Installation Guide (Windows)

NEC Express Server
Express5800 Series

Express5800/R120h-1E, R120h-2E
EXP336, EXP337

10.202.02-102.01
November 2017

Manuals

Booklets	
Safety Precautions and Regulatory Notices	Describes points of caution to ensure the safe use of this server. **Read these cautions before using this server.**
Getting Started	Describes how to use this server, from unpacking to operations. See this guide first and read the outline of this product.
Electronic manuals are stored on Starter Pack DVD or on the website (http://www.nec.com/express/).	
User's Guide	
Chapter 1: General Description	Overviews, names, and functions of the server's parts
Chapter 2: Preparations	Installation of additional options, connection of peripheral devices, and suitable location for this server
Chapter 3: Setup	System BIOS configurations and summary of EXPRESSBUILDER
Chapter 4: Appendix	Specifications and other information
Installation Guide (Windows)	
Chapter 1: Installing Windows	Installation of Windows and drivers, and precautions for installation
Chapter 2: Installing the Bundled Software	Installation of NEC ESMPRO, and other bundled software
Maintenance Guide	
Chapter 1: Maintenance	Server maintenance and troubleshooting
Chapter 2: Useful Features	The details of system BIOS settings, RAID Configuration Utility, Starter Pack, and EXPRESSBUILDER
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The details of NEC ESMPRO, and other features	

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Conventions Used in This Document

Notations used in the text

In addition to safety-related symbols urging caution, three other types of notations are used in this document. These notations have the following meanings.

Important	Indicates critical items that must be followed when handling hardware or operating software. If the procedures described are not followed, **hardware failure, data loss, and other serious malfunctions could occur**.
Note	Indicates items that must be confirmed when handling hardware or operating software.
Tips	Indicates information that is helpful to keep in mind when using this server.

Optical disk drive

This server is equipped with one of the following drives. These drives are referred to as *optical disk drive* in this document.

- **DVD-ROM drive**
- **DVD Super MULTI drive**

Hard disk drive

Unless otherwise stated, *hard disk drive* described in this document refer to the following.

- **Hard disk drive (HDD)**
- **Solid state drive (SSD)**

Removal Media

Unless otherwise stated, *removal media* described in this document refer to both of the following.

- **USB Memory**
- **Flash FDD**

Abbreviations of Operating Systems (Windows)

Windows Operating Systems are referred to as follows.

See *Chapter 1* (*1.2 Supported Windows OS)* for detailed information.

Notations in this document	Official names of Windows
Windows Server 2016	Windows Server 2016 Standard
	Windows Server 2016 Datacenter
	Windows Server 2016 Essentials
Windows Server 2012 R2	Windows Server 2012 R2 Standard
	Windows Server 2012 R2 Datacenter

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zlib.h -- interface of the 'zlib' general purpose compression library
version 1.2.2, October 3rd, 2004

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http://www.nec.com/express/

NEC Express5800 Series
Express5800/R120h-1E, R120h-2E

1

Installing Windows

This chapter describes how to install Windows. Read through this chapter to set up the Windows correctly.

1. **Information of Windows Installation**
   Describes Service Pack and mass storage controllers which is supported by EXPRESSBUILDER/Starter Pack.

2. **Flow of Windows Installation**
   Describes the flow chart of Windows installation.

3. **Installing Windows Server 2016**
   Describes how to install Windows Server 2016.

4. **Installing Windows Server 2012 R2**
   Describes how to install Windows Server 2012 R2.

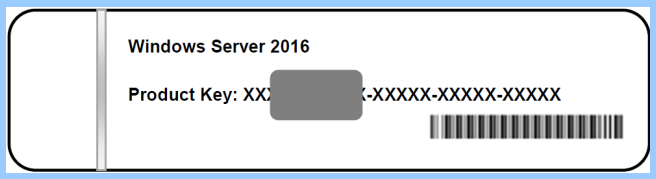
5. **Setting up for Maintenance**
   Describes the features that should be set up for maintenance in advance.

1. Information of Windows Installation

This section describes the points of using EXPRESSBUILDER/Starter Pack to install Windows operating system.

Important

The product key on the Certificate of Authenticity (COA) label is necessary information when authenticate the license.



Scrape off with a coin or the like lightly the scratch that covers a part of the product key. When you scrape, be careful not to break the part that the product key is printed on.
The label cannot be reissued if it is lost or stained. It is recommended to write down the product key and keep it with other accessories.

1.1 Starting EXPRESSBUILDER

Use EXPRESSBUILDER to reconfigure RAID arrays or re-install the OS.

For details, see *Chapter 2* (*5. Details of EXPRESSBUILDER*) in *Maintenance Guide*.

Usage

Remove a CD/DVD and removable media from the server, restart the server and press <F10> key (EXPRESSBUILDER) during POST.

1.2 Supported Windows OS

You can install the following editions of Windows operating system.

EB : Install using **Assisted** option

OS : Install using **Manual** option

Name of Windows OS		Boot mode		Installation method	
		UEFI	Legacy	EB	OS
Windows Server 2016 *1	Standard	✓	N/A	✓	✓
	Datacenter	✓	N/A	✓	✓
Windows Server 2012 R2	Standard	✓	N/A	✓	✓
	Datacenter	✓	N/A	✓	✓

✓ : Supported

*1. "Nano Server" is not supported.

1.3 Supported Service Pack

The following installation media and the Service Pack installations are supported by EXPRESSBUILDER/Starter Pack.

OS installation media	No Service Pack installation	Service Pack 1 installation
Windows Server 2016	✓	N/A
Windows Server 2012 R2	✓	N/A

✓ : Supported

1.4 Supported Mass Storage Controllers

The table below lists the controllers for this server, supported by EXPRESSBUILDER/Starter Pack.

If a controller not mentioned below is connected, set it up while referring to the instructions supplied with the controller.

	Windows Server 2016	Windows Server 2012 R2
RAID controller supporting the installation of OS at EXPRESSBUILDER		
Onboard RAID Controller	N/A (*1)	N/A (*1)
N8103-189 RAID Controller (RAID 0/1)	✓*3	✓*3
N8103-190 RAID Controller (2GB, RAID 0/1/5/6)	✓*3	✓*3
N8103-192 RAID Controller (RAID 0/1)	✓*2	✓*2
N8103-193 RAID Controller (2GB, RAID 0/1/5/6)	✓*2	✓*2
N8103-195 RAID Controller (RAID 0/1)	✓	✓
N8103-201 RAID Controller (2GB, RAID 0/1/5/6)	✓	✓
Other options		
N8103-196 RAID Controller (2GB, RAID 0/1/5/6)	✓	✓
N8103-197 SAS Controller	✓	✓
N8190-163 Fibre Channel Controller(1ch)	✓	✓
N8190-164 Fibre Channel Controller(2ch)	✓	✓
N8190-165 Fibre Channel Controller(1ch)	✓	✓
N8190-166 Fibre Channel Controller(2ch)	✓	✓
N8190-171 Fibre Channel Controller(1ch)	✓	✓
N8190-172 Fibre Channel Controller(2ch)	✓	✓

✓: Supported

*1 Starter Pack supports this controller.
Regarding the installation procedures, see "*Install with a Manual Option*" for each OS.
*2 Support Express5800/R120h-1E only
*3 Support Express5800/R120h-2E only

1.5 Supported Optional LAN board

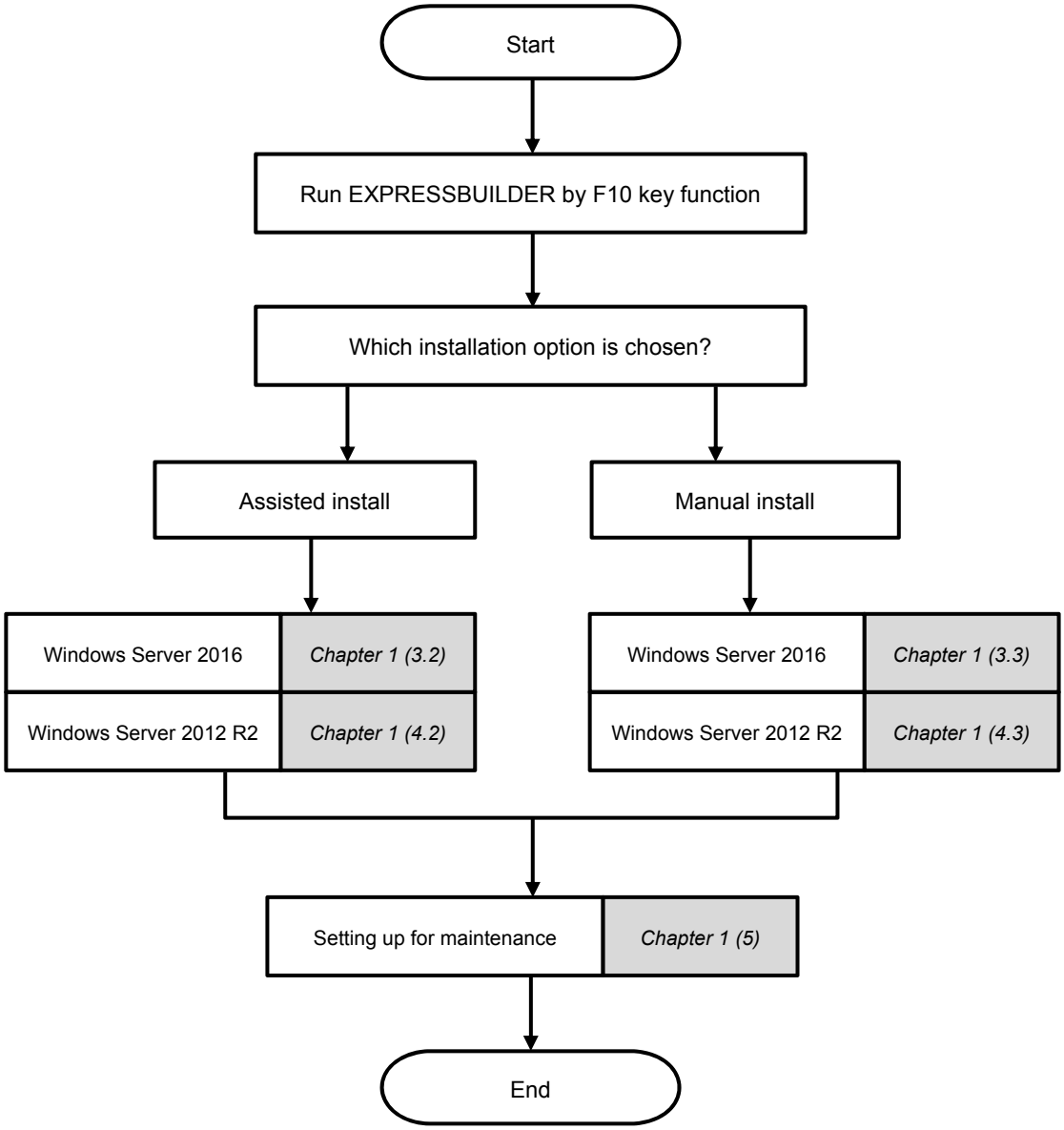
The table below lists the optional LAN boards for this server, supported by Starter Pack.

	Windows Server 2016	Windows Server 2012 R2
N8104-171 Quad Port 1000BASE-T LOM Card	✓	✓
N8104-172 Quad Port 1000BASE-T LOM Card	✓	N/A
N8104-173 Dual Port 10GBASE-T LOM Card	✓	✓
N8104-174 Dual Port 10GBASE-T LOM Card	✓	✓
N8104-175 Dual Port 10GBASE-T LOM Card	✓	✓
N8104-176 Dual Port 10GBASE SFP+ LOM Card	✓	✓
N8104-177 Dual Port 25GBASE SFP+ LOM Card	✓	✓
N8104-178 Dual Port 1000BASE-T Adapter	✓	✓
N8104-179 Quad Port 1000BASE-T Adapter	✓	✓
N8104-180 Dual Port 1000BASE-T Adapter	✓	N/A
N8104-181 Quad Port 1000BASE-T Adapter	✓	N/A
N8104-182 Dual Port 10GBASE-T Adapter	✓	✓
N8104-183 Dual Port 10GBASE-T Adapter	✓	✓
N8104-184 Dual Port 10GBASE-T Adapter	✓	✓
N8104-185 Dual Port 10GBASE SFP+ Adapter	✓	✓
N8104-186 Dual Port 10GBASE SFP+ Adapter	✓	✓
N8104-187 Dual Port 25GBASE SFP28 Adapter	✓	✓
N8104-188 Quad Port 25GBASE QSFP28 Adapter	✓	✓
N8104-193 Dual Port 1000BASE-T LOM Card	✓	✓
N8104-194 Dual Port 10GBASE-SR LOM Card	✓	✓
N8104-195 Dual Port 10GBASE-T LOM Card	✓	✓

✓: Supported

2. Flow of Windows Installation

Read a proper section to install Windows according to the following figure.



3. Installing Windows Server 2016

3.1 Precautions of Windows Server 2016 Installation

Read the precautions explained this section before installing.

EB : Assisted installation

OS : Manual installation

BIOS setting		
EB	OS	Change **Boot Mode** to **UEFI Mode**. For details, see *Chapter 2 (1. System Utilities)* in *Maintenance Guide.* **System Configuration → BIOS/Platform Configuration(RBSU) → Boot Mode → Boot Option → UEFI Mode**
EB	OS	Select **Enabled** for X2APIC feature of processor. For details, see *Chapter 2 (1. System Utilities)* in *Maintenance Guide.* **System Configuration → BIOS/Platform Configuration(RBSU) → Processor Options → Processor X2APIC Support → Enabled**
EB	OS	Set the time format to the time of your current location. Regarding the details, see *Chapter 2 (1. System Utilities)* in *Maintenance Guide*. **System Configuration → BIOS/Platform Configuration (RBSU) → Date and Time → Time Format → Current Location Time**
Hardware configuration		
The following hardware configurations require special procedures.		
EB	OS	**Reinstalling to a mirrored volume** When you install Windows Server 2016 in an environment with a mirrored volume created using Windows, disable mirroring before installing the operating system and enable it again after the installation. Use [Computer Management] – [Disk Management] to create, disable, or remove the mirrored volume.
EB	OS	**Peripherals such as RDX/MO** Remove an MO device before installing. Some peripherals need to be halted before installation. Refer to the manual provided with the peripherals for how to set a device appropriate to installation.
EB	OS	**DAT, LTO, and similar media** Do not set media that is unnecessary to installation during setup.
EB	OS	**Reinstalling to dynamic disks** If the hard disk drive has been upgraded to a dynamic disk, the Windows cannot be reinstalled to it with the existing partitions. Install Windows with Manual option.

EB OS

Setup when mass memory is installed

If mass memory is installed in your system, the large size of paging file is required at installation, and the partition size for storing debug information (dump file) cannot be allocated.

If you fail to create the partition, allocate the required size to multiple disks according to the following steps.

1. Set the system partition size to a size sufficient to install the OS and paging file.
2. Specify another disk as the destination to save the debug information (required dump file size) according to *Chapter 1 (5. Settig up for Maintenance)*.

If the hard disk drive does not have enough free area to write the debug information, set the partition size to a size sufficient to install the OS and paging file, and then add another hard disk drive for the dump file.

Note

If the partition size for installing Windows is smaller than the recommended size, expand the partition size or add another hard disk drive.

If sufficient free area cannot be allocated for the paging file, perform either of the following after install Windows.

– **Specify a hard disk drive other than the system drive as the location to store the paging file for collecting memory dump**

Create a paging file of "installed memory size + 400 MB (installed memory size + 1,100 MB when the size is 4 TB or more)" or more in a drive other than the system drive.

The paging file that exists in the first drive (in the order of drive letter C, D, E, ...) is used as the temporary memory dump location.
Therefore, make sure that the size of the paging file that exists in the first drive is at least "installed memory size + 400 MB (installed memory size + 1,100 MB when the installed physical memory is 4 TB or more)".
Paging files in dynamic volumes are not used for dumping memory. The setting is applied after restarting the system.

Example of correct setting

C: No paging file exists
D: Paging file whose size is "installed memory size + 400 MB* " or more

→ The paging file in drive D can be used for collecting memory dump because its size satisfies the requirement.

Example of incorrect setting 1

C: Paging file whose size is smaller than the installed memory size
D: Paging file whose size is "installed memory size + 400 MB* " or more

→ The paging file in drive C is used for collecting memory dump, but collection may fail because the size of the paging file is smaller than the installed memory size.

Example of incorrect setting 2

C: Paging file whose size is "installed memory size × 0.5"
D: Paging file whose size is "installed memory size × 0.5"
E: Paging file whose size is 400 MB*

→ The total paging file size in all drives is "installed memory size + 400 MB* ", but collection may fail because only the paging file in drive C is used for collecting memory dump.

Example of incorrect setting 3

C: No paging file exists
D: Paging file whose size is "installed memory size + 400 MB* " or more (in dynamic volume)

→ Paging files in a dynamic volume cannot be used for collecting memory dump. Thus, collecting memory dump fails.

* This value is installed memory size +1,100 MB when the installed memory size is 4 TB or more

– **Specify a drive other than the system drive for "Dedicated Dump File".**

Create the registry shown below by using the Registry Editor and specify the name of Dedicated Dump File.

<For example: "dedicateddumpfile.sys" in drive D>

Key:	HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\CrashControl
Name:	DedicatedDumpFile
Type:	REG_SZ
Data:	D:\dedicateddumpfile.sys

Note the following when specifying Dedicated Dump File:

- The setting is applied after restarting the system.
- Specify a drive that has free space of "installed memory size + 400 MB (installed memory size + 1,100 MB when the installed memory size is 4 TB or more)" or more.
- Dedicated Dump File cannot be placed in dynamic volumes.
- Dedicated Dump File is only used for collecting memory dump, and is not used as virtual memory. Specify the paging file size so that sufficient virtual memory can be allocated in the entire system.

System partition size

EB OS

The system partition size can be calculated by using the following formula.

Size required to install the OS + paging file size + dump file size + application size

Desktop Experience

Size required to install the OS	= 15,200 MB
Paging file size (recommended)	= installed memory size × 1.5
Dump file size	= installed memory size + 400 MB (installed memory size is 4 TB or less) = installed memory size + 1,100 MB (installed memory size is exceeding 4 TB)
Application size	= as required by the application

Server Core

Size required to install the OS	= 10,300 MB
Paging file size (recommended)	= installed memory size × 1.5
Dump file size	= installed memory size + 400 MB (installed memory size is 4 TB or less) = installed memory size + 1,100 MB (installed memory size is exceeding 4 TB)
Application size	= as required by the application

For example, if the installed memory size is 2 GB (2,048 MB), and application size is 100 MB, the partition size is calculated as follows:

15,200 MB + (2,048 MB × 1.5) + 2,048 MB + 400 MB + 100 MB

= 20,820 MB

The above mentioned partition size is the minimum partition size required for system installation. Ensure that the partition size is sufficient for system operations.

The following partition sizes are recommended.

Desktop Experience : 32,768 MB (32 GB) or more

Server Core installations : 32,768 MB (32 GB) or more

*1 GB = 1,024 MB

Note

- The above paging file sizes are recommended for collecting debug information (dump file). The initial size of the Windows partition paging file must be large enough to store dump files.
  Make sure you set a sufficient paging file size. If the paging file is insufficient, there will be a virtual memory shortage that may result in an inability to collect correct debug information.
- Regardless of the sizes of internal memory and write debug information, the maximum size of the dump file is "installed memory size + 400 MB (installed memory size + 1,100 MB when installed memory size is 4 TB or more)".
- When installing other applications or other items, add the amount of space needed by the application to the partition.

If the partition size for installing Windows is smaller than the recommended size, expand the partition size or add another hard disk drive.

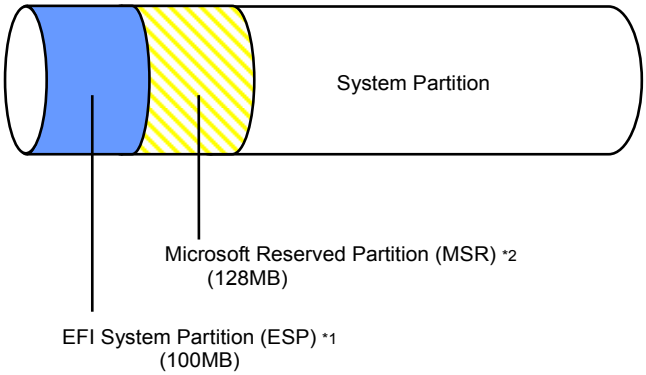
- **When installing using Assisted option**

Tips

Windows is installed using the entire disk space of the hard disk drive. The Windows OS creates two partitions at the head of the hard disk drive.

- EFI System Partition (ESP): 100MB *1
- Microsoft Reserved Partition (MSR): 128MB *2

228 MB of disk space is allotted to the two partitions at the head.



*1 May be 300MB in size depending on hard disk drive type.

*2 MSR is not displayed on **Disk Management**.

- **When installing using Manual option**

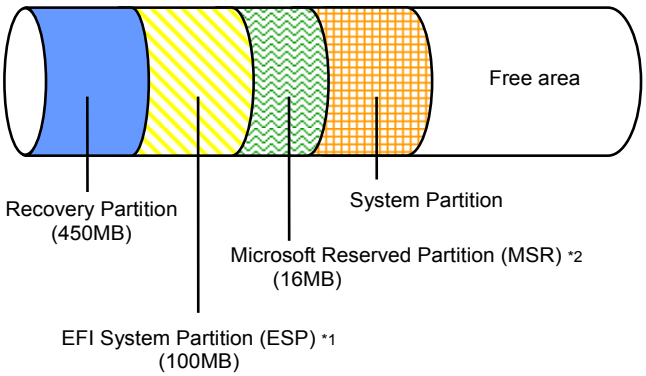
Tips

When creating a partition, Windows OS creates the following partitions at the top of hard disk drive.

- Recovery Partition: 450MB
- EFI System Partition (ESP): 100MB *1
- Microsoft Reserved Partition (MSR): 16MB *2

566MB is allocated for these three partitions out of the specified partition size.
For example, when 61,440MB is specified for partition size, the area available free area is calculated as follows:

61,440MB – (450MB + 100MB + 16MB) = 60,874MB



*1 May be 300MB in size depending on hard disk drive type.

*2 MSR is not displayed on **Disk Management**.

Windows Server 2016 Hyper-V support

EB OS

Refer to the following web site for information related to Windows Server 2016 Hyper-V.
http://www.58support.nec.co.jp/global/download/w2016/hyper-v/hyper-v-ws2016.html

Using BitLocker

EB OS

If using BitLocker, note the following.

- Be sure to keep the recovery password secure. Do not keep it near a server running BitLocker.

Important

If the recovery password is not entered, the OS cannot be started, and the content of the partition encrypted by BitLocker cannot be referenced any more. The recovery password might be required at startup of the OS after the following:

- **Replacement of motherboard**
- **Change of BIOS setting**
- **Initialization of trusted platform module (TPM) ***

*** Depending on your system, it may not be supported. Refer to the Instruction Manuals about hardware.**

- To reinstall the operating system into a partition that is encrypted with BitLocker, delete the BitLocker-encrypted partition prior to reinstallation.

Support for NIC teaming in Windows Server 2016

EB OS

The NIC teaming feature, which used to be provided by network interface card (NIC) vendors, is built into Windows Server 2016. In Windows Server 2016, this feature is also called "load balancing and failover (LBFO)".
Refer to *3.7 Setup of Windows Server 2016 NIC Teaming (LBFO)* and specify any required settings.

3.2 Assisted Installation

This section describes how to install Windows Server 2016 with Assisted option.

If using a RAID controller, build the RAID system in advance according to the *User's Guide*.

