

Hitachi Data Ingestor Hyper-V Installation Guide

Hitachi, Ltd., IT Platform Division Group

MK-90HDI052-00

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1. Overview

1.1. Purpose of this document

This is a guide for installing Hitachi Data Ingestor (HDI) on Hyper-V. Hereafter, instances of HDI installed on Hyper-V are referred to as “VMA”. This guide is intended to explain the following information about installation:

- Applicable virtual machine environment
- Procedure for setting up HDI on Hyper-V

1.2. Intended audience

- Users who have a basic knowledge of virtual machine operation by using Hyper-V.
- A person who has acquired knowledge described in Hitachi Data Ingestor User’s Guide for Single Node.

1.3. Related document

This guide is based on the following documents:

- Hitachi Data Ingestor Installation and Configuration Guide
- Hitachi Data Ingestor User’s Guide for Single Node Configuration
- Hitachi Data Ingestor Single Node Getting Started Guide

1.4. The intended version of HDI

This document revision applies to the installation of Hitachi Data Ingestor version 6.0.0-00 or later.

1.5. Trademarks

- Intel, Xeon, and Itanium are trademarks or registered trademarks of Intel Corporation or its subsidiary in the United States and other countries.
- Linux is a trademark or a registered trademark of Linus Torvalds in the United States and other countries.
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1.6. Document Revision History

Revision	Date	Description
1	Nov. 2, 2015	Newly Created
2		
3		

2. Overview of VMA

Hyper-V is a virtual platform environment that runs on Windows Server 2012 R2.

VMA is executed as a guest OS on Hyper-V. VMA, and HDI in a single-node configuration, both provide the same functionality.

2.1. Overview of system configuration

VMA and HDI in a single-node model differ in their hardware requirements. Instead of physical hardware, VMA requires a Windows Server host on which Hyper-V is installed.

Figure 2-1 shows the system configuration of VMA.

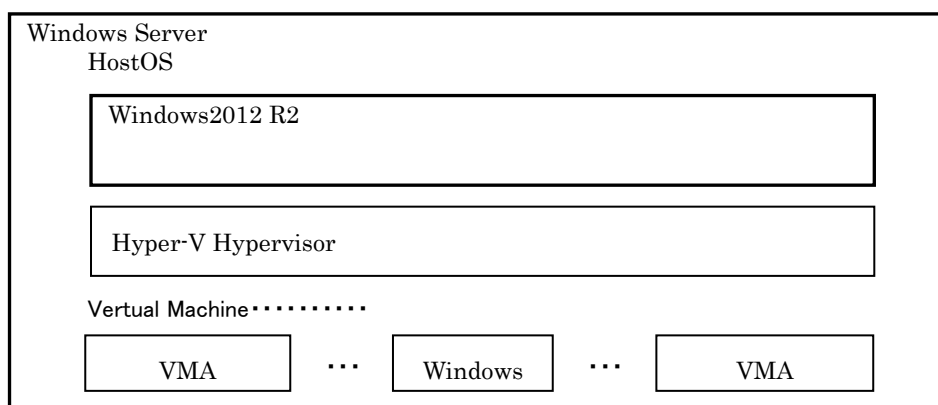


Figure 2-1 System configuration components

2.2. Application hardware

Any host that satisfies the following hardware requirements is applicable. Table 2-1 shows the system requirements for the host machine.

Table 2-1 System requirements for the host machine

#	Item	Configuration
1	Processor	x64-based processor (Intel 64, AMD64) Intel-VT or AMD-V is enabled, and data execution prevention (DEP) is enabled
2	Host OS	Windows Server 2012 R2
3	Memory for the host OS	12 GB or more * Number of guest OSs to be executed simultaneously × 8 GB + 4 GB or more
4	Storage for the host OS	Amount of storage used by the host + 64 GB or more * 64 GB is the minimum requirement for a single guest OS.
5	Network adapters	2

2.3. Differences between VMA and HDI in a single-node configuration

Compared to HDI in a single-node configuration, VMA has the following characteristics:

- Tagged VLAN, link aggregation, line redundancy, and negotiation mode cannot be set in VMA. These functions can be set in the host.
- Performance depends on the load on the Hyper-V host.
- The speed of "Ethernet Interface" in the Network tab of VMA is always displayed as "--".
- The link speed of "Network Interface" displayed when the hwstatus command of VMA is executed is always displayed as "--".
- Media type, Negotiation mode, Speed, and Duplex in the List of Data Ports window of VMA are always displayed as "--".

VMA's performance in hardware failure monitoring is lower than that of HDI in a single-node configuration.

2.4. Supported virtual machine setting values

Table 2-2 shows the supported virtual machine setting values.

Table 2-2 Supported virtual machine setting values

#	Item	Configuration	Remarks
1	Virtual machine generation	Generation 1	Generation 2 is not supported.
2	Number of processors	2 or more	
3	Memory	8192 MB or more	
4	IDE controllers	2	
5	SCSI controllers	1	Multiple SCSI controllers are not supported.
6	Number of virtual disks	OS LUs	1 Create this item on 0 of IDE controller 0 (mandatory).
		Shared LUs	1 Create this item on 0 of the SCSI controller (mandatory).
		User LUs	1 to 63 Create this item on 1 to 63 of the SCSI controller. At least 1 user LU is required.
7	Virtual disk capacity (*1)	OS LUs	26 GB or more Fixed capacity
		Shared LUs	36 GB or more Fixed capacity
		User LUs	2 GB or more Fixed capacity
8	Disk type	VHD	
9	Network Adapters	2	
10	CD/DVD Drives	1	Create this item on 0 of IDE controller 1.

			Map the ISO image.
--	--	--	--------------------

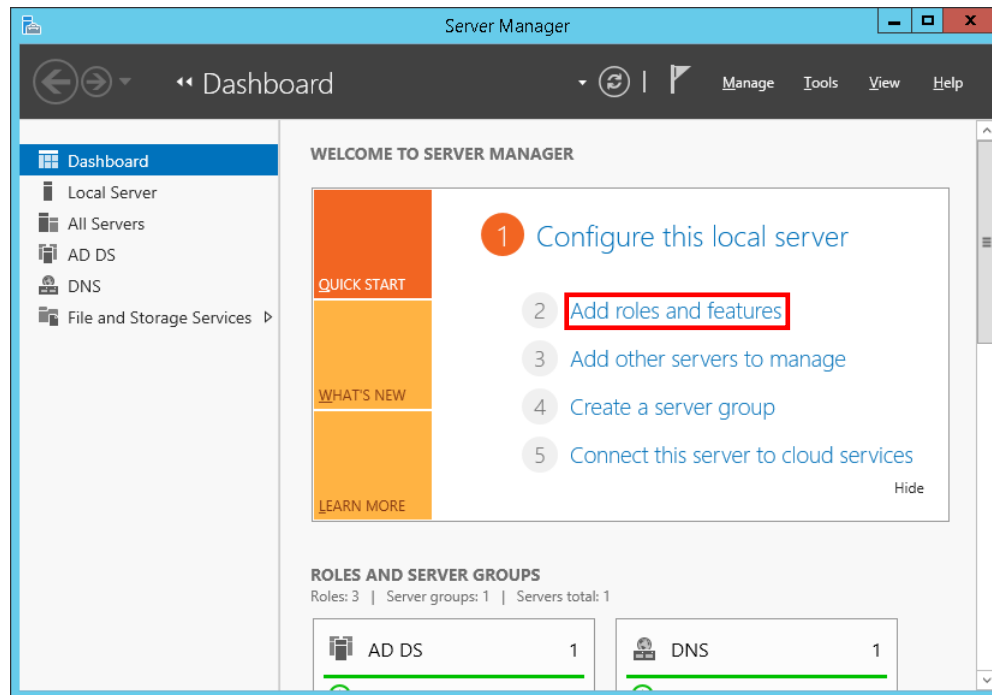
Note:

*1: Virtual disk capacity cannot be extended after installation. Estimate the required capacity of user LUs before installation

3. Hyper-V installation procedure

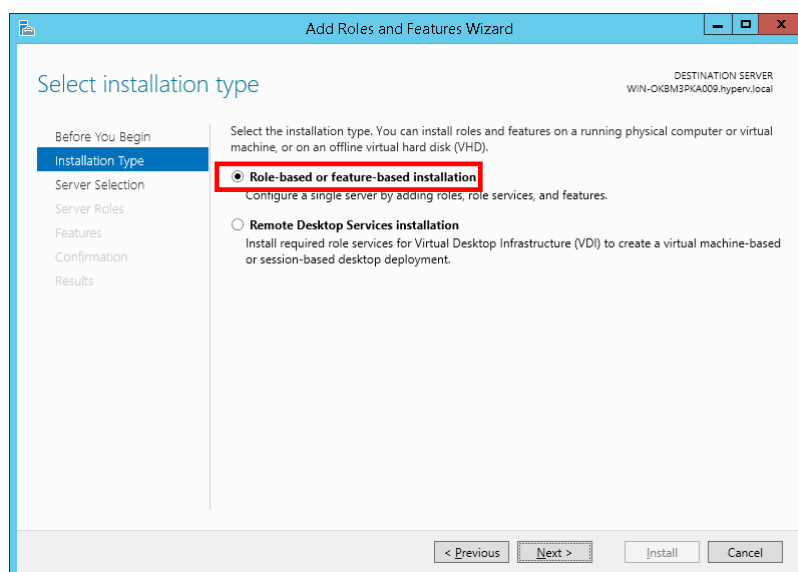
This section describes the procedure for installing Hyper-V on a host where Windows Server 2012 R2 has been installed.

(1) Start Server Manager, and then click [Add roles and features] in the right pane.

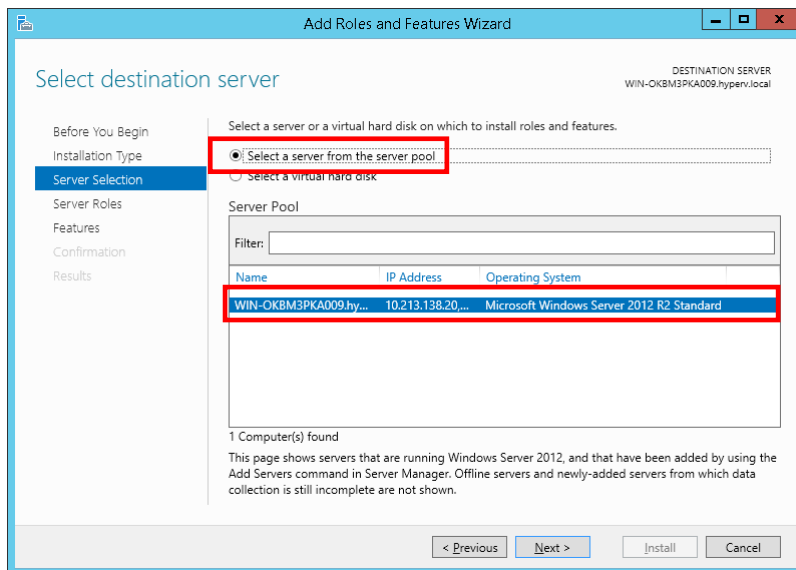


(2) In the Add Roles and Features Wizard window, click the [Next] button in [Before You Begin].

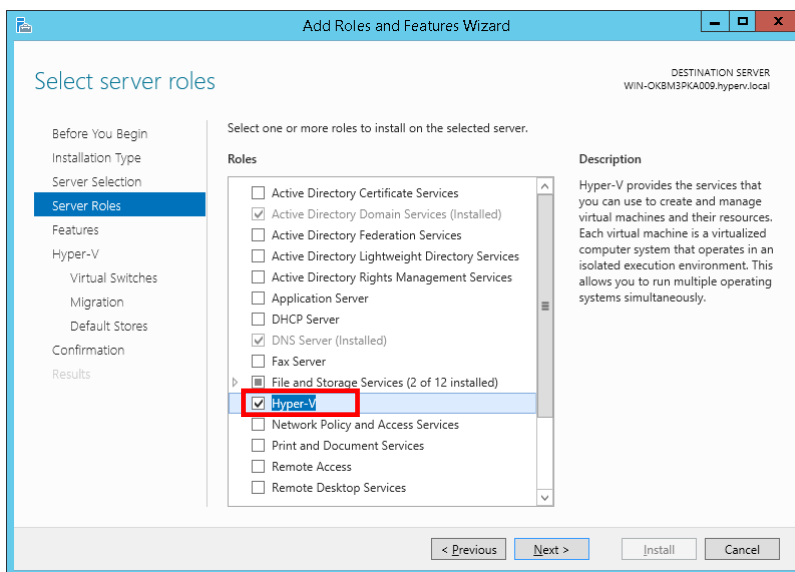
(3) In [Select installation type], select [Role-based or feature-based installation], and then click the [Next] button.



