used because it is reserved.	--	--	--

Field Name	Description	Format	Delta	Data Source
VIRTUAL_DKC_NAME ^{4, 5, 6, 7, 9, 10}	Product name of the virtual storage system to which the logical device belongs	string(32)	No	--
VIRTUAL_LDEV_NUMBER ^{4, 5, 8, 10}	Virtualized logical device number associated with the logical device	string(16)	No	--
VIRTUAL_SERIAL_NUMBER ^{4, 5, 6, 10}	Serial number of the virtual storage system to which the logical device belongs	string(32)	No	--
WRITE_HIT_RATE	This field cannot be used because it is reserved.	--	--	--
WRITE_HIT_IO_COUNT	This field cannot be used because it is reserved.	--	--	--
WRITE_IO_RATE	Frequency of write operations (number of times per second).	float	No	WRITE_IO_COUNT / INTERVAL
WRITE_IO_COUNT ¹⁰	Number of write operations.	ulong	Yes	--
WRITE_MBYTES ^{3, 10}	Write data transfer size (MB).	ulong	Yes	--
WRITE_RESPONSE_RATE ³	Average processing time for each write operation request (in microseconds).	float	No	--
WRITE_TOTAL_RESPONSE ^{3, 10}	Sum of processing times for write-operation requests processed during the collection period (in microseconds).	double	Yes	--
WRITE_XFER_RATE ³	Write transfer speed (MB per second).	float	No	WRITE_MBYTES / INTERVAL
Notes:				

Field Name	Description	Format	Delta	Data Source
	<ol style="list-style-type: none"> 1. If the logical device is a component of a LUSE, the value of LDEV_NUMBER indicates the logical device number of the first logical device of the LUSE. Each performance information field contains statistics on the read or write operations performed on the entire logical device group that makes up the LUSE. No record is created for individual logical devices that are included in the LUSE. If the LUSE consists of externally connected logical devices, or logical devices of V-VOLs for Copy-on-Write Snapshot/Thin Image or Dynamic Provisioning, and no LU path is set for the LUSE, the LUSE is not recognized and records are created for individual logical devices. 2. This field is not supported for logical devices for which the mainframe emulation type is set. 3. For logical devices for which the mainframe emulation type is set, this value can be collected only for VSP 5000 series, VSP G1000 (80-03 or later), G1500, or VSP F1500 storage systems. 4. If the logical device does not belong to a virtual storage system, the field value is NULL. 5. The value cannot be collected for the following storage systems: HUS VM. 6. If the logical devices that compose a global-active device copy pair are not virtualized, the field value will be NULL. 7. For VSP F400 or VSP F600 virtual storage systems, the value is VSP G400 G600. For VSP F800 virtual storage systems, the value is VSP G800. 8. If either of the following applies to the logical device, the field value will be NULL. <ul style="list-style-type: none"> ▪ The logical device is part of a global-active device copy pair, and is not virtualized. ▪ No virtualized logical device number is set for the logical device. 9. For a VSP G1000 virtual storage system, the value stored in the VIRTUAL_DKC_NAME field is VSP G1000 G1500 F1500. 10. If the Access Type is 3 or 4, the information in this field is not obtained. 11. Depending on the logical device number, one of the following values is used: LDS, LDS1, LDS2, or LDS3. 			

PI_PLS

The PI_PLS record stores performance data indicating the operation status of the Dynamic Provisioning pool. This is a multi-instance record. If the Access Type is 3 or 4, this record will not be created.



Note: RAID Agent does not collect information about Copy-on-Write Snapshot pools and Thin Image pools.

Collection Interval

300

Key Field

POOL_ID

Lifetime

From when the Dynamic Provisioning pool is set up to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
POOL_ID	ID of the pool	string(8)	No	--
READ_IO_RATE ²	Frequency of read operations (times per second) for virtual volumes mapped to the Dynamic Provisioning pool ¹	float	No	--
READ_RESPONSE_RATE ³	Average processing time per read request (in microseconds) for virtual volumes mapped to the Dynamic Provisioning pool ¹	float	No	--
READ_XFER_RATE ³	Total read data transfer rate for virtual volumes mapped to the Dynamic Provisioning pool (megabytes per second) ¹	float	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to PLS	string(8)	No	--
WRITE_IO_RATE ²	Frequency of write operations (times per second) for virtual volumes mapped to the Dynamic Provisioning pool ¹	float	No	--

Field Name	Description	Format	Delta	Data Source
WRITE_RESPONSE_RATE ³	Average processing time per write request (in microseconds) for virtual volumes mapped to the Dynamic Provisioning pool ¹	float	No	--
WRITE_XFER_RATE ³	Total write data transfer rate for virtual volumes mapped to the Dynamic Provisioning pool (megabytes per second) ¹	float	No	--
Notes: <ol style="list-style-type: none"> 1. Performance values do not include information about virtual volumes that are used as S-VOLs of Thin Image. 2. The field value is 0 when the mainframe emulation type is set for a Dynamic Provisioning pool and the Mainframe Volume Monitoring value for that pool is N. 3. For Dynamic Provisioning pools for which the mainframe emulation type is set, this value can be collected only for when the storage system is VSP 5000 series, VSP G1000 (80-03 or later), G1500, or VSP F1500. 				

PI_PLTI

The PI_PLTI record stores performance data indicating the execution status of read and write processing for each type of tier for Dynamic Provisioning pools that have tier management enabled. This is a multi-instance record. If the `Access Type` is 3 or 4, this record will not be created.



Note:

- Information about Copy-on-Write Snapshot pools, Thin Image pools and Dynamic Provisioning pools that do not have tier management enabled is not collected.
- RAID Agent does not collect information about a blocked Dynamic Provisioning pool except when the pool is blocked because of its usage rate reaching 100%.

Collection Interval

900

Key Fields

POOL_ID and TIER_TYPE

Lifetime

From the time when a Dynamic Provisioning pool that has tier management enabled is set up until the time when the pool is removed.

Fields

Field Name	Description	Format	Delta	Data Source
AVG_IO_RATE	<p>Average read and write processing rate (number of times per second) for the tier, excluding cache hits. The average number of backend I/O for the tier is displayed.</p> <p>For the entire pool (when the value of the TIER_TYPE field is <code>_Total</code>), average read and write processing rate (number of times per second) in the pool is displayed.</p> <p>In this case, the average total number of backend I/O for the tiers in the pool is displayed.</p>	double	No	--
INTERVAL	Interval (in seconds) at which information was collected	ulong	No	--
POOL_ID	ID of the pool	string(8)	No	--
RECORD_TIME	Time (in GMT) that the data was collected from the storage system and the record was generated	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier. The value is always PLTI.	string(8)	No	--
TIER_NUMBER	<p>Number of the tier.</p> <p>For the entire pool (when the value of the TIER_TYPE field is <code>_Total</code>), a null string is displayed.</p>	string(8)	No	--
TIER_TYPE	Type of the tier.*	string(32)	No	--

Field Name	Description	Format	Delta	Data Source
	When the value is _Total, this record displays information about the entire pool (summary information about tiers in the pool).			
* FMC is the value to be stored when the drive type is FMC, FMD DC2, or FMD HDE. SSD Mixed is the value to be stored when different types of flash drives exist.				

PI_PRCS

The PI_PRCS record stores performance data indicating the operation status of the on-board processor of the storage system. This is a multi-instance record.

Collection Interval

60

Key Fields

ADAPTOR_ID and PROCESSOR_ID

Lifetime

From when the instance is created to when it is deleted

Fields

Field Name	Description	Format	Delta	Data Source
ADAPTOR_ID	<ul style="list-style-type: none"> For VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, or HUS VM: Character string that identifies the MP unit to which the processor belongs. For VSP G1000, G1500, or VSP F1500: ID that identifies the MP blade to which the processor belongs. 	string(16)	No	--
BUFFER_IO_RATE ^{1, 4}	Microprocessor buffer usage. Calculated as the ratio of the number of I/O buffers in use to the maximum number of usable I/O buffers.	float	No	--
BUFFER_IO_COUNT ^{1, 4}	Number of I/O operations buffered in the microprocessor	float	No	--
CONTROLLER	This field cannot be used because it is reserved.	--	--	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_BUFFER_IO_RATE ⁴	Microprocessor buffer usage.	float	No	BUFFER_IO_RATE
MAX_BUFFER_IO_COUNT ⁴	Number of microprocessor buffer I/O operations.	float	No	BUFFER_IO_COUNT
MAX_BUFFER_LENGTH ⁴	Maximum number of I/O buffers the microprocessor is able to use	float	No	--

Field Name	Description	Format	Delta	Data Source
MAX_PROCESSOR_BUSY_RATE ⁴	Usage rate of the processor.	float	No	PROCESSOR_BUSY_RATE
PROCESSOR_BUSY_RATE ²	Usage rate of the processor	float	No	--
PROCESSOR_ID ³	Character string that identifies the processor	string(16)	No	--
PROCESSOR_TYPE	Character string that identifies the processor type	string(8)	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to PRCS	string(8)	No	--

Notes:

1. For VSP G1000, G1500, or VSP F1500, if the value in the PROCESSOR_TYPE field is MPB, the value in the field is the average of the Buffer IO performance values of all the microprocessors in the MP blade. For VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, or HUS VM storage system, if the value in the PROCESSOR_TYPE field is MPB, the value in the field is the average of the Buffer IO performance values of all the microprocessors in the MP unit.
2. For VSP G1000, G1500, or VSP F1500, the value in the PROCESSOR_BUSY_RATE field is the average activity rate of all the microprocessors in the MP blade if the value in the PROCESSOR_TYPE field is MPB. For VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, or HUS VM storage system, the value in the PROCESSOR_BUSY_RATE field is the average activity rate of all the microprocessors in the MP unit if the value in the PROCESSOR_TYPE field is MPB.
3. For VSP G1000, G1500, VSP F1500, or HUS VM, the value in the PROCESSOR_ID field is _Total if the value in the PROCESSOR_TYPE field is MPB.
4. If the Access Type is 3 or 4, the information in this field is not obtained.

PI_PTS

The PI_PTS record stores the performance data indicating the read and write status of each port of the storage system. This is a multi-instance record.

Note that if you are monitoring a VSP 5000 series storage system and the Access Type is 3 or 4, you cannot collect performance information about mainframe systems.