Important

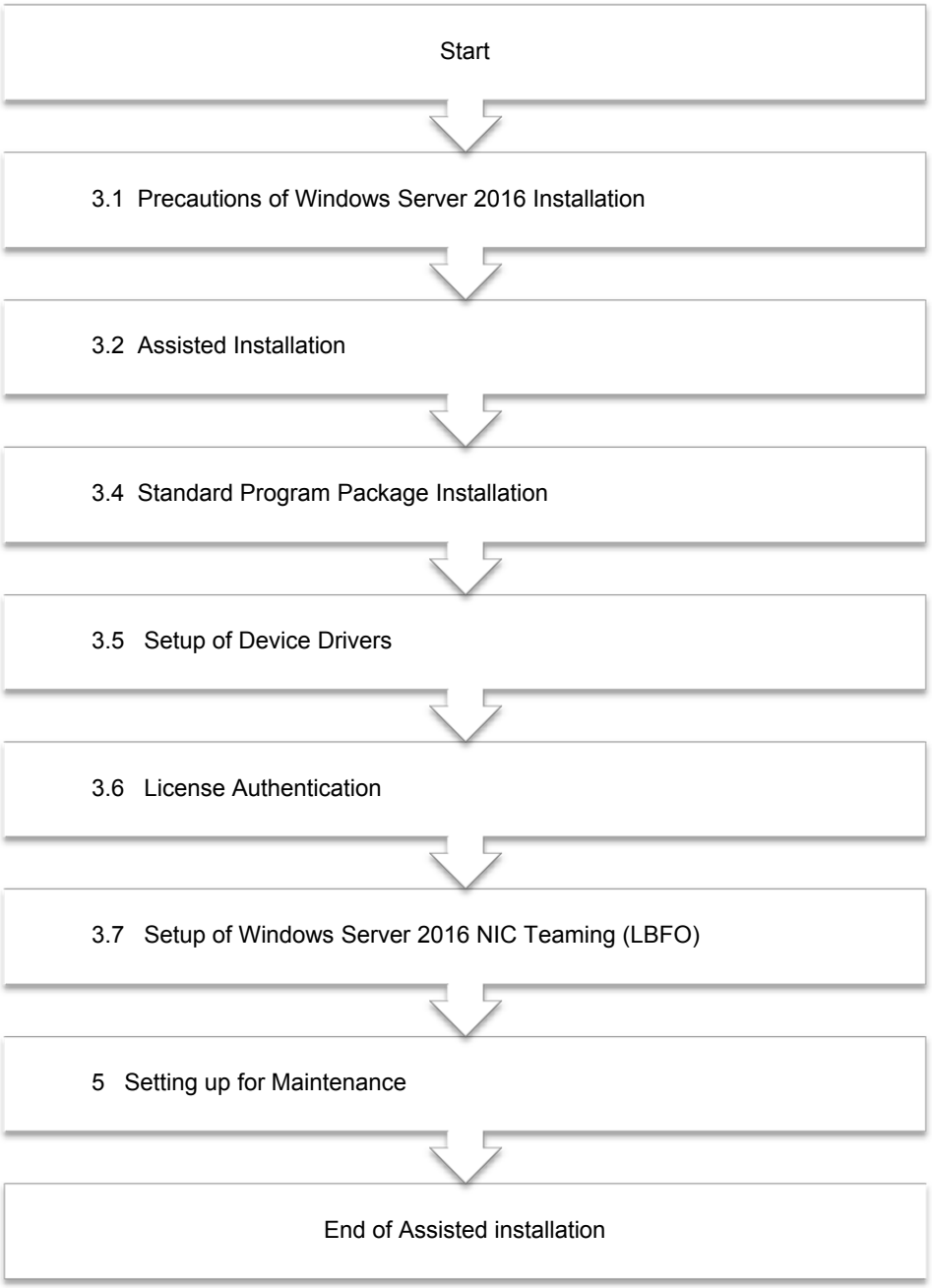
- **Setup will delete all data of the hard disk drive.**
- **Disconnect hard disk drives from the RAID controller that is not to be setup.**

Note

If installing Windows OS to an onboard RAID controller, see *3.3 Manual Installation*.

Assisted installation is not supported.

3.2.1 Setup flow



3.2.2 Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

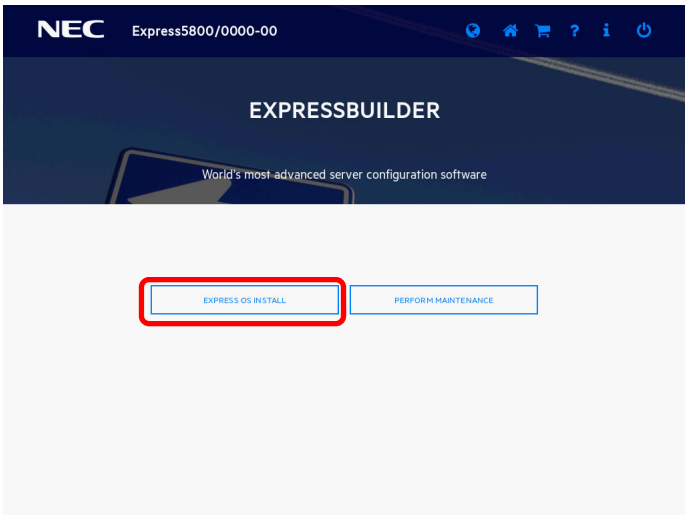
- Either of the following OS installation media
  - **NEC operating system installation media** (hereafter referred to as *Backup DVD-ROM*)
  - **Microsoft operating system installation media** (hereafter referred to as *Windows Server 2016 DVD-ROM*)

- Starter Pack
  - **Starter Pack DVD** (Optional or downloading from our website)

3.2.3 Installation procedure

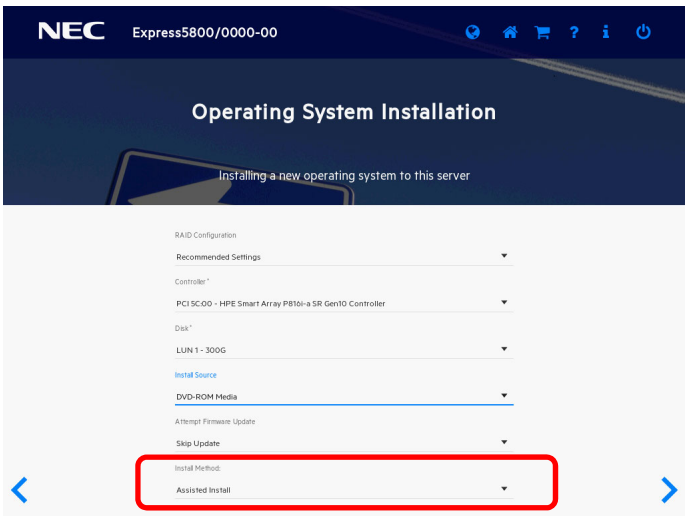
Note Read the precautions in *Chapter 1* (*3.1 Precautions of Windows Server 2016 Installation*) in advance.

1. Turn on peripherals (such as a display), and then turn on the server.
2. To run EXPRESSBUILDER, press <F10> key during POST.
3. The next screen is displayed, click **EXPRESS OS INSTALL**.



4. Choose **Assisted Install** of **Install Method**.
   Specify the following if necessary, and then click the "**>**" icon of the lower right of the screen.

Note When choosing **DVD-ROM Media** or **USB** at **Install Source**, click "**>**" icon after setting the media.



- RAID Configuration
  Choose Keep Current Setting after configuring a RAID array by SSA or System Utilities when using RAID controller.

- Controller
  Choose the controller of installation destination.

- Disk
  Choose the disk of installation destination.

- Install Source
  Choose an OS installation source from the following types.

DVD-ROM Media	DVD-ROM
File on USB drive	USB flash drive
SMB/CIFS (Windows Share)	Network sharing folder
An anonymous FTP server	FTP (this option is not available)

  Each media supports the following file format.

File on USB drive	Flat, ISO
SMB/CIFS (Windows Share)	Flat, ISO

  Flat: a standard folder/file structure

  ISO: single ISO or UDF file

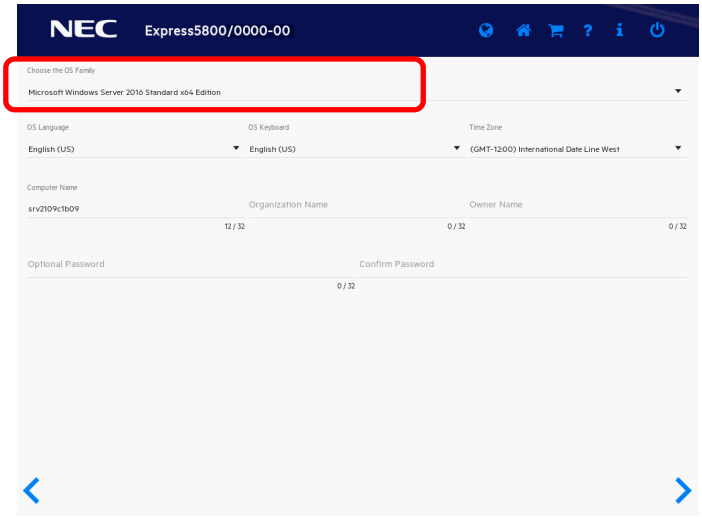
- Attempt Firmware Update
  Choose **Skip Update**. The other options are not available.

- Install Method
  Choose **Assisted Install**.

5. Choose an OS source media depending on the media type of **Install Source** chosen at step 4.

DVD-ROM Media	Automatically detects on OS installation media. If the detection fails, return to step 4 and retry.
File on USB drive	Choose OS installation file on USB flash drive connected.
SMB/CIFS (Windows Share)	Set the network settings of network sharing that includes OS installation file, and then choose OS installation file after connecting the network sharing. • Server Name/IP Address • Share Name • Domain Name • Network Share User • Network Share Password

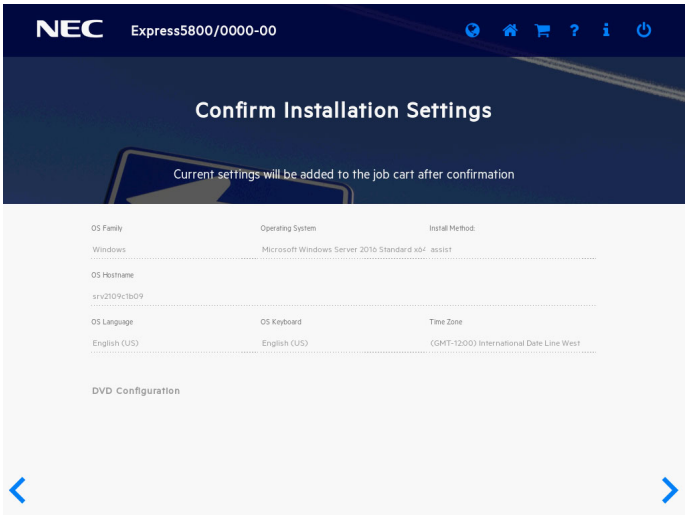
6. On the following screen, specify settings for the OS installation. Set your time zone to **Greenwich Mean Time (GMT)~**.



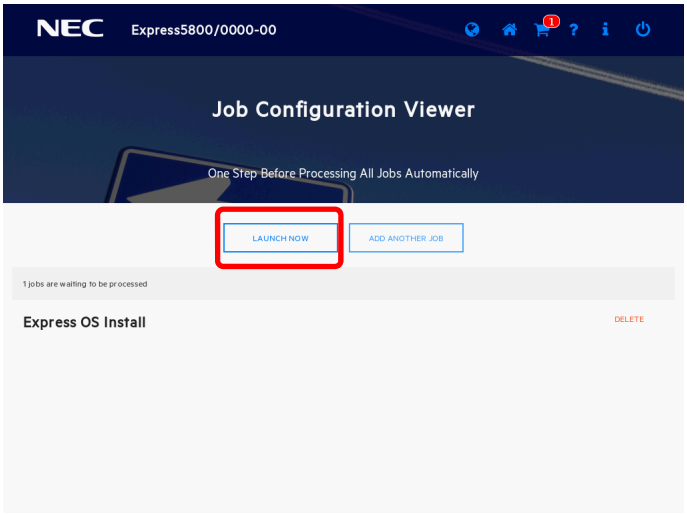
Note

Optional Password can be used alphanumeric characters only. If a sign (such as "!") is included, an error message will appear.

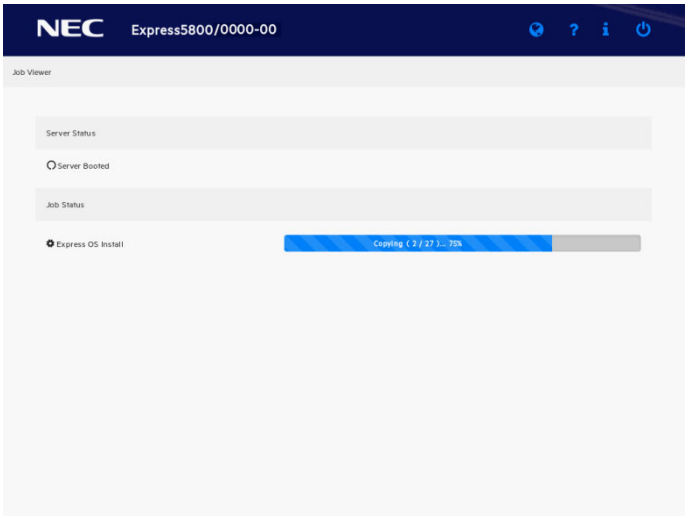
7. Confirm the settings and modify them as needed.



8. When the following screen is displayed, the setting is complete. Click **LAUNCH NOW** to start installation.

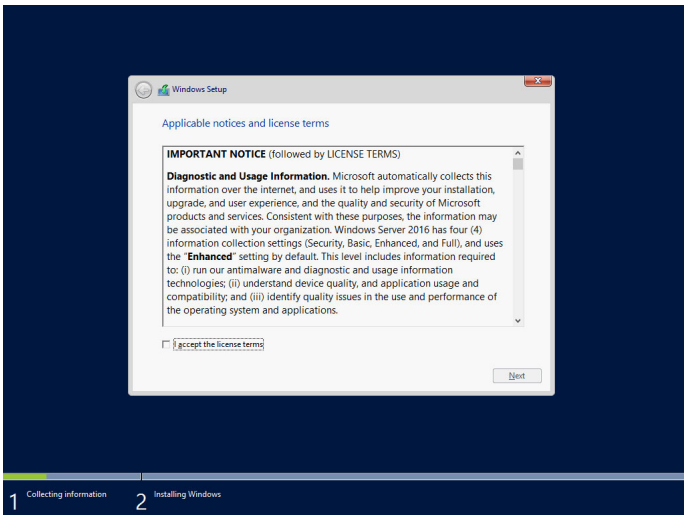


9. When copying is complete, the system restarts automatically.

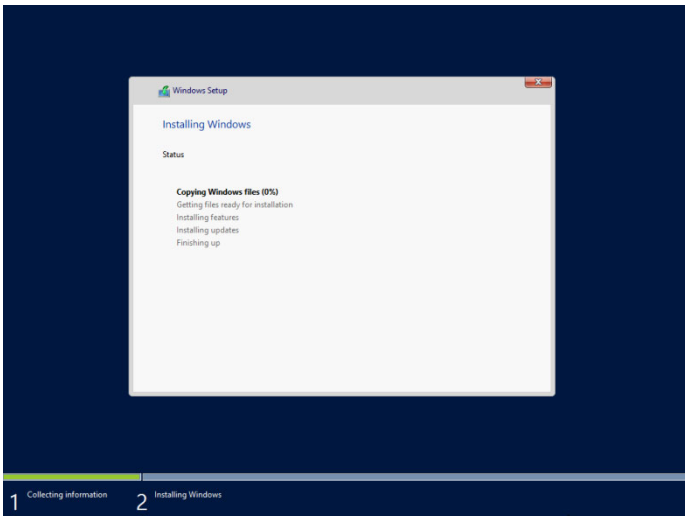


If a choosing installation OS screen appears, the inserted OS media is different from the setting of step 6. Retry the setting from the beginning.

10. Confirm the license terms.
Click **I accept the license terms** if you accept this license, and then click **Next.**



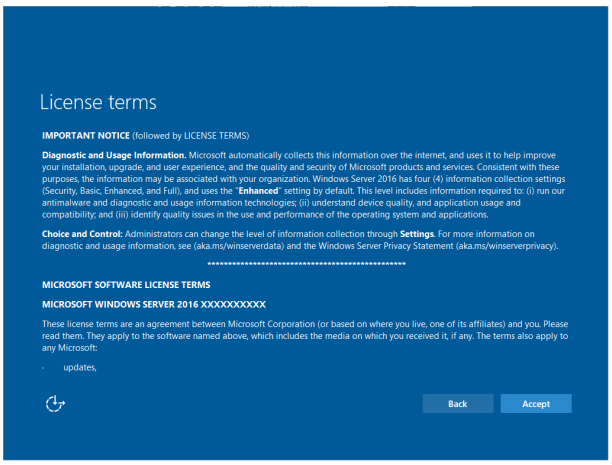
The following screen is displayed, and Windows installation automatically starts.



11. The following screen appears depending on the setting of step 6.

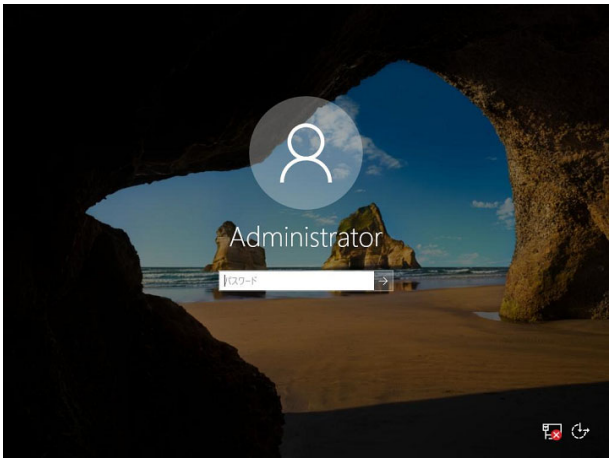
Desktop Experience

Read the terms of License Agreement. Click **Accept**.



Press <Ctrl> + <Alt> + <Delete> keys to unlock.

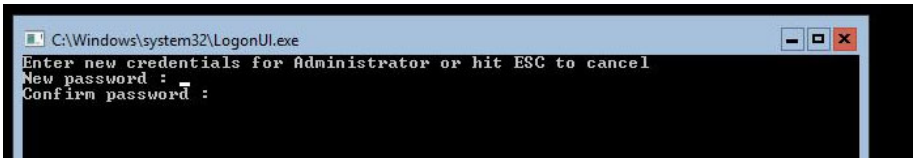
Enter the password and press <Enter> key.



Server Core

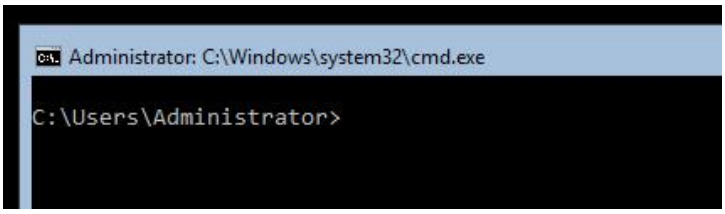
Press <Ctrl> + <Alt> + <Delete> keys to unlock.

The next two screens do not appear when the password is set at step 6.
Type a new password and press <Enter> key.



Choose **OK** and press <Enter> key after the following message is displayed.

Windows Server 2016 starts.



Tips

Refer to the following website for more details.
Configure and Manage Server Core Installations
http://technet.microsoft.com/us-en/library/jj574091.aspx

12. After signing in, installation automatically resumes.
    After installation is complete, the system automatically restarts.
13. See *Chapter 1 (3.4 Standard Program Package Installation)* to install SPP.
14. Install drivers and specify detailed settings according to *Chapter 1 (3.5 Setup of Device Drivers)*.
15. Confirm if Windows is activated according to *Chapter 1 (3.6 License Authentication)*.
16. See *Chapter 1 (3.7 Setup of Windows Server 2016 NIC Teaming (LBFO))* to setup a team as needed.
17. Install the applications as needed according to *Chapter 1* (3.8 *Installing Applications*).
18. Set the other OS settings according to *Chapter 1 (5. Setting up for Maintenance)*.
19. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.
20. From time settings, check whether the current time and time zone have been set correctly.
    Also, from RBSU Date and Time, check whether the Time Format has been set to **Local Time** and Time Zone to **Unspecified Time Zone**.
    If the Time Zone is incorrect, see *5.6 Problem of Operation* under *Chapter 1 (5. Troubleshooting)* in *Maintenance Guide* and set to the correct value.

The Windows installation with **Assisted** option is now complete.

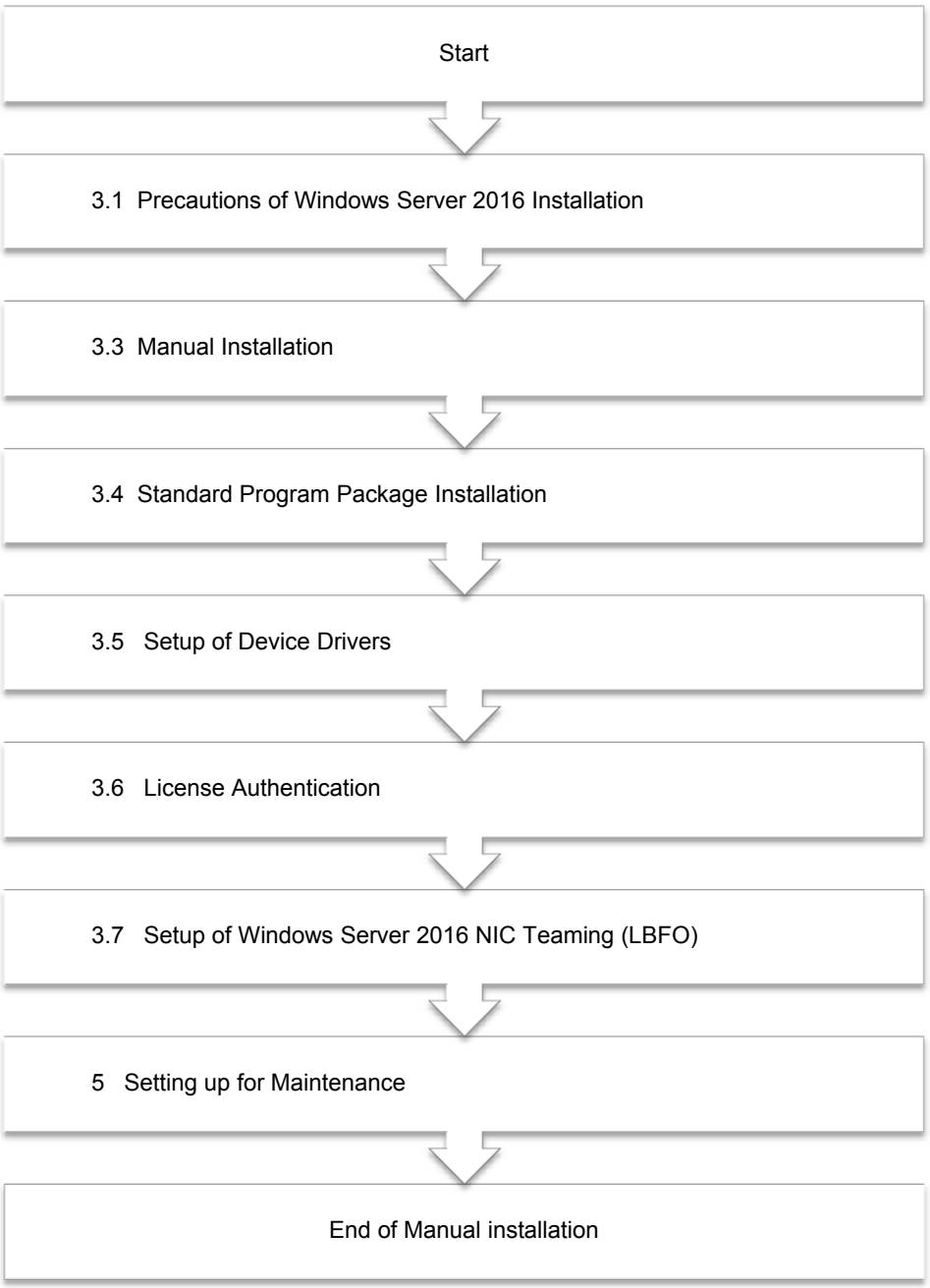
3.3 Manual Installation

This section describes how to install Windows Server 2016 with Manual option.