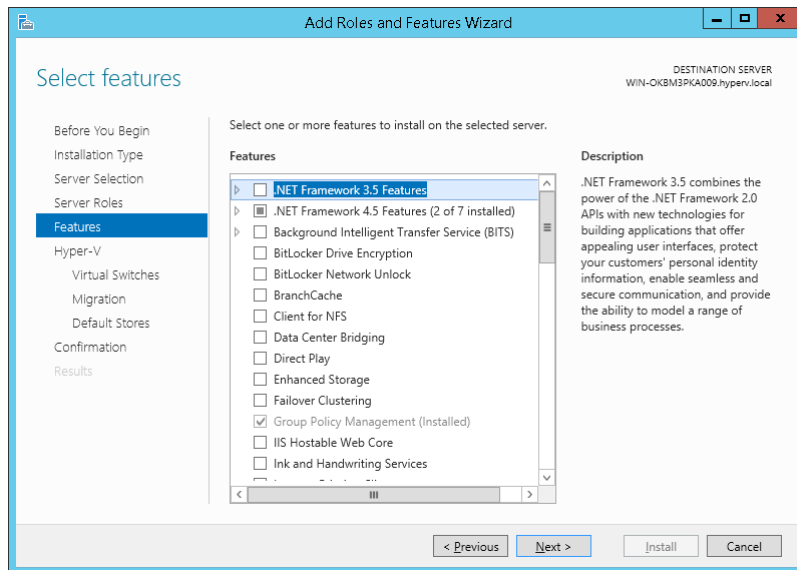
(4) In [Select destination server], select [Select a server from the server pool], select the host machine name from [Server Pool], and then click the [Next] button.



(5) In [Select server roles], select the [Hyper-V] check box. Click the [Add Features] button to close the pop-up window, and then click the [Next] button.

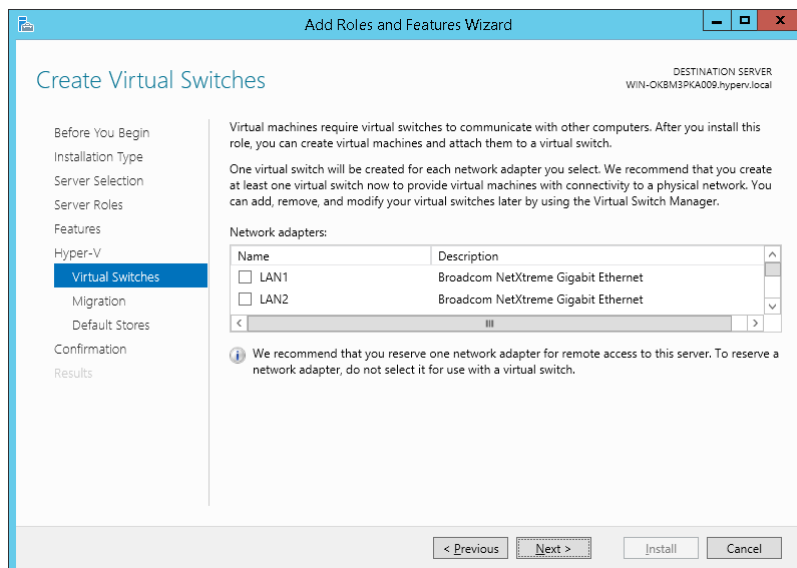


(6) In [Select features], click the [Next] button without changing the default settings.

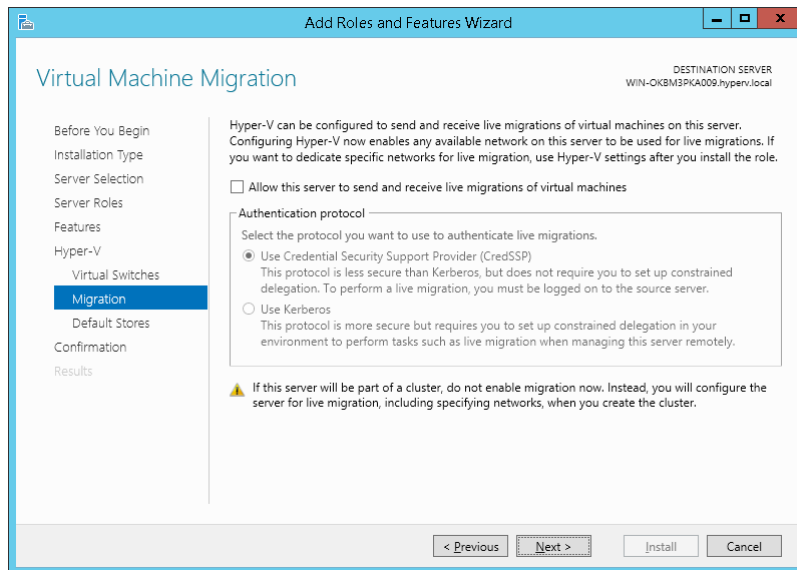


(7) In [Hyper-V], click the [Next] button.

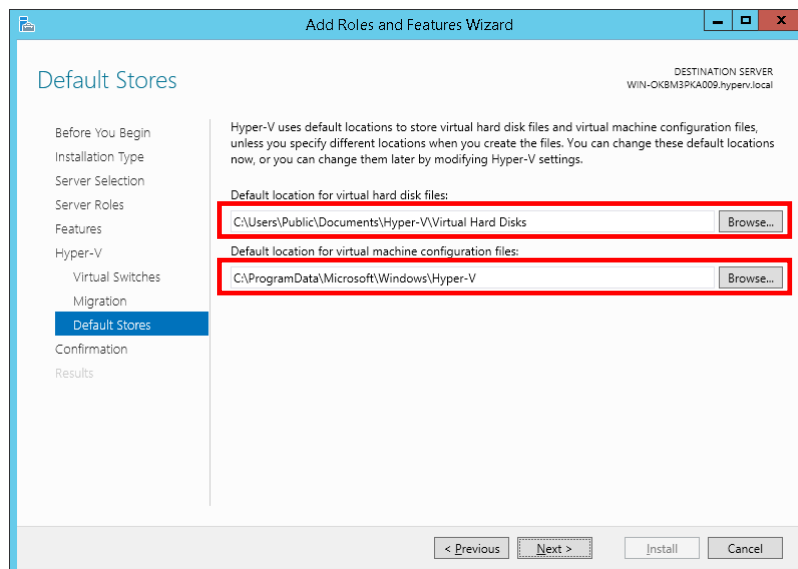
(8) In [Create Virtual Switches], click the [Next] button without selecting anything. You will create the network later.



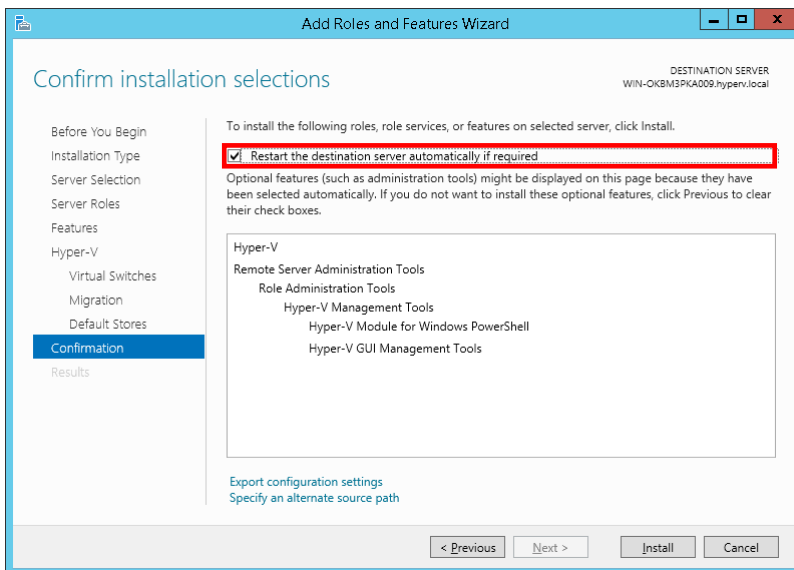
(9) In [Virtual Machine Migration], click the [Next] button without changing the default settings.



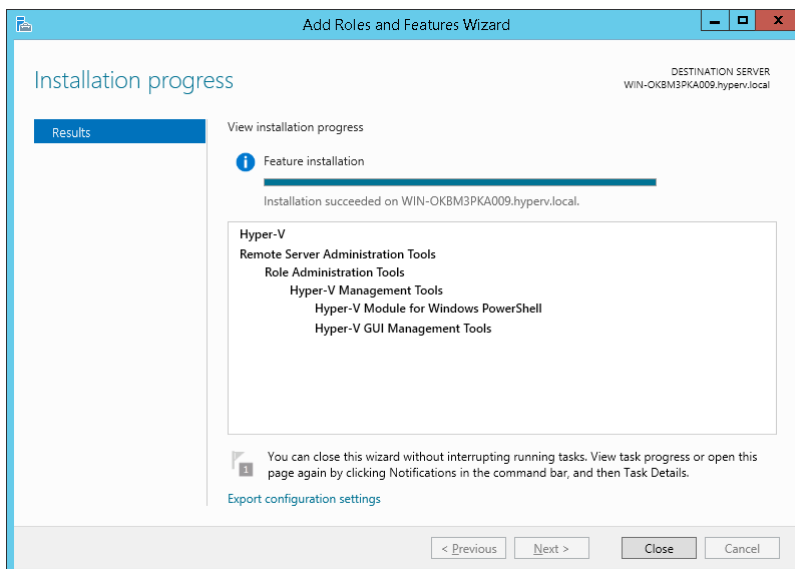
(10) In [Default Stores], specify the storage locations of the image files and setting files of the virtual machine. Modify the storage locations as necessary, and then click the [Next] button.



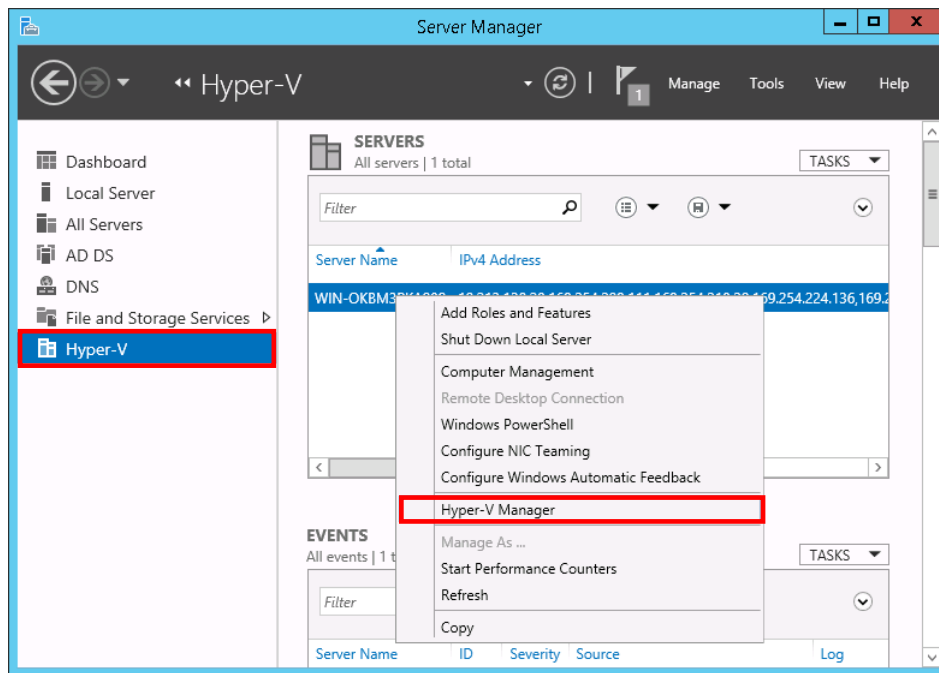
(11) In [Confirm installation selections], select the [Restart the destination server automatically if required] check box (because the host OS needs to be restarted after installation), and then click the [Install] button.