**Note:**

The items in (1) and (2) below all have the same field name (PORT_NUMBER), but the values output to the items in (1) are different from those output to the items in (2).

1. the PORT_NUMBER field of the PD_PTC record or the PI_PTS record
2. the PORT_NUMBER field of the PI_MPTS record or the PI_PTSX record

For this reason, if you want to check whether the port information of one record matches that of another, check the PORT_NAME field.

Collection Interval

60

Key Field

PORT_NUMBER

Lifetime

From when the port is set up to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
AVG_IO_RATE ¹	Average frequency of read and write operations for the storage system port (number of times per second)	float	No	--
AVG_XFER_RATE ¹	Average read and write transfer speed for the storage system port (MB per second)	float	No	--
CHA_NAME ⁴	Name of the channel adapter	string(16)	No	--
INITIATOR_AVG_IO_RATE ^{3, 4}	Average frequency of read and write operations for the storage system port (number of times per second) (total number of initiator and external ports) ²	float	No	--
INITIATOR_AVG_XFER_RATE ^{3, 4}	Average read and write transfer speed for the storage system port (MB per second) (total number of initiator and external ports) ²	float	No	--

Field Name	Description	Format	Delta	Data Source
INITIATOR_MAX_IO_RATE ^{3, 4, 5}	Maximum frequency of read and write operations for the storage system port (number of times per second) (total number of initiator and external ports) ²	float	No	--
INITIATOR_MAX_XFER_RATE ^{3, 4, 5}	Maximum read and write transfer speed for the storage system port (MB per second) (total number of initiator and external ports) ²	float	No	--
INITIATOR_MIN_IO_RATE ^{3, 4, 5}	Minimum frequency of read and write operations for the storage system port (number of times per second) (total number of initiator and external ports) ²	float	No	--
INITIATOR_MIN_XFER_RATE ^{3, 4, 5}	Minimum read and write transfer speed for the storage system port (MB per second) (total number of initiator and external ports) ²	float	No	--
INITIATOR_TOTAL_IO_COUNT	This field cannot be used because it is reserved.	--	--	--
INITIATOR_TOTAL_MBYTES	This field cannot be used because it is reserved.	--	--	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_IO_RATE ^{1, 4, 5}	Maximum frequency of read and write operations for the storage system port (number of times per second).	float	No	--
MAX_XFER_RATE ^{1, 4, 5}	Maximum read and write transfer speed for the storage system port (MB per second).	float	No	--

Field Name	Description	Format	Delta	Data Source
MIN_IO_RATE ^{1, 4, 5}	Minimum frequency of read and write operations for the storage system port (number of times per second).	float	No	--
MIN_XFER_RATE ^{1, 4, 5}	Minimum read and write transfer speed for the storage system port (MB per second).	float	No	--
PORT_NAME	Name of the storage system port	string(64)	No	--
PORT_NUMBER	Number of the storage system port	string(8)	No	--
PORT_ROLE ⁴	The role which assigned to this port. <ul style="list-style-type: none"> ▪ Target ▪ Initiator ▪ RCU Target ▪ External ▪ Bidirectional ▪ (Null string) : If the port type is FICON 	string(16)	No	--
READ_IO_RATE	This field cannot be used because it is reserved.	--	--	--
READ_IO_COUNT	This field cannot be used because it is reserved.	--	--	--
READ_MBYTES	This field cannot be used because it is reserved.	--	--	--
READ_RESPONSE_RATE	This field cannot be used because it is reserved.	--	--	--
READ_TOTAL_RESPONSE	This field cannot be used because it is reserved.	--	--	--
READ_XFER_RATE	This field cannot be used because it is reserved.	--	--	--

Field Name	Description	Format	Delta	Data Source
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to PTS	string(8)	No	--
TOTAL_IO_COUNT	This field cannot be used because it is reserved.	--	--	--
TOTAL_MBYTES	This field cannot be used because it is reserved.	--	--	--
WRITE_IO_RATE	This field cannot be used because it is reserved.	--	--	--
WRITE_IO_COUNT	This field cannot be used because it is reserved.	--	--	--
WRITE_MBYTES	This field cannot be used because it is reserved.	--	--	--
WRITE_RESPONSE_RATE	This field cannot be used because it is reserved.	--	--	--
WRITE_TOTAL_RESPONSE	This field cannot be used because it is reserved.	--	--	--
WRITE_XFER_RATE	This field cannot be used because it is reserved.	--	--	--
Notes: <ol style="list-style-type: none"> 1. If the port type is <code>ESCON</code> or <code>FICON</code>, this value can be collected only for when the storage system is VSP 5000 series, VSP G1000 (80-03 or later), G1500, or VSP F1500. 2. If the value of the <code>PORT_ROLE</code> field is not <code>Bidirectional</code>, the value will be 0. 3. If the storage system is VSP G1000, G1500, VSP F1500, or HUS VM, the value cannot be collected. 4. If the <code>Access Type</code> is 3 or 4, the information in this field is not obtained. 5. If the value set for Collection Interval is greater than 60, the value will be an average value. 				

PI_RGS

The PI_RGS record holds performance data indicating the execution status of read or write operations on a parity group. This is a multi-instance record. The following records are not generated:

- Records for external volume groups or virtual volume groups (Copy-on-Write Snapshot, Thin Image, and Dynamic Provisioning virtual volume groups)
- Records for parity groups without a logical device

Note that if you are monitoring a VSP 5000 series storage system and the `Access Type` is 3 or 4, you cannot collect performance information about mainframe systems.

Collection Interval

300

Key Field

RAID_GROUP_NUMBER

Lifetime

From when the parity group is set up to when it is removed.

Fields

Field Name	Description	Format	Delta	Data Source
BUSY_RATE	Usage rate of the parity group. ¹	float	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_BUSY_RATE ⁴	Usage rate of the parity group. ¹	float	No	BUSY_RATE
RAID_GROUP_NUMBER	Parity group number	string(64)	No	--
RANDOM_READ_IO_PCT ⁴	Percentage of the total number of read and write operations that are random read operations	float	No	--
RANDOM_READ_IO_RATE ⁴	Frequency of random read operations (times per second)	float	No	--

Field Name	Description	Format	Delta	Data Source
RANDOM_READ_XFER_PCT ^{2, 4}	Percentage of the total transfers that are random read operations	float	No	--
RANDOM_READ_XFER_RATE ^{2, 4}	Transfer rate of random read operations (megabytes per second)	float	No	--
RANDOM_TOTAL_IO_RATE ⁴	Frequency of random operations (sum of processing times for random read and write operations per second)	float	No	--
RANDOM_TOTAL_XFER_RATE ^{2, 4}	Transfer rate of random operations (total megabytes for random read and write operations per second)	float	No	--
RANDOM_WRITE_IO_PCT ⁴	Percentage of the total number of read and write operations that are random write operations	float	No	--
RANDOM_WRITE_IO_RATE ⁴	Frequency of random write operations (times per second)	float	No	--
RANDOM_WRITE_XFER_PCT ^{2, 4}	Percentage of the total transfers that are random write operations	float	No	--
RANDOM_WRITE_XFER_RATE ^{2, 4}	Transfer rate of random write operations (megabytes per second)	float	No	--
READ_HIT_RATE ⁴	Cache hit rate of read operations	double	No	(READ_HIT_IO_COUNT / READ_IO_COUNT) * 100

Field Name	Description	Format	Delta	Data Source
READ_HIT_IO_COUNT ⁴	Number of times the cache is hit in read operations	double	Yes	--
READ_IO_PCT ⁴	Percentage of the total number of read and write operations that are read operations	float	No	{READ_IO_COUNT / (READ_IO_COUNT + WRITE_IO_COUNT)} * 100
READ_IO_RATE ⁴	Frequency of read operations (number of times per second)	double	No	READ_IO_COUNT / INTERVAL
READ_IO_COUNT ⁴	Number of read operations	double	Yes	--
READ_MBYTES ^{3, 4}	Transfer size of read data (MB)	double	Yes	--
READ_AVG_RESPONSE ^{3, 4}	Average processing time for each read operation request (in microseconds)	float	No	--
READ_TOTAL_RESPONSE ^{3, 4}	Sum of processing times for read-operation requests processed during the collection period (in microseconds)	double	Yes	--
READ_XFER_PCT ^{3, 4}	Percentage of the total transfers that are read operations	float	No	{READ_MBYTES / (READ_MBYTES + WRITE_MBYTES)} * 100
READ_XFER_RATE ^{3, 4}	Read data transfer rate (MB per second)	double	No	READ_MBYTES / INTERVAL
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to RGS	string(8)	No	--

Field Name	Description	Format	Delta	Data Source
SEQUENTIAL_READ_IO_PCT ⁴	Percentage of the total number of read and write operations that are sequential read operations	float	No	--
SEQUENTIAL_READ_IO_RATE ⁴	Frequency of sequential read operations (times per second)	float	No	--
SEQUENTIAL_READ_XFER_PCT ^{2, 4}	Percentage of the total transfers that are sequential read operations	float	No	--
SEQUENTIAL_READ_XFER_RATE ^{2, 4}	Transfer rate of sequential read operations (megabytes per second)	float	No	--
SEQUENTIAL_TOTAL_IO_RATE ⁴	Frequency of sequential operations (sum of processing times for sequential read and write operations per second)	float	No	--
SEQUENTIAL_TOTAL_XFER_RATE ^{2, 4}	Transfer rate of sequential operations (total megabytes for sequential read and write operations per second)	float	No	--
SEQUENTIAL_WRITE_IO_PCT ⁴	Percentage of the total number of read and write operations that are sequential write operations	float	No	--
SEQUENTIAL_WRITE_IO_RATE ⁴	Frequency of sequential write operations (times per second)	float	No	--