If using a RAID controller, build the RAID system in advance according to the *User's Guide*.

Important **Depending on the setup, all data in the hard disk drive will be deleted.**

3.3.1 Setup flow



3.3.2 Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

- Either of the following OS installation media
  - **NEC operating system installation media** (hereafter referred to as *Backup DVD-ROM*)
  - **Microsoft operating system installation media** (hereafter referred to as *Windows Server 2016 DVD-ROM*)

- Starter Pack
  - **Starter Pack DVD** (Optional or downloading from our website)

Note

If using the onboard RAID controller and the internal optical disk drive, the driver is loaded from a removable media device.
Copy and prepare the following files onto a removable media in advance.
<DVD>:\software\002\drivers\sw_raid1_driver

3.3.3 Installation procedure

Note

Read the precautions in *Chapter 1* (*3.1 Precautions of Windows Server 2016 Installation*) in advance.

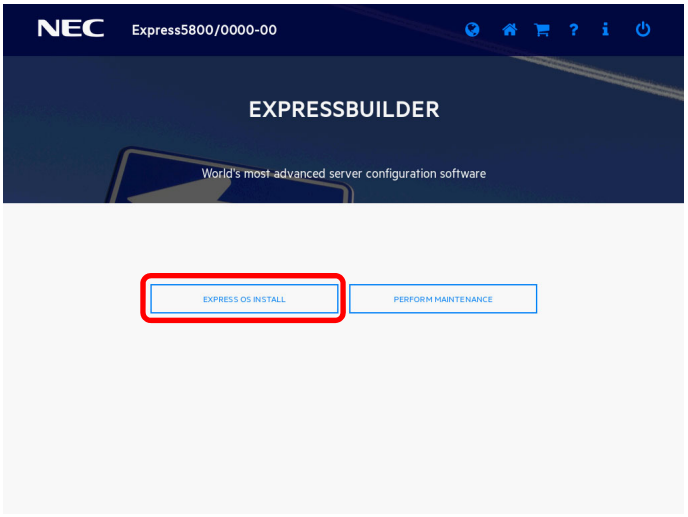
1. Turn on peripherals (such as a display), and then turn on the server.

Important

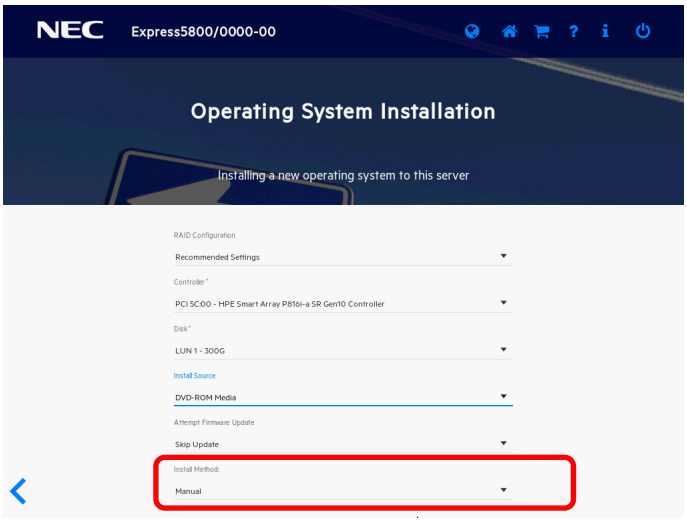
If using the onboard RAID controller, insert the OS installation media and go to Step 9.

2. To run EXPRESSBUILDER, press <F10> key during POST.

3. The next screen is displayed, click **EXPRESS OS INSTALL**.



4. Choose **Manual** of **Install Method**.
   Specify the following settings after setting OS installation media if necessary, and then click the "**>**" icon of the lower right of the screen.



- RAID Configuration
  Choose **Keep Current Setting** after configuring a RAID array by SSA or System Utilities when using RAID controller.

- Controller
  Choose the controller of installation destination.

- Disk
  Choose the disk of installation destination.

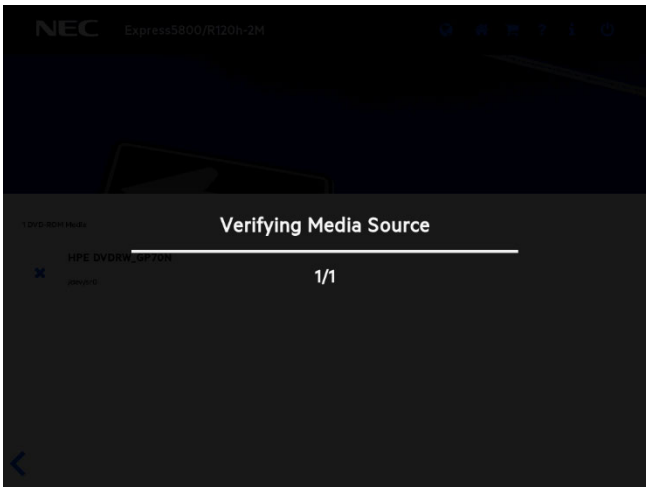
- Install Source
  Choose **DVD-ROM Media**. The other options are available for **Assisted** option.

  Tips | **USB**, **SMB/CIFS (Windows Share)**, and **FTP** can only be selected in Assisted option installation.

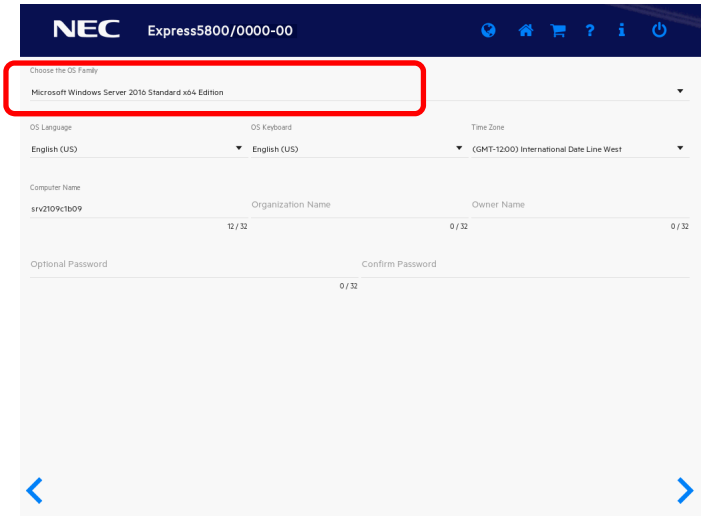
- Attempt Firmware Update
  Choose **Skip Update**. The other options are not available.

- Install Method
  Choose **Manual**.

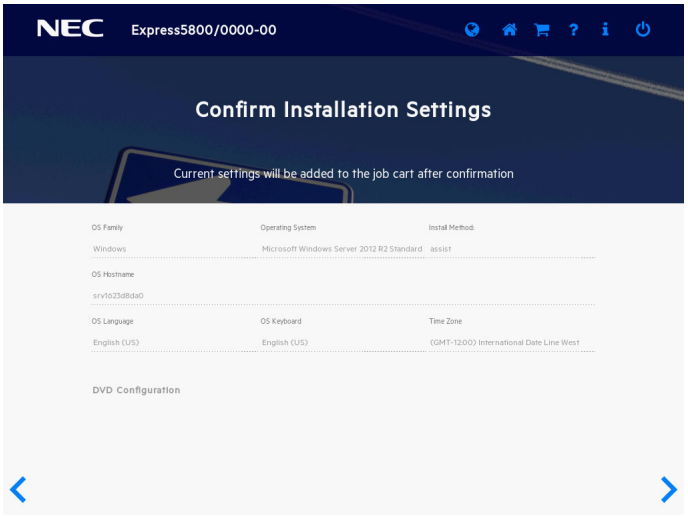
5. OS installation media is automatically detected.
   If the detection fails, return to step 4 and retry.



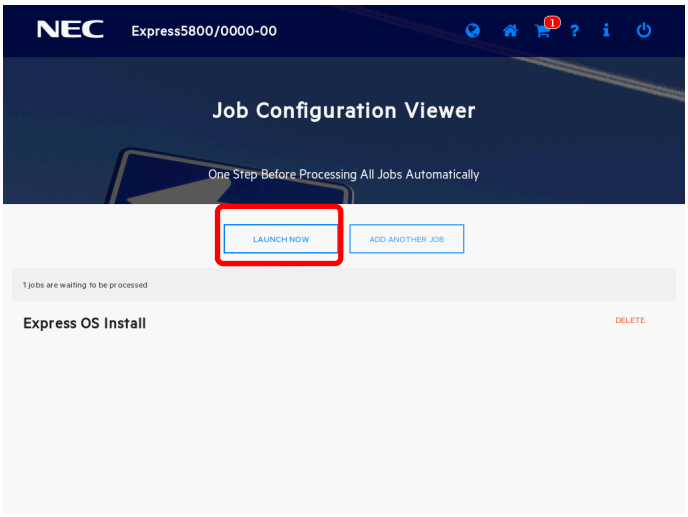
6. The next settings are not needed. These settings are for **Assisted** option.
   Click "**>**" icon of lower right of the screen.



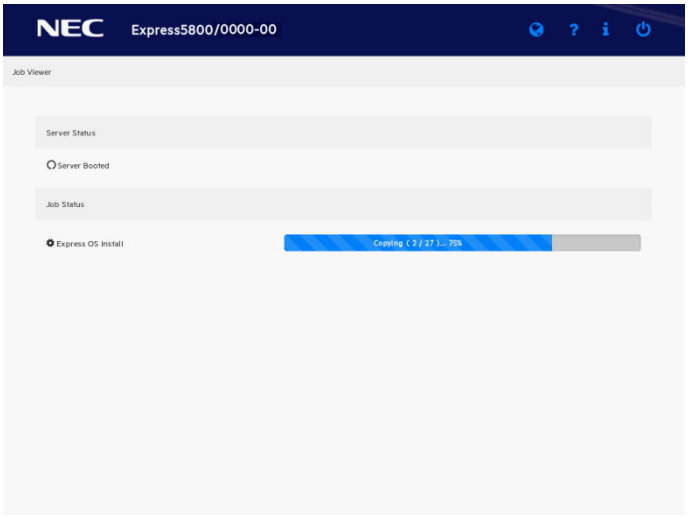
7. Confirm installation settings.



8. When the following screen is displayed, the setting is complete.
   Click **LAUNCH NOW** to start installation.



When copying is complete, the system restarts automatically.



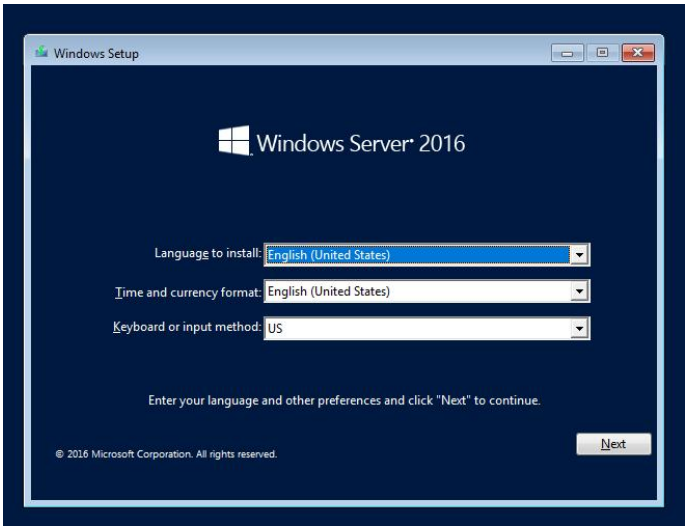
9. The system starts from the OS installation media.
   The message “Press any key to boot from CD or DVD…” is displayed on the upper of the screen

   Press the <Enter> key to start from the media.
   The boot sequence proceeds and the message “Windows is Loading files…” appears.

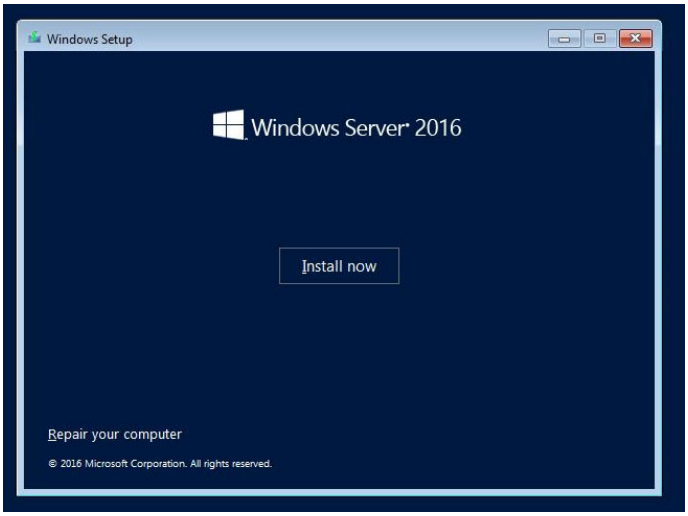
Note

- If “Press any key...” is not displayed in the upper part of the screen, and the system cannot be started from the OS installation media, it can be started by following the procedure below.
  (1) Press the <F11> key during POST to start the Boot Menu.
  (2) In **One Time Boot Menu**, select the optical disk drive where the OS installation media was inserted.
- If the Windows Setup screen (the screen in the next step) does not display, the <Enter> key was not properly pressed. Turn the system power on again, and then start again.

10. Click **Next**.

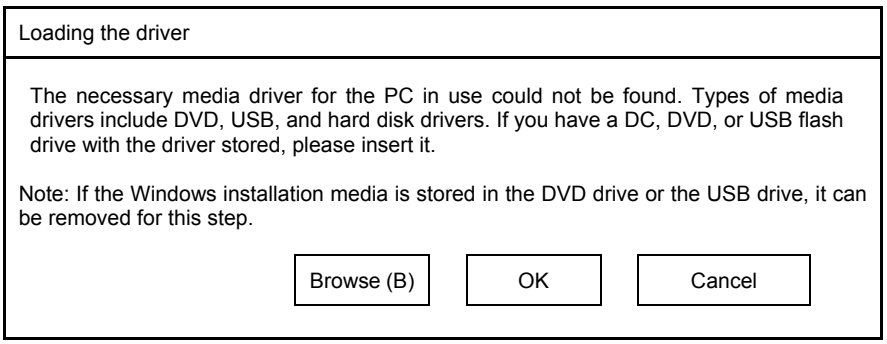


11. Click **Install now**.



If the following message is displayed: Go to Step 12.

If the following message is not displayed: Go to Step 14.



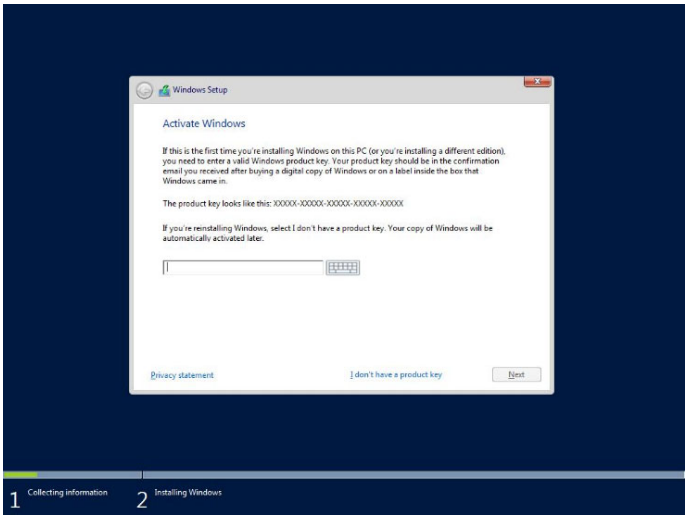
12. After connecting the removable media where the onboard RAID controller driver was copied, specify the path and click **OK**.

    <Removable media>:\sw_raid1_driver

13. Select the following driver from the displayed list of drivers, and click Next.

    HPE Smart Array S100i SR Gen10 SW RAID

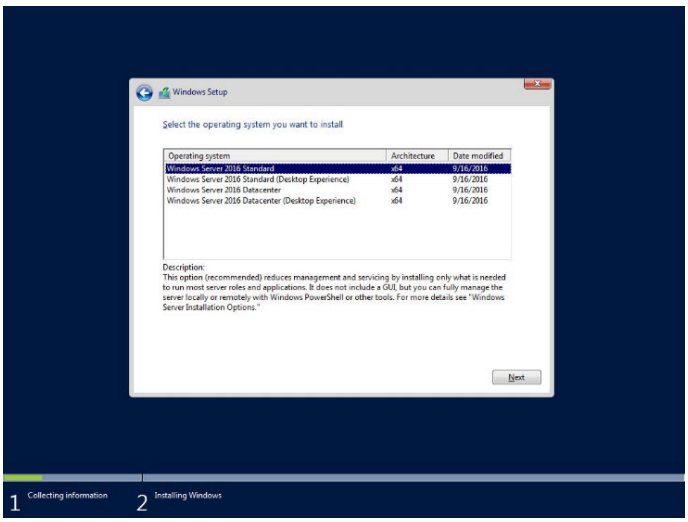
14. Type the product key, and then click **Next.**



Tips

If you are using Backup DVD-ROM, this screen does not appear.

15. Choose an operating system you want to install and click **Next**.



Options are displayed depending on the installation media you are using.

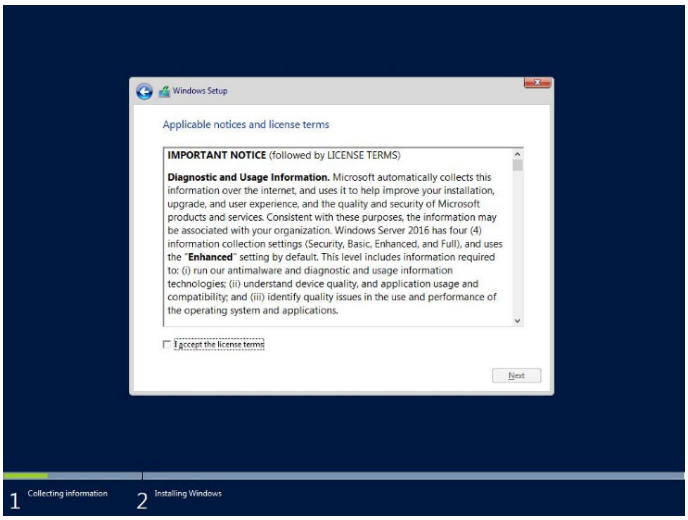
Tips

Read the message of the screen, and then choose an installation option.

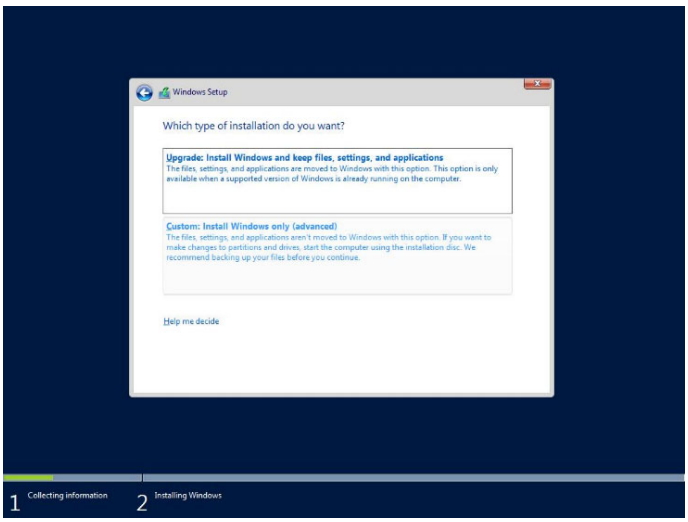
- Windows Server 2016 Standard or Windows Server 2016 Datacenter
  → Described as “Server Core” by this manual
- Windows Server 2016 Standard (Desktop Experience) or Windows Server 2016 Datacenter (Desktop Experience)
  → Described as “Desktop Experience” by this manual

16. Read the license terms carefully.

    If you agree, check **I accept the license terms** and click **Next**.



17. Select Custom: Install Windows only (advanced).



18. The “Select Windows installation location” screen is displayed.

    If the driver was loaded in steps 12 and 13, or if the onboard RAID controller is not in use, proceed to step 21.
    If you select **Load driver** here, the following screen will be displayed.

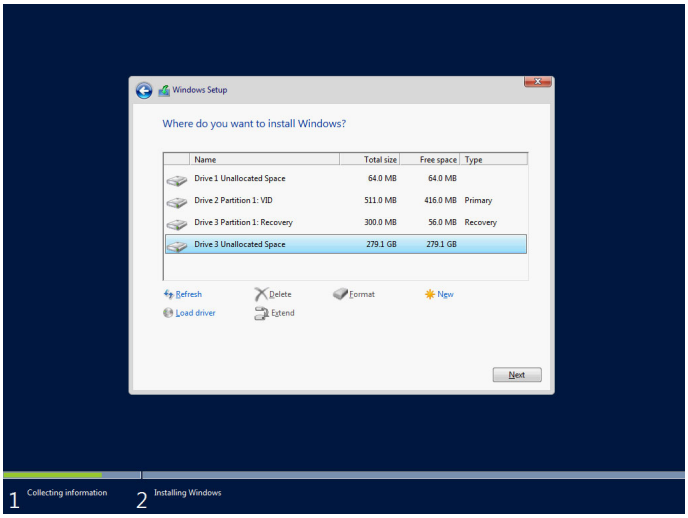
Loading the driver
To install the device driver of the drive, insert the installation media that contains the driver file and click **OK**. Note: The installation media is a CD, DVD, or USB flash drive. Browse (B) OK Cancel

19. After setting the Starter Pack DVD in the UBS-DVD drive, assign a file directory, and click **OK**.
    <Starter Pack DVD>:\software\002\drivers\sw_raid1_driver

20. Select the following driver from the displayed list of drivers, and click Next.

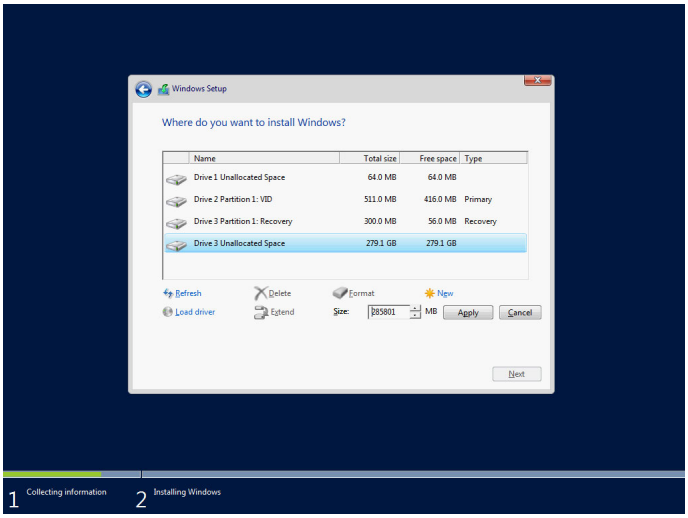
    HPE Smart Array S100i SR Gen10 SW RAID

21. Click **New**

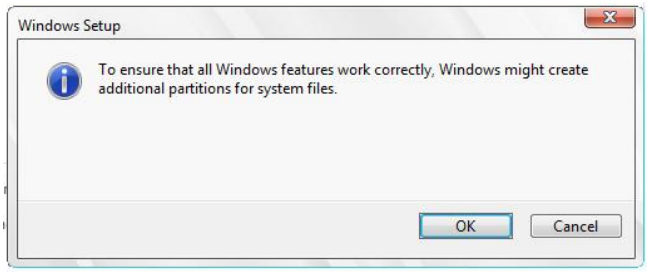


Tips If **New** is not displayed on the screen, click **Drive options (advanced)**.

