

Hitachi Compute Rack Series Expander Link Check Tool Instruction Manual

FASTFIND LINKS

[Document Organization](#)

[Product Version](#)

[Getting Help](#)

[Contents](#)

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Contents

Preface	v
Intended audience	vi
Product version	vi
Release notes	vi
Document conventions	vii
Convention for storage capacity values	viii
Getting help	viii
Comments	viii
Introduction	1-1
Overview	1-2
List of the Expander Link Check Tool events	1-2
Requirements for Support	1-3
Installation and Uninstallation	2-1
Installing the Expander Link Check Tool on Windows	2-2
Installing the Expander Link Check Tool on Linux	2-4
Uninstalling the Expander Link Check Tool on Windows	2-6
Uninstalling the Expander Link Check Tool on Linux	2-8



Preface

This document describes how to use the Expander Link Check Tool.

This preface includes the following information:

- ☐ [Intended audience](#)
- ☐ [Product version](#)
- ☐ [Release notes](#)
- ☐ [Document organization](#)
- ☐ [Document conventions](#)
- ☐ [Convention for storage capacity values](#)
- ☐ [Getting help](#)
- ☐ [Comments](#)

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Intended audience

This document is intended for the personnel who are involved in managing, configuring and operating the Compute Rack.

Product version

This document revision applies to Expander Link Check Tool version 1.0.3.0 and 1.0.4.0.

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.

Document organization

The following table provides an overview of the contents and organization of this document. Click the chapter title in the left column to go to that chapter. The first page of each chapter provides links to the sections in that chapter.





Chapter	Description
Chapter 1, Introduction	The chapter presents what the Expander Link Check Tool is, a list of the Expander Link Check Tool events, and a couple of prerequisites for support.
Chapter 2, Installation and Uninstallation	The chapter presents how to install or uninstall the Expander Link Check Tool.

Document conventions

This document uses the following typographic conventions:

Convention	Description
Regular text bold	In text: keyboard key, parameter name, property name, hardware labels, hardware button, hardware switch. In a procedure: user interface item
<i>Italic</i>	Variable, emphasis, reference to document title, called-out term
Screen text	Command name and option, drive name, file name, folder name, directory name, code, file content, system and application output, user input
< > (angled brackets)	Variable (used when italic is not enough to identify variable).
[] (square bracket)	Optional values
{ } braces	Required or expected value
vertical bar	Choice between two or more options or arguments
_(underline)	Default value, for example, [<u>a</u>] b

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

Icon	Meaning	Description
	WARNING	This indicates the presence of a potential risk that might cause death or severe injury.
	CAUTION	This indicates the presence of a potential risk that might cause relatively mild or moderate injury.
NOTICE	NOTICE	This indicates the presence of a potential risk that might cause severe damage to the equipment and/or damage to surrounding properties.
	Note	This indicates notes not directly related to injury or severe damage to equipment.
	Tip	This indicates advice on how to make the best use of the equipment.

Convention 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 storage capacity values (for example, logical device capacity) are calculated based on the following values:

Logical capacity unit	Value
1 block	512 bytes
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

Getting help

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Comments

Please send us your comments on this document: doc.comments@hds.com. Include the document title and number including the revision level (for example, -07), and refer to specific sections and paragraphs whenever possible. All comments become the property of Hitachi Data Systems Corporation.

Thank you!

Introduction

This chapter describes the function of the Expander Link Check Tool in detail.

- [Overview](#)
- [List of the Expander Link Check Tool events](#)
- [Requirements for Support](#)

Overview

The "**Expander Link Check Tool**" is software that checks SAS link connections between Expander boards and disk array controllers.



This tool runs in the background as a service, which checks the link connections only once shortly after OS activates. This service automatically stops after it has finished checking the connections.

List of the Expander Link Check Tool events

The following table shows the Expander Link Check Tool events that can appear in the event log.*

In Linux OS, the source logs as the "ExpLinkChk".

In Windows OS, the source logs as the "ExpanderLinkChk".

Event ID	Level	Message	Required action
1000	Information	Expander Link monitor Service has started successfully.	Indicates that Expander Link monitor service has started. Action is not required.
1001	Information	Expander Link monitor Service has shut down successfully.	Indicates that Expander Link monitor service has ended. Action is not required.
2000	Warning	LinkCheck.ini file is not found.	Indicates that the LinkCheck.ini file has not been found. Action is not required.
3000	Error	Controller No.x : Phy No.x Link Failure (SAS Address = 0xxxxxxxxxxxxxxxxx)	In this case, contact the sales representative or call maintenance personnel.
4000	Information	Controller No.x : Phy No.x Link Recovery (SAS Address = 0xxxxxxxxxxxxxxxxx)	Indicates that the link has been recovered. Action is not required.
4001	Information	Controller No.x : Phy No.x SAS Address Change (SAS Address = 0xxxxxxxxx : 0xVVVVVVVVV)	Indicates that the SAS address has been changed. Action is not required.