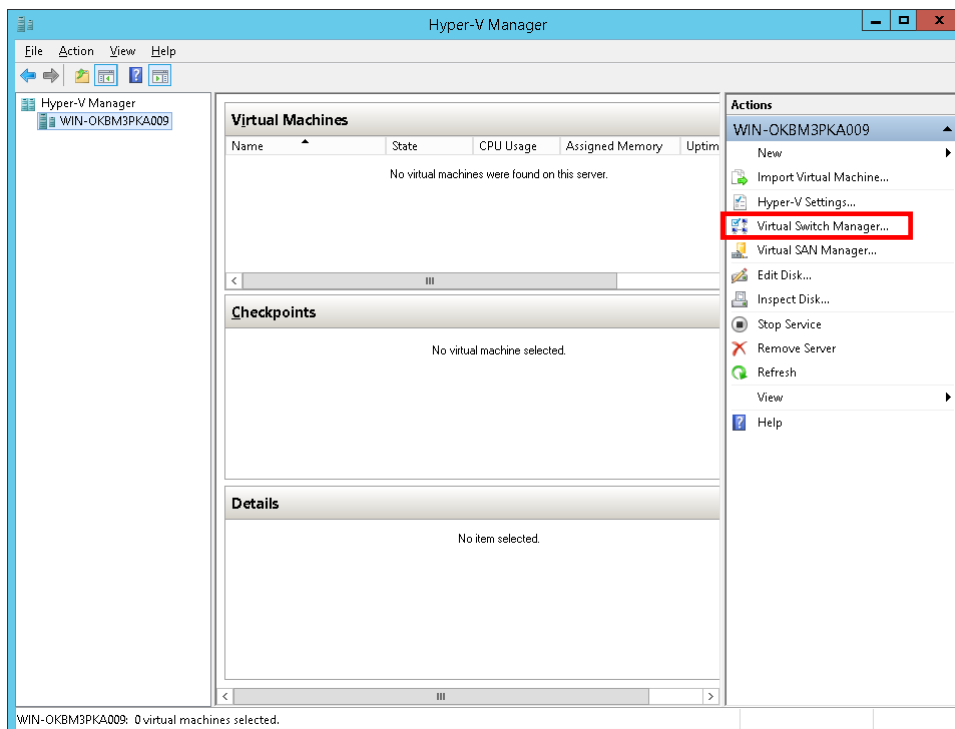
(12) After the restart is completed, in [Installation progress], click the [Close] button to close the window.



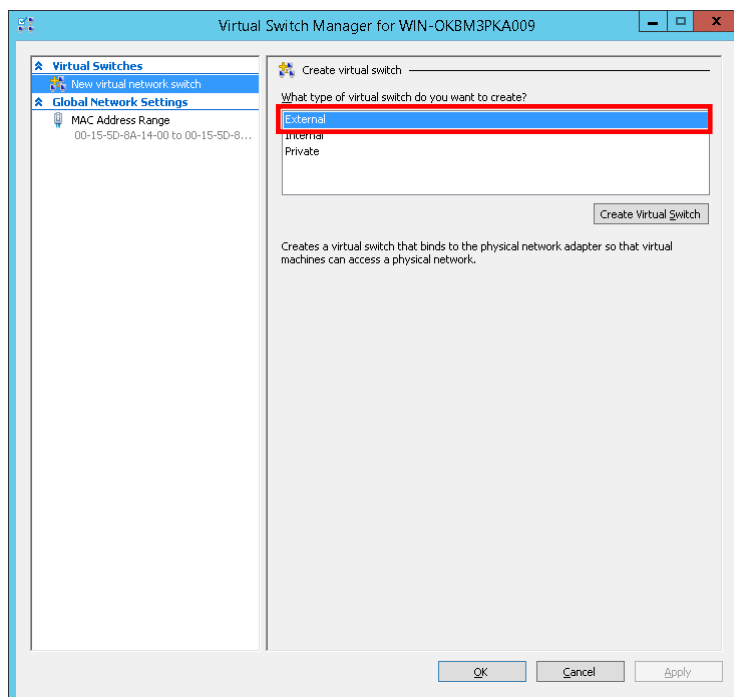
(13) Click [Hyper-V] in the left pane in Server Manager, right-click the host name in the right pane, and then click [Hyper-V Manager].



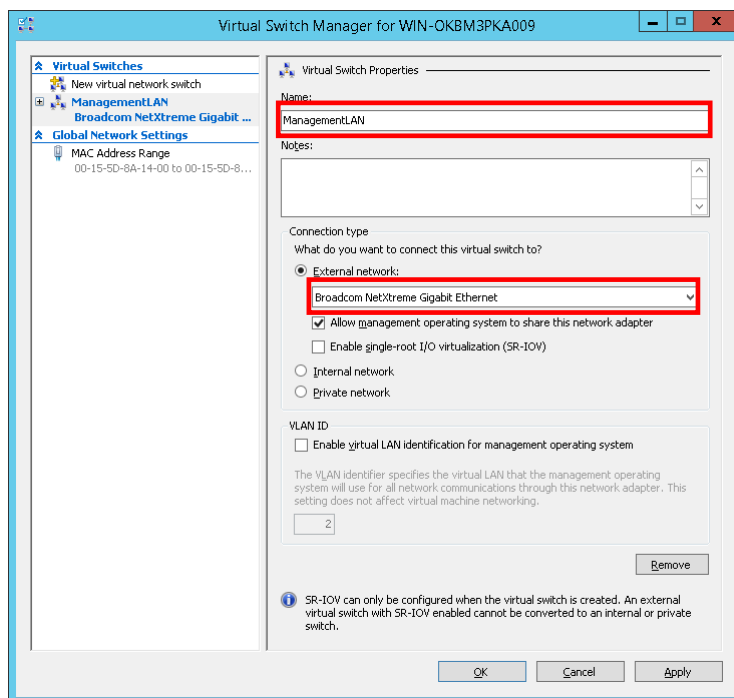
(14) Select the host machine from the left pane in Hyper-V Manager, and then click [Virtual Switch Manager] in the right pane.



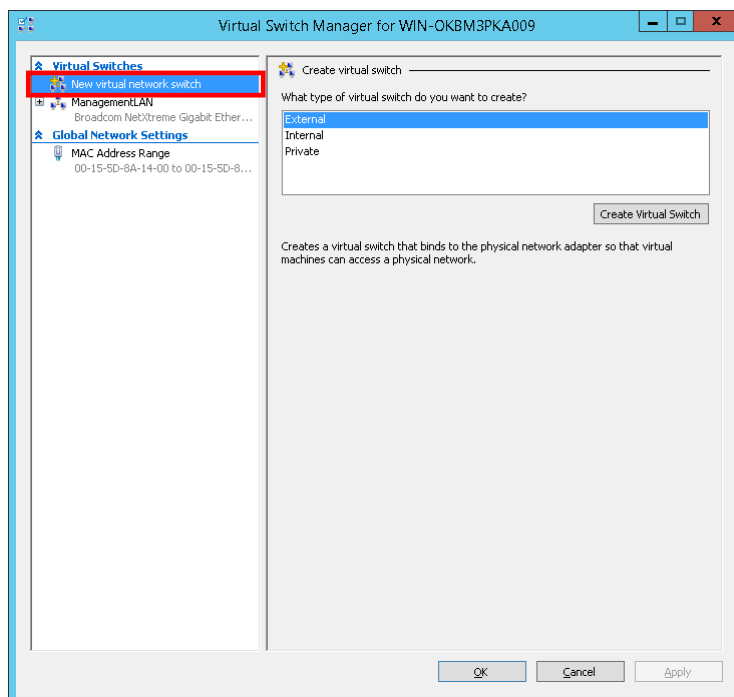
(15) Click [External] in the right pane in Virtual Switch Manager, and then click the [Create Virtual Switch] button.



(16) From the [External network] pull-down menu, select the network assigned to the management LAN. Change [Name] as necessary. Finally, click the [Apply] button.



(17) You will then create the Virtual Switch for the front-end LAN. To do so, click [New virtual network switch] in the left pane, and then perform steps (15) onward.

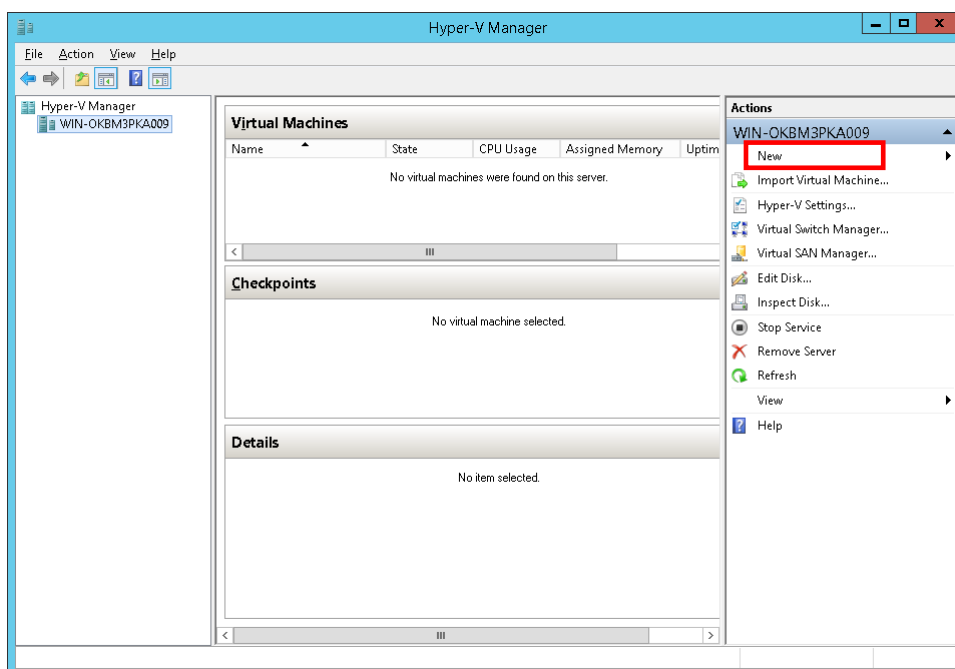


This completes the installation of Hyper-V.

4. Creating a virtual machine

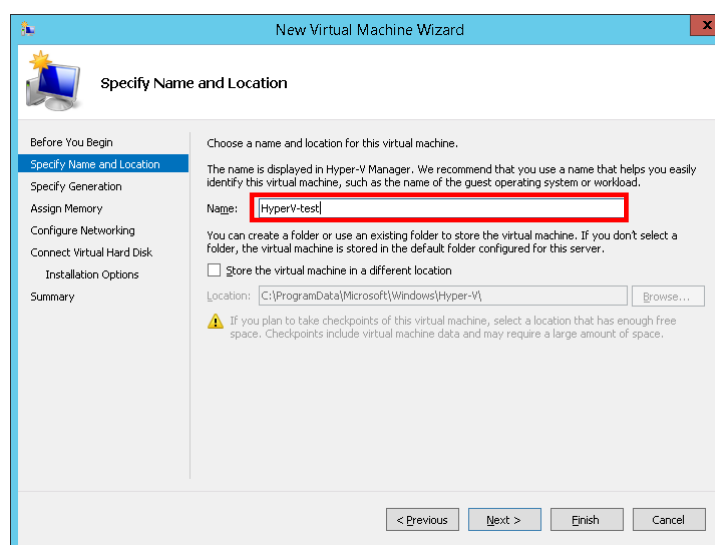
This section describes the procedure for installing a virtual machine on Hyper-V of Windows Server 2012 R2.

(1) Start Hyper-V Manager, click the host name in the left pane, and then click [New] in the right pane to select [Virtual Machine].

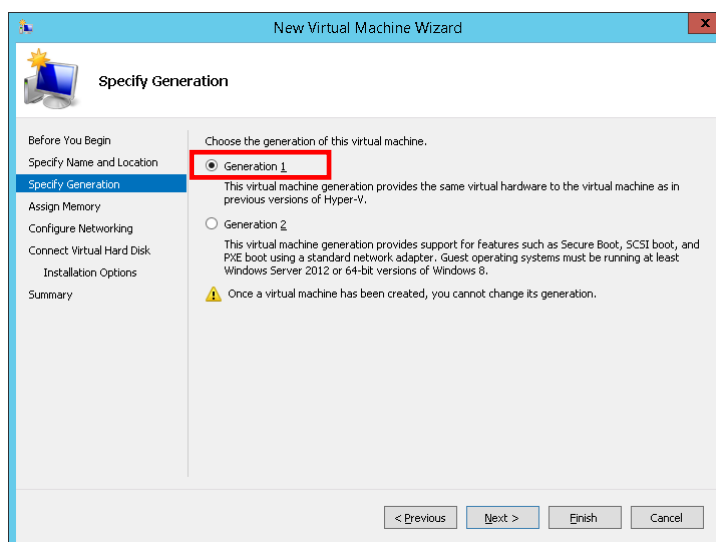


(2) In the New Virtual Machine Wizard window, click the [Next] button in [Before You Begin].