Field Name	Description	Format	Delta	Data Source
SEQUENTIAL_WRITE_XFER_PCT ^{2, 4}	Percentage of the total transfers that are sequential write operations	float	No	--
SEQUENTIAL_WRITE_XFER_RATE ^{2, 4}	Transfer rate of sequential write operations (megabytes per second)	float	No	--
TOTAL_RESPONSE_RATE ^{3, 4}	Average processing time (in microseconds) per read/write processing request	float	No	--
WRITE_IO_PCT ⁴	Percentage of the total number of read and write operations that are write operations	float	No	{WRITE_IO_COUNT / (READ_IO_COUNT + WRITE_IO_COUNT)} * 100
WRITE_HIT_RATE	This field cannot be used because it is reserved.	--	--	--
WRITE_HIT_IO_COUNT	This field cannot be used because it is reserved.	--	--	--
WRITE_IO_RATE ⁴	Frequency of write operations (number of times per second)	double	No	WRITE_IO_COUNT / INTERVAL
WRITE_IO_COUNT ⁴	Number of write operations	double	Yes	--
WRITE_MBYTES ^{3, 4}	Write data transfer size (MB)	double	Yes	--
WRITE_XFER_PCT ^{3, 4}	Percentage of the total transfers that are write operations	float	No	{WRITE_MBYTES / (READ_MBYTES + WRITE_MBYTES)} * 100
WRITE_AVG_RESPONSE ^{3, 4}	Average processing time for each write operation request (in microseconds)	float	No	--

Field Name	Description	Format	Delta	Data Source
WRITE_TOTAL_RESPONSE ^{3, 4}	Sum of processing times for write-operation requests processed during the collection period (in microseconds)	double	Yes	--
WRITE_XFER_RATE ^{3, 4}	Write data transfer rate (MB per second)	double	No	WRITE_MBYTES / INTERVAL
Notes: <ol style="list-style-type: none"> For storage systems other than those of the following models, if the storage system has a built-in flash drive (FMD, FMC, or SSD), the value displayed as the usage rate of the parity groups of the flash drive might be higher than the actual usage rate, regardless of the load on the flash drive: VSP 5000 series, VSP Gx00, VSP Fx00, VSP G1000, G1500, and VSP F1500. For such storage systems, do not use as reference the value displayed as the usage rate of the parity groups of the flash drive. This field is not supported for parity groups that include a logical device for which the mainframe emulation type is set. For parity groups that include a logical device for which the mainframe emulation type is set, this value can be collected only when the storage system is VSP 5000 series, VSP G1000 (80-03 or later), G1500, or VSP F1500. If the <code>Access Type</code> is 3 or 4, the information in this field is not obtained. 				

PI_VVTI

The PI_VVTI record stores performance data indicating the execution status of read and write processing for each type of tier for Dynamic Provisioning V-VOLs that have tier management enabled. This is a multi-instance record. If the `Access Type` is 3 or 4, this record will not be created.



Note:

- Information about Copy-on-Write Snapshot V-VOLs, ThinImage V-VOLs, and Dynamic Provisioning V-VOLs that do not have tier management enabled is not collected.
- RAID Agent does not collect information about a Dynamic Provisioning V-VOL that belongs to a blocked Dynamic Provisioning pool except when the pool is blocked because of its usage rate reaching 100%.
- Information about V-VOLs that are not associated with Dynamic Provisioning pools is not collected.

Collection Interval

900

Key Fields

LDEV_NUMBER and TIER_TYPE

Lifetime

From the time when a Dynamic Provisioning V-VOL that has tier management enabled is set up until the time when the V-VOL is removed.

Fields

Field Name	Description	Format	Delta	Data Source
AVG_IO_RATE	Average read and write processing rate (number of times per second) for the tier, excluding cache hits Note that this value will not match the performance information for virtual volumes because cache hits are not included.	double	No	--
INTERVAL	Interval (in seconds) at which the information was collected	ulong	No	--
LDEV_NUMBER	Logical device number of the V-VOL	string(16)	No	--
POOL_ID	ID of the pool	string(8)	No	--
RECORD_TIME	Time (in GMT) that the data was collected from the storage system and the record was generated	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier. The value is always VVTI.	string(8)	No	--
TIER_NUMBER	Number of the tier	string(8)	No	--
TIER_TYPE	Type of tier*	string(32)	No	--
* FMC is the value to be stored when the drive type is FMC, FMD DC2, or FMD HDE. SSD Mixed is the value to be stored when different types of flash drives exist.				

RAID Agent records (collection via the SVP by using a TCP/IP connection)

Certain records can be collected via the SVP by using a TCP/IP connection. Note that, when records are collected via the SVP by using a TCP/IP connection, performance values do not include certain values (such as performance values for pool volumes for which I/O processing from servers does not occur).

Furthermore, if the `Access Type` is 2 or 4, some values can be obtained via the REST API.

For details, see [Types of performance information that can be acquired depending on the Access Type \(on page 998\)](#).

PD_PDX

The PD_PDX record stores the performance data indicating the detailed information of the storage system. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

3600

Key Field

None

Lifetime

From when the instance is created to when it is deleted

Fields

Field Name	Description	Format	Delta	Data Source
DKC_DETAIL_NAME	This field cannot be used because it is reserved.	--	--	--
DKC_NAME	Product name of the storage system	string(64)	No	--
DKC_SERIAL_NUMBER	Serial number of the storage system	string(32)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--

Field Name	Description	Format	Delta	Data Source
INPUT_RECORD_TYPE	Record type identifier, which is always set to PDX	char(8)	No	--
VENDOR_ID	Vendor name of the storage system	string(64)	No	--

PD_UMSX

The PD_UMSX record stores the performance data indicating the 100 highest activity rates for the resources allocated to each MP Blade. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Fields

MP_BLADE_ID, PROCESSOR_ID, and USAGE_RANK

Lifetime

From when the MP Blade is defined to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
INTERVAL*	Interval (in seconds) at which information is collected	ulong	No	--
MP_BLADE_ID*	ID that identifies the MP blade in the storage system to which the processor belongs Example: MPB0	string(16)	No	--
PROCESSING_TYPE*	The type of resource usage: <ul style="list-style-type: none"> Open-Target Open-Initiator Open-External 	string(16)	No	--

Field Name	Description	Format	Delta	Data Source
	<ul style="list-style-type: none"> ▪ BackEnd ▪ System 			
PROCESSOR_ID*	String that identifies the processor	string(16)	No	--
PROCESSOR_NAME*	<ul style="list-style-type: none"> ▪ For VSP 5000 series or HUS VM: String created by concatenating the name of the microprocessor unit that the processor belongs to and the microprocessor name ▪ For VSP G1000, G1500, or VSP F1500: String created by concatenating the name of the MP blade that the processor belongs to and the microprocessor name 	string(32)	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to UMSX	char(8)	No	--
RESOURCE_ID*	<p>Resource ID</p> <p>The value depends on the type of resource, as follows:</p> <ul style="list-style-type: none"> ▪ If the resource is an LDEV (logical device): LDEV number ▪ If the resource is a journal: Journal group number ▪ If the resource is an external volume: External volume group number 	string(16)	No	--
RESOURCE_TYPE*	Type of resource	string(16)	No	--

Field Name	Description	Format	Delta	Data Source
	<p>The value depends on the type of resource, as follows:</p> <ul style="list-style-type: none"> ▪ If the resource is an LDEV (logical device) LDEV ▪ If the resource is a journal group: Journal ▪ If the resource is an external volume group: External Volume 			
RESOURCE_UTILIZATION*	Resource usage	float	No	--
USAGE_RANK*	The rank of this resource compared to other resources in the MP in terms of utilization	string(8)	No	--
* The value cannot be collected for VSP E series, VSP Gx00 models, and VSP Fx00 models.				

PI_CBMB

The PI_CBMB record stores the performance data indicating the performance between a channel blade and main blade. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Fields

`CHANNEL_BLADE_NAME` and `MAIN_BLADE_NAME`

Lifetime

From when the channel blade and the main blade are set up to when they are removed

Fields

Field Name ¹	Description	Format	Delta	Data Source
ACCESS_PATH_USA GE_RATE	Usage rate of the access path between the channel blade and the main blade (%)	float	No	--
CHANNEL_BLADE_N AME	Name of the channel blade	string(16)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAIN_BLADE_NAME	Name of the main blade	string(16)	No	--
MAX_ACCESS_PATH _USAGE_RATE ²	Usage rate of the access path between the channel blade and the main blade (%)	float	No	ACCESS_PATH_US AGE_RATE
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TY PE	Record type identifier, which is always set to CBMB	char(8)	No	--
Notes: <ol style="list-style-type: none"> 1. The value cannot be collected for VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, VSP G1000, G1500, or VSP F1500. 2. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_CCMS

The PI_CCMS record stores the performance data indicating the performance between a cache switch and cache memory. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Fields

CACHE_SWITCH_NAME and CACHE_MEMORY_NAME

Lifetime

From when the instance is created to when it is deleted

Fields

Field Name ¹	Description	Format	Delta	Data Source
ACCESS_PATH_USAGE_RATE	Usage rate of the access path between a cache switch and cache memory (%)	float	No	--
CACHE_MEMORY_NAME	Name of cache memory ²	string(16)	No	--
CACHE_SWITCH_NAME	Name of the cache switch ³	string(16)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_ACCESS_PATH_USAGE_RATE ⁴	Usage rate of the access path between a cache switch and cache memory (%).	float	No	ACCESS_PATH_USAGE_RATE
RECORD_TIME	Time (in GMT) when the data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to CCMS	char(8)	No	--
Notes: <ol style="list-style-type: none"> 1. The value cannot be collected for VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, and HUS VM storage systems. 2. For VSP G1000, G1500, and VSP F1500, no value is stored in this field. 3. For VSP G1000, G1500, and VSP F1500, the cache memory name is stored in this field. 4. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_CHAC

The PI_CHAC record stores the performance data indicating the performance between a channel adapter and cache switch. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Fields

CHA_NAME and CACHE_SWITCH_NAME

Lifetime

From when the channel adapter is set up to when it is removed

Fields

Field Name ¹	Description	Format	Delta	Data Source
ACCESS_PATH_USAGE_RATE	Usage rate of the access path between the channel adapter and the cache switch (%)	float	No	--
CACHE_SWITCH_NAME	Name of the cache switch ²	string(16)	No	--
CHA_NAME	Name of the channel adapter	string(16)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_ACCESS_PATH_USAGE_RATE ³	Usage rate of the access path between the channel adapter and the cache switch (%).	float	No	ACCESS_PATH_USAGE_RATE
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--

Field Name ¹	Description	Format	Delta	Data Source
INPUT_RECORD_TYPE	Record type identifier, which is always set to CHAC	char(8)	No	--
Notes: <ol style="list-style-type: none"> 1. The value cannot be collected for VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, and HUS VM storage systems. 2. For VSP G1000, G1500, and VSP F1500, the cache memory name is stored in this field. 3. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_CHDR