22. Specify the partition size in the text box, and the click **Apply**.
If the partition is already created, proceed to step 24.



When the following window appears, click **OK**.



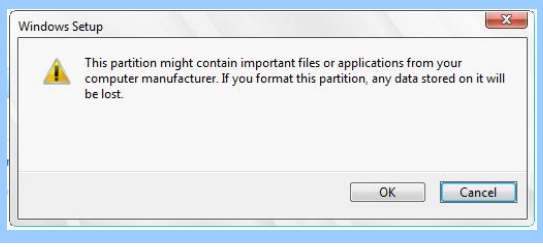
Tips When creating a partition, the OS creates the following partitions at top of the hard disk drive.

- Recovery Partition
- EFI System Partition (ESP)
- Microsoft Reserved Partition (MSR)

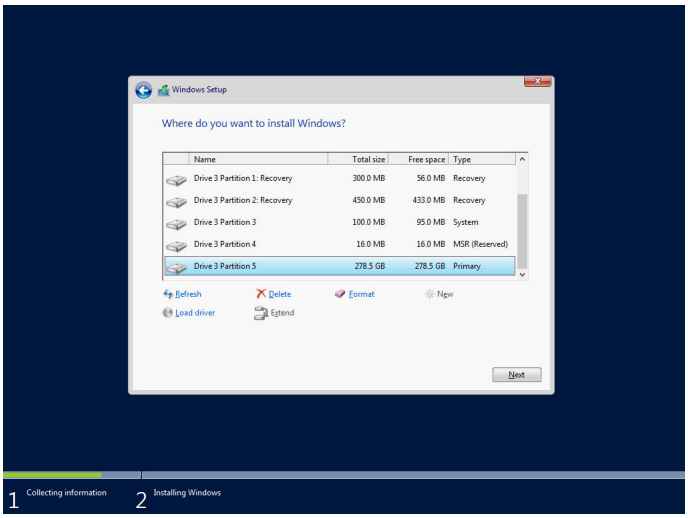
23. Select the partition created in step 22, and then click Format.

Important

When the following screen appears, read the message and click [OK].
Carefully select the partition to be formatted because data in the partition will be erased.



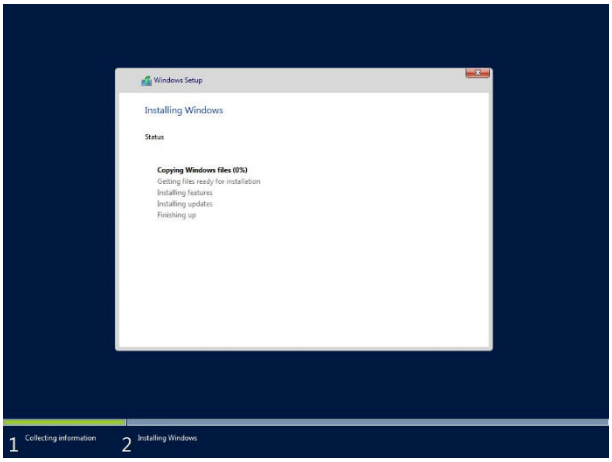
24. Select the created partition, and then click **Next**.



Tips

The number of partitions displayed differs depending on the hardware configuration.

When the following message appears, Windows installation starts automatically.

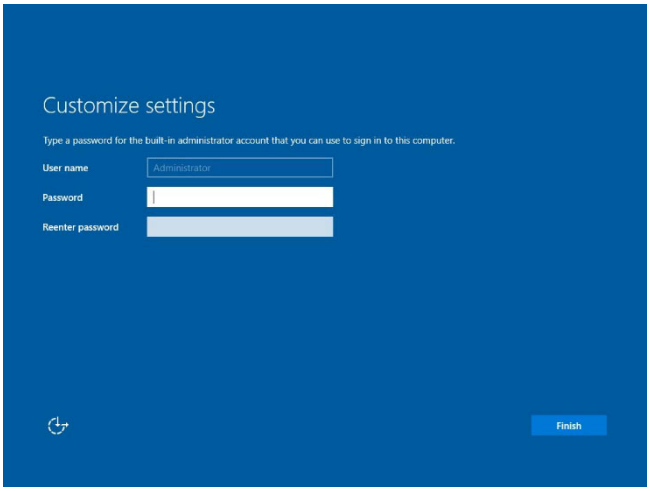


The server will automatically restart after Windows Server 2016 is installed.
You will proceed to Windows setup after restart.

25. Set user settings according to operating system chosen in step 15.

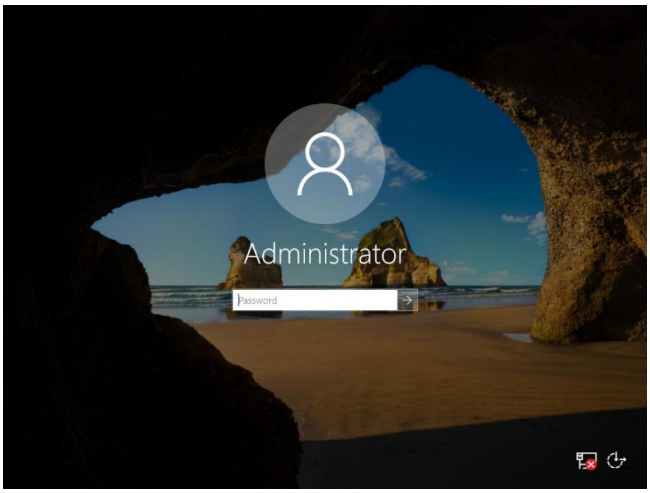
Desktop Experience

Type a password and click **Finish**.

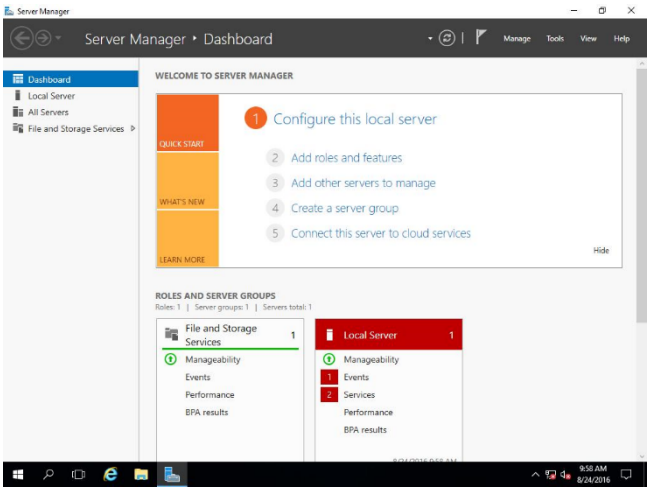


Press <Ctrl> + <Alt> + <Delete> to unlock.

Type the password and press <Enter>.



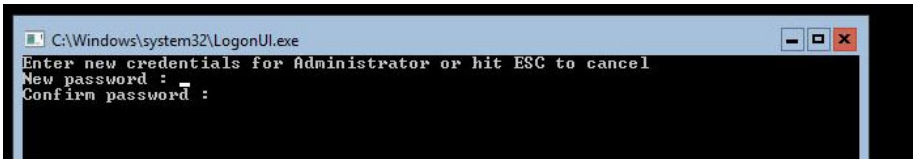
Windows Server 2016 starts.



Server Core

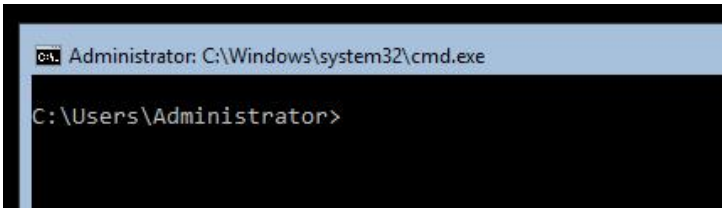
The password is needed to change. Choose **OK** and press <Enter> key.

Enter a new password and press <Enter> key.



Choose **OK** and press <Enter> key after the following message is displayed.

Windows Server 2016 starts.



Tips

Refer to the following website for more details.
Configure and Manage Server Core Installations
http://technet.microsoft.com/us-en/library/jj574091.aspx

26. See *Chapter 1 (3.4 Standard Program Package Installation)* to install SPP.

27. Install drivers and specify detailed settings according to *Chapter 1 (3.5 Setup of Device Drivers)*.

28. Confirm if Windows is activated according to *Chapter 1 (3.6 License Authentication)*.

29. See *Chapter 1 (3.7 Setup of Windows Server 2016 NIC Teaming (LBFO))* to setup a team as needed.

30. Install the applications as needed according to *Chapter 1* (*3.8 Installing the Applications*).

31. Referring to *Chapter 1 (3.9 Disabling a Virtual Install)*, set up depending on your needs.

32. Set the other OS settings according to *Chapter 1 (5. Setting up for Maintenance).*

33. From time settings, check whether the current time and time zone have been set correctly.
    Also, from RBSU Date and Time, check whether the Time Format has been set to **Local Time** and Time Zone to **Unspecified Time Zone**.
    If the Time Zone is incorrect, see *5.6 Problem of Operation* under *Chapter 1 (5. Troubleshooting)* in *Maintenance Guide* and set to the correct value.

The Windows installation with Manual option is now complete.

3.4 Standard Program Package Installation

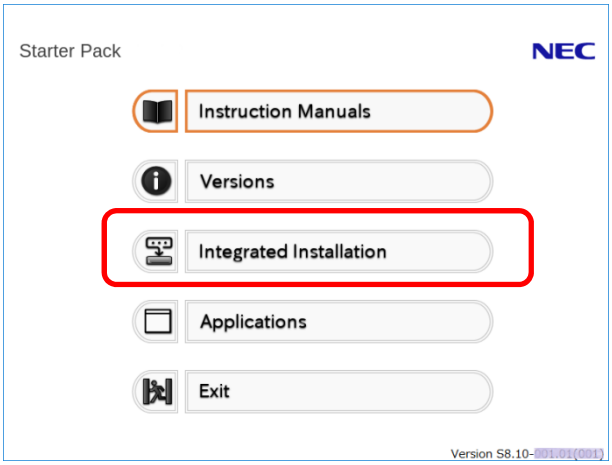
Standard Program Package (SPP) contains drivers customized for this server.
Make sure to install SPP before running the server system.

Important **After attaching the internal option, application of Standard Program Package may be required. For details, see *Chapter 1 (3.5 Setup of Device Drivers)*.**

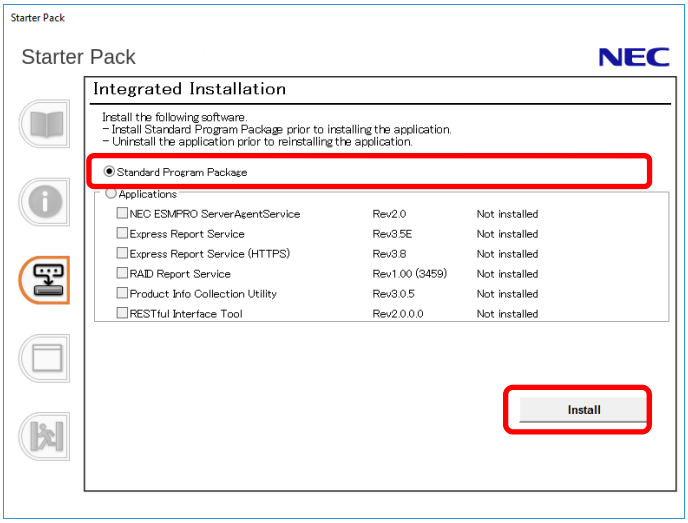
Tips Standard Program Package is already applied in the pre-installed environment. If you are not changing hardware configuration, reapplication is not necessary.

3.4.1 Installing Standard Program Package on Desktop Experience

1. Sign-in to the Windows with an Administrators privilege.
2. Set the Starter Pack DVD to the drive.
3. Run the start_up.bat under the root folder on DVD.
4. Click **Integrated Installation** on the menu.



5. Choose **Standard Program Package** on the following screen, and then click **Install**.



SPP installation is now complete.

3.4.2 Installing Standard Program Package on Server Core

1. Sign-in to the Windows with an Administrators privilege.
2. Set the Starter Pack DVD to the drive.
3. From the command prompt, type the following command.
   In the example below, the optical disk drive is the D drive.

   cd /d D: software\002\win\seamless

   ```
   C:\Users\administrator>cd /d D: software\002\win\seamless
   ```

4. Type the following command, and then press <Enter> key.

   instcmd.vbs spp /s

   ```
   D:\software\002\win\seamless >instcmd.vbs spp /s
   ```

   Wait until installation completes (about 1 to 15 minutes).

SPP installation is now complete.

3.5 Setup of Device Drivers

Install and set up device drivers provided for the standard configuration of the server.

For details regarding the installation and setup of a driver for an optional device, refer to the manual supplied with the optional device.

3.5.1 Installing the LAN drivers

(1) LAN drivers

The drivers are installed by Standard Program Package.
However, if N8104-176/186 is used, "Standard Program Package" has to be applied again for LAN driver installation.
If the OS is setup by either "Assisted" or "Manual" option, "Standard Program Package" has to be applied twice to install the driver of N8104-176/186.

Important

Wake On LAN (WOL) is supported by onboard network adapters and N8104-171/172/173/174/175/176/177/193/194/195 only.
Wake On LAN is available after installing the LAN driver.
For Wake On LAN of onboard network adapters and N8104-172/175/176/193/194/195, when using Wake On LAN see *Chapter 1(3.5.2 Setting up LAN drivers - (2) Setting up Wake on LAN)*.
BIOS settings, check Maintenance Guide.

Note

- To change the LAN driver settings, sign in to the system from a local console using an administrator's account. Remotely changing the settings by using the operating system's remote desktop feature is not supported.
- Choose the **Internet Protocol (TCP/IP)** check box when specifying an IP address.

(2) Optional LAN board

This server supports the following optional LAN boards.
Optional LAN boards:
N8104-171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/193/194/195

If you install the LAN boards after installing Standard Program Package, install Standard Program Package again according to *Chapter 1 (3.4 Standard Program Package Installation)*.
In any other case when N8104-176/186 is used, "Standard Program Package" has to be applied twice.

(3) Network adapter name

After installing the LAN drivers, the following network adapter names will be displayed on the Device Manager.

Network adapters for the standard configuration

HPE Ethernet 1Gb 2-port 368i Adapter #xx(*1)

If connecting with an optional LAN board:

[N8104-171] HPE Ethernet 1Gb 4-port 331FLR Adapter #xx(*1)
[N8104-172] HP Ethernet 1Gb 4-port 366FLR Adapter #xx(*1)
[N8104-173] HPE FlexFabric 10Gb 2-port 533FLR-T Adapter #xx(*1)
[N8104-174] HPE Ethernet 10Gb 2-port 522FLR-T Converged Network Adapter #xx(*1)
[N8104-175] HPE Ethernet 10Gb 2-port 562FLR-T Adapter #xx(*1)
[N8104-176] Port1: HPE Ethernet 10Gb 2-port 562FLR-SFP+ Adapter #xx(*1)

Port2: HPE Ethernet 10Gb 562SFP+ Adapter #xx(*1)
[N8104-177] HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter #xx(*1)
[N8104-178] HPE Ethernet 1Gb 2-port 332T Adapter #xx(*1)
[N8104-179] HPE Ethernet 1Gb 4-port 331T Adapter #xx(*1)
[N8104-180] HP Ethernet 1Gb 2-port 361T Adapter #xx(*1)
[N8104-181] HP Ethernet 1Gb 4-port 366T Adapter #xx(*1)
[N8104-182] HPE Ethernet 10Gb 2-port 530T Adapter #xx(*1)
[N8104-183] HPE Ethernet 10Gb 2-port 521T Adapter #xx(*1)
[N8104-184] HPE Ethernet 10Gb 2-port 562T Adapter #xx(*1)
[N8104-185] HPE Ethernet 10Gb 2-port 530SFP+ Adapter #xx(*1)
[N8104-186] Port1：HPE Ethernet 10Gb 2-port 562SFP+ Adapter #xx(*1)
Port2：HPE Ethernet 10Gb 562SFP+ Adapter #xx(*1)
[N8104-187] HPE Ethernet 10/25Gb 2-port 621SFP28 Adapter #xx(*1)
[N8104-188] HPE Ethernet 4x25Gb 1-port 620QSFP28 Adapter #xx(*1)
[N8104-193] HPE Ethernet 1Gb 2-port 368FLR-MMT Adapter #xx(※1)
[N8104-194] HPE Ethernet 10Gb 2-port 568FLR-MMSFP+ Adapter #xx(※1)
[N8104-195] HPE Ethernet 10Gb 2-port 568FLR-MMT Adapter #xx(※1)

*1: If there are adapters with the same name, a different identification number will be assigned to *xx*.

Tips

The ID for N8104-173/174/177/182/183/185/187/188 might be a number of two or more digits.
This is due to the LAN driver specifications and not an error.
This number cannot be changed.

Tips

The network adaptor name displayed in the device manager may be different from the one listed above.

In this case, the correct network adaptor name can be displayed by following the procedure below.

1. Start **Device Manager**.
2. Open **Network Adaptor**, right click on the relevant adaptor, and select **Delete**.
   Do not check the **Delete the driver software of this device** checkbox.
3. Select **Scan hardware change** from **Control**.

3.5.2 Setting up LAN drivers

(1) Setting link speed

The transfer rate and duplex mode of the network adapter must be the same as those of the switching hub. Follow the procedure below to specify the transfer rate and duplex mode.

Tips

If you are using a network adaptor for N8104-185/187/188, the network adaptor settings can be set to "10 Gbps Full Duplex" or "25 Gbps Full Duplex", and the connected switching hub settings can be set to "Auto Negotiation".

1. Open the **Device Manager**.
2. Expand **Network Adapters**, and then double-click the name of the network adapter you want to configure. The properties of the network adapter will be displayed.
3. On the **Advanced** tab, set the **Speed & Duplex** values to the same as those of the switching hub.
4. Click **OK** in the **Network Adapter Properties** dialog box.

5. Restart the system.

The link speed setting is now complete.

(2) Setting up Wake on LAN

When using onboard network adapters and N8104-172/175/176/193/194/195 with the server, follow the procedure below to set it.

1. Open the **Device Manager**.
2. Expand **Network Adapters**, and then double-click the name of the network adapter you want to configure. The properties of the network adapter will be displayed.
3. Open **Advanced** tab, click **Enable PME** to show Value.
4. Change the value to **Enabled** by the down-arrow button.
5. Click **OK**, and then restart the system.

Setup is now complete.

3.5.3 Using Graphics Accelerator

The graphics accelerator driver for standard configurations of the server is installed from Standard Program Package.

3.5.4 Using SAS Controller (N8103-197)

The drivers are installed by Standard Program Package.

If you install the SAS controller (N8103-197) after installing Standard Program Package, install Standard Program Package again according to *Chapter 1 (3.4 Standard Program Package Installation)*.

3.5.5 Using RAID Controller (N8103-195/196/201)

The drivers are installed by Standard Program Package.

If you install the RAID controller (N8103-195/196/201) after installing Standard Program Package, install Standard Program Package again according to *Chapter 1 (3.4 Standard Program Package Installation)*.

3.5.6 Using Fibre Channel Controller (N8190-163/164/165/166/171/172)

The drivers are installed by Standard Program Package.

If you install the Fibre Channel controller (N8190-163/164/165/166/171/172) after installing Standard Program Package, install Standard Program Package again according to *Chapter 1 (3.4 Standard Program Package Installation)*.

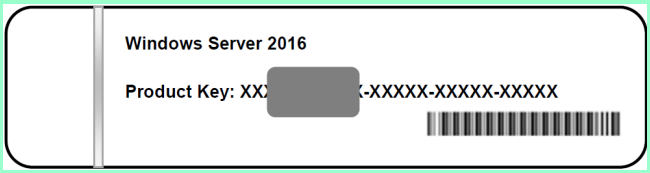
3.6 License Authentication

To use Windows Server 2016, you need finish the license authentication procedure.

Confirm if the license is authenticated or not in the next step.

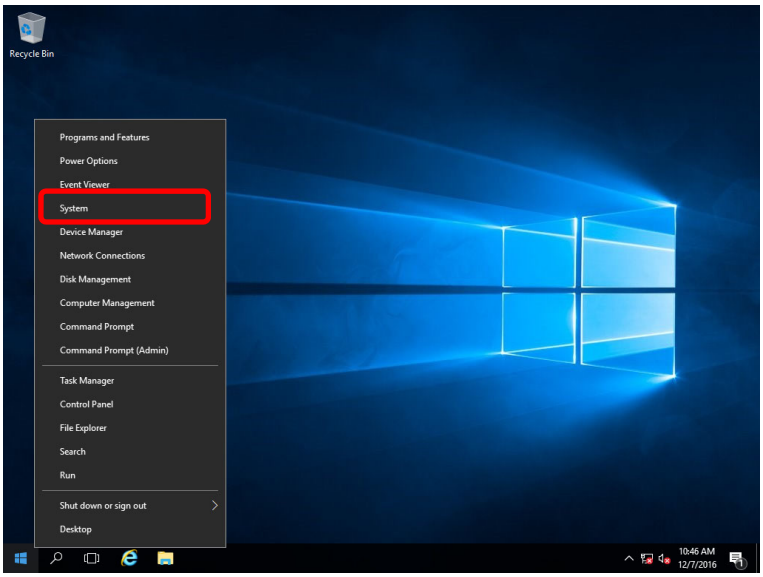
Note

To activate Windows Server 2016, enter the Product Key written on the COA (Certificate of Authenticity) label. The COA label of Windows Server 2016 is attached to the operating system media package.



3.6.1 Desktop Experience

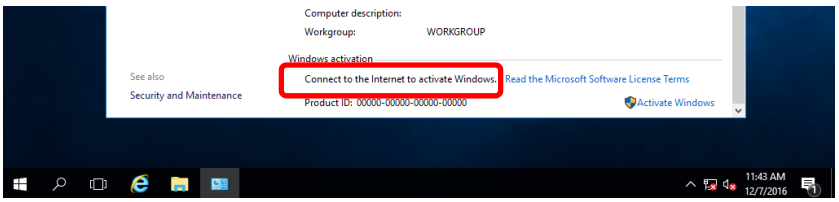
1. Right-click the lower left of the screen, and click **System** from the menu displayed.



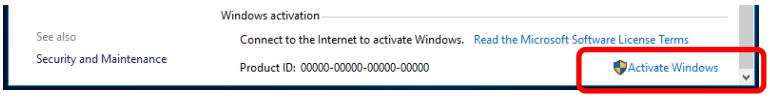
2. Check Windows license authentication.

   When "Windows is activated." is displayed, you do not need to perform this procedure. The authentication is complete.