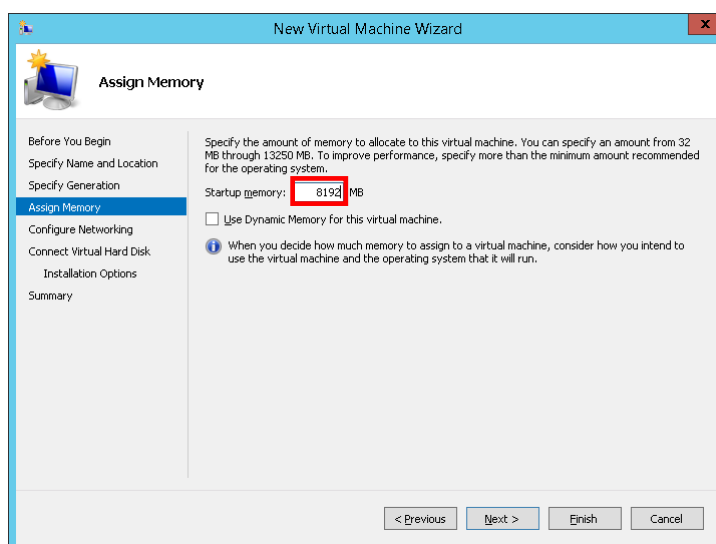
(3) In [Specify Name and Location], enter the name of the virtual machine in the Name text box. Change the file storage location of the virtual machine as necessary. If there is no problem with the specifications, click the [Next] button.



(4) In [Specify Generation], select [Generation 1], and then click the [Next] button.

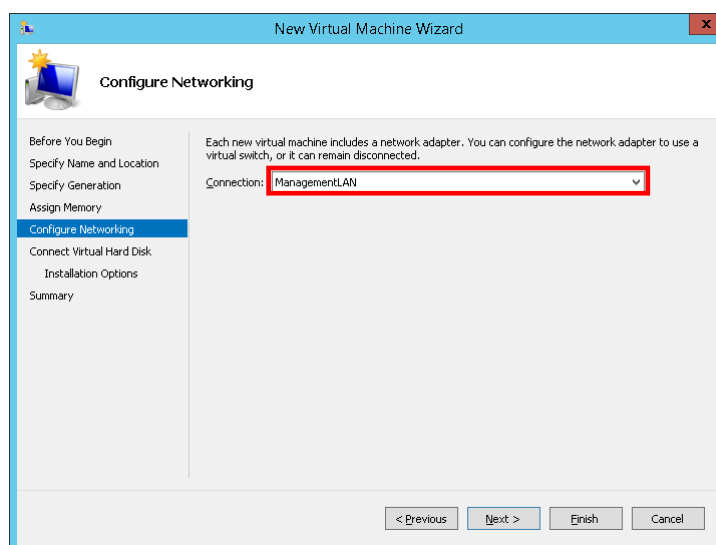


(5) In [Assign Memory], specify the memory capacity (in MB) to be allocated to the virtual machine. Specify at least 8192 MB(*1) for HDI to be installed.

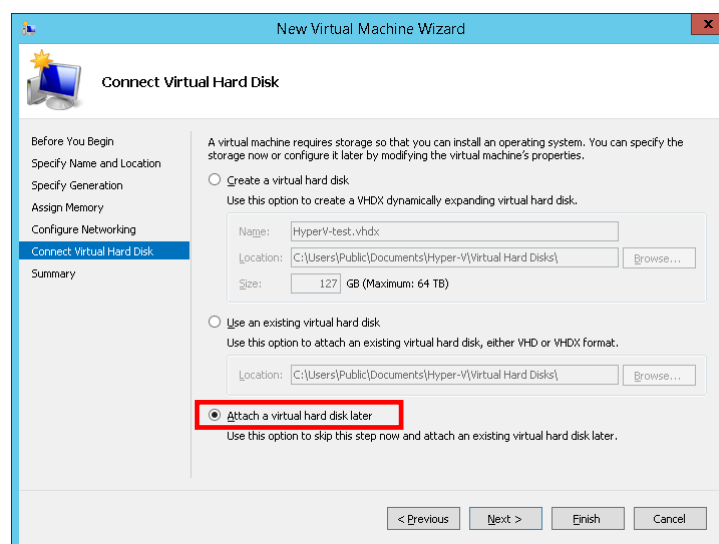


*1: When you allocate the memory more than 30GB, turn off "NUMA" of the BIOS of the host machine.

(6) In [Configure Networking], select the management LAN you created in step 16 of Chapter 3, and then click the [Next] button.

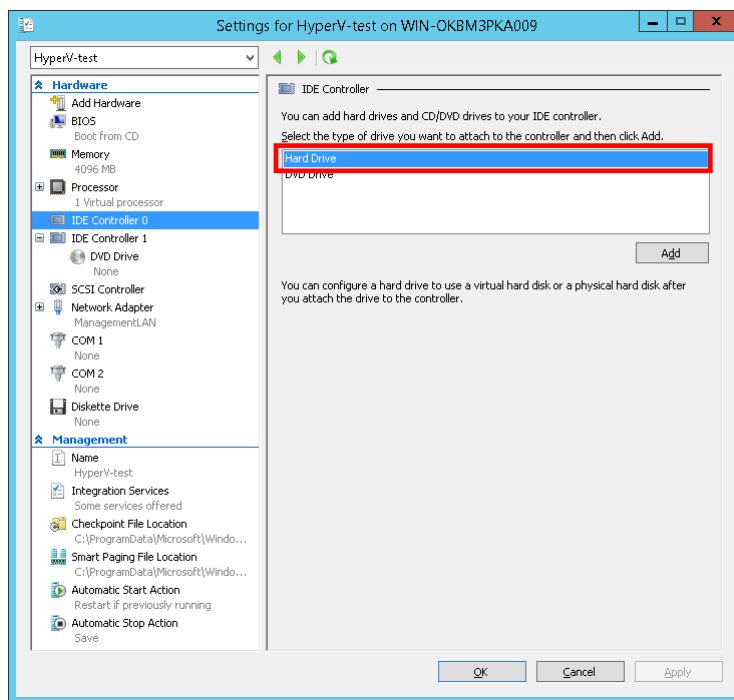


(7) In [Connect Virtual Hard Disk], select [Attach a virtual hard disk later], and then click the [Next] button.

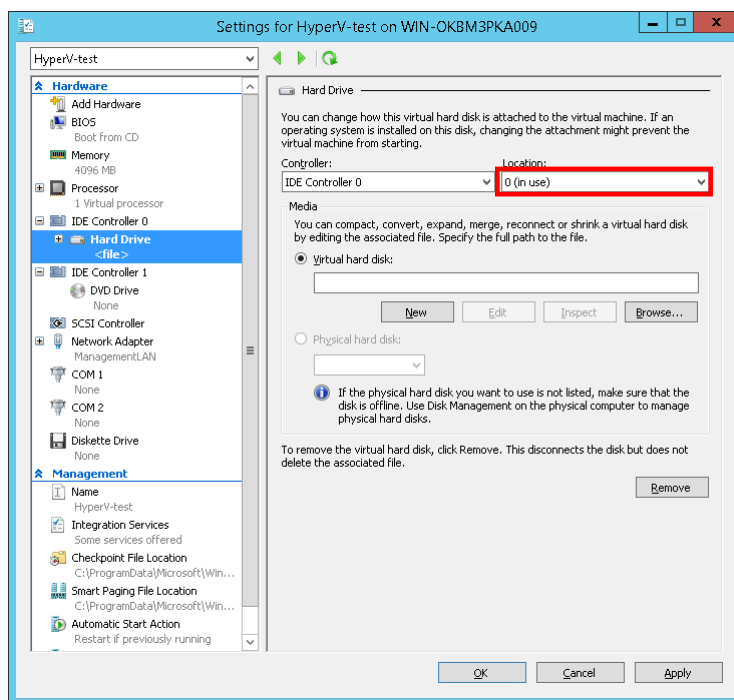


(8) In the Completing the New Virtual Machine Wizard window, click the [Finish] button and confirm that the virtual machine you created exists in Hyper-V Manager. Then, right-click the created virtual machine and click [Settings].

(9) Select [IDE Controller 0] in the left pane in the Settings window, select [Hard Drive] in the right pane, and then click the [Add] button.

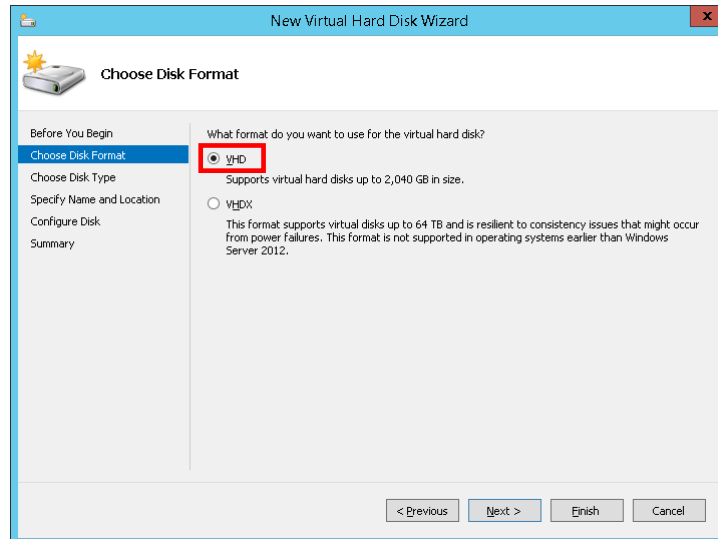


(10) Select [0 (in use)] for [Location], and then click the [New] button under the [Virtual hard disk] field.

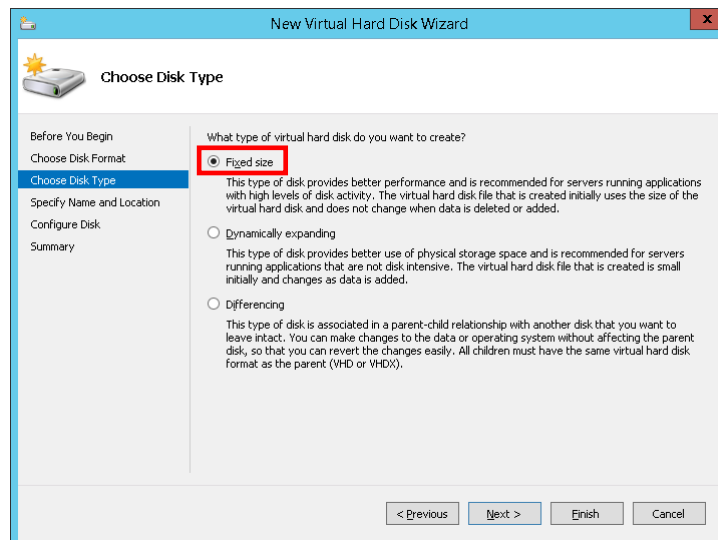


(11) In [Before You Begin] in the New Virtual Hard Disk Wizard window, click the [Next] button.

(12) In [Choose Disk Format], select [VHD], and then click the [Next] button.

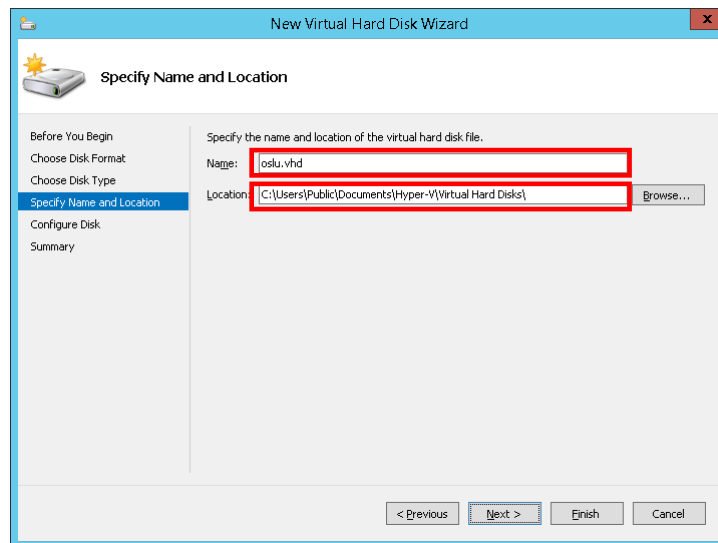


(13) In [Choose Disk Type], select [Fixed size], and then click the [Next] button.