* Linux® logs events in /var/log/messages.
Windows logs events in Windows Application log.

Requirements for Support

The Expander Link Check Tool requires the following:

Item	Product
System unit	CR 220xM model, CR 220-hxM model, or CR 220-sxM model (Board models equivalent to MegaRAID SAS RAID board of LSI Corporation)
OS	Windows Server 2012 R2 , Windows Server 2012, Windows Server 2008 R2 , Windows Server 2008, Red Hat Enterprise Linux Server 6 or Red Hat Enterprise Linux 5



Do not install the tool in any system other than those listed above.

In Windows environments, the following event appears in the System log in the process of installing the Expander Link Check Tool.

However, ignore the event because the event does not adversely affect the subsequent operation. (The event doesn't appear after installation)

Event ID	Level	Source	Description
7030	Error	Service Control Message	ExpanderLinkChk is an interactive service; however, the system is configured so as not to allow interactive services. This service may not work well.

Installation and Uninstallation

This chapter presents how to install and uninstall the Expander Link Check Tool.

- [Installing the Expander Link Check Tool on Windows](#)
- [Installing the Expander Link Check Tool on Linux](#)
- [Uninstalling the Expander Link Check Tool on Windows](#)
- [Uninstalling the Expander Link Check Tool on Linux](#)

Installing the Expander Link Check Tool on Windows

1. Start Windows and log on as the Administrator.
2. Insert the "Server installation and monitoring tool DVD" or "Driver & Utility CD" or "Driver Kit CD" in the CD/DVD drive.
3. **[When "Server installation and monitoring tool DVD" is used]**
[When "Driver & Utility CD" is used]
 - Open the "Support_EN.html" file attached to the CD/DVD.
 - Pick up the directory of the "Expander Link Check tool" for the OS in system unit.
 - Go to the directory picked up in the previous step.

[When "Driver Kit CD" is used]

Go to the following directory.

"d:/UTILITY/ExpanderLinkCheck" *

* Enter the CD/DVD drive letter in the "d" above.

4. Copy all the files in the sub directory to the following directory.
 - For 64-bit OSs:
C:/Program Files (x86)/Hitachi/ExpanderLinkCheck
 - For 32-bit OSs:
C:/Program Files/Hitachi/ExpanderLinkCheckIf the directory does not exist, create one.
5. Open the command prompt window and move to either of the directories, in which you have copied the files.
6. Enter the following command:

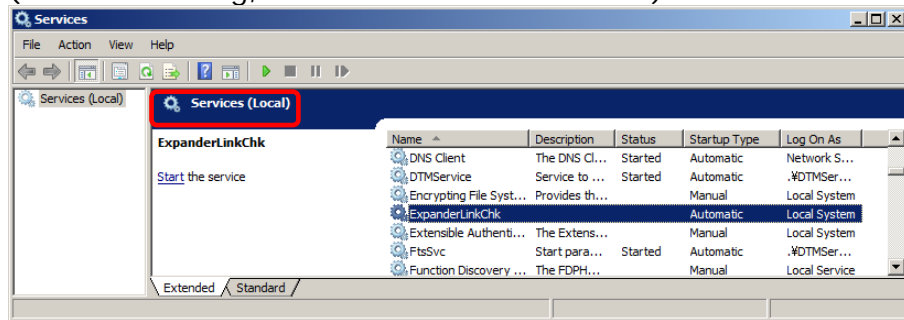
ExpanderLinkChk.exe -install

This command starts installation. (After installation, close the command prompt)

7. Open the Services window either in the following;
[Window Server 2012 R2 or Window Server 2012]
Click the Windows logo; then, click **Administrative tools > Services**.
[Window Server 2008 R2 or Window Server 2008]
Click the Start menu then, click **Programs - Administrative tools > Services**.

In some Windows OSs, **All Programs** appears not just **Programs**. In such cases, click **All Programs**.

8. Make sure that **ExpanderLinkChk** appears in the **Services** window.
(After confirming, close the **Services** window)



The status of **ExpanderLinkChk** is normally blank, which means "Out of service".

9. Remove the CD/DVD-ROM from the CD/DVD drive.

Installing the Expander Link Check Tool on Linux



Install all the items in either of the following packages from the Linux installer.

[Red Hat Enterprise Linux Server 6] package

- Base
- Compatible library

[Red Hat Enterprise Linux 5] package

- Base
- Legacy software support

Without installing the packages, the tool does not function.