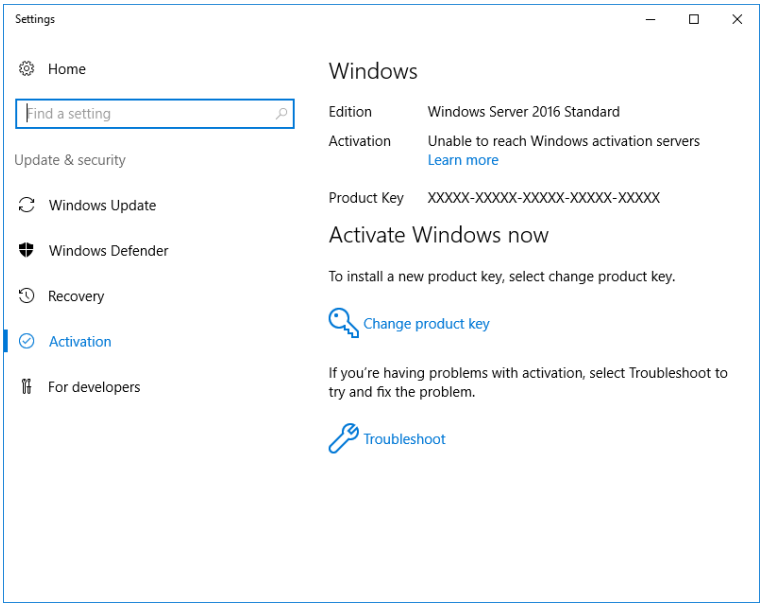
   When "Connect to the internet to activate Windows." is displayed, go to step 3.



3. Click **Activate Windows**.



4. Perform license authentication.



When the server connects to the Internet, click **Change product key**. Complete license authentication process according to the message.

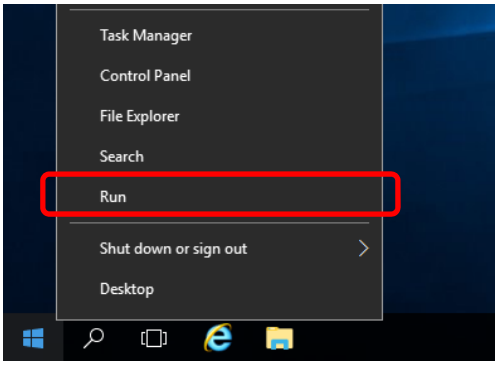
When the server does not connect to the Internet, go to step 5.

5. Perform the license authentication by phone. Go to the appropriate step according to OS installation media you are using.

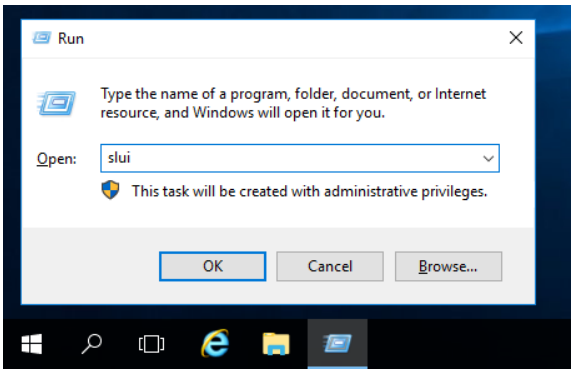
-- Backup DVD-ROM: Go to Step 6.

-- Windows Server 2016 DVD-ROM
- Product key is already entered: Go to Step 9.
- Product key is not entered: Go to Step 6.

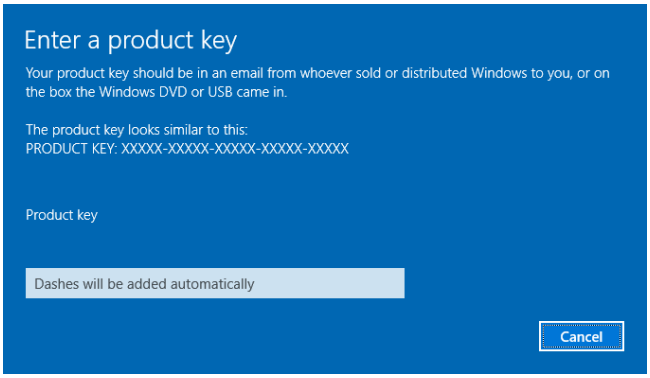
6. Right-click the lower left of the screen, and click **Run** from the menu displayed.



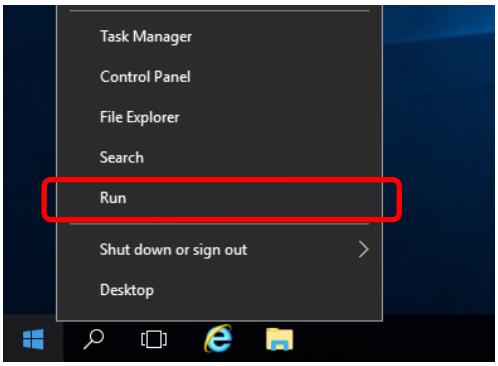
7. Type "slui", and then press <Enter> key.



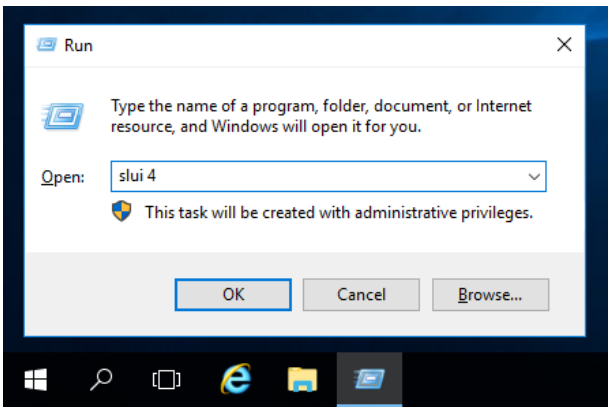
8. Change the product key. On the next screen, type the product key.



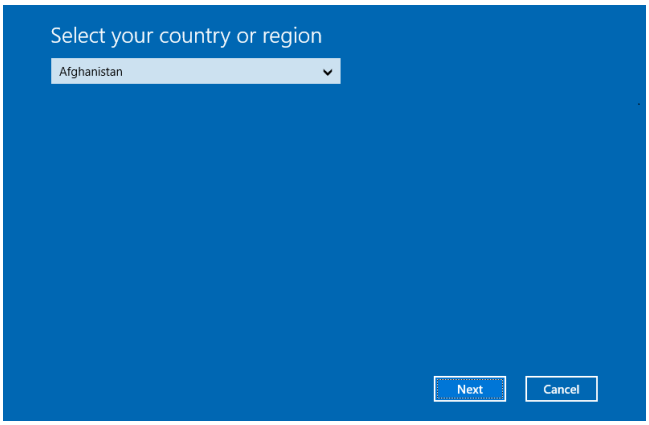
9. Right-click the lower left of the screen, and click **Run** from the menu displayed.



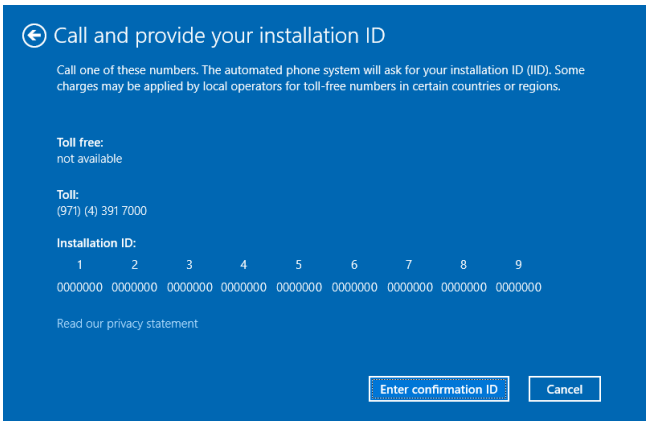
10. Type "slui 4", and then press <Enter> key.



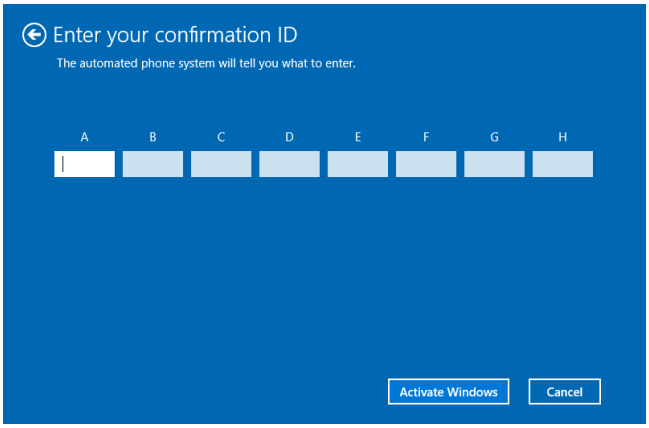
11. On the next screen, choose your country, and then click **Next**.



Get the installation ID required for license activation.



12. Call the Microsoft license activation hotline and then tell your installation ID. Type the confirmation ID, and then click Activate Windows.



The authentication is now complete.

3.6.2 Server Core

1. Confirm if your license is activated.
   At the command prompt, type the following command, and then press <Enter> key.

```
C:\Users\administrator>slmgr -dli
```

   When license authentication is required, go to the next step.
   When your license is already authenticated, you can skip the next and the subsequent steps.

2. Change the product key.

   Using Backup DVD-ROM:

   Type the following command, and then press <Enter> key.

```
C:\Users\administrator>slmgr -ipk <Product key on COA label>
```

   Using Windows Server 2016 DVD-ROM:

   You do not need to change the product key.
   Go to the next step.

3. Perform license authentication.

   The server connects to the Internet:

   License authentication is performed via the Internet.
   Type the following command, and then press <Enter> key.

```
C:\Users\administrator>slmgr -ato
```

   This completes authentication.

   The server does not connect to the Internet:

   Use telephone for license authentication.
   Type the following command to get an Install ID for authentication, and then press <Enter> key.

```
C:\Users\administrator>slmgr -dti
```

   Acquire the installation ID required for license activation.

   Refer to the file `%systemroot%\system32\sppui\phone.inf` to confirm the telephone number of Microsoft Licensing Center.

   Call Microsoft Licensing Center and tell them your Install ID.
   Type the confirmation ID you have received in the following command line, and then press <Enter> key.

```
C:\Users\administrator>slmgr -atp <Confirmation ID>
```

   The authentication is now complete.

3.7 Setup of Windows Server 2016 NIC Teaming (LBFO)

Set up the network adapter teaming feature as shown below.

(1) Launching the NIC teaming setup tool

1. Launch **Server Manager**.
2. Select **Local Server**.
3. In the **Properties** window, click **Enable** or **Disable** for **NIC teaming**.

   The NIC teaming setup tool will launch.

Tips

The NIC teaming setup tool can also be launched by opening the **Run** dialog box, typing "`lbfoadmin /server .`", and then pressing <Enter> key.

(2) Creating a team

Create a team by using the NIC teaming setup tool.

1. In the **Servers** section, select the name of the server to set up.

   If there is only one server connected, the name of the server is selected automatically
2. In the **Teams** section, under **Tasks**, select **New Team**. The **New Team** wizard then starts.
3. Type the name of the team to create, and then select the network adapter to include in the team from the **Member adapters** list.
4. Click **Additional properties**.
5. Specify the required settings, and then click **OK**.

Teaming mode

Static Teaming	Configures static aggregation between the NIC and switches.
Switch Independent	Configures teaming on the NIC side without depending on the switch settings.
LACP	Configures dynamic aggregation between the NIC and switches.

Load balancing mode

Address Hash	Distributes the load based on IP addresses and port numbers.
Hyper-V Port	Distributes the load to each of the virtual switch ports used by the virtual machines.
Dynamic	● Distributes the load based on IP addresses and port numbers in sending. ● Distributes the load same to "Hyper-V Port" in receiving.

Standby adapter

Select one adapter to be set to standby mode from the adapters in the team.

Setting all adapters to active mode is also possible.

Primary team interface

Any VLAN ID can be specified for the primary team interface.

(3) Notes and restrictions

- NIC teaming on a guest OS is not supported.
- Teaming of virtual NICs on the host OS is not supported in the Hyper-V environment.
- When STP (Spanning Tree Protocol) is enabled on network switch ports to which network adapters of the team are connected, network communications may be disrupted. Disable STP, or configure "PortFast" or "EdgePort" to the ports.
  * About setting the network switch of the connection destination, see the manual of the network switch.
- All NICs in the team must be connected to the same subnet.
- Teaming of different speed NICs is not supported.
- Teaming of different vendor's NICs is not supported.
- When teaming is configured in a Network Load Balancing (NLB) environment, you should select multicast mode on the NLB cluster.

Refer to the following website for the latest information.

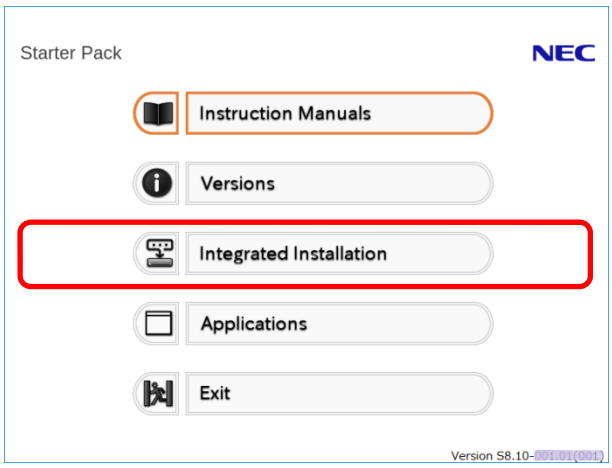
http://www.58support.nec.co.jp/global/download/w2016/index.html

- [Technical Information] - [NIC Teaming (LBFO)]

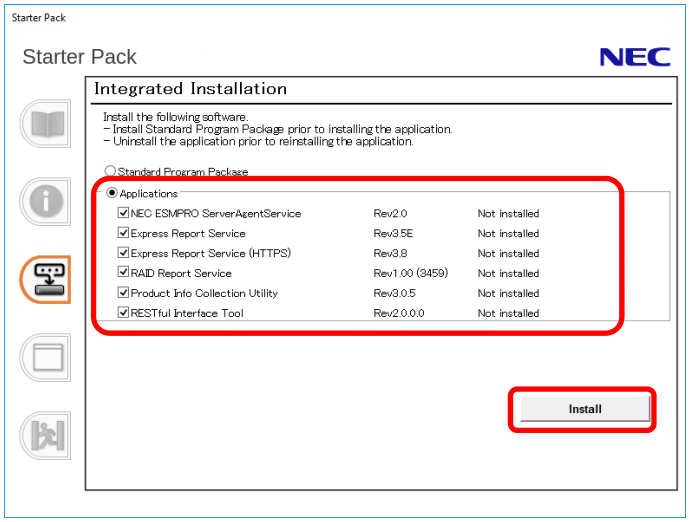
3.8 Installing Applications

Some applications included in Starter Pack can be installed easily by performing the procedures described below. When installing these applications individually, see *Chapter 2* (*Installing Bundled Software*). This feature is **only available on Desktop Experience**.

1. Sign-in to the Windows with an Administrators privilege.
2. Insert the Starter Pack DVD into the optical disk drive.
3. Run the start_up.bat under the root folder on DVD.
4. Click **Integrated Installation** on the menu.



5. On the following screen, choose the check boxes corresponding to the applications you want to install, and then click **Install**. The chosen applications are automatically installed.



Note

- Applications available for installation are chosen by default.
- If your system environment does not satisfy the prerequisite for an application, you cannot install it. For details, see the on-screen information and *Chapter 2 Installing Bundled Software*.
- To collect product information using a device information collection utility, RESTful interface tool needs to be installed. If it is not installed, some logs required for the maintenance may not be gathered.

6. When a message indicating restart appears, click **OK** to restart the server.

7. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.

Now installation of applications is complete.

3.9 Disabling a Virtual Install Disk

There may be a case that a virtual install disk (a drive named "VID") exists on the OS of Windows.

You can disable a virtual install disk with the steps bellow.

Tips

In the Virtual Install Disk, the drivers used during the installation of Windows OS are stored.

When Virtual Install Disk is installed by the manual option, it is automatically enabled and automatically install the necessary drivers.

1. Press the F10 key during POST to start the EXPRESSBUILDER.
2. After restarting from EXPRESSBUILDER, click **Perform Maintenance**.
3. Click **BIOS/Platform Configuration**.
4. Go to **BIOS/Platform Configuration (RBSU)** - **System Options** - **USB Options** - **Virtual Install Disk** and set to Disabled.
5. Click the **BIOS/Platform Configuration (RBSU)** on the left pane and click **Update**.
6. After restarting, VID will be disabled.

With this, the procedure is completed.

4. Installing Windows Server 2012 R2

4.1 Precautions of Windows Server 2012 R2 Installation

Read the precautions explained this section before installing.

EB : Assisted installation

OS : Manual installation

BIOS setting		
EB	OS	Change **Boot Mode** to **UEFI Mode**. For details, see *Chapter 2 (1. System Utilities)* in *Maintenance Guide*. **System Configuration → BIOS/Platform Configuration(RBSU) → Boot Mode → Boot Option → Boot Mode [UEFI Mode]**
EB	OS	Select **Enabled** for X2APIC feature of processor. For details, see *Chapter 2 (1. System Utilities)* in *Maintenance Guide*. **System Configuration → BIOS/Platform Configuration(RBSU) → Processor Options → Processor X2APIC Support → Enabled**
EB	OS	Set the time format to the time of your current location. Regarding the details, see *Chapter 2 (1. System Utilities)* in *Maintenance Guide*. **System Configuration → BIOS/Platform Configuration (RBSU) → Date and Time → Time Format → Current Location Time**
Hardware configuration		
The following hardware configurations require special procedures.		
EB	OS	**Reinstalling to a mirrored volume** When you install Windows Server 2012 R2 in an environment with a mirrored volume created using Windows, disable mirroring before installing the operating system and enable it again after the installation. Use [Computer Management] – [Disk Management] to create, disable, or remove the mirrored volume.
EB	OS	**Peripherals such as RDX/MO** Remove an MO device before installing. Some peripherals need to be halted before installation. Refer to the manual provided with the peripherals for how to set a device appropriate to installation.
EB	OS	**DAT, LTO, and similar media** Do not set media that is unnecessary to installation during setup.
EB	OS	**Reinstalling to dynamic disks** If the hard disk drive has been upgraded to a dynamic disk, the Windows cannot be reinstalled to it with the existing partitions. Install Windows with Manual option.

EB OS

Setup when mass memory is installed

If mass memory is installed in your system, the large size of paging file is required at installation, and the partition size for storing debug information (dump file) cannot be allocated.

If you fail to create the partition, allocate the required size to multiple disks according to the following steps.

1. Set the system partition size to a size sufficient to install the OS and paging file.
2. Specify another disk as the destination to save the debug information (required dump file size) by according to *Chapter 1 (5. Setting up for Maintenance)*.

If the hard disk drive does not have enough free area to write the debug information, set the partition size to a size sufficient to install the OS and paging file, and then add another hard disk drive for the dump file.

Note

If the partition size for installing Windows is smaller than the recommended size, expand the partition size or add another hard disk drive.

If sufficient free area cannot be allocated for the paging file, perform either of the following after install Windows.

– **Specify a hard disk drive other than the system drive as the location to store the paging file for collecting memory dump**

Create a paging file of "installed memory size + 400 MB" or more in a drive other than the system drive.

The paging file that exists in the first drive (in the order of drive letter C, D, E, ...) is used as the temporary memory dump location.
The size of the paging file must be "installed memory size + 400 MB" or more.
Paging files in dynamic volumes are not used for dumping memory. The setting is applied after restarting the system.

Example of correct setting
C: No paging file exists **D: Paging file whose size is "installed memory size + 400 MB" or more** → The paging file in drive D can be used for collecting memory dump because its size satisfies the requirement.

Example of incorrect setting 1
C: Paging file whose size is smaller than the installed memory size **D: Paging file whose size is "installed memory size + 400 MB" or more** → The paging file in drive C is used for collecting memory dump, but collection may fail because the size of the paging file is smaller than the installed memory size.
Example of incorrect setting 2
C: Paging file whose size is "installed memory size × 0.5" **D: Paging file whose size is "installed memory size × 0.5"** **E: Paging file whose size is 400 MB** → The total paging file size in all drives is "installed memory size + 400 MB", but collection may fail because only the paging file in drive C is used for collecting memory dump.
Example of incorrect setting 3
C: No paging file exists **D: Paging file whose size is "installed memory size + 400 MB" or more (in dynamic volume)** → Paging files in a dynamic volume cannot be used for collecting memory dump. Thus, collecting memory dump fails.

– **Specify a drive other than the system drive for "Dedicated Dump File".**

Create the registry shown below by using the Registry Editor and specify the name of Dedicated Dump File.

< For example: "dedicateddumpfile.sys" in drive D>

Key:	HKEY_LOCAL_MACHINE\SYSTEM \CurrentControlSet\Control\CrashControl
Name:	DedicatedDumpFile
Type:	REG_SZ
Data:	D:\dedicateddumpfile.sys

Note the following when specifying Dedicated Dump File:

- Pay strict attention to edit the registry.
- The setting is applied after restarting the system.
- Specify a drive that has free space of "installed memory size + 400 MB" or more.
- Dedicated Dump File cannot be placed in dynamic volumes.
- Dedicated Dump File is only used for collecting memory dump, and is not used as virtual memory. Specify the paging file size so that sufficient virtual memory can be allocated in the entire system.

System partition size

EB OS

The system partition size can be calculated by using the following formula.

Size required to install the OS + paging file size + dump file size + application size

Server with a GUI

Size required to install the OS	= 9,200MB
Paging file size (recommended)	= installed memory size × 1.5
Dump file size	= installed memory size + 400MB
Application size	= as required by the application

Server Core installations

Size required to install the OS	= 6,400MB
Paging file size (recommended)	= installed memory size × 1.5
Dump file size	= installed memory size + 400MB
Application size	= as required by the application

For example, if the installed memory size is 1 GB (1,024 MB), application size is 100MB, and Server with a GUI is selected, the partition size is calculated as follows:

9,200MB + (1,024MB × 1.5) + 1,024MB + 400MB + 100MB

= 12,260MB

The above mentioned partition size is the minimum partition size required for system installation. Ensure that the partition size is sufficient for system operations.

The following partition sizes are recommended.

Server with a GUI : 32,768MB (32GB) or more

Server Core installations : 32,768MB (32GB) or more

*1 GB = 1,024 MB

Note

- The above paging file sizes are recommended for collecting debug information (dump file). The initial size of the Windows partition paging file must be large enough to store dump files.
  Make sure you set a sufficient paging file size. If the paging file is insufficient, there will be a virtual memory shortage that may result in an inability to collect correct debug information.
- Regardless of the sizes of internal memory and write debug information, the maximum size of the dump file is "size of internal memory + 400 MB".
- When installing other applications or other items, add the amount of space needed by the application to the partition.

If the partition size for installing Windows is smaller than the recommended size, expand the partition size or add another hard disk drive.

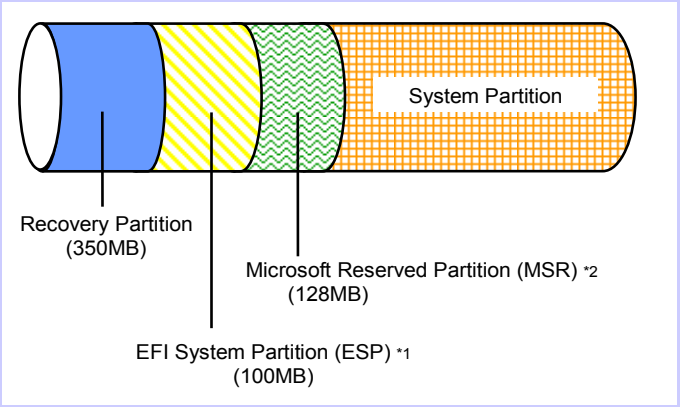
- **When installing using Assisted option**

Tips

Windows is installed using the entire disk space of the hard disk drive. The Windows OS creates three partitions at the head of the hard disk drive.

- Recovery Partition: 350MB
- EFI System Partition (ESP): 100MB *1
- Microsoft Reserved Partition (MSR): 128MB *2

578 MB of disk space is allotted to the three partitions at the head.



*1 May be 260MB in size depending on hard disk drive type.

*2 MSR is not displayed on **Disk Management**.