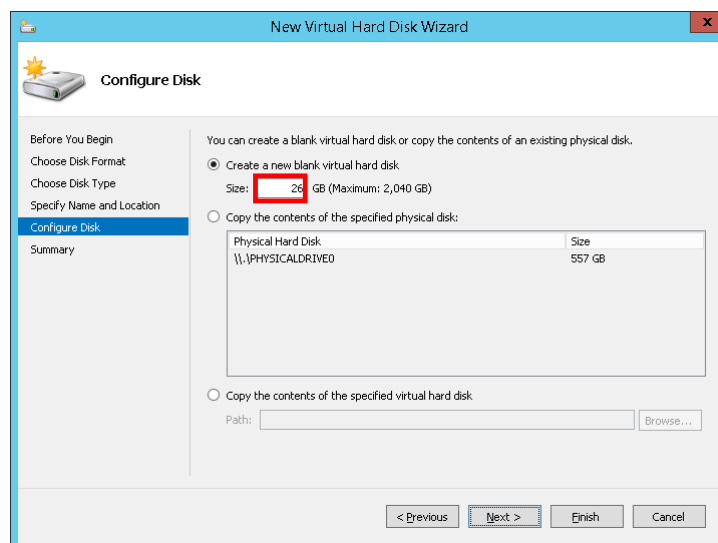


(14) In [Specify Name and Location], enter the virtual hard disk file name for the OS LU in [Name], enter the storage folder for the virtual hard disk file in [Location], and then click the [Next] button.

* The file name specified in [Name] must be unique within the folder specified in [Location]. If there is a file with the same name in the folder specified in [Location], change the name or location.



(15) In [Configure Disk], enter "26" GB or more in [Size], and then click the [Next] button.



(16) In the Completing the New Virtual Hard Disk Wizard window, click the [Finish] button. When the original Settings window appears, click the [Apply] button.

(17) Use the same procedure to create a shared LU and user LU by repeating steps (9) to (16) according to Table4-1.

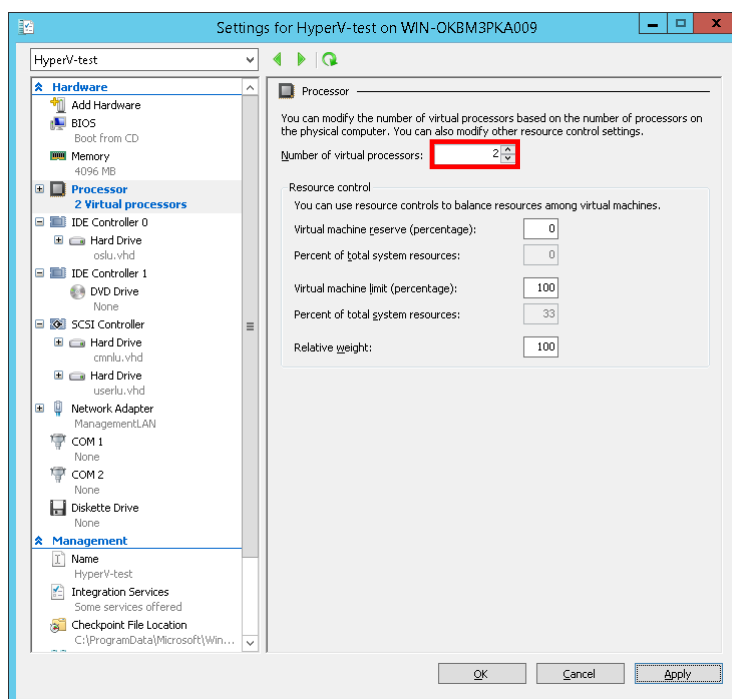
Table4-1 Virtual hard disks required for HDI

#	Usage	Controller	Location	File name	Disk type	Size
1	OS LU (mandatory)	IDE Controller 0	0	Optional	Fixed capacity	26 GB or more
2	Shared LU (mandatory)	SCSI Controller	0	Optional	Fixed capacity	36 GB or more
3	User LU (mandatory)	SCSI Controller	1	Optional	Fixed capacity	2 GB or more
4	User LU (optional)	SCSI Controller	2 to 63	Optional	Fixed capacity	2 GB or more

* Notes

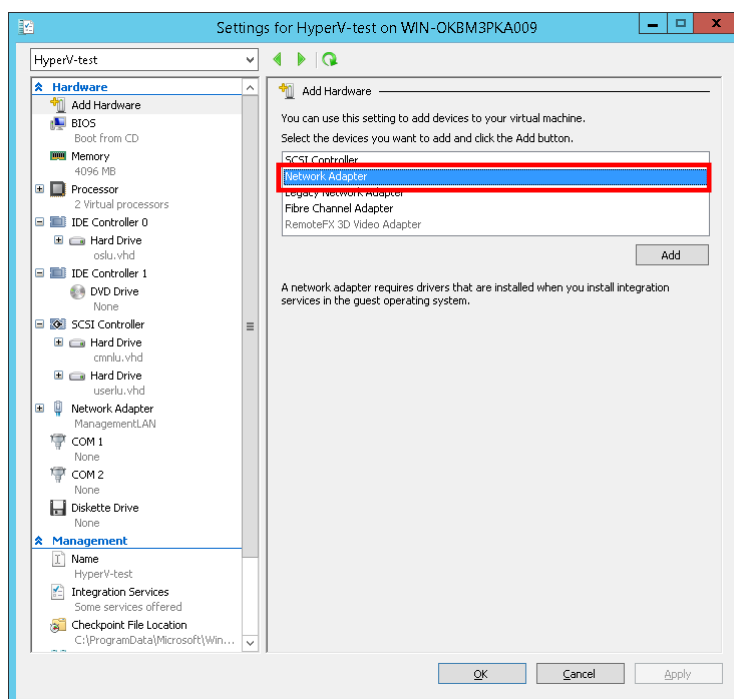
- OS LU #1 was already created the first time you performed steps (9) to (16).
- Use only one SCSI Controller. Correct operation is not guaranteed when multiple SCSI Controllers are used.
- For user LUs, location 1 is mandatory and locations 2 to 63 are optional. You can create up to 63 user LUs.
- The file name must be unique within the storage location. If there is a file with the same name in the same location, change the storage location or name as necessary.
- Ensure at least 26 or 36 GB of space in the OS LU or shared LU so that HDI can operate.
- Specify 2 or more GB of space for user LUs based on the user's requirements.
- If a user LU runs out of space after operation starts, create a new user LU.

(18) Select [Processor] in the left pane in the Settings window, set at least "2"(*1) in [Number of virtual processors] in the right pane, and then click the [Apply] button.

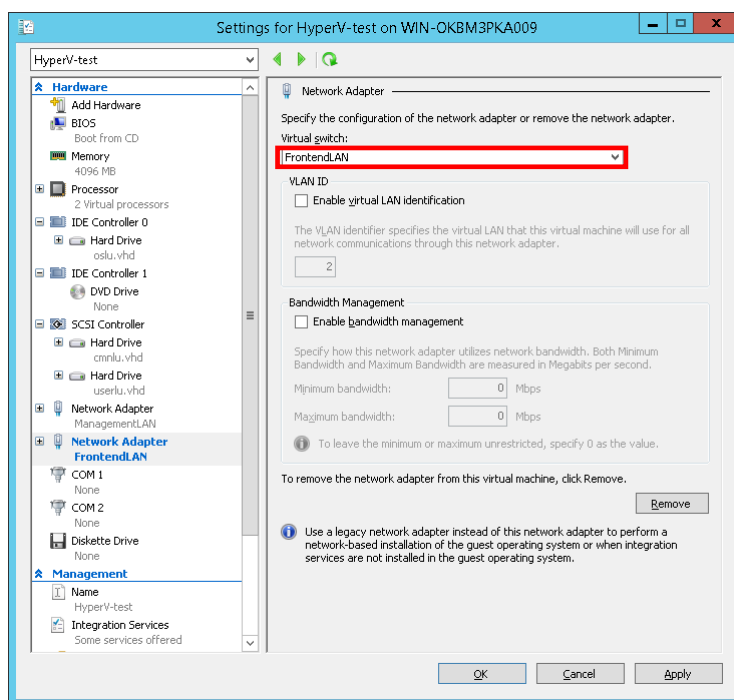


*1: When you assign the number of Processor more than seven, turn off "NUMA" of the BIOS of the host machine.

(19) Select [Add Hardware] in the left pane in the Settings window, select [Network Adapter] in the right pane, and then click the [Add] button.



(20) From the [Virtual switch] drop-down menu, select the network created for the front-end LAN, and then click the [Apply] button.

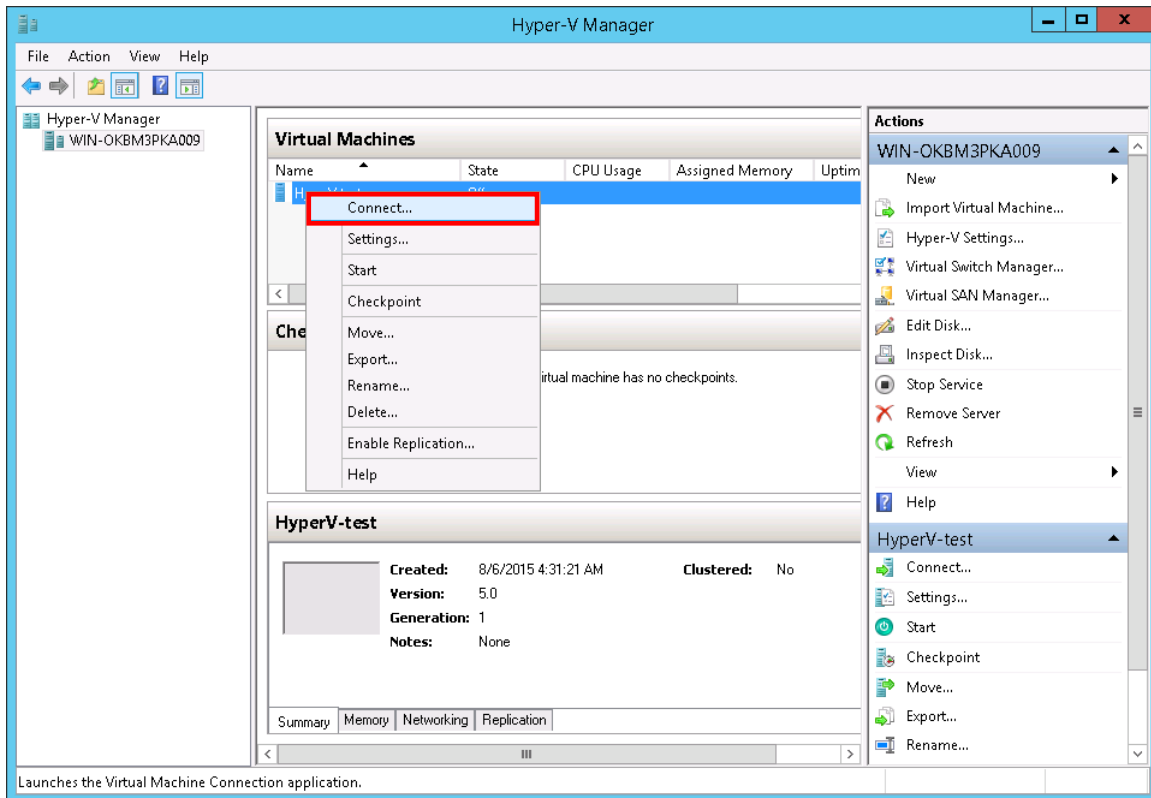


This completes all the virtual machine settings.

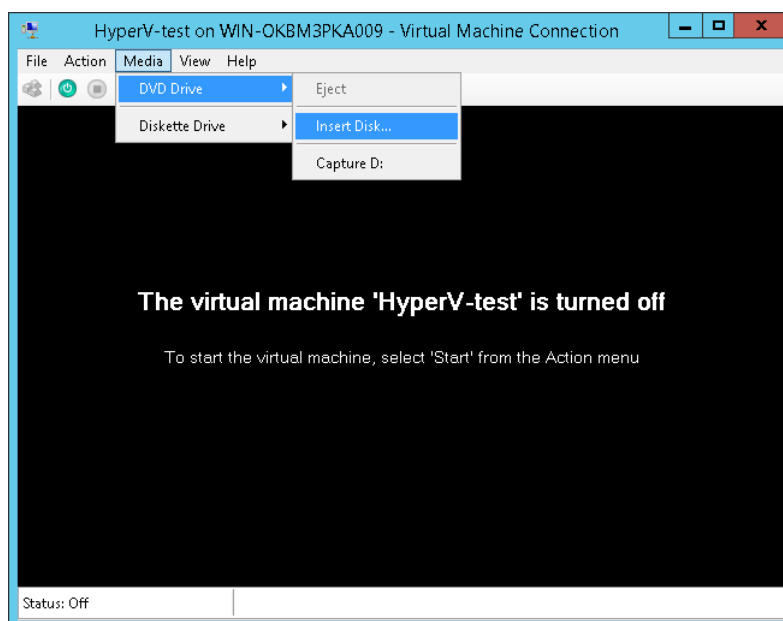
5. Installing HDI

This section describes the procedure of installing HDI on Hyper-V of Windows Server 2012 R2.