The PI_CHDR record stores the performance data indicating the usage of the data recovery reconfiguration circuit for a channel adapter. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Fields

CHA_NAME and DRR_NAME

Lifetime

From when the channel adapter is set up to when it is removed

Fields

Field Name ¹	Description	Format	Delta	Data Source
BUSY_RATE	Usage rate of the data recovery reconfiguration circuit (DRR) of the channel adapter	float	No	--
CHA_NAME	Name of the channel adapter	string(16)	No	--
DRR_NAME	Name of the data recovery reconfiguration circuit (DRR)	string(16)	No	--

Field Name ¹	Description	Format	Delta	Data Source
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_BUSY_RATE ²	Usage rate of the data recovery reconfiguration circuit (DRR) of the channel adapter.	float	No	BUSY_RATE
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to CHDR	char(8)	No	--
Notes: <ol style="list-style-type: none"> 1. The value cannot be collected for VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, and HUS VM storage systems. 2. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_CLMX

The PI_CLMX record stores the CLPR usage status for each MP Blade or MP unit. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Fields

LDEV_OWNER_ID and CLPR_NUMBER

Lifetime

From when the MP Blade and the CLPR are set up to when they are removed

Fields

Field Name	Description	Format	Delta	Data Source
CACHE_ALLOCATE_MEMORY_SIZE	Size (in MB) of cache memory allocated to each MP blade in the CLPR	double	No	--
CACHE_MEMORY_USAGE_RATE	Of the cache memory allocated to each MP blade in the CLPR, the percentage of memory that is used by the LDEV owned by the MP blade in the LDEV_OWNER_ID field	float	No	--
CACHE_WRITE_PENDING_RATE	Of the cache memory allocated to each MP blade in the CLPR, the percentage of memory that is used by write-pending data on the LDEV owned by the MP blade in the LDEV_OWNER_ID field	float	No	--
CLPR_NUMBER	CLPR number	string(8)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--

Field Name	Description	Format	Delta	Data Source
LDEV_OWNER_ID	<ul style="list-style-type: none"> ▪ For VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, or HUS VM: ID that identifies the microprocessor unit that the processor belongs to in the storage system ▪ For VSP G1000, G1500, or VSP F1500: ID that identifies the MP blade that the processor belongs to in the storage system 	string(16)	No	--
LDEV_OWNER_NAME	<ul style="list-style-type: none"> ▪ For VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, or HUS VM: Name of the microprocessor unit that the processor belongs to ▪ For VSP G1000, G1500, or VSP F1500: Name of the MP blade that the processor belongs to 	string(16)	No	--
MAX_CACHE_MEMORY_USAGE_RATE*	Of the cache memory allocated to each MP blade in the CLPR, the percentage of memory used by the LDEV owned by the MP blade in the LDEV_OWNER_ID field	float	No	CACHE_MEMORY_USAGE_RATE

Field Name	Description	Format	Delta	Data Source
MAX_CACHE_WRITE_PENDING_RATE*	Of the cache memory allocated to each MP blade in the CLPR, the maximum percentage of memory used by write-pending data on the LDEV owned by the MP blade in the LDEV_OWNER_ID field	float	No	CACHE_WRITE_PENDING_RATE
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to CLMX	char(8)	No	--
* The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer.				

PI_CPS

The PI_CPS record stores the performance data indicating the usage rate of the cache path in a main blade. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Field

MAIN_BLADE_NAME

Lifetime

From when the main blade is set up to when it is removed

Fields

Field Name ¹	Description	Format	Delta	Data Source
ACCESS_PATH_USAGE_RATE	Usage rate of the access path for the cache path in the main blade (%)	float	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAIN_BLADE_NAME	Name of the main blade	string(8)	No	--
MAX_ACCESS_PATH_USAGE_RATE ²	Usage rate of the access path for the cache path in the main blade (%)	float	No	ACCESS_PATH_USAGE_RATE
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to CPS	char(8)	No	--
Notes: <ol style="list-style-type: none"> 1. The value cannot be collected for VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, VSP G1000, G1500, or VSP F1500. 2. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_DBMB

The PI_DBMB record stores the performance data indicating the performance between a disk blade and main blade. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Fields

DISK_BLADE_NAME and MAIN_BLADE_NAME

Lifetime

From when the disk blade and the main blade are set up to when they are removed

Fields

Field Name ¹	Description	Format	Delta	Data Source
ACCESS_PATH_USAGE_RATE	Usage rate of the access path between the disk blade and the main blade (%)	float	No	--
DISK_BLADE_NAME	Name of the disk blade	string(16)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAIN_BLADE_NAME	Name of the main blade	string(16)	No	--
MAX_ACCESS_PATH_USAGE_RATE ²	Usage rate of the access path between the disk blade and the main blade (%)	float	No	ACCESS_PATH_USAGE_RATE
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to DBMB	char(8)	No	--
Notes: <ol style="list-style-type: none"> 1. The value cannot be collected for VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, VSP G1000, G1500, or VSP F1500. 2. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_DKAC

The PI_DKAC record stores the performance data indicating the performance between a disk adapter and cache switch. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Fields

DKA_NAME and CACHE_SWITCH_NAME

Lifetime

From when the disk adapter is set up to when it is removed

Fields

Field Name ¹	Description	Format	Delta	Data Source
ACCESS_PATH_USAGE_RATE	Usage rate of the access path between the disk adapter and the cache switch (%)	float	No	--
CACHE_SWITCH_NAME	Name of the cache switch ²	string(16)	No	--
DKA_NAME	Name of the disk adapter	string(16)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_ACCESS_PATH_USAGE_RATE ³	Usage rate of the access path between the disk adapter and the cache switch (%)	float	No	ACCESS_PATH_USAGE_RATE
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to DKAC	char(8)	No	--
Notes: <ol style="list-style-type: none"> 1. The value cannot be collected for VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, and HUS VM storage systems. 2. For VSP G1000, G1500, and VSP F1500, the cache memory name is stored in this field. 3. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_DKDR

The PI_DKDR record stores the performance data indicating the performance of the data recovery reconfiguration circuit for a disk adapter. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Fields

DKA_NAME and DRR_NAME

Lifetime

From when the disk adapter is set up to when it is removed

Fields

Field Name ¹	Description	Format	Delta	Data Source
BUSY_RATE	Usage of the data recovery reconfiguration circuit for a disk adapter	float	No	--
DKA_NAME	Name of the disk adapter	string(16)	No	--
DRR_NAME	Name of the data recovery reconfiguration circuit (DRR)	string(16)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_BUSY_RATE ²	Usage of the data recovery reconfiguration circuit.	float	No	BUSY_RATE
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to DKDR	char(8)	No	--
Notes:				

Field Name ¹	Description	Format	Delta	Data Source
<ol style="list-style-type: none"> 1. The value cannot be collected for VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, and HUS VM storage systems. 2. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_ELDS

The PI_ELDS record stores the performance data indicating the performance of an externally connected volume. If the `Access Type` is 2 or 4, this record will not be created.



Note:

If the CU number of the target LDEV is not set to be monitored, the record will not be created.

Collection Interval

3600

Key Field

LDEV_NUMBER

Lifetime

From when the logical device is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_NUMBER	Logical device number Example: 00:01:0F	string(16)	No	--
RAID_GROUP_NUMBER	Number of the parity group	string(64)	No	--
READ_RESPONSE_RATE	Average processing time per read operation request for each external volume (in milliseconds)	double	No	--

Field Name	Description	Format	Delta	Data Source
READ_TOTAL_XFER_RATE	Transfer rate of operations for each external volume (total kilobytes for read operations per second)	double	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to ELDS	char(8)	No	--
TOTAL_RESPONSE_RATE	Average processing time per read or write operation request for each external volume (in milliseconds)	double	No	--
TOTAL_XFER_RATE	Transfer rate of operations for each external volume (total kilobytes for read and write operations per second)	double	No	--
WRITE_RESPONSE_RATE	Average processing time per write operation request for each external volume (in milliseconds)	double	No	--
WRITE_TOTAL_XFER_RATE	Transfer rate of operations for each external volume (total kilobytes for write operations per second)	double	No	--

PI_EVGS

The PI_EVGS record stores the performance data indicating the performance of external volume groups. If the `Access Type` is 2 or 4, this record will not be created.



Note:

All the CU numbers of the LDEVs that belong to the target parity group must be set to be monitored for the record to be created.

Collection Interval

3600

Key Field

RAID_GROUP_NUMBER

Lifetime

From when the external volume group is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
RAID_GROUP_NUMBER	Parity group number	string(64)	No	--
READ_RESPONSE_RATE	Average processing time per read operation request for each external volume group (in milliseconds)	double	No	--
READ_TOTAL_XFER_RATE	Transfer rate of read operations for each external volume (total kilobytes for read operations per second)	double	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to EVGS	char(8)	No	--
TOTAL_RESPONSE_RATE	Average processing time per read or write operation request for each external volume group (in milliseconds)	double	No	--
TOTAL_XFER_RATE	Transfer rate of operations for each external volume group (total kilobytes for read and write operations per second)	double	No	--
WRITE_RESPONSE_RATE	Average processing time per write operation request for each external volume group (in milliseconds)	double	No	--

Field Name	Description	Format	Delta	Data Source
WRITE_TOTAL_XFER_RATE	Transfer rate of operations for each external volume group (total kilobytes for write operations per second)	double	No	--

PI_HBAS

The PI_HBAS record stores the performance data indicating the traffic performance between an HBA and a storage system. If the `Access Type` is 2 or 4, this record will not be created.



Note:

If WWNs to be monitored are not set in advance, the record will not be output. Only the record for the HBAs registered to the WWNs to be monitored will be output.

Collection Interval

60

Key Field

HBA_WWN

Lifetime

From when the HBA is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
HBA_WWN	WWN of an HBA	string(32)	No	--
HBA_WWN_NICKNAME	Nickname of an HBA WWN	string(65)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to HBAS	char(8)	No	--

Field Name	Description	Format	Delta	Data Source
SPM_GROUP_NAME	Name of an SPM group that the HBA belongs to*	string(65)	No	--
TOTAL_IO_RATE	Average frequency of read and write operations for the storage system (number of operations per second)	double	No	--
TOTAL_RESPONSE_RATE	Average processing time per read/write processing request for the storage system (in microseconds)	double	No	--
TOTAL_XFER_RATE	Read and write transfer speed for the storage system (kilobytes per second)	double	No	--
* An SPM group consists of multiple HBAs.				