- **When installing using Manual option**

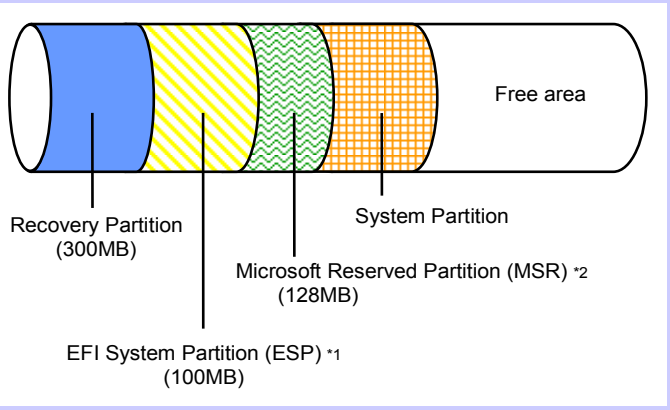
Tips

When creating a partition, Windows OS creates the following partitions at the top of hard disk drive.

- Recovery Partition: 300MB
- EFI System Partition (ESP): 100MB *1
- Microsoft Reserved Partition (MSR): 128MB *2

528MB is allocated for these three partitions out of the specified partition size.
For example, when 61,440MB is specified for partition size, the area available free area is calculated as follows:

61,440MB – (300MB + 100MB + 128MB) = 60,912MB



*1 May be 260MB in size depending on hard disk drive type.
*2 MSR is not displayed on **Disk Management**.

Windows Server 2012 R2 Hyper-V support

EB OS

Refer to the following web site for information related to Windows Server 2012 R2 Hyper-V.
http://www.58support.nec.co.jp/global/download/w2012r2/hyper-v/hyper-v-ws2012r2.html

Using BitLocker

EB OS

If using BitLocker, note the following.

- Be sure to keep the recovery password secure. Do not keep it near a server running BitLocker.

Important

If the recovery password is not entered, the OS cannot be started, and the content of the partition encrypted by BitLocker cannot be referenced any more. The recovery password might be required at startup of the OS after the following:

- **Replacement of motherboard**
- **Change of BIOS setting**
- **Initialization of trusted platform module (TPM) ***

*** Depending on your system, it may not be supported. Refer to the Instruction Manuals about hardware.**

- To reinstall the operating system into a partition that is encrypted with BitLocker, delete the BitLocker-encrypted partition prior to reinstallation.

Support for NIC teaming in Windows Server 2012 R2

EB OS

The NIC teaming feature, which used to be provided by network interface card (NIC) vendors, is built into Windows Server 2012 R2. In Windows Server 2012 R2, this feature is also called "load balancing and failover (LBFO)".
Refer to *4.7 Setup of Windows Server 2012 R2 NIC Teaming (LBFO)* and specify any required settings.

4.2 Assisted Installation

This section describes how to install Windows Server 2012 R2 with Assisted option.

This feature automatically detects RAID controllers connected to the server. You need to finish the hardware installation of the server according to "*User's Guide*" in advance.

Important

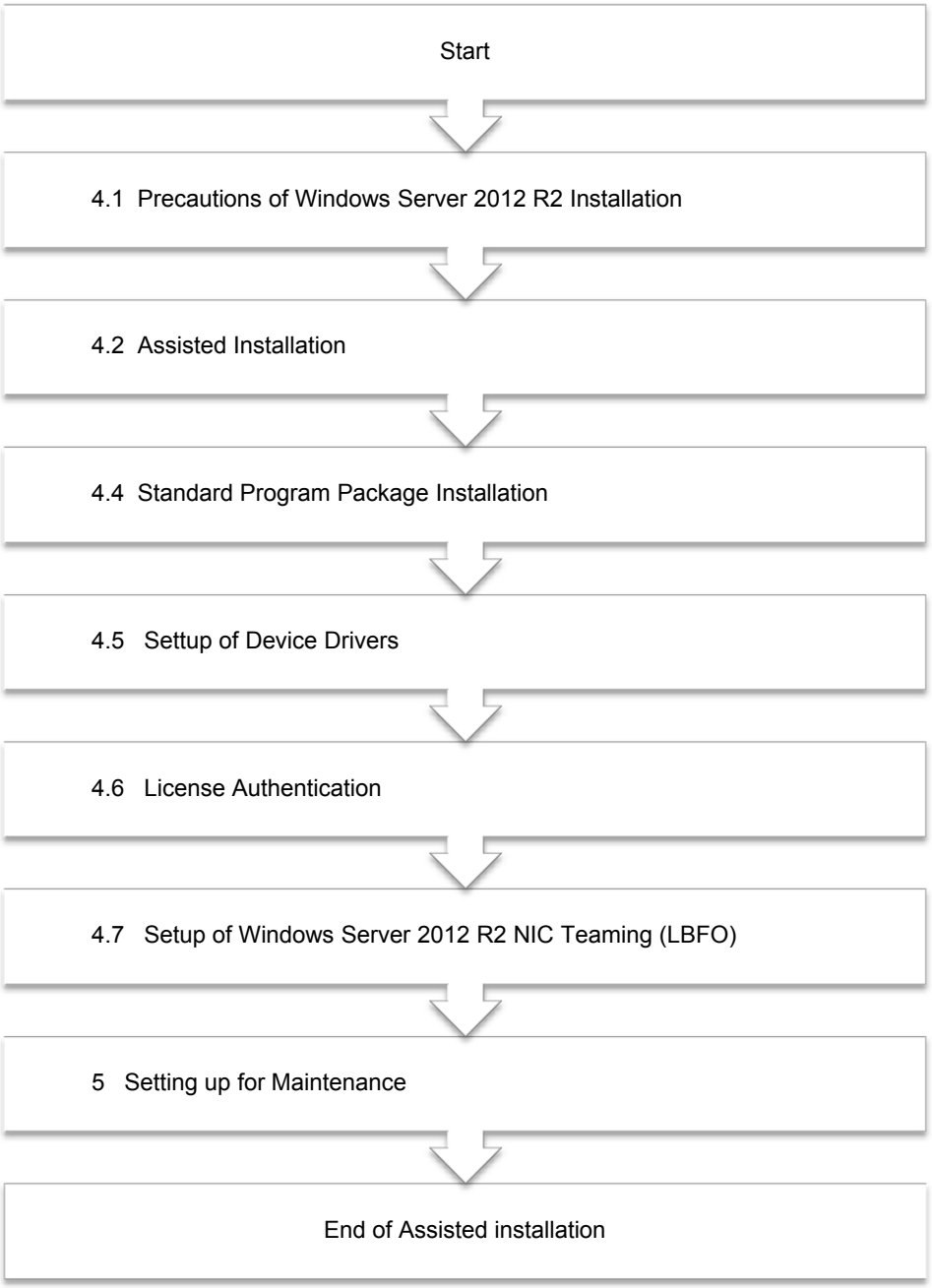
- **Setup will delete all data of the hard disk drive.**
- **Disconnect hard disk drives from the RAID Controller that is not to be setup.**

Note

If installing Windows OS to an onboard RAID controller, see *4.3 Manual Installation*.

Assisted installation is not supported.

4.2.1 Setup flow



4.2.2 Requirements for Setup

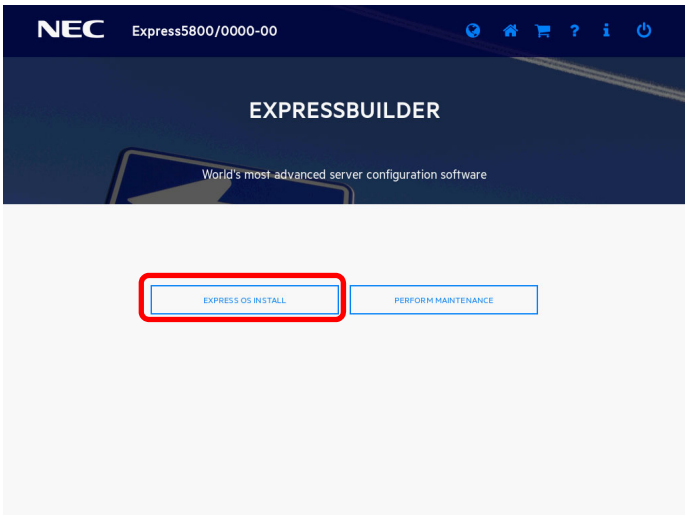
Prepare the following media and instruction manuals before starting setup.

- Either of the following OS installation media
  - **NEC operating system installation media** (hereafter referred to as *Backup DVD-ROM*)
  - **Microsoft operating system installation media** (hereafter referred to as *Windows Server 2012 R2 DVD-ROM*)
- Starter Pack
  - **Starter Pack DVD** (Optional or downloading from our website)

4.2.3 Installation procedure

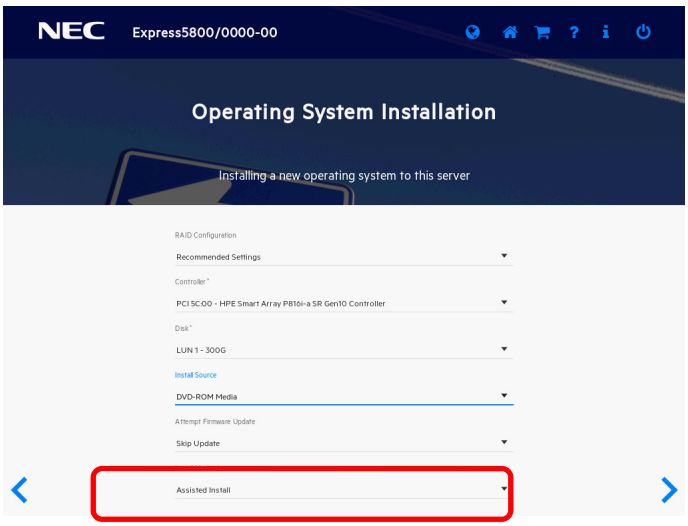
Note Read the precautions in *Chapter 1* (*4.1 Precautions of Windows* Server 2012 R2 Installation) in advance.

1. Turn on peripherals (such as a display), and then turn on the server.
2. To run EXPRESSBUILDER, press <F10> key during POST.
3. The next screen is displayed, click **EXPRESS OS INSTALL**.



4. Choose **Assisted Install** of **Install Method**.
   Specify the following settings if necessary, and then click the "**>**" icon of the lower right of the screen.

Note When choosing **DVD-ROM Media** or **USB** at **Install Source**, click "**>**" icon after setting the media.



- RAID Configuration
  Choose **Keep Current Setting** after configuring a RAID array by SSA or System Utilities when using RAID controller.

- Controller
  Choose the controller of installation destination.

- Disk
  Choose the disk of installation destination.

- Install Source
  Choose an OS installation source from the following types.

DVD-ROM Media	DVD-ROM
File on USB drive	USB flash drive
SMB/CIFS (Windows Share)	Network sharing folder
An anonymous FTP server	FTP (this option is not available)

  Each media supports the following file format.

File on USB drive	Flat, ISO
SMB/CIFS (Windows Share)	Flat, ISO

  Flat: a standard folder/file structure

  ISO: single ISO or UDF file

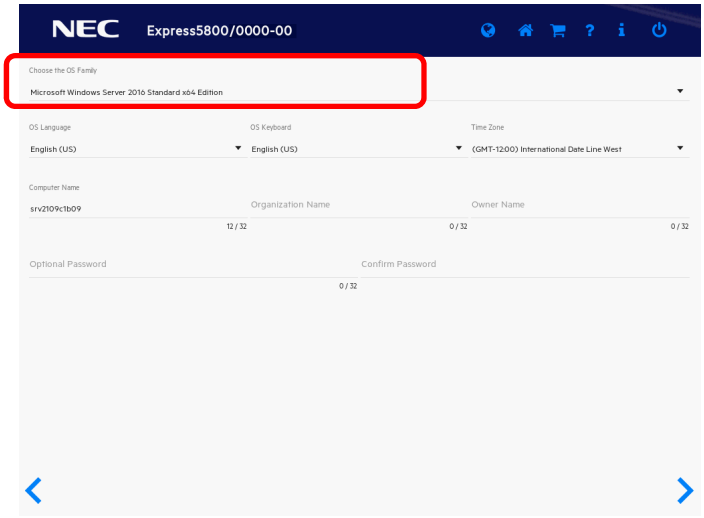
- Attempt Firmware Update
  Choose **Skip Update**. The other options are not available.

- Install Method
  Choose **Assisted Install**.

5. Choose an OS source media depending on the media type of **Install Source** chosen at step 4.

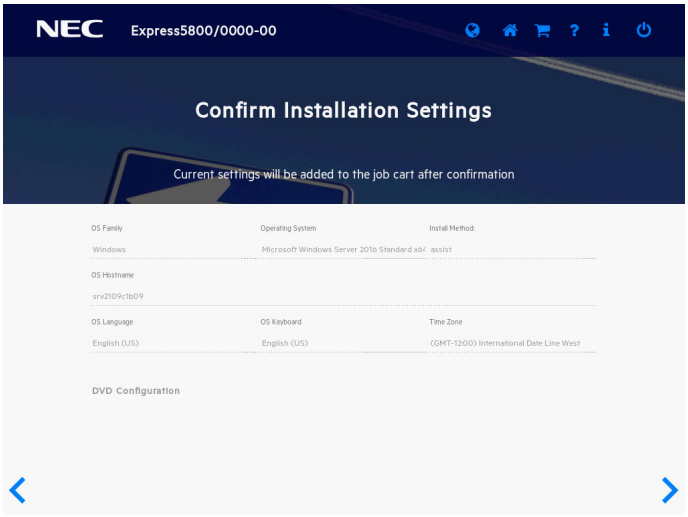
DVD-ROM Media	Automatically detects on OS installation media. If the detection fails, return to step 4 and retry.
File on USB drive	Choose OS installation file on USB flash drive connected.
SMB/CIFS (Windows Share)	Set the network settings of network sharing that includes OS installation file, and then choose OS installation file after connecting the network sharing. • Server Name/IP Address • Share Name • Domain Name • Network Share User • Network Share Password

6. On the following screen, specify settings for the OS installation. Set your time zone to **Greenwich Mean Time (GMT)~**.

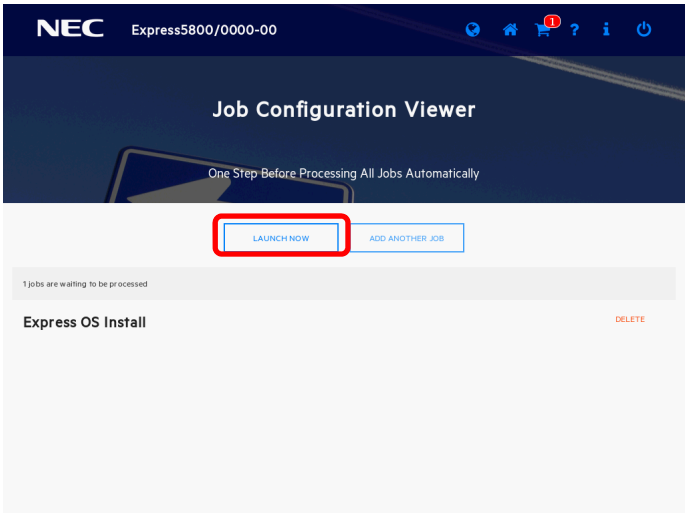


Note **Optional Password** can be used alphanumeric characters only. If a sign (such as "!") is included, an error message will appear.

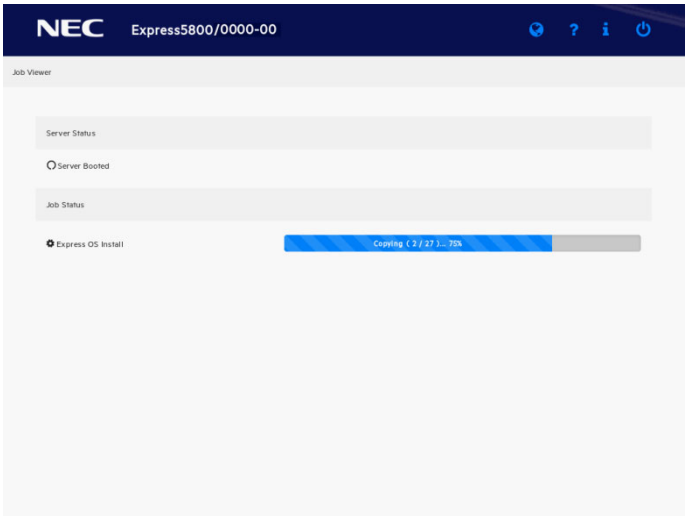
7. Confirm the settings and modify them as needed.



8. When the following screen is displayed, the setting is complete. Click **LAUNCH NOW** to start installation.



9. When copying is complete, the system restarts automatically.



10. Confirm the content of the License Terms.

    If you agree, check **I Agree**, and then click **Next**.

    The following message is displayed, and Windows installation automatically starts.

    The system automatically restarts after installing Windows Server 2012 R2.

    Windows setup resumes after the system restarts.

11. Click **Skip** without entering the product key.

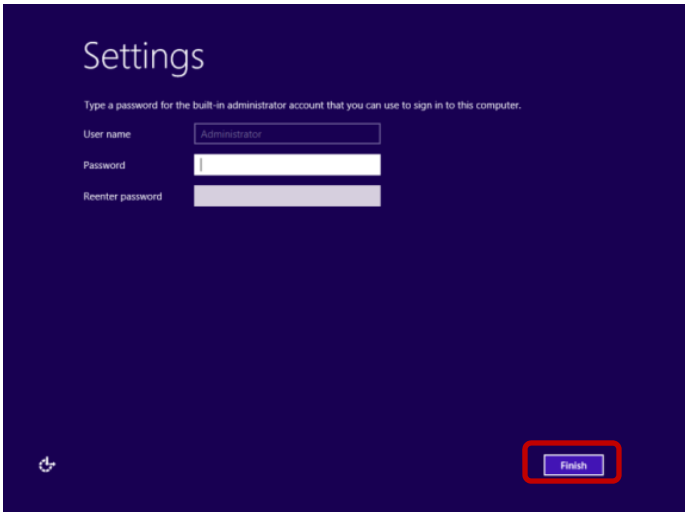
Note

If you perform setup using our backup DVD-ROM, the product key input screen is displayed. Click **Skip** here without entering anything. After installation is complete, license authentication is done in *Chapter 1 (4.6 License Authentication)*.

12. The following screen appears depending on the setting of step 6.

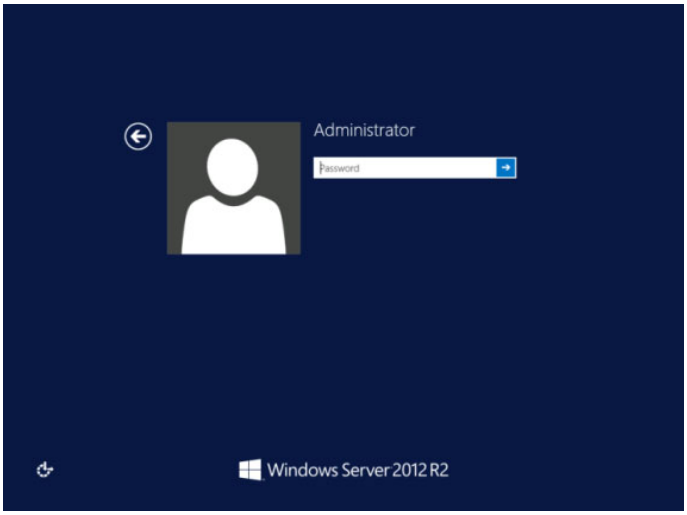
Server with a GUI

Type a password and click **Finish**.

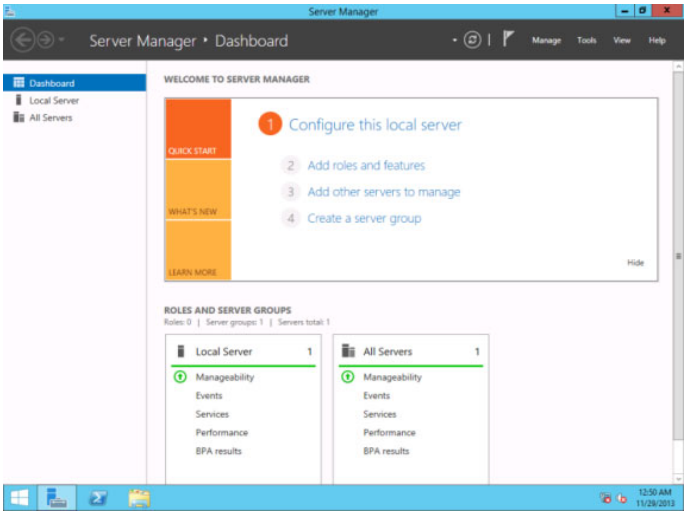


Press <Ctrl>+<Alt>+<Del> to sign-in.

Enter the password and press <Enter>.

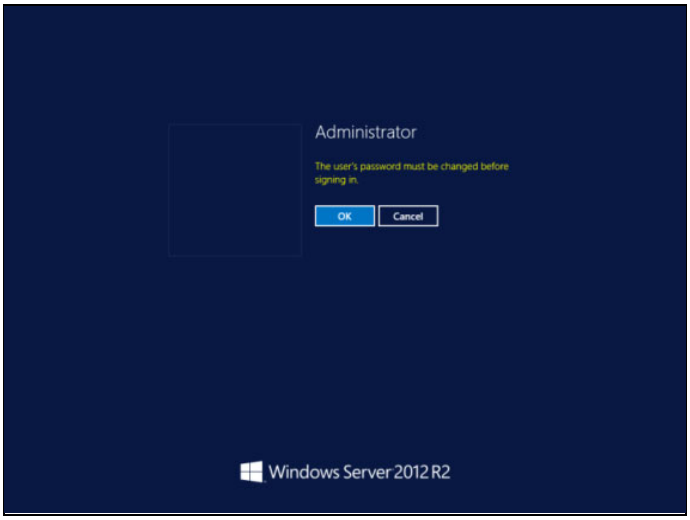


Windows Server 2012 R2 starts.

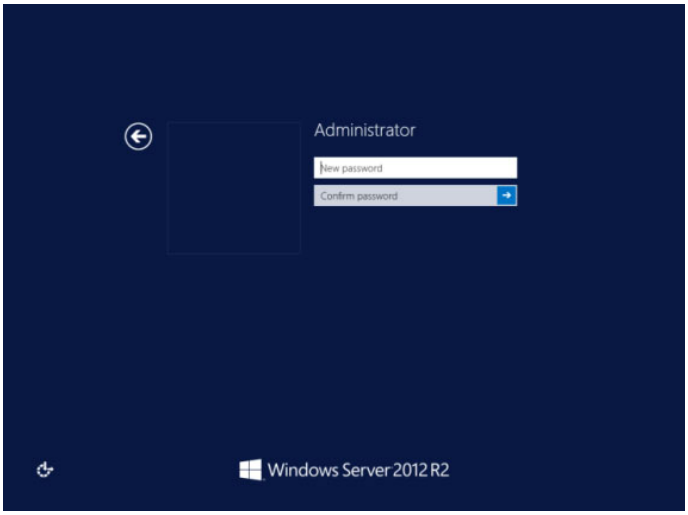


Server Core Installations

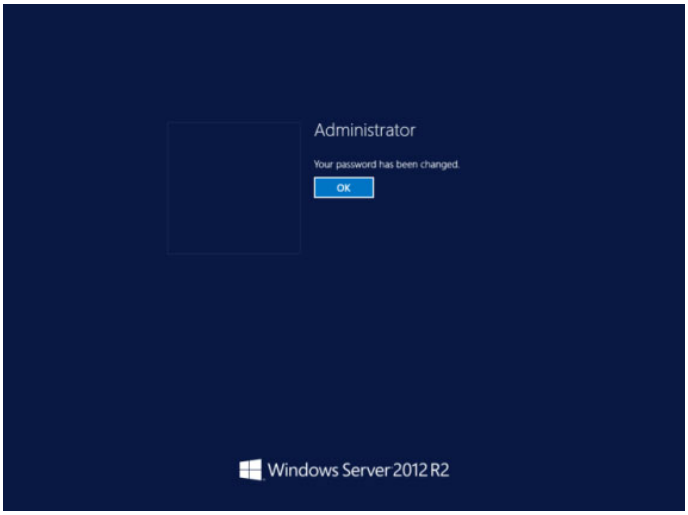
Click **OK**.