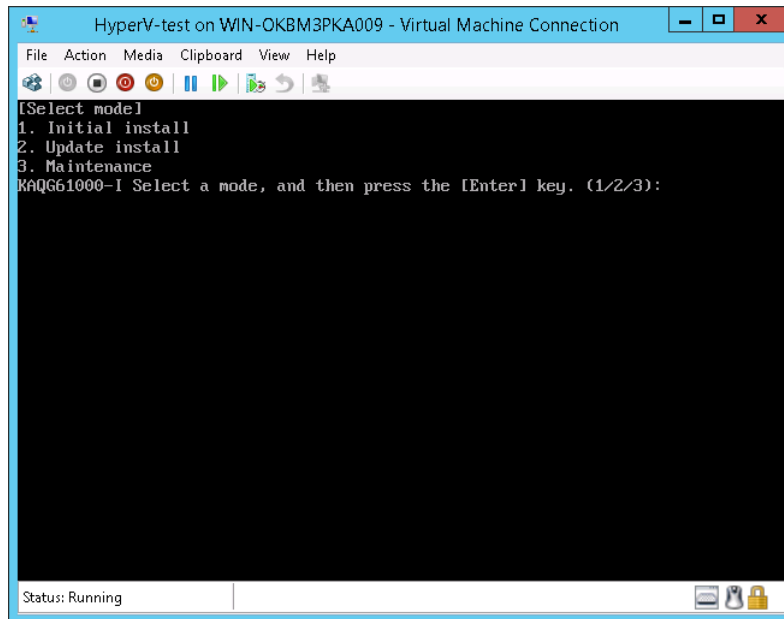
- (1) Start Hyper-V Manager, and right-click the host name in the left pane. Then, in the center pane, right-click the virtual machine you created in Chapter 4 and select [Connect].



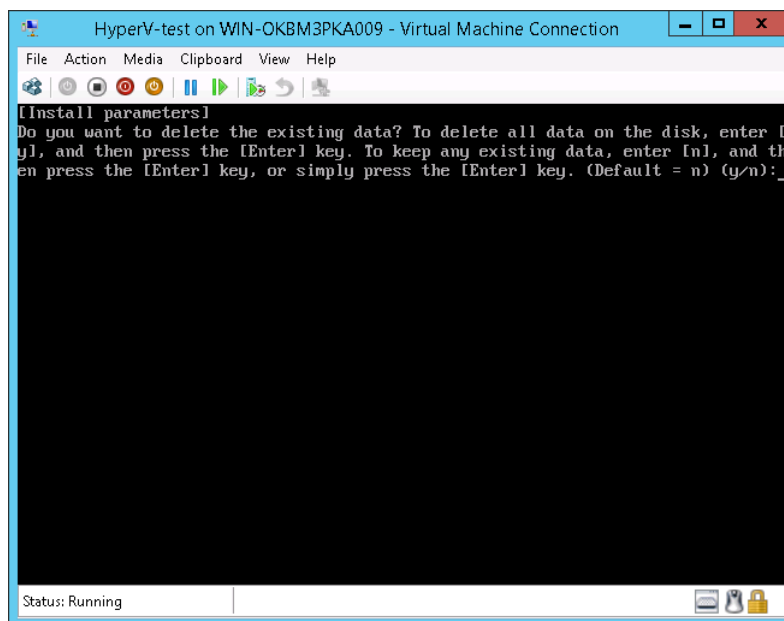
- ((2) Place the installation medium (iso) on the host machine and select [Media] > [DVD Drive] > [Insert Disk], and then the iso file of the installation medium. Then, click [Action] > [Start] to start the virtual machine.



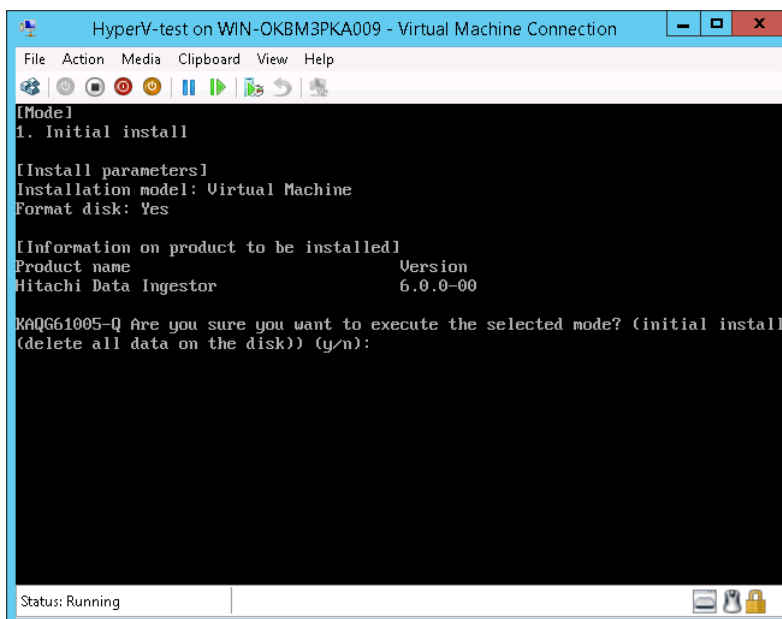
(3) In [Select mode], enter "1" (Initial install), and then press the return key.



(4) In [Install parameters], enter "y", and then press the return key.



(5) In the final confirmation screen, enter "y", and then press the return key.

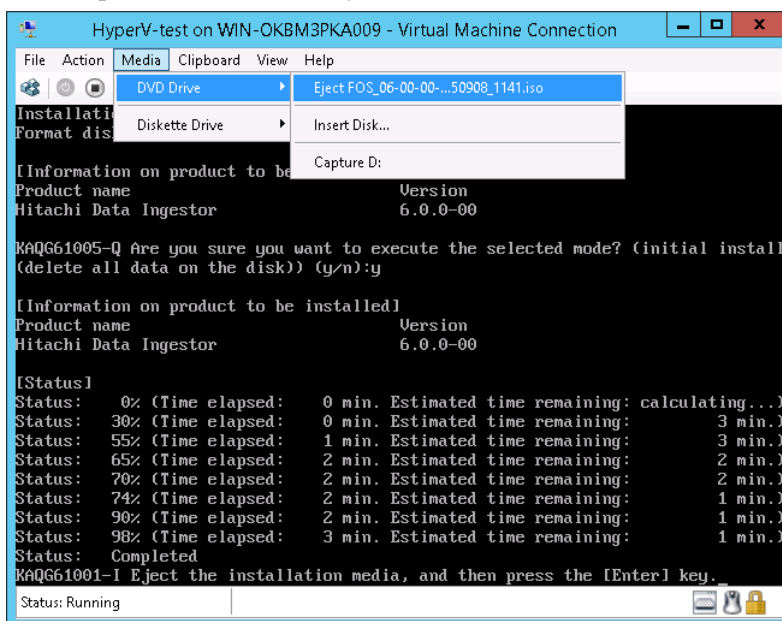


***Note**

When any of following conditions is satisfied, it may take a time to install HDI.

- The installation using a media allocated on a network is executed.
- The load of Hyper-V host machine is high.
- The HDD string an ISO file and the HDD to install it's file are specified to the same drive.

(6) After installation has been completed, select [Media] > [DVD Drive] > [Eject XXXX] from the menu to remove the medium, and then press the return key to restart the virtual machine.

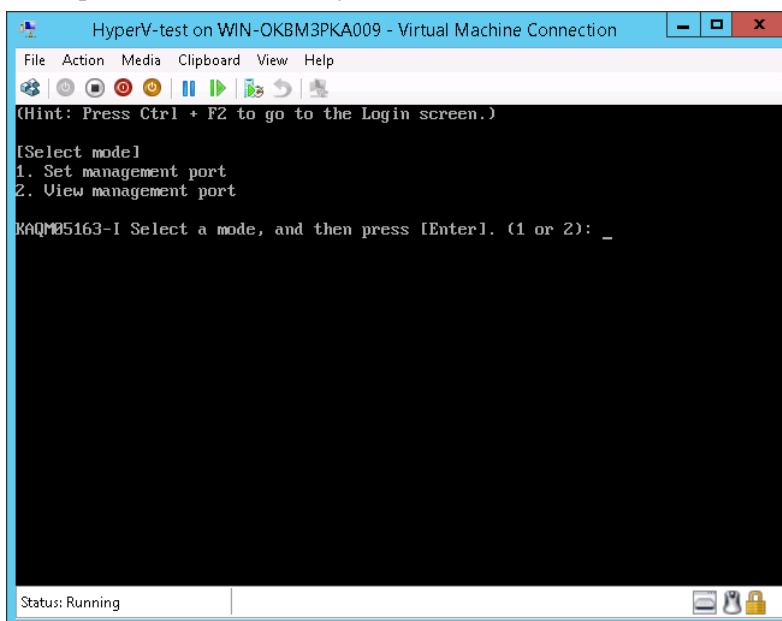


***Note**

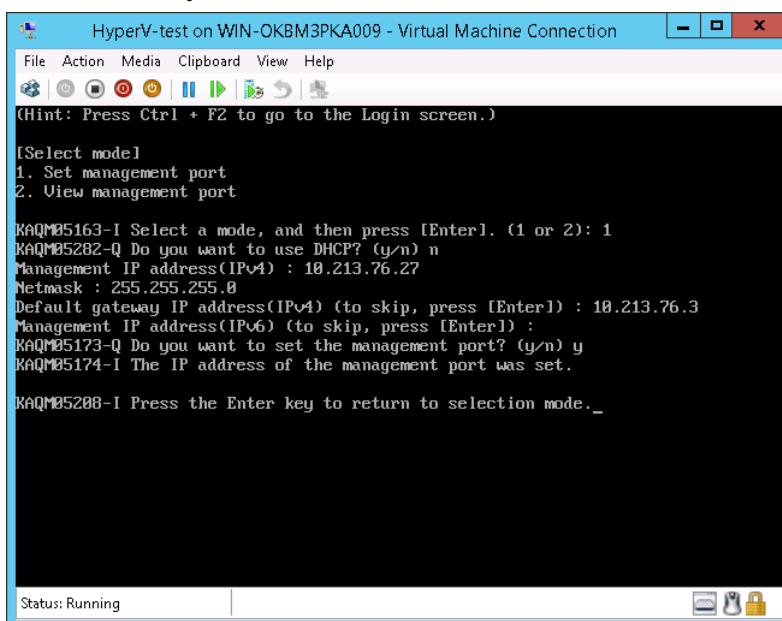
When any of the following conditions is satisfied, the OS standing-up after installing HDI may take a time.

- The specification of the host machine of Hyper-V is low.
- The load of the host machine of Hyper-V is high.

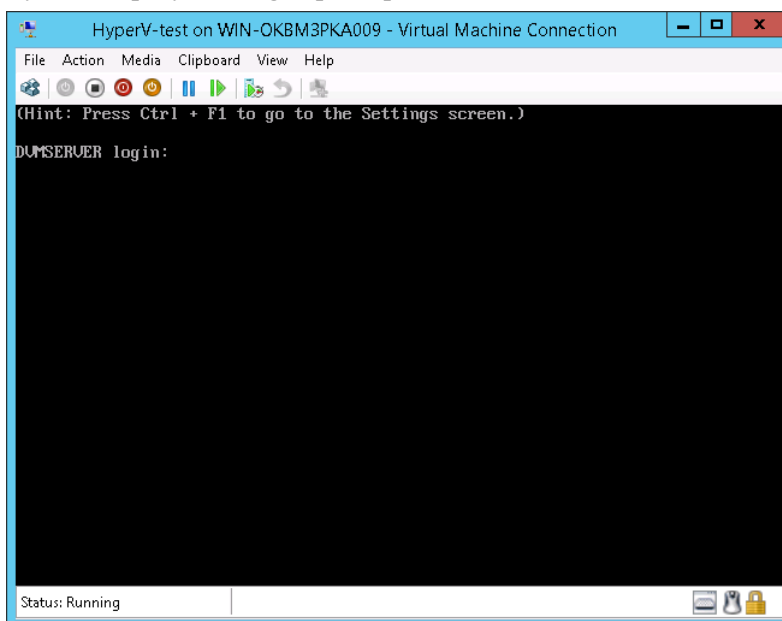
(7) After the virtual machine restarts, the network setting wizard starts. Select "1" to configure the management LAN, and then press the [Enter] key.