PI_HWSP

The PI_HWSP record stores the performance data indicating the traffic performance between an HBA for each port and a storage system. If the `Access Type` is 2 or 4, this record will not be created.



Note:

If WWNs to be monitored are not set in advance, the record will not be output. Only the record for the HBAs registered to the WWNs to be monitored will be output.

Collection Interval

60

Key Fields

STORAGE_PORT_NAME and HBA_WWN

Lifetime

From when the HBA is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
HBA_WWN	WWN of an HBA	string(32)	No	--
HBA_WWN_NICKNAME	Nickname of an HBA WWN	string(65)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
STORAGE_PORT_NAME	Name of a storage system port	string(64)	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to HWSP	char(8)	No	--
TOTAL_IO_RATE	Average frequency of read and write operations for the storage system (number of times per second)	double	No	--
TOTAL_RESPONSE_RATE	Average processing time per read or write operation request for the storage system (in microseconds)	double	No	--
TOTAL_XFER_RATE	Read and write transfer speed for the storage system (number of times per second)	double	No	--

PI_JNLX

The PI_JNLX record stores the performance data indicating the performance of a journal group (about journal-based remote copy by Universal Replicator or Universal Replicator for Mainframe). If the `Access Type` is 2 or 4, this record will not be created.

**Note:**

The value stored in this record is the total value of the performance data for the LDEVs that belong to the monitored CUs. The performance data of the LDEVs that belong to the CUs that are not monitored is not calculated together.

Collection Interval

60

Key Field

JOURNAL_ID

Lifetime

From when the journal group is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
INITIAL_COPY_HIT_RATE	Initial copy hit rate in a journal group	float	No	--
INITIAL_COPY_XFER_RATE	Transfer rate of initial copy processing in a journal group (kilobytes per second)	double	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
JOURNAL_ID	ID of the journal group	string(64)	No	--
MASTER_JNL_DATA_USAGE	Master journal's data usage measured for each journal	float	No	--
MASTER_JNL_META_DATA_USAGE	Master journal's metadata usage measured for each journal	float	No	--
M_JNL_ASYNC_JOURNAL_COUNT	Total number of journals in the primary storage system	double	No	--
M_JNL_ASYNC_RIO_RATE	Frequency of asynchronous remote I/O operations for each journal in the primary storage system (number of operations per second)	double	No	--
M_JNL_ASYNC_RESPONSE_RATE	Average remote I/O response time for each journal in the primary storage system (milliseconds per operation)	double	No	--
M_JNL_ASYNC_XFER_RATE	Transfer rate of operations for each journal in the primary storage system (total kilobytes for write operations per second)	double	No	--

Field Name	Description	Format	Delta	Data Source
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to JNLX	char(8)	No	--
RESTORE_JNL_DATA_USAGE	Restore journal's data usage measured for each journal	float	No	--
RESTORE_JNL_METADATA_USAGE	Restore journal's metadata usage measured for each journal	float	No	--
R_JNL_ASYNC_JOURNAL_COUNT	Total number of journals in the secondary storage system	double	No	--
R_JNL_ASYNC_RIO_RATE	Frequency of asynchronous remote I/O operations for each journal in the secondary storage system (number of operations per second)	double	No	--
R_JNL_ASYNC_RESPONSE_RATE	Average remote I/O response time for each journal in the secondary storage system (milliseconds per operation)	double	No	--
R_JNL_ASYNC_XFER_RATE	Transfer rate of operations for each journal in the secondary storage system (total kilobytes for write operations per second)	double	No	--
WRITE_IO_RATE	Frequency of write operations in a journal group (number of operations per second)	double	No	--
WRITE_XFER_RATE	Transfer rate of write operations in a journal group (kilobytes per second)	double	No	--

PI_LDSX

The PI_LDSX record stores the performance data indicating the performance of a volume.

Note that if you are monitoring a VSP 5000 series storage system and the `Access Type` is 2 or 4, you cannot collect performance information about mainframe systems.



Note:

If the CU number of the target LDEV is not set to be monitored, the record will not be created.

Collection Interval

Access Type	Collection Interval
1 or 3	3600
2 or 4	300

Key Field

LDEV_NUMBER

Lifetime

From when the logical device is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
BACK_IO_RATE ³	Frequency of data transfer operations between cache memory and a hard disk drive (number of operations per second)	double	No	--
CACHE_MEMORY_DISK_IO_RATE ³	Frequency of data transfer operations from cache memory to a hard disk drive (number of operations per second)	double	No	--
CFW_READ_HIT_RATE ¹	Cache hit rate of read operations in Cache Fast Write mode for each volume	float	No	--

Field Name	Description	Format	Delta	Data Source
CFW_READ_IO_RATE ¹	Frequency of read operations in Cache Fast Write mode for each volume (number of operations per second)	double	No	--
CFW_WRITE_HIT_RATE ¹	Cache hit rate of write operations in Cache Fast Write mode for each volume	float	No	--
CFW_WRITE_IO_RATE ¹	Frequency of write operations in Cache Fast Write for each volume (number of operations per second)	double	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_NUMBER	Logical device number Example: 00:01:0F	string(16)	No	--
RAID_GROUP_NUMBER ²	Parity group number	string(64)	No	--
RANDOM_DISK_CACHE_IO_RATE ³	Frequency of random data transfer operations from a hard disk drive to cache memory (number of operations per second)	double	No	--
RANDOM_READ_HIT_RATE	Cache hit rate of random read operations for each volume	float	No	--
RANDOM_READ_IO_RATE ²	Frequency of random read operations for each volume (number of operations per second)	double	No	--
RANDOM_WRITE_HIT_RATE ²	Cache hit rate of random write operations for each volume	float	No	--
RANDOM_WRITE_IO_RATE ²	Frequency of random write operations for each volume (number of operations per second)	double	No	--
READ_HIT_RATE ²	Cache hit rate of read operations for each volume	float	No	--

Field Name	Description	Format	Delta	Data Source
READ_IO_RATE ²	Frequency of read operations for each volume (number of operations per second)	double	No	--
READ_RESPONSE_RATE ²	Average processing time per read operation request for each volume (in microseconds)	double	No	--
READ_TOTAL_XFER_RATE ²	Transfer rate of operations for each volume (total kilobytes for read operations per second)	double	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to LDSX	char(8)	No	--
SEQUENTIAL_DISK_CACHE_IO_RATE ³	Frequency of sequential data transfer operations from a hard disk drive to cache memory (number of operations per second)	double	No	--
SEQUENTIAL_READ_HIT_RATE	Cache hit rate of sequential read operations for each volume	float	No	--
SEQUENTIAL_READ_IO_RATE ²	Frequency of sequential read operations for each volume (number of operations per second)	double	No	--
SEQUENTIAL_WRITE_HIT_RATE ²	Cache hit rate of sequential write operations for each volume	float	No	--
SEQUENTIAL_WRITE_IO_RATE ²	Frequency of sequential write operations for each volume (number of operations per second)	double	No	--

Field Name	Description	Format	Delta	Data Source
TOTAL_IO_RATE ²	Frequency of operations for each volume (total number of read and write operations per second)	double	No	--
TOTAL_RESPONSE_RATE ²	Average processing time per read or write operation request for each volume (in microseconds)	double	No	--
TOTAL_XFER_RATE ²	Transfer rate of operations for each volume (total kilobytes for read and write operations per second)	double	No	--
WRITE_HIT_RATE ²	Cache hit rate of write operations for each volume	float	No	--
WRITE_IO_RATE ²	Frequency of write operations for each volume (number of operations per second)	double	No	--
WRITE_RESPONSE_RATE ²	Average processing time per write operation request for each volume (in microseconds)	double	No	--
WRITE_TOTAL_XFER_RATE ²	Transfer rate of operations for each volume (total kilobytes for write operations per second)	double	No	--
Notes: <ol style="list-style-type: none"> 1. The value cannot be collected for VSP E series, VSP Gx00 models, VSP Fx00 models, and HUS VM storage systems. 2. If the <code>Access Type</code> is 2 or 4, the information in this field is not obtained. 3. If the <code>Access Type</code> is 2 or 4, a value cannot be obtained for storage systems other than VSP E series, VSP 5000 series (versions 90-02-01 and later), VSP G350, G370, G700, G900, VSP F350, F370, F700, F900 (versions from 88-03-31 to earlier than 88-04-00, or versions 88-04-02 and later). 				

PI_LDTC

The PI_LDTC record stores the performance data indicating the performance of an internal, external, or virtual volume (data of remote copy by TrueCopy or TrueCopy for Mainframe, and

monitoring data for global-active device). If the `Access Type` is 2 or 4, this record will not be created.

**Note:**

If the CU number of the target LDEV is not set to be monitored, the record will not be created.

Collection Interval

3600

Key Field

LDEV_NUMBER

Lifetime

From when the logical device is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
INITIAL_COPY_HIT_RIO_COUNT*	Remote I/O hit count during initial copy	double	No	--
INITIAL_COPY_RIO_COUNT	Number of remote I/O operations during initial copy	double	No	--
INITIAL_COPY_RESPONSE_RATE	Average remote I/O response time during initial copy (milliseconds per operation)	double	No	--
INITIAL_COPY_XFER_RATE	Transfer rate of remote I/O operations during initial copy (kilobytes per second)	double	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_NUMBER	Logical device number Example: 00:01:0F	string(16)	No	--
MIGRATION_COPY_HIT_RIO_COUNT*	Remote I/O hit count during migration copy	double	No	--
MIGRATION_COPY_RIO_COUNT*	Number of remote I/O operations during migration copy	double	No	--

Field Name	Description	Format	Delta	Data Source
OUT_OF_SYNC_TRACK_COUNT	Number of differential tracks	double	No	--
PAIR_SYNCHRONIZED_RATE	Pair match rate	float	No	--
READ_RIO_COUNT*	Total number of read remote I/O operations	double	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to LDTC	char(8)	No	--
RIO_ERROR_COUNT	Number of errors that occur during remote I/O processing	double	No	--
RESTORE_COPY_HIT_RIO_COUNT*	Remote I/O hit count during restore copy	double	No	--
RESTORE_COPY_RIO_COUNT*	Number of remote I/O operations during restore copy	double	No	--
TOTAL_RIO_COUNT	Total number of read and write remote I/O operations	double	No	--
UPDATE_COPY_HIT_RIO_COUNT*	Remote I/O hit count during update copy	double	No	--
UPDATE_COPY_RIO_COUNT	Number of remote I/O operations during update copy	double	No	--
UPDATE_COPY_RESPONSE_RATE	Average remote I/O response time during update copy (milliseconds per operation)	double	No	--
UPDATE_COPY_XFER_RATE	Transfer rate of remote I/O operations during update copy (kilobytes per second)	double	No	--
WRITE_RIO_COUNT	Total number of write remote I/O operations	double	No	--

Field Name	Description	Format	Delta	Data Source
* The value cannot be collected for VSP E series, VSP 5000 series, VSP Gx00 models, and VSP Fx00 models storage systems.				