1. Start Linux and log on as the root user.
 2. Insert the "Driver Kit CD" in the CD/DVD drive.
-



If the Linux system automatically mount the CD/DVD-ROM, unmount the media by the unmount command. Without unmounting the CD/DVD-ROM, the tool would not run normally.

3. Mount the CD/DVD-ROM by entering the following command on the terminal:

mount /dev/cdrom /media/



If the command does not mount the CD/DVD-ROM, try it again by inserting an arbitrary digit immediately after the word "cdrom" like the following:

mount /dev/cdrom2 /media/

4. Move to the following directory.

"/media/hitachi_utilities/ExpanderLinkCheck"

5. To start installation, enter the following command in the terminal.

`./ExpLink.sh start`

6. Make sure that the following messages appear on the terminal.

```
# ./ExpLink.sh start
Starting ExpLinkChk Daemon
Starting ExpLink Service

Start ExpLinkChk Daemon Complete.
```

7. To make sure that ExpLinkChk service has been installed, enter the following command:

`service ExpLink status`

8. If the following response message appears, it follows that ExpLinkChk is normally installed.

When out of ExpLinkChk service

```
# service ExpLink status
ExpLinkChk is stopped
```

When in ExpLinkChk service

```
# service ExpLink status
ExpLinkChk (pid ZZZZ) is running...
```



"zzzz" is a numeric value.

The messages in the "when in ExpLinkChk service" usually appear.

The response message "ExpLinkChk: unrecognized service" means that the Expander Link Check Tool installation has failed. If the message appears, retry installation from the step #1.

9. Unmount and remove the "Driver Kit CD" from the CD/DVD drive.

Uninstalling the Expander Link Check Tool on Windows

1. Start Windows and log on as the Administrator.
2. Open the Services window either in the following;
[Window Server 2012 R2 or Window Server 2012]
Click the Windows logo; then, click **Administrative tools > Services**.
[Window Server 2008 R2 or Window Server 2008]
Click the Start menu then, click **Programs - Administrative tools > Services**.

In some Windows OSs, **All Programs** appears not just **Programs**. In such cases, click **All Programs**.
3. Right-click the **ExpanderLinkChk** service, and select **[Stop]**.
4. Make sure that the **ExpanderLinkChk** service has stopped and the **[State]** has become blank.
5. Open the command prompt window and move to the following directory.

- For 64-bit OSs:
C:/Program Files (x86)/Hitachi/ExpanderLinkCheck
- For 32-bit OSs:
C:/Program Files/Hitachi/ExpanderLinkCheck.
6. Enter the following command:

ExpanderLinkChk.exe -remove

This command starts uninstallation. (After uninstallation, close the command prompt)
7. Open the Services window either in the following;
[Window Server 2012 R2 or Window Server 2012]
Click the Windows logo; then, click **Administrative tools > Services**.
[Window Server 2008 R2 or Window Server 2008]
Click the Start menu then, click **Programs - Administrative tools > Services**.

In some Windows OSs, **All Programs** appears not just **Programs**. In such cases, click **All Programs**.
8. Make sure that "ExpanderLinkChk" service doesn't exist in the **Services** window.
(After confirming, close the **Services** window)

9. Remove the following directory.

- For 64-bit OSs:

C:/Program Files (x86)/Hitachi/ExpanderLinkCheck

- For 32-bit OSs:

C:/Program Files/Hitachi/ExpanderLinkCheck.

Uninstalling the Expander Link Check Tool on Linux

1. Start Linux and log on as the root user.
2. Insert the "Driver Kit CD" in the CD/DVD drive.



If the Linux system automatically mount the CD/DVD-ROM, unmount the media by the unmount command. Without unmounting the CD/DVD-ROM, the tool would not run normally.

3. Mount the CD/DVD-ROM by entering the following command on the terminal:

mount /dev/cdrom /media/



If the command does not mount the CD/DVD-ROM, try it again by inserting an arbitrary digit immediately after the word "cdrom" like the following:

mount /dev/cdrom2 /media/

4. Move to the following directory.
"/media/hitachi_utilities/ExpanderLinkCheck"
5. To start uninstallation, enter the following command from on the terminal.
./ExpLink.sh stop
6. Make sure that the following messages appear on the terminal.

```
# ./ExpLink.sh stop
Stopping & Delete ExpLinkChk Daemon
Shutting down ExpLink Service
[ XX ]
Stop & Delete ExpLinkChk Daemon Complete.
```

Note: "XX" differs depending on the ExpLinkChk service status.

7. To make sure that ExpLinkChk service has been uninstalled, enter the following command:

service ExpLink status

8. If the following response messages appear, it follows that ExpLinkChk is normally uninstalled.

```
# service ExpLink status
ExpLink: unrecognized service
```

9. Unmount and remove the "Driver Kit CD" from the CD/DVD drive.

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