(8) Enter the necessary information according to the network setting wizard. Enter "y" at the end of the wizard, and then press the [Enter] key.



(9) After the settings are completed, the window returns to the management LAN network setting wizard. Press the [Ctrl] + [F2] keys to display the login prompt.



This completes the installation of HDI.

*Note

When a virtual machine is re-booted, a serious event log with event id 18560 is recorded into the event log of Windows. To record this event log is the specification in Hyper-V and Linux, so neglect it. For the details, refer to the support of Microsoft.

<https://support.microsoft.com/en-us/kb/2711608/en-us>

6. Update installation of HDI

See Chapter 5 to perform an update installation. Note that in Chapter 5 (3), you need to enter "2" to select [2. Update install], and then press the [Enter] key.

<Note>

If the version in the installation confirmation screen displayed in Chapter 5 (5) is different from the version to be installed, press the [Ctrl] + [C] keys to interrupt the installation. When the message "KAQG61006-Q Are you sure you want to cancel the installation? (y/n):" appears, enter "y", and then press the [Enter] key. When the KAQG61001-I message appears, remove the installation medium, and then press the [Enter] key. This allows the node OS to be shut down. Prepare the installation medium with the correct version and perform the operation in Chapter 5 again.

7. Live migration

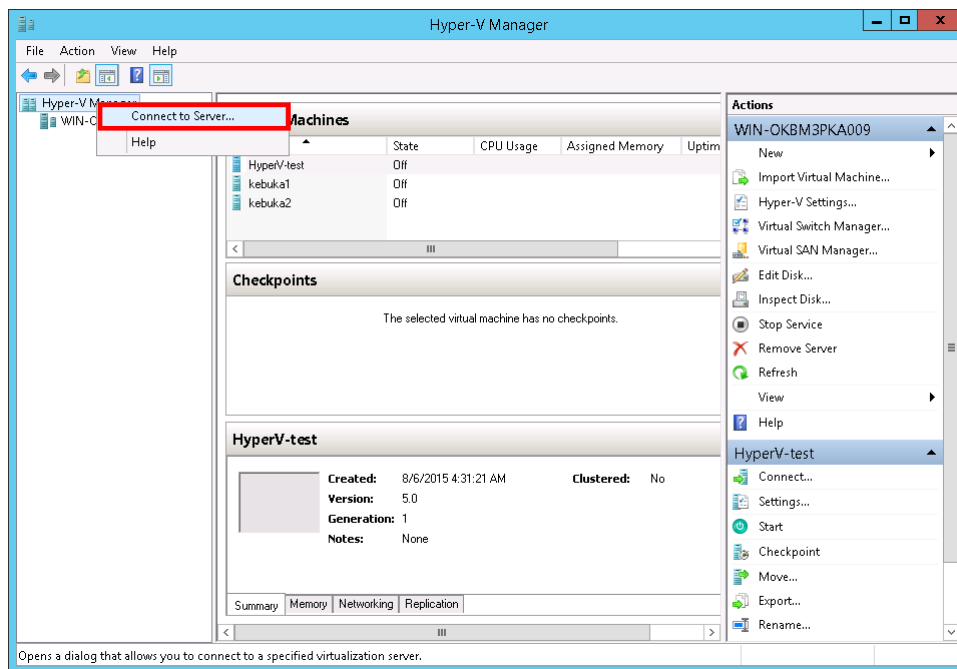
Live migration is a function to move a running or stopped virtual machine from a single physical server to another server while retaining its availability to users. To perform a live migration, the following prerequisites must be satisfied.

- There are at least two physical servers that satisfy the system requirements of the host machine, which use a processor manufactured by the same vendor.
- The migration-source host and the migration-destination host belong to the same Active Directory domain, or domains that have mutual trust.
- All of the names of virtual switches created by both hosts match.

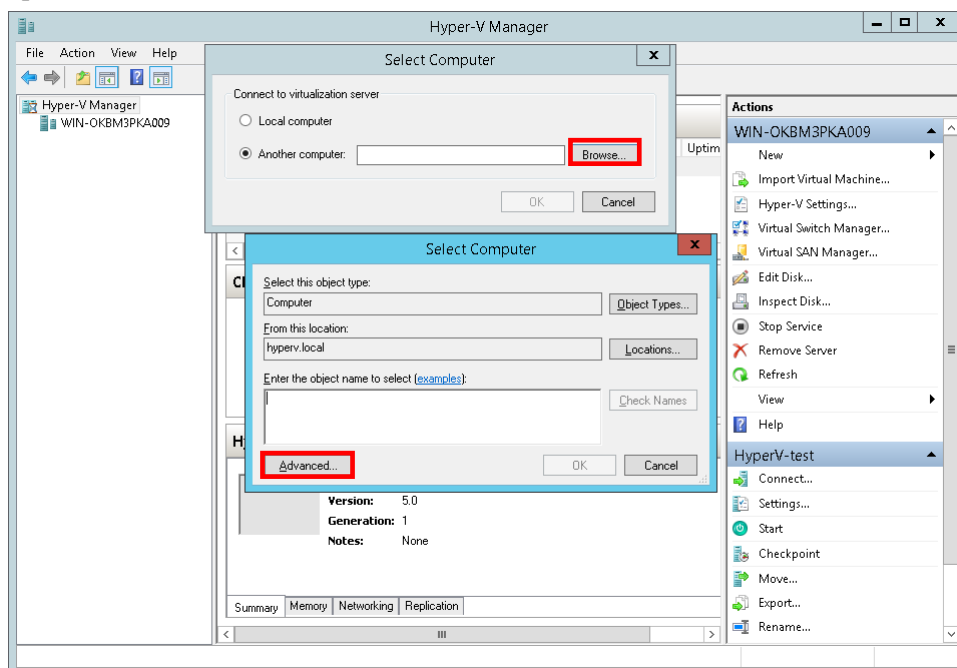
The procedure for executing a live migration is described below.

7.1. Connecting the host

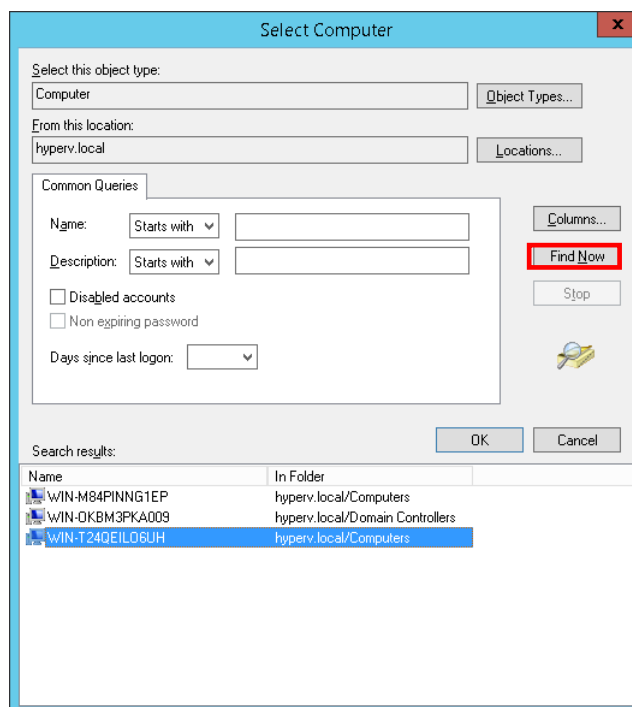
(1) Right-click [Hyper-V Manager] in the left pane in Hyper-V Manager, and then select [Connect to Server].



(2) In [Select Computer], click the [Browse] button, and then click the [Advanced] button.



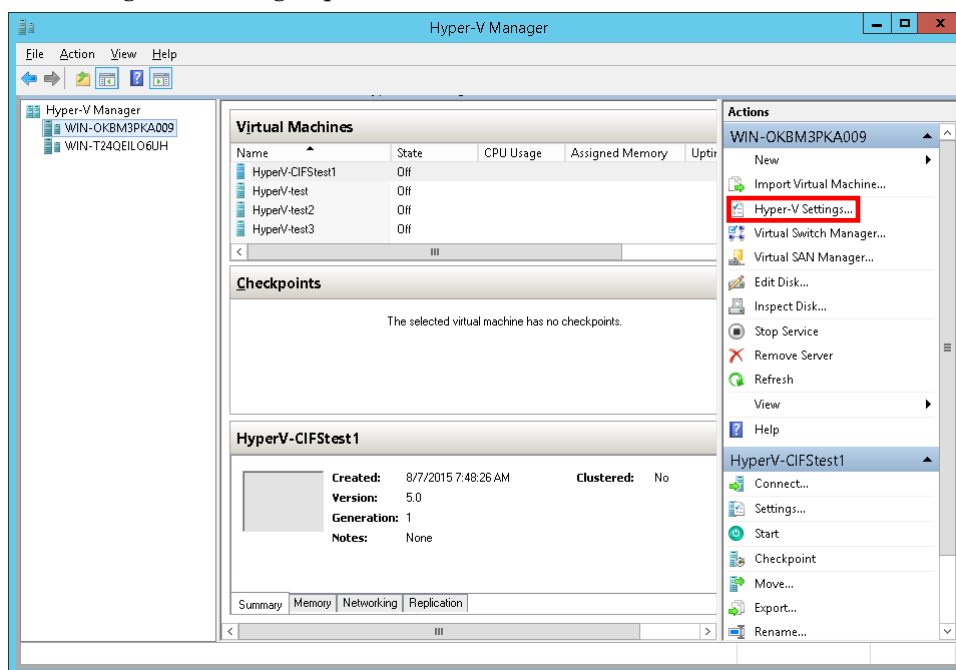
(3) Click the [Find Now] button. From the displayed search results, select the host for which live migration is to be performed, and then click the [OK] button. When the window returns to (2), click the [OK] button twice to close the window.



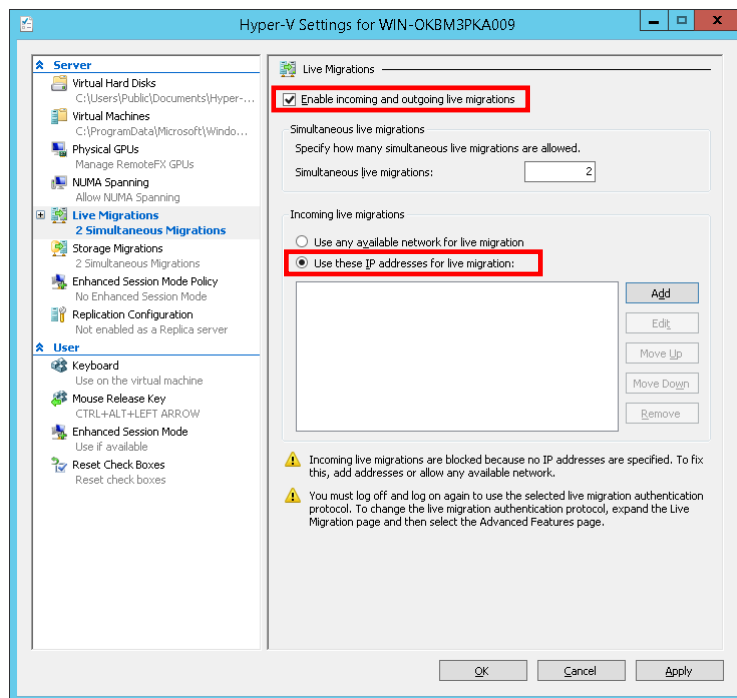
(4) Perform the same steps as above to add any other hosts for which live migration is to be performed.

7.2. Enabling the live migration function

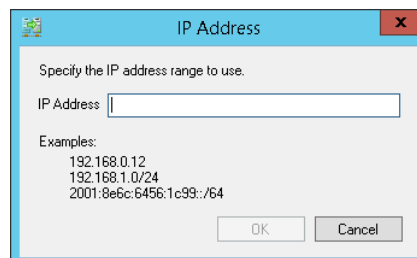
(1) From the left pane in Hyper-V Manager, select a host whose live migration function is to be enabled, and then click [Hyper-V Settings] in the right pane.



(2) In [Hyper-V Settings], click [Live Migration] in the left pane, and then select the [Enable incoming and outgoing live migrations] check box in the right pane. Then, select [Use these IP addresses for live migration], and click the [Add] button.