PI_LDU

The PI_LDU record stores the performance data indicating the activity rate of internal volumes. If the `Access Type` is 2 or 4, this record will not be created.



Note:

If the CU number of the target LDEV is not set to be monitored, the record will not be created.

Collection Interval

3600

Key Field

LDEV_NUMBER

Lifetime

From when the logical device is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
BUSY_RATE	Volume usage ¹	float	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_NUMBER	Logical device number Example: 00:01:0F	string(16)	No	--
MAX_BUSY_RATE ²	Volume usage ¹	float	No	BUSY_RATE
RAID_GROUP_NUMBER	Parity group number	string(64)	No	--

Field Name	Description	Format	Delta	Data Source
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to LDU	char(8)	No	--
SI_BUSY_RATE	ShadowImage volume usage. This is the percentage of processing performed by ShadowImage and ShadowImage for Mainframe, of all processing for volumes.	float	No	--
Notes: <ol style="list-style-type: none"> For storage systems other than those of the following models, if the storage system has a built-in flash drive (FMD, FMC, or SSD), the value displayed as the usage rate of the parity groups of the flash drive might be higher than the actual usage rate, regardless of the load on the flash drive: VSP 5000 series, VSP Gx00, VSP Fx00, VSP G1000, G1500, and VSP F1500. For such storage systems, do not use as reference the value displayed as the usage rate of the parity groups of the flash drive. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_LDUR

The PI_LDUR record stores the performance data indicating the performance of an internal, external, or virtual volume (about remote copy by Universal Replicator or Universal Replicator for Mainframe). If the `Access Type` is 2 or 4, this record will not be created.



Note:

If the CU number of the target LDEV is not set to be monitored, the record will not be created.

Collection Interval

3600

Key Field

LDEV_NUMBER

Lifetime

From when the logical device is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
INITIAL_COPY_HIT_RATE	Hit rate of initial copy by Universal Replicator	float	No	--
INITIAL_COPY_XFER_RATE	Transfer rate of remote I/O operations during initial copy by Universal Replicator (kilobytes per second)	double	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_NUMBER	Logical device number Example: 00:01:0F	string(16)	No	--
READ_HIT_IO_RATE	Number of cache hits in read operations by Universal Replicator (number of times per second)	double	No	--
READ_IO_RATE	Frequency of read operations by Universal Replicator (number of operations per second)	double	No	--
READ_XFER_RATE	Transfer rate of read operations by Universal Replicator (kilobytes per second)	double	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to LDUR	char(8)	No	--
WRITE_HIT_IO_RATE	Number of cache hits in write operations by Universal Replicator (number of times per second)	double	No	--

Field Name	Description	Format	Delta	Data Source
WRITE_IO_RATE	Frequency of write operations by Universal Replicator (number of operations per second)	double	No	--
WRITE_XFER_RATE	Transfer rate of write operations by Universal Replicator (kilobytes per second)	double	No	--

PI_LSP

The PI_LSP record stores the performance data indicating the performance of the LUs for each port. Note that if an applicable LU is connected to multiple ports, the performance values for that LU will be the same. If the `Access Type` is 2 or 4, this record will not be created.



Note:

If the CU number of the target LU (LDEV) is not set to be monitored, the record will not be created.

Collection Interval

3600

Key Fields

PORT_NAME, HOST_GROUP_NAME, and HOST_GROUP_NAME

Lifetime

From when the LU is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
CACHE_MEMORY_DISK_IO_RATE	Frequency of data transfer operations from cache memory to a hard disk drive (number of operations per second)	double	No	--

Field Name	Description	Format	Delta	Data Source
HOST_GROUP_ID	String that identifies the host group	string(16)	No	--
HOST_GROUP_NAME	Name of the host group	string(65)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_NUMBER	Logical device number Example: 00:01:0F	string(16)	No	--
LU_NUMBER	Logical unit number (LUN)	string(16)	No	--
PORT_NAME	Storage system port name	string(64)	No	--
RANDOM_DISK_CACHE_IO_RATE	Frequency of random data transfer operations from a hard disk drive to cache memory (number of operations per second)	double	No	--
RANDOM_READ_HIT_RATE	Cache hit rate of random read operations for each logical unit	float	No	--
RANDOM_READ_IO_RATE	Frequency of random read operations for each logical unit (number of operations per second)	double	No	--
RANDOM_WRITE_HIT_RATE	Cache hit rate of random write operations for each logical unit	float	No	--
RANDOM_WRITE_IO_RATE	Frequency of random write operations for each logical unit (number of operations per second)	double	No	--
READ_RESPONSE_RATE	Average processing time per read operation request for each logical unit (in microseconds)	double	No	--
READ_XFER_RATE	Transfer rate of read operations for each logical unit (kilobytes per second)	double	No	--

Field Name	Description	Format	Delta	Data Source
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to LSP	char(8)	No	--
SEQUENTIAL_DISK_CACHE_IO_RATE	Frequency of sequential data transfer operations from a hard disk drive to cache memory (number of operations per second)	double	No	--
SEQUENTIAL_READ_HIT_RATE	Cache hit rate of sequential read operations for each logical unit	float	No	--
SEQUENTIAL_READ_IO_RATE	Frequency of sequential read operations for each logical unit (number of operations per second)	double	No	--
SEQUENTIAL_WRITE_HIT_RATE	Cache hit rate of sequential write operations for each logical unit	float	No	--
SEQUENTIAL_WRITE_IO_RATE	Frequency of sequential write operations for each logical unit (number of operations per second)	double	No	--
TOTAL_IO_RATE	Frequency of operations for each logical unit (total number of read and write operations per second)	double	No	--
TOTAL_RESPONSE_RATE	Average processing time per read or write operation request for each logical unit (in microseconds)	double	No	--
TOTAL_XFER_RATE	Transfer rate of operations for each logical unit (total kilobytes for read and write operations per second)	double	No	--

Field Name	Description	Format	Delta	Data Source
WRITE_RESPONSE_RATE	Average processing time per write operation request for each logical unit (in microseconds)	double	No	--
WRITE_XFER_RATE	Transfer rate of write operations for each logical unit (kilobytes per second)	double	No	--

PI_LTSP

The PI_LTSP record stores performance data indicating the performance of the LUs for each port (data of remote copy by TrueCopy or TrueCopy for Mainframe, and monitoring data for global-active device). Note that if an applicable LU is connected to multiple ports, the performance values for that LU will be the same. If the `Access Type` is 2 or 4, this record will not be created.



Note:

If the CU number of the target LDEV is not set to be monitored, the record will not be created.

Collection Interval

3600

Key Fields

PORT_NAME, LU_NUMBER, and HOST_GROUP_NAME

Lifetime

From when the LU is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
HOST_GROUP_ID	String that identifies the host group	string(16)	No	--
HOST_GROUP_NAME	Host group name	string(65)	No	--

Field Name	Description	Format	Delta	Data Source
INITIAL_COPY_HIT_RIO_COUNT*	Remote I/O hit count during initial copy for each volume (logical unit)	double	No	--
INITIAL_COPY_RIO_COUNT	Number of remote I/O operations during initial copy for each volume (logical unit)	double	No	--
INITIAL_COPY_RESPONSE_RATE	Average remote I/O response time during initial copy for each volume (logical unit) (milliseconds per operation)	double	No	--
INITIAL_COPY_XFER_RATE	Transfer rate of remote I/O operations during initial copy for each volume (logical unit) (kilobytes per second)	double	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_NUMBER	Logical device number Example: 00:01:0F	string(16)	No	--
LU_NUMBER	Logical unit number (LUN)	string(16)	No	--
MIGRATION_COPY_HIT_RIO_COUNT*	Remote I/O hit count during migration copy for each volume (logical unit)	double	No	--
MIGRATION_COPY_RIO_COUNT*	Number of remote I/O operations during migration copy for each volume (logical unit)	double	No	--
OUT_OF_SYNC_TRACK_COUNT	Number of differential tracks for each volume (logical unit)	double	No	--
PAIR_SYNCHRONIZED_RATE	Pair match rate for each volume (logical unit)	float	No	--
PORT_NAME	Storage system port name	string(64)	No	Not supported

Field Name	Description	Format	Delta	Data Source
READ_RIO_COUNT*	Total number of read remote I/O operations for each volume (logical unit)	double	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to LTSP	char(8)	No	--
RIO_ERROR_COUNT	Number of errors that occur during remote I/O processing for each volume (logical unit)	double	No	--
RESTORE_COPY_HIT_RIO_COUNT*	Remote I/O hit count during restore copy for each volume (logical unit)	double	No	--
RESTORE_COPY_RIO_COUNT*	Number of remote I/O operations during restore copy for each volume (logical unit)	double	No	--
TOTAL_RIO_COUNT	Total number of read and write remote I/O operations for each volume (logical unit)	double	No	--
UPDATE_COPY_HIT_RIO_COUNT*	Remote I/O hit count during update copy for each volume (logical unit)	double	No	--
UPDATE_COPY_RIO_COUNT	Number of remote I/O operations during update copy for each volume (logical unit)	double	No	--
UPDATE_COPY_RESPONSE_RATE	Average remote I/O response time during update copy for each volume (logical unit) (milliseconds per operation)	double	No	--

Field Name	Description	Format	Delta	Data Source
UPDATE_COPY_XFER_RATE	Transfer rate of remote I/O operations during update copy for each volume (logical unit) (kilobytes per second)	double	No	--
WRITE_RIO_COUNT	Total number of write remote I/O operations for each volume (logical unit)	double	No	--
* The value cannot be collected for VSP E series, VSP 5000 series, VSP Gx00 models, and VSP Fx00 models storage systems.				