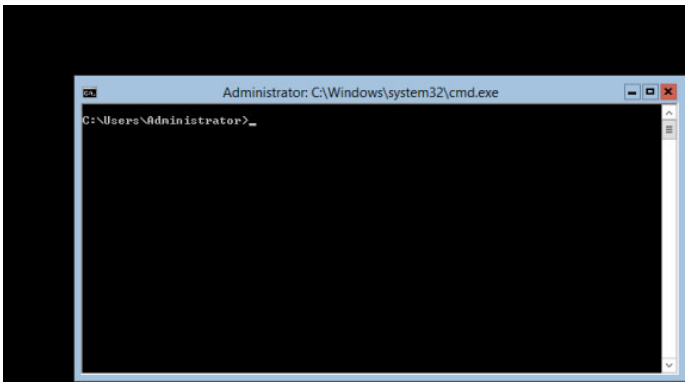
Type the new password.



Click **OK**.



Windows Server 2012 R2 starts.



Tips

Refer to Microsoft Website for more details.
Configure and Manage Server Core Installations
http://technet.microsoft.com/us-en/library/jj574091.aspx

13. After signing in, installation automatically resumes.
    After installation is complete, the system automatically restarts.
14. See *Chapter 1 (4.4 Standard Program Package Installation)* to install SPP.

15. Install drivers and specify detailed settings according to *Chapter 1 (4.5 Setup of Device Drivers)*.
16. Confirm if Windows is activated according to *Chapter 1 (4.6 License Authentication)*.
17. See *Chapter 1 (4.7 Setup of Windows Server 2012 R2 NIC Teaming (LBFO))* to setup a team as needed.
18. Install the applications as needed according to *Chapter 1* (*4.8 Installing Applications*).
19. Set the other OS settings according to *Chapter 1 (5. Setting up for Maintenance)*.
20. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.
21. From time settings, check whether the current time and time zone have been set correctly.
    Also, from RBSU Date and Time, check whether the Time Format has been set to **Local Time** and Time Zone to **Unspecified Time Zone**.
    If the Time Zone is incorrect, see *5.6 Problem of Operation* under *Chapter 1 (5. Troubleshooting)* in *Maintenance Guide* and set to the correct value.

The Windows installation with Assisted option is now complete.

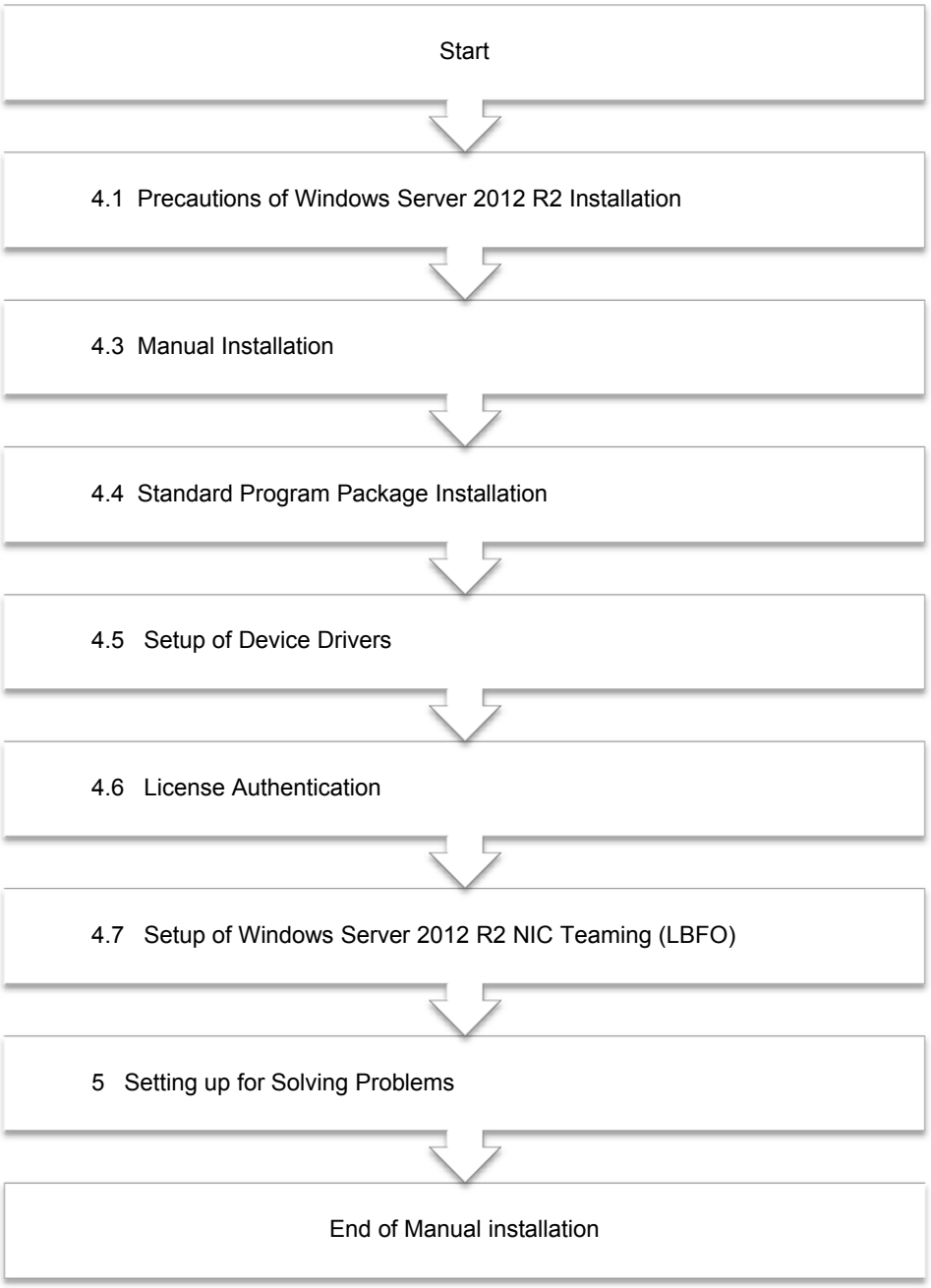
4.3 Manual Installation

This section describes how to install Windows Server 2012 R2 with Manual option.

If using a RAID controller, build the RAID system in advance according to the *User's Guide*.

Important **Setup will delete all data of the hard disk drive.**

4.3.1 Installation flow



4.3.2 Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

- Either of the following OS installation media
  - **NEC operating system installation media** (hereafter referred to as *Backup DVD-ROM*)
  - **Microsoft operating system installation media** (hereafter referred to as *Windows Server 2012 R2 DVD-ROM*)

- Starter Pack
  - **Starter Pack DVD** (Optional or downloading from our website)

Note

If using the onboard RAID controller and the internal optical disk drive, the driver is loaded from a removable media device.
Copy and prepare the following files onto a removable media in advance.
<DVD>:\software\002\drivers\sw_raid1_driver

4.3.3 Installation procedure

Note

Read the precautions in *Chapter 1* (*4.1 Precautions of Windows Server 2012 R2 Installation*) in advance.

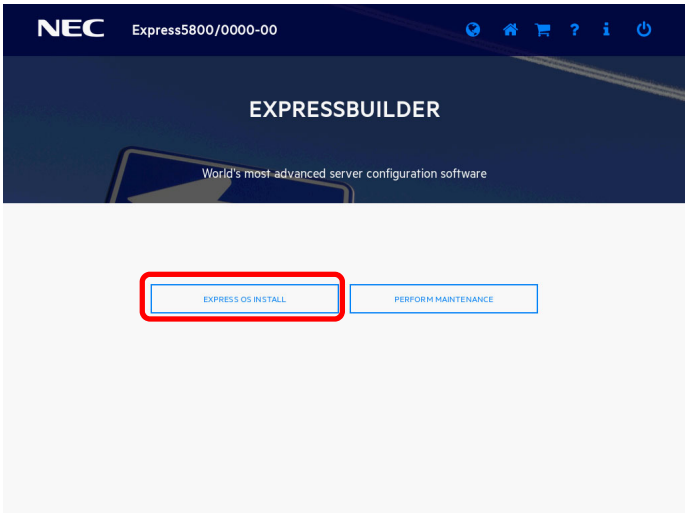
1. Turn on peripherals (such as a display), and then turn on the server.

Important

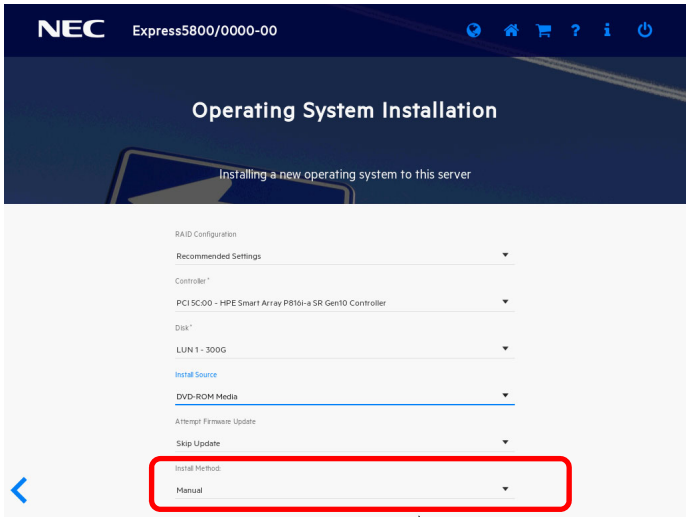
If using the onboard RAID controller, insert the OS installation media and go to Step 9.

2. To run EXPRESSBUILDER, press <F10> key during POST.

3. The next screen is displayed, click **EXPRESS OS INSTALL**.

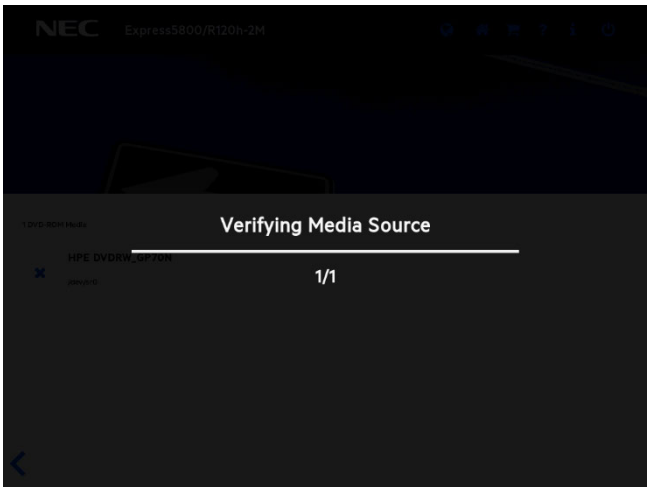


4. Choose **Manual** of **Install Method**.
Specify the following settings after setting OS installation media if necessary, and then click the "**>**" icon of the lower right of the screen.

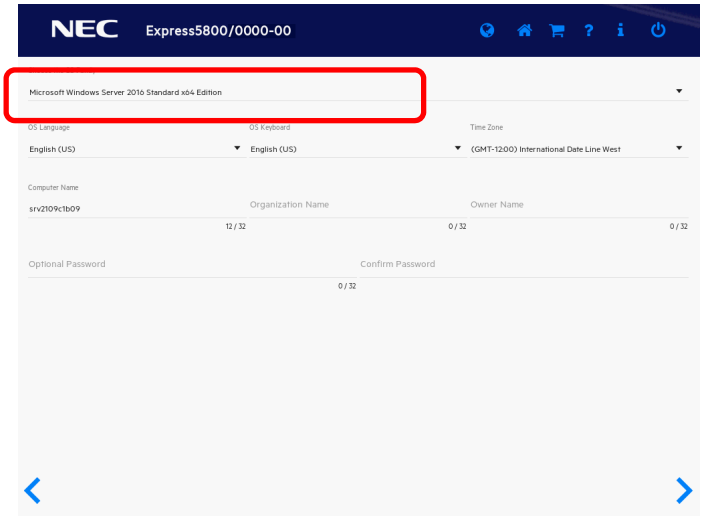


- RAID Configuration
  Choose **Keep Current Setting** after configuring a RAID array by SSA or System Utilities when using RAID controller.
- Controller
  Choose the controller of installation destination.
- Disk
  Choose the disk of installation destination.
- Install Source
  Choose **DVD-ROM Media**. The other options are available for **Assisted** option.
- Attempt Firmware Update
  Choose **Skip Update**. The other options are not available.
- Install Method
  Choose **Manual**.

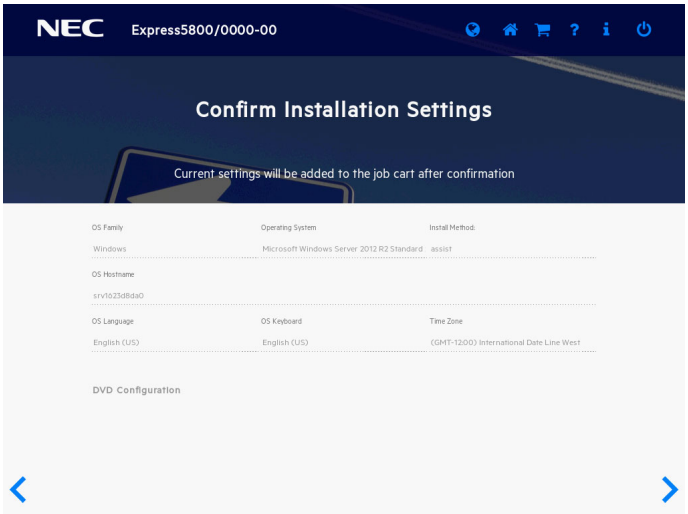
5. OS installation media is automatically detected.
If the detection fails, return to step 4 and retry.



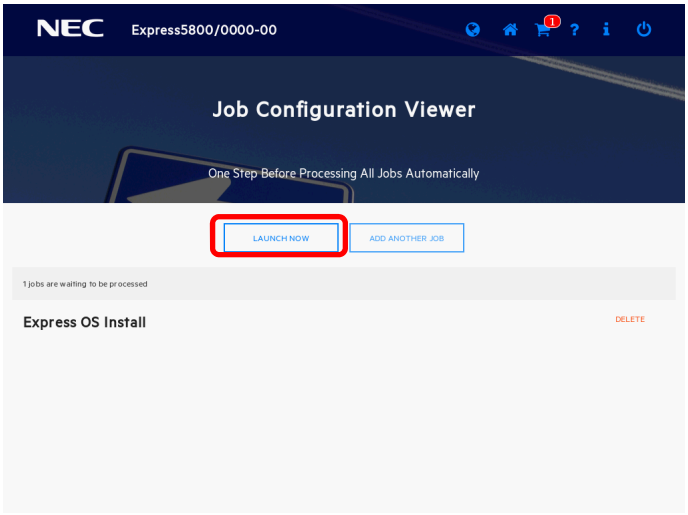
6. The next settings are not needed. These settings are for **Assisted** option.
Click "**>**" icon of lower right of the screen.



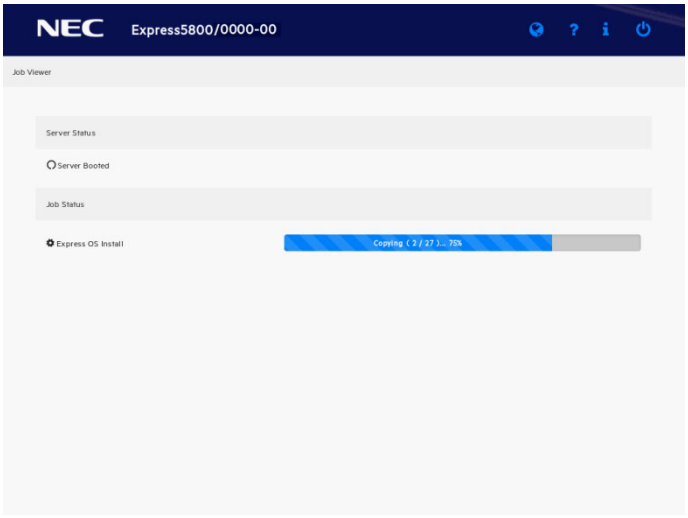
7. Confirm installation settings.



8. When the following screen is displayed, the setting is complete.
Click **LAUNCH NOW** to start installation.



When copying is complete, the system restarts automatically

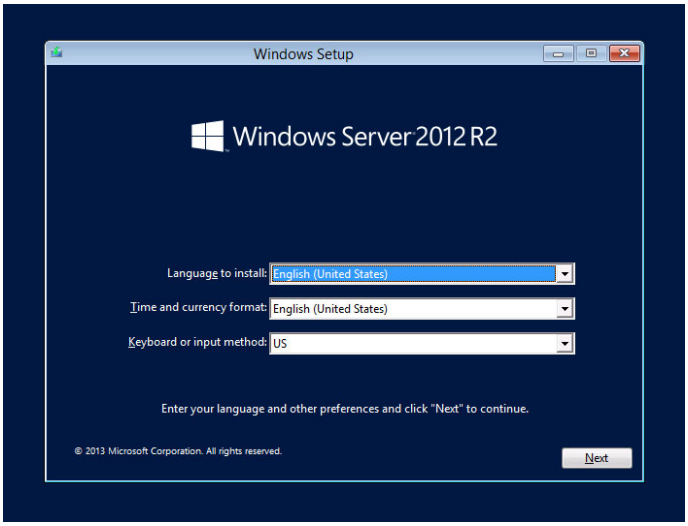


9. The system starts from the OS installation media.
The message “Press any key to boot from CD or DVD…” is displayed on the upper of the screen.
Press the <Enter> key to start from the media.
The boot sequence proceeds and the message “Windows is Loading files…” appears.

Note

- If “Press any key...” is not displayed in the upper part of the screen, and the system cannot be started from the OS installation media, it can be started by following the procedure below.
  (1) Press the <F11> key during POST to start the Boot Menu.
  (2) In **One Time Boot Menu**, select the optical disk drive where the OS installation media was inserted.
- If “Windows is loading files...” message does not appear, <Enter> key was not pressed correctly. Reboot and retry.

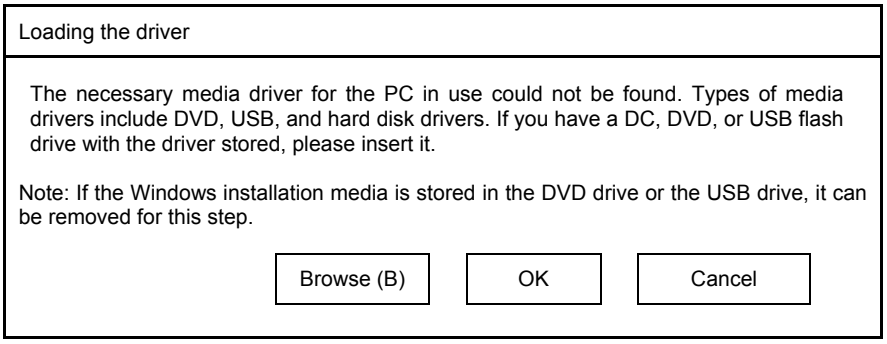
10. Click **Next**.



11. Click **Install Now**.

    If the following message is displayed: Go to Step 12.

    If the following message is not displayed: Go to Step 14.



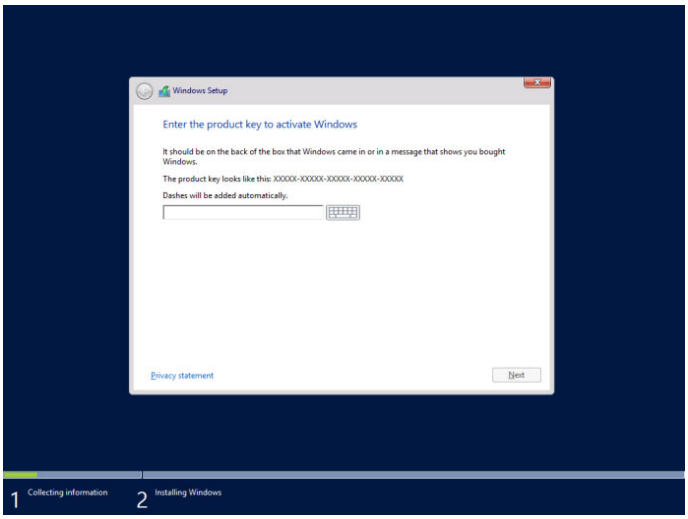
12. After connecting the removable media where the onboard RAID controller driver was copied, specify the path and click **OK**.

    <Removable media>:\sw_raid1_driver

13. Select the above driver from the displayed list of drivers, and click **Next**.

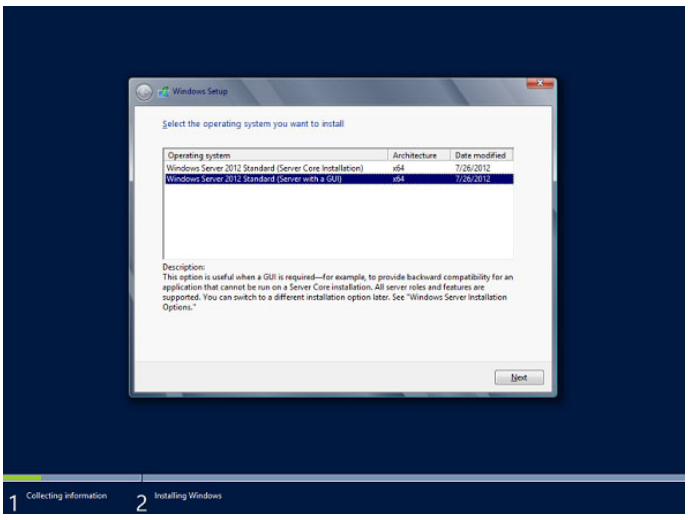
    HPE Smart Array S100i SR Gen10 SW RAID

14. Type the product key, and then click **Next.**

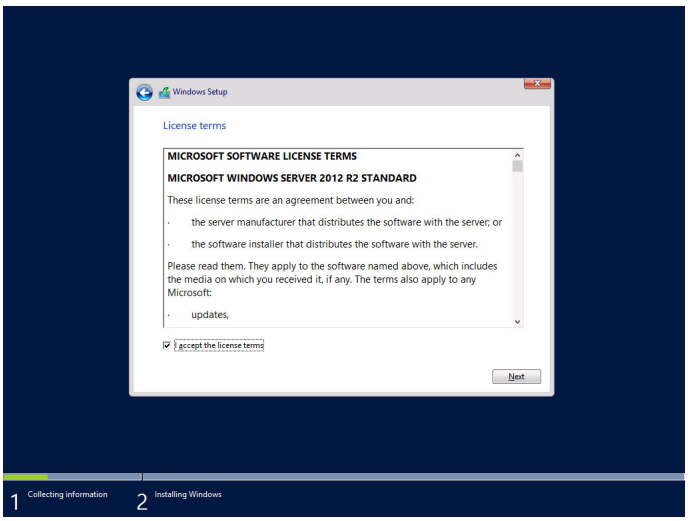


Tips If you are using Backup DVD-ROM, this screen does not appear.