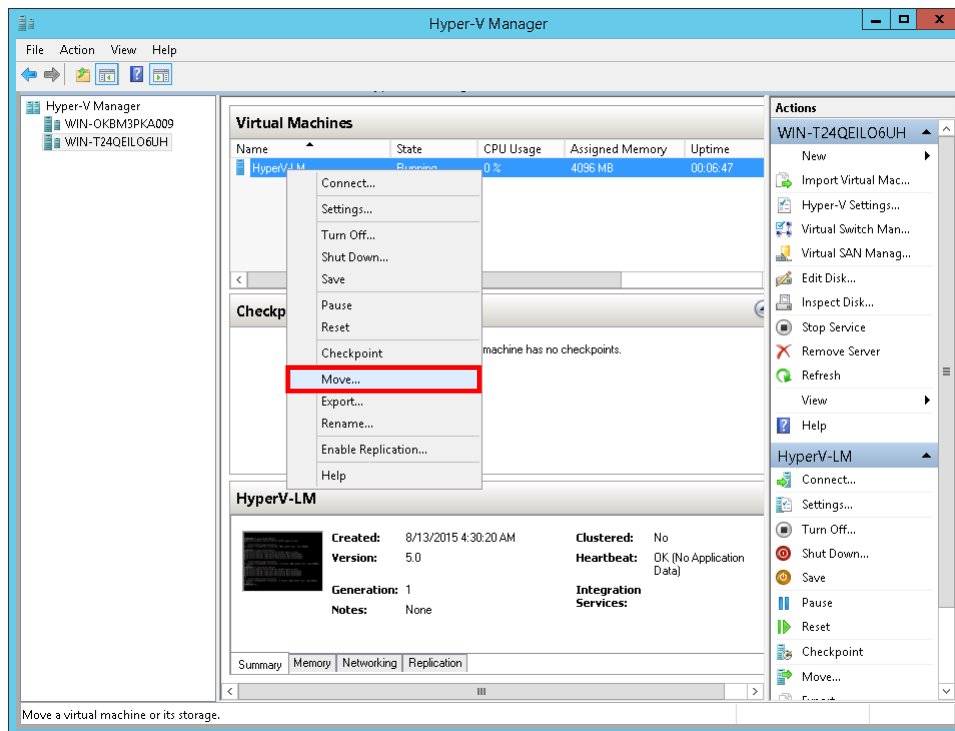
(3) Enter the IP addresses of the migration-source and migration-destination hosts for which live migration is to be performed (as shown in the examples), and then click the [OK] button. After all the host IP addresses have been registered, click the [Apply] button in the window in (2).



(4) Perform the same operation for the migration-source and migration-destination hosts for which live migration is to be performed.

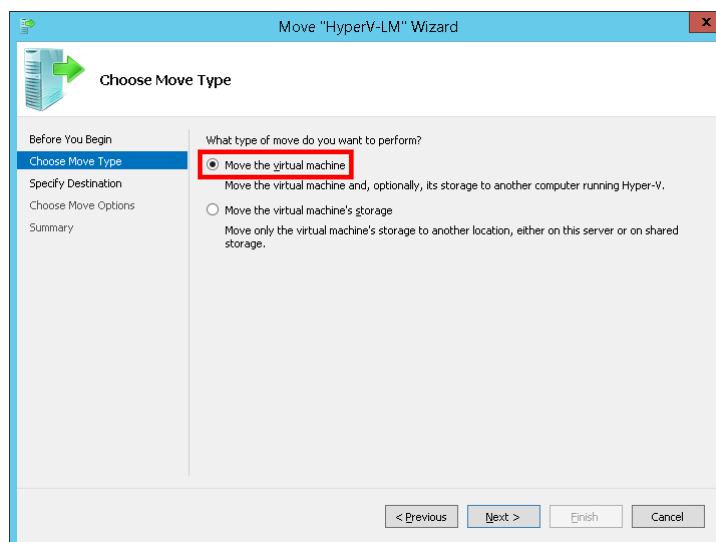
7.3. Performing a live migration

(1) From the center pane in Hyper-V Manager, right-click the virtual machine for which live migration is to be performed, and then click [Move].

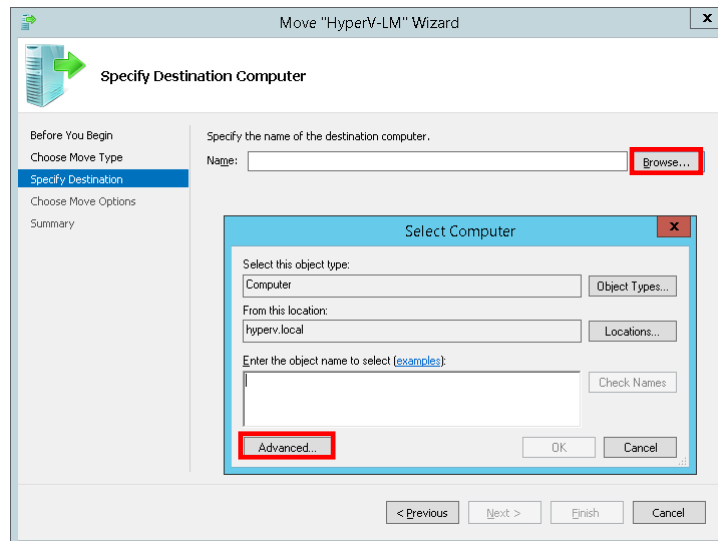


(2) In [Before You Begin] in the wizard, click the [Next] button.

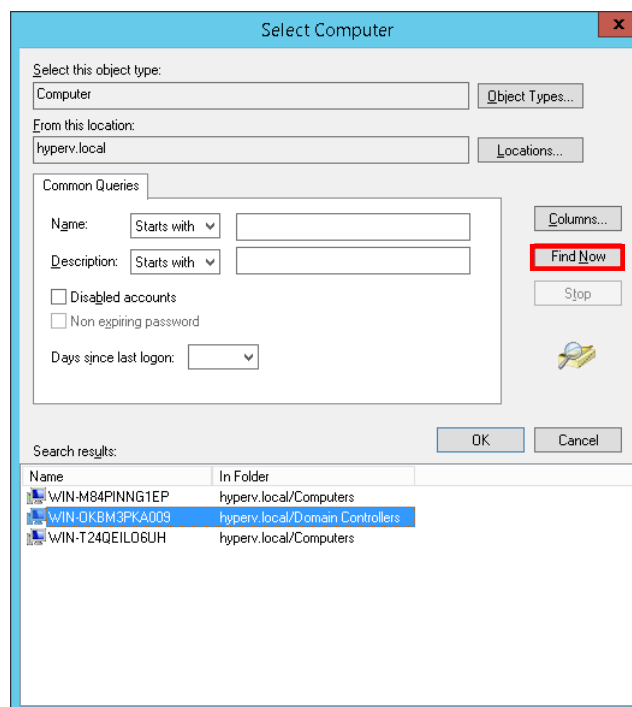
(3) In [Choose Move Type], select [Move the virtual machine], and then click the [Next] button.



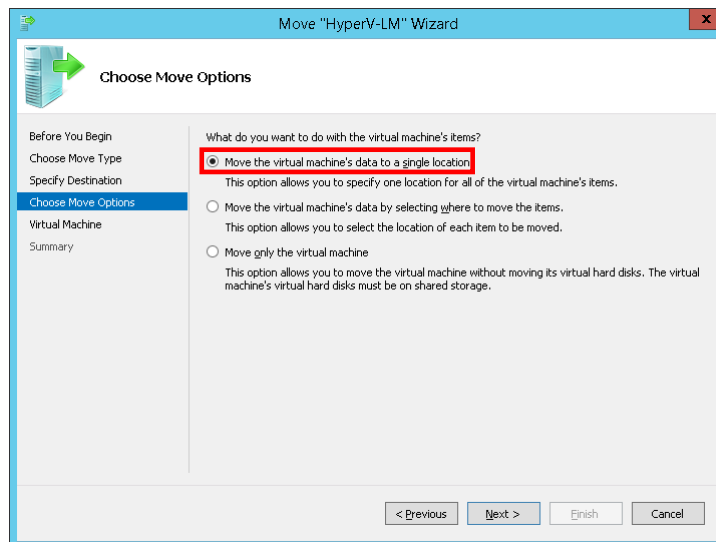
(4) In [Specify Destination Computer], click the [Browse] button, and then click the [Advanced] button.



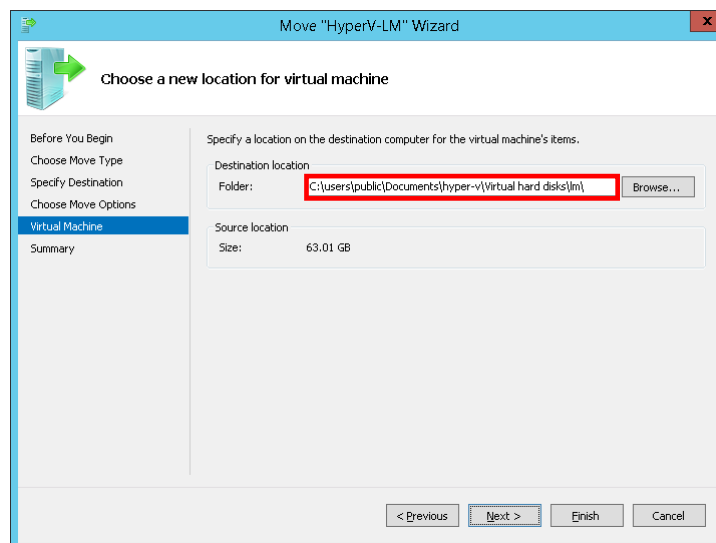
(5) Click the [Find Now] button. From the displayed search results, select the migration-destination host, and then click the [OK] button. When the window returns to (4), click the [OK] button, and then click the [Next] button.



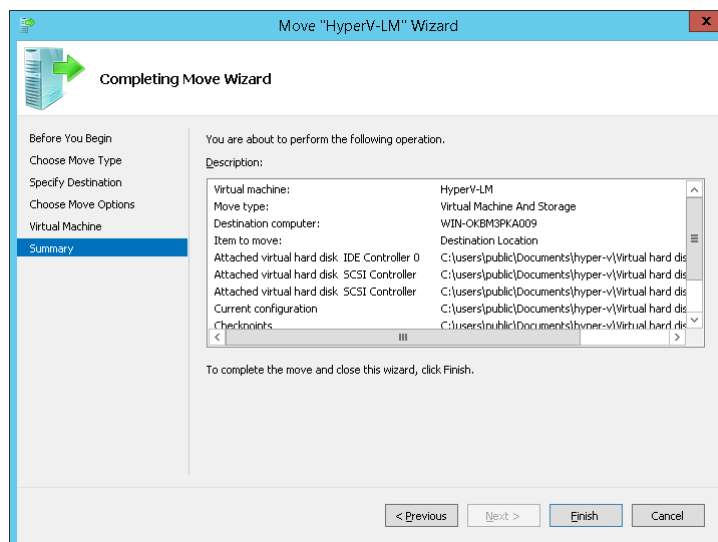
(6) In [Choose Move Options], select [Move the virtual machine's data to a single location], and then click the [Next] button.



(7) In [Choose a new location for virtual machine], enter the storage-destination location of the virtual machine data to be moved in [Folder], and then click the [Next] button.



(8) In [Completing Move Wizard], click the [Finish] button to start live migration.



(9) When the Performing the move window disappears, the live migration is complete.

8. Troubleshooting

See the attached troubleshooting procedure.

9. Support coverage

Support coverage of VMA

If you use specifications other than those in the following table, correct operation is not guaranteed.

Table 9-1 Support coverage of VMA

#	Item	Supported/ Unsupported	Conditions (restrictions)	Remarks
1	Addition of LUs	Supported	Locations unallocated by the standard SCSI controller	
2		Unsupported	Allocation to additional SCSI controllers	HDI does not perform device allocation
3			Allocation of LUN = 1 to IDE controller 0	Same as above
4			Allocation to IDE controller 1	Same as above
5	Reduction of LUs	Unsupported		Because HDI does not support the operation
6	Virtual hard disk format: VHD	Supported		
7	Virtual hard disk format: VHDX	Unsupported		Because HDI does not support the operation
8	Virtual hard disk capacity: Fixed capacity	Supported	OS: 26 GB or more Shared: 36 GB or more User: 2 GB to 2 TB	
9	Virtual hard disk capacity: Variable capacity	Unsupported		Because HDI does not support the operation
10	Virtual hard disk capacity: Differential	Unsupported		Same as above
11	Generation-1 virtual machine	Supported		
12	Generation-2 virtual machine	Unsupported		Because lilo boot is not available
13	Internal HDD	Supported		
14	CSV (Cluster Sharing Volume) sharing	Unsupported		Because HDI does not support the operation
15	Cluster configuration (including failover)	Unsupported		Because HDI does not support the operation
16	SMP file sharing	Unsupported		Because HDI does not support the operation
17	Live migration	Supported		