PI_LUSP

The PI_LUSP record stores performance data indicating the performance of the LUs for each port. Note that if an applicable LU is connected to multiple ports, the performance values for that LU will be the same. If the `Access Type` is 2 or 4, this record will not be created.



Note:

If the CU number of the target LU (LDEV) is not set to be monitored, the record will not be created.

Collection Interval

3600

Key Fields

PORT_NAME, LU_NUMBER, and HOST_GROUP_NAME

Lifetime

From when the LU is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
HOST_GROUP_ID	String that identifies the host group	string(16)	No	--
HOST_GROUP_NAME	Host group name	string(65)	No	--

Field Name	Description	Format	Delta	Data Source
INITIAL_COPY_HIT_RATE	Hit rate of initial copy by Universal Replicator for each volume (logical unit)	float	No	--
INITIAL_COPY_XFER_RATE	Transfer rate of remote I/O operations during initial copy by Universal Replicator for each volume (logical unit) (kilobytes per second)	double	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
LDEV_NUMBER	Logical device number Example: 00:01:0F	string(16)	No	--
LU_NUMBER	Logical unit number (LUN)	string(16)	No	--
PORT_NAME	Storage system port name	string(64)	No	--
READ_HIT_IO_RATE	Number of cache hits in read operations for each volume (LU) in Universal Replicator (number of times per second)	double	No	--
READ_IO_RATE	Frequency of read operations by Universal Replicator for each volume (logical unit) (number of operations per second)	double	No	--
READ_XFER_RATE	Transfer rate of read operations by Universal Replicator for each volume (logical unit) (kilobytes per second)	double	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to LUSP	char(8)	No	--
WRITE_HIT_IO_RATE	Number of cache hits in write operations for each volume (LU) in Universal Replicator (number of times per second)	double	No	--

Field Name	Description	Format	Delta	Data Source
WRITE_IO_RATE	Frequency of write operations by Universal Replicator for each volume (logical unit) (number of operations per second)	double	No	--
WRITE_XFER_RATE	Transfer rate of write operations by Universal Replicator for each volume (logical unit)(kilobytes per second)	double	No	--

PI_MBDR

The PI_MBDR record stores performance data indicating the usage rate of the data recovery reconfiguration circuit for a main blade. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Fields

MAIN_BLADE_NAME and DRR_NAME

Lifetime

From when the main blade is set up to when it is removed

Fields

Field Name ¹	Description	Format	Delta	Data Source
BUSY_RATE	Usage rate of the data recovery reconfiguration circuit (DRR)	float	No	--
DRR_NAME	Name of the data recovery reconfiguration circuit (DRR)	string(16)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--

Field Name ¹	Description	Format	Delta	Data Source
MAIN_BLADE_NAME	Name of the main blade	string(16)	No	--
MAX_BUSY_RATE ²	Usage rate of the data recovery reconfiguration circuit (DRR).	float	No	BUSY_RATE
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to MBDR	char(8)	No	--
Notes: <ol style="list-style-type: none"> 1. The value cannot be collected for VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, VSP G1000, G1500, or VSP F1500. 2. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_MPCS

The PI_MPCS record stores the performance data indicating the performance between an MP Blade and cache switch. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Fields

MP_BLADE_ID and CACHE_SWITCH_NAME

Lifetime

From when the MP Blade is defined to when it is removed

Fields

Field Name ¹	Description	Format	Delta	Data Source
ACCESS_PATH_USAGE_RATE	Usage rate of the access path between the MP blade and the cache switch (%)	float	No	--
CACHE_SWITCH_NAME	Name of the cache switch ²	string(16)	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_ACCESS_PATH_USAGE_RATE ³	Usage rate of the access path between the MP blade and the cache switch (%).	float	No	ACCESS_PATH_USAGE_RATE
MP_BLADE_ID	ID that identifies the MP blade that the processor belongs to in the storage system Example: MPB0	string(16)	No	--
MP_BLADE_NAME	<ul style="list-style-type: none"> ▪ For VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, or HUS VM: Name of the microprocessor unit that the processor belongs to ▪ For VSP G1000, G1500, or VSP F1500: Name of the MP blade that the processor belongs to 	string(32)	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--

Field Name ¹	Description	Format	Delta	Data Source
INPUT_RECORD_TYPE	Record type identifier, which is always set to MPCS	char(8)	No	--
Notes: <ol style="list-style-type: none"> 1. The value cannot be collected for VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, and HUS VM storage systems. 2. For VSP G1000, G1500, and VSP F1500, the cache memory name is stored in this field. 3. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_MPS

The PI_MPS record stores the performance data indicating the performance of a microprocessor. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Fields

LDEV_OWNER_ID and PROCESSOR_ID

Lifetime

From when the instance is created to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
BUSY_RATE	Processor usage	float	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--

Field Name	Description	Format	Delta	Data Source
LDEV_OWNER_ID	<ul style="list-style-type: none"> ▪ For VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, or HUS VM: String that identifies the microprocessor unit that the processor belongs to ▪ For VSP G1000, G1500, or VSP F1500: ID that identifies the MP blade that the processor belongs to 	string(16)	No	--
MAX_BUSY_RATE*	Processor usage.	float	No	BUSY_RATE
NAME	<ul style="list-style-type: none"> ▪ For VSP E series, VSP 5000 series, VSP Gx00 models, VSP Fx00 models, or HUS VM: String created by concatenating the name of the microprocessor unit that the processor belongs to and the microprocessor name ▪ For VSP G1000, G1500, or VSP F1500: String created by concatenating the name of the MP blade that the processor belongs to and the microprocessor name 	string(32)	No	--
PROCESSOR_ID	String that identifies the processor	string(16)	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--

Field Name	Description	Format	Delta	Data Source
INPUT_RECORD_TYPE	Record type identifier, which is always set to MPS	char(8)	No	--
* The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer.				

PI_MPTS

The PI_MPTS record stores the performance data indicating the performance of ports for mainframe systems. This record is not created for ports with FNP attributes. If the `Access Type` is 2 or 4, this record will not be created.



Note:

The items in (1) and (2) below all have the same field name (PORT_NUMBER), but the values output to the items in (1) are different from those output to the items in (2).

1. the PORT_NUMBER field of the PD_PTC record or the PI_PTS record
2. the PORT_NUMBER field of the PI_MPTS record or the PI_PTSX record

For this reason, if you want to check whether the port information of one record matches that of another, check the PORT_NAME field.

Collection Interval

60

Key Field

PORT_NUMBER

Lifetime

From when the main frame port is set up to when it is removed

Fields

Field Name ¹	Description	Format	Delta	Data Source
AVG_CMV_TIME	Average CMR processing time ² (in microseconds)	double	No	--

Field Name ¹	Description	Format	Delta	Data Source
AVG_CONNECT_TIME	Average connection time ³ (in microseconds)	double	No	--
AVG_DISCONNECT_TIME	Average disconnection time ⁴ (in microseconds)	double	No	--
AVG_IO_RATE	Number of read and write operations measured for each port	double	No	--
AVG_OPEN_EXCHANGE_RATE	Number of open exchanges per second ⁵	double	No	--
AVG_RESPONSE_RATE	Response time for each port (in microseconds)	double	No	--
AVG_XFER_RATE	Amount of data transferred by read and write operations for each port (kilobytes per second)	double	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_IO_RATE ⁶	Maximum number of read and write operations per second measured for each port	double	No	AVG_IO_RATE
MAX_XFER_RATE ⁶	Maximum amount of data transferred by read and write operations for each port (kilobytes per second)	double	No	AVG_XFER_RATE
PORT_NAME	Port name	string(16)	No	--
PORT_NUMBER	Port number of the storage system	string(8)	No	--

Field Name ¹	Description	Format	Delta	Data Source
READ_AVG_XFER_RATE	Amount of data transferred by read operations for each port (kilobytes per second)	double	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to MPTS	char(8)	No	--
WRITE_AVG_XFER_RATE	Amount of data transferred by write operations for each port (kilobytes per second)	double	No	--
Notes: <ol style="list-style-type: none"> 1. The value cannot be collected for VSP E series, VSP Gx00 models, VSP Fx00 models, HUS VM. 2. The CMR processing time is the time required for a monitored port to return a command response to the storage system in response to I/O access from the storage system to that port. 3. The connection time is the time obtained by subtracting the CMR delay time from the response time. 4. The average disconnection time is the time during which processing is stopped to perform I/O processing for a drive when the storage system performs I/O access to a monitored port. 5. The number of open exchanges is the average of the number of active I/O access operations for a monitored port. 6. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_PTSX

The PI_PTSX record stores the performance data indicating the performance of storage system ports. However, you cannot collect performance data about mainframe systems. You can collect performance data about mainframe system ports by using the PI_MPTS record.

**Note:**

The items in (1) and (2) below all have the same field name (PORT_NUMBER), but the values output to the items in (1) are different from those output to the items in (2).

1. the PORT_NUMBER field of the PD_PTC record or the PI_PTS record
2. the PORT_NUMBER field of the PI_MPTS record or the PI_PTSX record

For this reason, if you want to check whether the port information of one record matches that of another, check the PORT_NAME field.

Collection Interval

60

Key Field

PORT_NUMBER

Lifetime

From when the port is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
AVG_IO_RATE ¹	Average frequency of read and write operations for a storage system port (number of operations per second)	double	No	--
AVG_RESPONSE_RATE	Average processing time per read/write processing request for a storage system port (in microseconds)	double	No	--
AVG_XFER_RATE ¹	Average transfer rate of read and write operations for a storage system port (kilobytes per second)	double	No	--

Field Name	Description	Format	Delta	Data Source
INITIATOR_AVG_IO_RATE	Average frequency of read and write operations for a storage system port (number of operations per second) (initiator port value/external port value)	double	No	--
INITIATOR_AVG_RESPONSE_RATE	Average processing time per read/write processing request for a storage system port (in microseconds) (initiator port value/external port value)	double	No	--
INITIATOR_AVG_XFER_RATE	Average transfer rate of read and write operations for a storage system port (kilobytes per second) (initiator port value/external port value)	double	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_IO_RATE ^{1, 2}	Maximum frequency of read and write operations for a storage system port (number of operations per second)	double	No	AVG_IO_RATE
MAX_XFER_RATE ^{1, 2}	Maximum transfer rate of read and write operations for a storage system port (kilobytes per second)	double	No	AVG_XFER_RATE
PORT_NAME	Port name	string(16)	No	--
PORT_NUMBER	Storage system port number	string(8)	No	--

Field Name	Description	Format	Delta	Data Source
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to PTSX	char(8)	No	--
Notes: <ol style="list-style-type: none"> 1. If the <code>Access Type</code> is 2 or 4, the information in this field is not obtained. 2. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_RGSX

The PI_RGSX record stores performance data indicating the performance of a parity group, external volume group, and a virtual volume group. If the `Access Type` is 2 or 4, this record will not be created.



Note:

All the CU numbers of the LDEVs that belong to the target parity group must be set to be monitored for the record to be created.

Collection Interval

3600

Key Field

RAID_GROUP_NUMBER

Lifetime

From when the parity group is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
BACK_IO_RATE	Frequency of data transfer operations between cache memory and a hard disk drive (number of operations per second)	double	No	--
CACHE_MEMORY_DISK_IO_RATE	Frequency of data transfer operations from cache memory to a hard disk drive (number of operations per second)	double	No	--
CFW_READ_HIT_RATE*	Cache hit rate of read operations in Cache Fast Write mode for each parity group	float	No	--
CFW_READ_IO_RATE*	Frequency of read operations in Cache Fast Write mode for each parity group (number of operations per second)	double	No	--
CFW_WRITE_HIT_RATE*	Cache hit rate of write operations in Cache Fast Write mode for each parity group	float	No	--
CFW_WRITE_IO_RATE*	Frequency of write operations in Cache Fast Write mode for each parity group (number of operations per second)	double	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
RAID_GROUP_NUMBER	Parity group number	string(64)	No	--
RANDOM_DISK_CACHE_IO_RATE	Frequency of random data transfer operations from a hard disk drive to cache memory (number of operations per second)	double	No	--
RANDOM_READ_HIT_RATE	Cache hit rate of random read operations for each parity group	float	No	--

Field Name	Description	Format	Delta	Data Source
RANDOM_READ_IO_RATE	Frequency of random read operations for each parity group (number of operations per second)	double	No	--
RANDOM_WRITE_HIT_RATE	Cache hit rate of random write operations for each parity group	float	No	--
RANDOM_WRITE_IO_RATE	Frequency of random write operations for each parity group (number of operations per second)	double	No	--
READ_HIT_RATE	Cache hit rate of read operations for each parity group	float	No	--
READ_IO_RATE	Frequency of read operations for each parity group (number of operations per second)	double	No	--
READ_RESPONSE_RATE	Average processing time per read operation request for each parity group, external volume, or virtual volume group (in microseconds)	double	No	--
READ_TOTAL_XFER_RATE	Transfer rate of operations for each parity group (total kilobytes for read operations per second)	double	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to RGSX	char(8)	No	--
SEQUENTIAL_DISK_CACHE_IO_RATE	Frequency of sequential data transfer operations from a hard disk drive to cache memory (number of operations per second)	double	No	--

Field Name	Description	Format	Delta	Data Source
SEQUENTIAL_READ_HIT_RATE	Cache hit rate of sequential read operations for each parity group	float	No	--
SEQUENTIAL_READ_IO_RATE	Frequency of sequential read operations for each parity group (number of operations per second)	double	No	--
SEQUENTIAL_WRITE_HIT_RATE	Cache hit rate of sequential write operations for each parity group	float	No	--
SEQUENTIAL_WRITE_IO_RATE	Frequency of sequential write operations for each parity group (number of operations per second)	double	No	--
TOTAL_IO_RATE	Frequency of operations for each parity group (total number of read and write operations per second)	double	No	--
TOTAL_RESPONSE_RATE	Average processing time per read or write operation request for each parity group, external volume, or virtual volume group (in microseconds)	double	No	--
TOTAL_XFER_RATE	Transfer rate for operations for each parity group (total kilobytes for read and write operations per second)	double	No	--
WRITE_HIT_RATE	Cache hit rate of write operations for each parity group	float	No	--
WRITE_IO_RATE	Frequency of write operations for each parity group (number of operations per second)	double	No	--

Field Name	Description	Format	Delta	Data Source
WRITE_RESPONSE_RATE	Average processing time per write operation request for each parity group, external volume, or virtual volume group (in microseconds)	double	No	--
WRITE_TOTAL_XFER_RATE	Transfer rate of operations for each parity group (total kilobytes for write operations per second)	double	No	--
* The value cannot be collected for VSP E series, VSP Gx00 models, VSP Fx00 models, and HUS VM storage systems.				

PI_RGU

The PI_RGU record stores the performance data indicating the activity rate of parity groups. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

3600

Key Field

RAID_GROUP_NUMBER

Lifetime

From when the parity group is set up to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
BUSY_RATE	Usage rate of the parity group ¹	float	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_BUSY_RATE ²	Usage rate of the parity group ¹	float	No	BUSY_RATE
RAID_GROUP_NUMBER	Parity group number	string(64)	No	--

Field Name	Description	Format	Delta	Data Source
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to RGU	char(8)	No	--
Notes: <ol style="list-style-type: none"> For storage systems other than those of the following models, if the storage system has a built-in flash drive (FMD, FMC, or SSD), the value displayed as the usage rate of the parity groups of the flash drive might be higher than the actual usage rate, regardless of the load on the flash drive: VSP 5000 series, VSP Gx00, VSP Fx00, VSP G1000, G1500, and VSP F1500. For such storage systems, do not use as reference the value displayed as the usage rate of the parity groups of the flash drive. The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer. 				

PI_SCPS

The PI_SCPS record stores the performance data indicating the performance of the entire storage system (monitoring data for TrueCopy or TrueCopy for Mainframe, Universal Replicator or Universal Replicator for Mainframe, or global-active device). If the `Access Type` is 2 or 4, this record will not be created.



Note:

The value stored in this record is the total value of the performance data for the LDEVs that belong to the monitored CUs. The performance data of the LDEVs that belong to the CUs that are not monitored is not calculated together.

Collection Interval

60

Key Field

None

Lifetime

From when the instance is created to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
INITIAL_COPY_RIO_COUNT	Number of remote I/O operations during initial copy	double	No	--
INITIAL_COPY_RESPONSE_RATE	Average response time of initial copy (milliseconds per operation)	double	No	--
INITIAL_COPY_XFER_RATE	Transfer rate of remote I/O operations during initial copy (kilobytes per second)	double	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
OUT_OF_SYNC_TRACK_COUNT	Number of differential tracks	double	No	--
PAIR_SYNCHRONIZED_RATE	Pair match rate	float	No	--
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to SCPS	char(8)	No	--
RIO_ERROR_COUNT	Number of errors that occur during remote I/O processing	double	No	--
TOTAL_RIO_COUNT	Total number of read and write remote I/O operations	double	No	--
UPDATE_COPY_RIO_COUNT	Number of remote I/O operations during update copy	double	No	--
UPDATE_COPY_RESPONSE_RATE	Average response time during update copy (milliseconds per operation)	double	No	--
UPDATE_COPY_XFER_RATE	Transfer rate of remote I/O operations during update copy (kilobytes per second)	double	No	--
UR_INITIAL_COPY_HIT_RATE	Hit rate (%) of initial copy by Universal Replicator	float	No	--

Field Name	Description	Format	Delta	Data Source
UR_INITIAL_COPY_XFER_RATE	Average transfer rate of initial copy by Universal Replicator (kilobytes per second)	double	No	--
UR_M_JNL_ASYNC_JOURNAL_COUNT	Total number of journals in the primary storage system	double	No	--
UR_M_JNL_ASYNC_RESPONSE_RATE	Average remote I/O response time in the primary storage system (milliseconds per operation)	double	No	--
UR_M_JNL_ASYNC_RIO_RATE	Number of asynchronous remote I/O operations per second in the primary storage system	double	No	--
UR_M_JNL_ASYNC_XFER_RATE	Transfer speed per second for the primary storage system (in kilobytes)	double	No	--
UR_R_JNL_ASYNC_JOURNAL_COUNT	Total number of journals in the secondary storage system	double	No	--
UR_R_JNL_ASYNC_RESPONSE_RATE	Average remote I/O response time in the secondary storage system (milliseconds per operation)	double	No	--
UR_R_JNL_ASYNC_RIO_RATE	Number of asynchronous remote I/O operations per second in the secondary storage system	double	No	--
UR_R_JNL_ASYNC_XFER_RATE	Transfer speed per second for the secondary storage system (in kilobytes)	double	No	--
UR_WRITE_IO_RATE	Frequency of write operations by Universal Replicator (number of operations per second)	double	No	--
UR_WRITE_XFER_RATE	Transfer rate of write operations by Universal Replicator (kilobytes per second)	double	No	--

Field Name	Description	Format	Delta	Data Source
WRITE_RIO_COUNT	Total number of write remote I/O operations	double	No	--

PI_SCS

The PI_SCS record stores performance data indicating the cache performance of the entire storage system. If the `Access Type` is 2 or 4, this record will not be created.

Collection Interval

60

Key Field

None

Lifetime

From when the instance is created to when it is removed

Fields

Field Name	Description	Format	Delta	Data Source
CACHE_MEMORY_USAGE_RATE	Usage of cache memory of the storage system	float	No	--
CACHE_WRITE_PENDING_RATE	Of the cache memory, the percentage of memory that is used by write-pending data	float	No	--
INTERVAL	Interval (in seconds) at which information is collected	ulong	No	--
MAX_CACHE_MEMORY_USAGE_RATE*	Cache memory usage of the storage system.	float	No	CACHE_MEMORY_USAGE_RATE
MAX_CACHE_WRITE_PENDING_RATE*	Of the cache memory, the percentage of memory that is used by write-pending data.	float	No	CACHE_WRITE_PENDING_RATE

Field Name	Description	Format	Delta	Data Source
RECORD_TIME	Time (in GMT) at which data was collected from the storage system and the record was created	time_t	No	--
INPUT_RECORD_TYPE	Record type identifier, which is always set to SCS	char(8)	No	--
* The value cannot be collected if data is collected by using RAID Agent bundled with Ops Center Analyzer.				

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