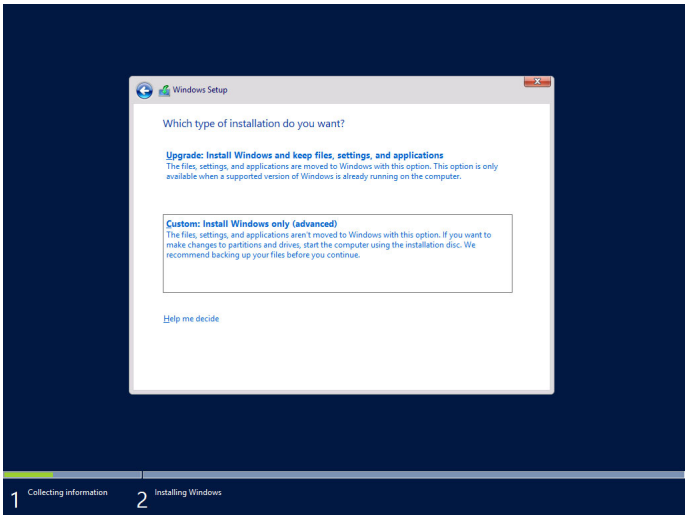
15. Choose an operating system you want to install, and click **Next**.
Options are displayed depending on the installation media you are using.



16. Read the license terms carefully.
If you agree, check **I accept the license terms** and click **Next**.



17. Select **Custom: Install Windows only (advanced)**.



18. The “Select Windows installation location” screen is displayed.

    If the driver was loaded in steps 12 and 13, or if the onboard RAID controller is not in use, proceed to step 21.

    If you select **Load driver** here, the following screen will be displayed.

Loading the driver
To install the device driver of the drive, insert the installation media that contains the driver file and click **OK**. Note: The installation media is a CD, DVD, or USB flash drive. Browse (B) OK Cancel

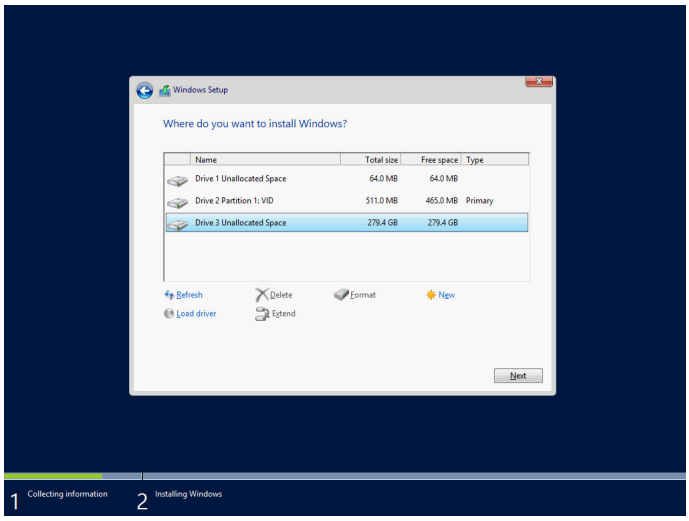
19. After setting the Starter Pack DVD in the UBS-DVD drive, assign a file directory, and click OK.

    <Starter Pack DVD>:\software\002\drivers\sw_raid1_driver

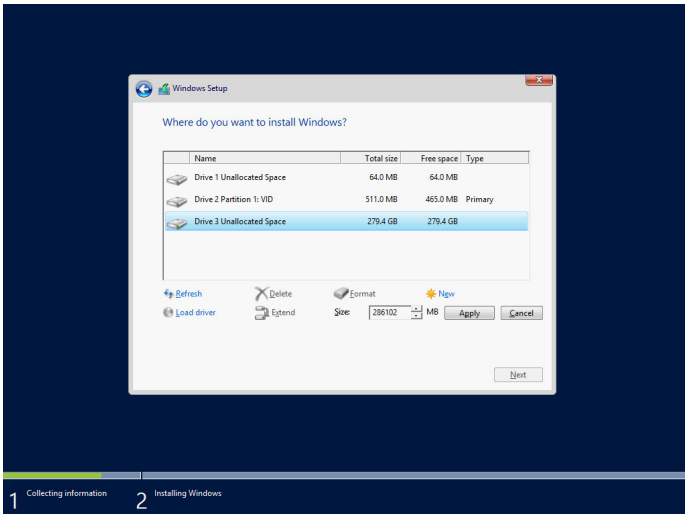
20. Select the following driver from the displayed list of drivers, and click Next.

    HPE Smart Array S100i SR Gen10 SW RAID

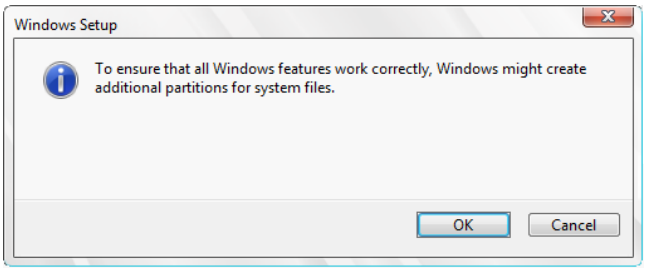
21. Click **New**.



22. Specify the partition size in the text box, and the click **Apply**.



When the following window appears, click **OK**.



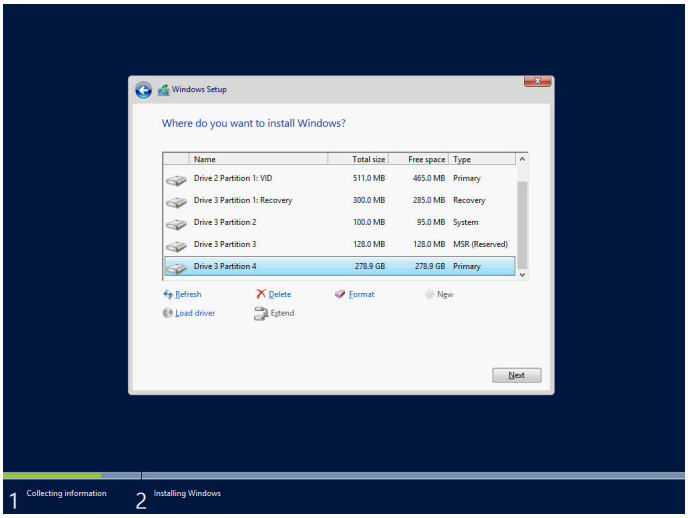
Tips

When creating a partition, the OS creates the following partitions at top of the hard disk drive.

- Recovery Partition
- EFI System Partition (ESP)
- Microsoft Reserved Partition (MSR)

23. Select the partition created in step 21, and then click **Format**.

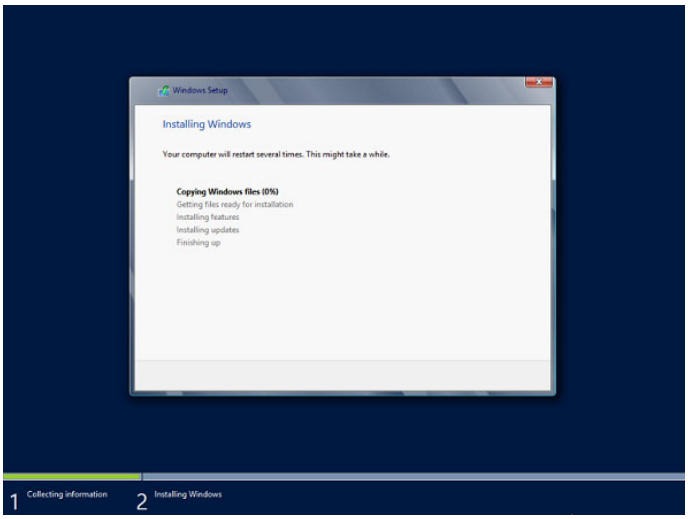
24. Select the created partition, and then click **Next**.



Important **If the four partition types Recovery, System, MSR (Reserved), and Primary have not been created in the created partition, it means that you failed to create the partition. Delete the partition you attempted to create, and then create a new partition.**
If you have connected a data disk to a partition, be careful not to delete that partition.

Tips The number of partitions displayed differs depending on the hardware configuration.

When the following message appears, Windows installation starts automatically.

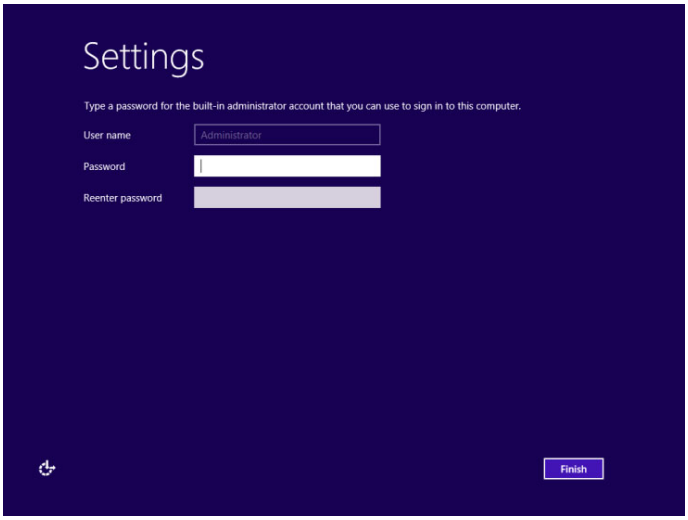


The server will automatically restart after Windows Server 2012 R2 is installed.
You will proceed to Windows setup after restart.

25. Set user settings according to operating system chosen in Step 15.

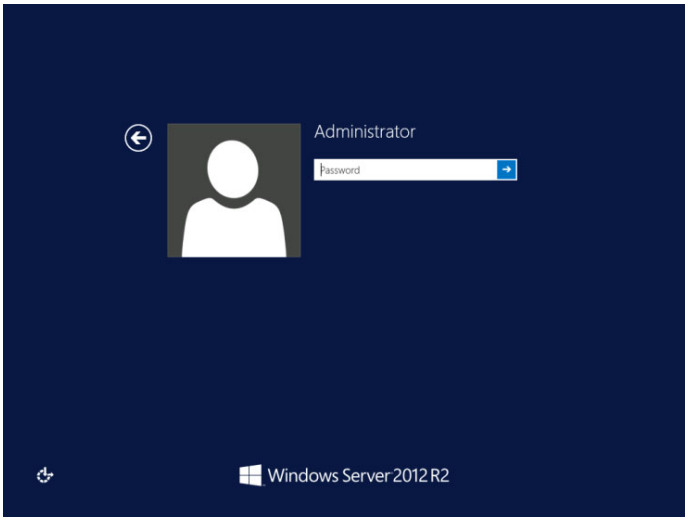
Server with a GUI

Type a password and click **Finish**.

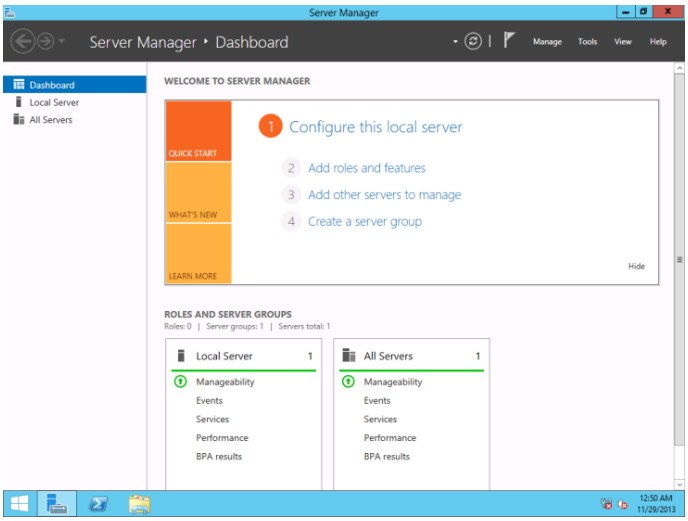


Press <Ctrl>+<Alt>+<Delete> to sign-in.

Type the password and press <Enter>.

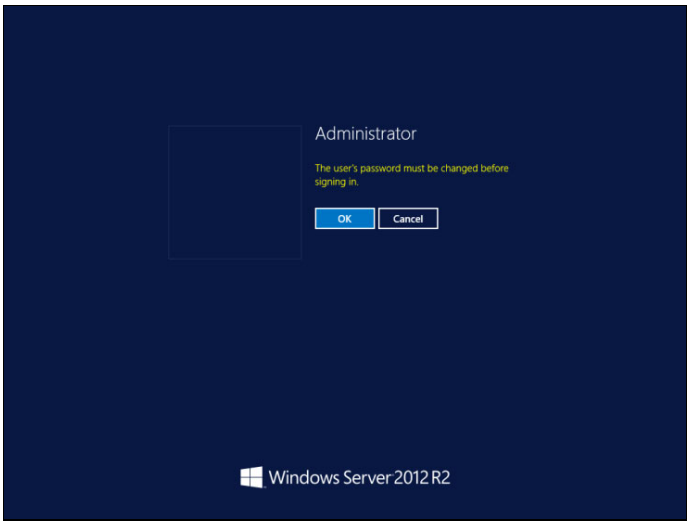


Windows Server 2012 R2 starts.

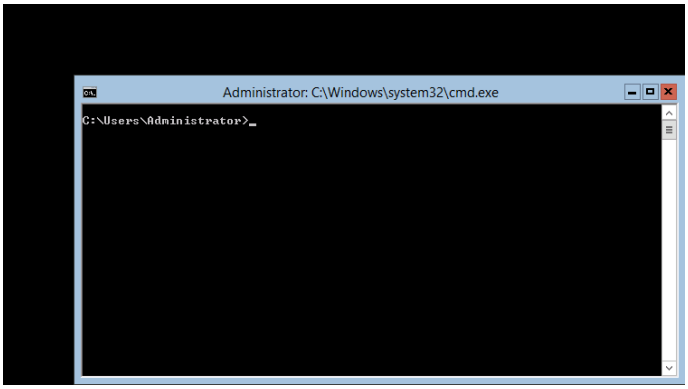


Server Core Installations

Click **OK**.



Windows Server 2012 R2 starts.



Tips

Refer to the following Website for more details.
Configure and Manage Server Core Installations
http://technet.microsoft.com/us-en/library/jj574091.aspx

26. See *Chapter 1 (4.4 Standard Program Package Installation)* to install SPP.

27. Install drivers and specify detailed settings according to *Chapter 1 (4.5 Setup of Device Drivers)*.

28. Confirm if Windows is activated according to *Chapter 1 (4.6 License Authentication)*.

29. See *Chapter 1 (4.7 Setup of Windows Server 2012 R2 NIC Teaming (LBFO))* to setup a team as needed.

30. Install the applications as needed according to *Chapter 1* (*4.8 Installing the Applications*).

31. Referring to *Chapter 1 (4.9* Disabling a Virtual Install Disk*)*, set up depending on your needs.

32. Set the other OS settings according to *Chapter 1 (5. Setting up for Maintenance).*

33. From time settings, check whether the current time and time zone have been set correctly.
    Also, from RBSU Date and Time, check whether the Time Format has been set to **Local Time** and Time Zone to **Unspecified Time Zone**.
    If the Time Zone is incorrect, see *5.6 Problem of Operation* under *Chapter 1 (5. Troubleshooting)* in *Maintenance Guide* and set to the correct value.

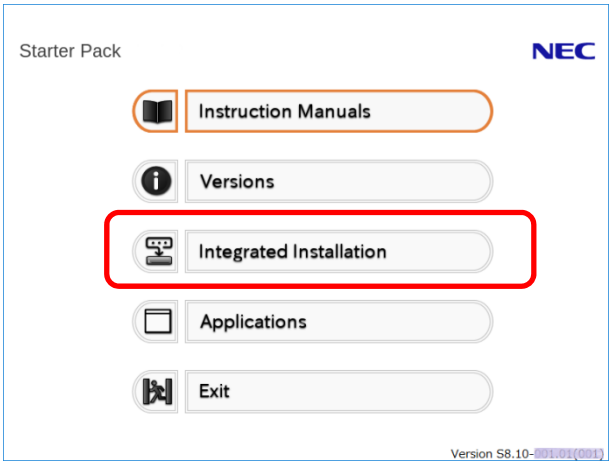
The Windows installation with Manual option is now complete.

4.4 Standard Program Package Installation

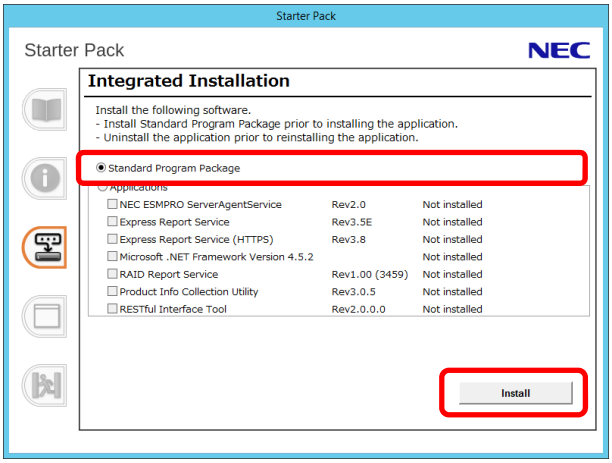
Standard Program Package (SPP) contains drivers customized for this server.
Make sure to install SPP before running the server system.

4.4.1 Installing Standard Program Package on Desktop Experience

1. Sign-in to the Windows with an Administrators privilege.
2. Set the Starter Pack DVD to the drive.
3. Run the start_up.bat under the root folder on DVD.
4. Click **Integrated Installation** on the menu.



5. Choose **Standard Program Package** on the following screen, and then click **Install**.



SPP installation is now complete.

4.4.2 Installing Standard Program Package on Server Core

1. Sign-in to the Windows with an Administrators privilege.
2. Set the Starter Pack DVD to the drive.
3. From the command prompt, type the following command.
   In the example below, the optical disk drive is the D drive.

   cd /d D: software\002\win\seamless

   ```
   C:\Users\administrator>cd /d D: software\002\win\seamless
   ```

4. Type the following command, and then press <Enter> key.

   instcmd.vbs spp /s

   ```
   D:\software\002\win\seamless >instcmd.vbs spp /s
   ```

   Wait until installation completes (about 1 to 15 minutes).

SPP installation is now complete.

4.5 Setup of Device Drivers

Install and set up device drivers provided for the standard configuration of the server.

For details regarding the installation and setup of a driver for an optional device, refer to the manual supplied with the optional device.

4.5.1 Installing the LAN drivers

(1) LAN drivers

The drivers are installed by Standard Program Package.
However, if N8104-176/186 is used, "Standard Program Package" has to be applied again for LAN driver installation.
If the OS is setup by either "Assisted" or "Manual" option, "Standard Program Package" has to be applied twice to install the driver of N8104-176/186.

Important

Wake On LAN (WOL) is supported by onboard network adapters and N8104-171/173/174/175/176/177/193/194/195 only.
Wake On LAN is available after installing the LAN driver.
For Wake On LAN of onboard network adapters and N8104-175/176/193/194/195, see *Chapter 1 (4.5.2 Setting up LAN drivers - (2) Setting up Wake on LAN).*
BIOS settings, check Maintenance Guide.

Note

- To change the LAN driver settings, sign in to the system from a local console using an administrator's account. Remotely changing the settings by using the operating system's remote desktop feature is not supported.
- Choose the **Internet Protocol (TCP/IP)** check box when specifying an IP address.

(2) Optional LAN board

This server supports the following optional LAN boards.
Optional LAN boards: 171/173/174/175/176/177/178/179/182/183/184/185/186/187/188/193/194/195

If you install the LAN boards after installing Standard Program Package, install Standard Program Package again according to *Chapter 1 (4.4 Standard Program Package Installation)*.
In any other case when N8104-176/186 is used, "Standard Program Package" has to be applied twice.

(3) Network adapter name

After installing the LAN drivers, the following network adapter names will be displayed on the Device Manager.

Network adapters for the standard configuration

HPE Ethernet 1Gb 2-port 368i Adapter #xx(※1)

If connecting with an optional LAN board:

[N8104-171] HPE Ethernet 1Gb 4-port 331FLR Adapter #xx(*1)
[N8104-173] HPE FlexFabric 10Gb 2-port 533FLR-T Adapter #xx(*1)
[N8104-174] HPE Ethernet 10Gb 2-port 522FLR-T Converged Network Adapter #xx(*1)
[N8104-175] HPE Ethernet 10Gb 2-port 562FLR-T Adapter #xx(*1)
[N8104-176] Port1：HPE Ethernet 10Gb 2-port 562FLR-SFP+ Adapter #xx(*1)
Port2：HPE Ethernet 10Gb 562SFP+ Adapter #xx(*1)
[N8104-177] HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter #xx(*1)
[N8104-178] HPE Ethernet 1Gb 2-port 332T Adapter #xx(*1)
[N8104-179] HPE Ethernet 1Gb 4-port 331T Adapter #xx(*1)
[N8104-182] HPE Ethernet 10Gb 2-port 530T Adapter #xx(*1)
[N8104-183] HPE Ethernet 10Gb 2-port 521T Adapter #xx(*1)
[N8104-184] HPE Ethernet 10Gb 2-port 562T Adapter #xx(*1)
[N8104-185] HPE Ethernet 10Gb 2-port 530SFP+ Adapter #xx(*1)
[N8104-186] Port1：HPE Ethernet 10Gb 2-port 562SFP+ Adapter #xx(*1)
Port2：HPE Ethernet 10Gb 562SFP+ Adapter #xx(*1)
[N8104-187] HPE Ethernet 10/25Gb 2-port 621SFP28 Adapter #xx(*1)
[N8104-188] HPE Ethernet 4x25Gb 1-port 620QSFP28 Adapter #xx(*1)
[N8104-193] HPE Ethernet 1Gb 2-port 368FLR-MMT Adapter #xx(※1)
[N8104-194] HPE Ethernet 10Gb 2-port 568FLR-MMSFP+ Adapter #xx(※1)
[N8104-195] HPE Ethernet 10Gb 2-port 568FLR-MMT Adapter #xx(※1)

*1: If there are adapters with the same name, a different identification number will be assigned to *xx*.

Tips

The ID for N8104-173/174/177/182/183/185/187/188 might be a number of two or more digits.
This is due to the LAN driver specifications and not an error.
This number cannot be changed.

4.5.2 Setting up LAN drivers

(1) Setting link speed

The transfer rate and duplex mode of the network adapter must be the same as those of the switching hub. Follow the procedure below to specify the transfer rate and duplex mode.

Tips

If you are using a network adaptor for N8104-185/187/188, the network adaptor settings can be set to "10 Gbps Full Duplex" or "25 Gbps Full Duplex", and the connected switching hub settings can be set to "Auto Negotiation".

1. Open the **Device Manager**.
2. Expand **Network Adapters**, and then double-click the name of the network adapter you want to configure. The properties of the network adapter will be displayed.
3. On the **Advanced** tab, set the **Speed & Duplex** values to the same as those of the switching hub.
4. Click **OK** in the **Network Adapter Properties** dialog box.
5. Restart the system.

The link speed setting is now complete.

(2) Setting up Wake on LAN

When using onboard network adapters and N8104-175/176/193/194/195 with the server, follow the procedure below to set it.

1. Open the **Device Manager**.
2. Expand **Network Adapters**, and then double-click the name of the network adapter you want to configure. The properties of the network adapter will be displayed.
3. Open **Advanced** tab, click **Enable PME** to show Value.
4. Change the value to **Enabled** by the down-arrow button.
5. Click **OK**, and then restart the system.

Setup is now complete.

4.5.3 Using Graphics Accelerator

The graphics accelerator driver for standard configurations of the server is installed from Standard Program Package.

4.5.4 Using SAS controller (N8103-197)

The drivers are installed by Standard Program Package.

If you install the SAS controller (N8103-197) after installing Standard Program Package, install Standard Program Package again according to *Chapter 1 (4.4 Standard Program Package Installation)*.

4.5.5 Using RAID Controller (N8103-195/196/201)

The drivers are installed by Standard Program Package.

If you install the RAID controller (N8103-195/196/201) after installing Standard Program Package, install Standard Program Package again according to Chapter 1 (4.4 Standard Program Package Installation).

4.5.6 Using Fibre Channel Controller (N8190-163/164/165/166/171/172)

The drivers are installed by Standard Program Package.

If you install the Fibre Channel controller (N8190-163/164/165/166/171/172) after installing Standard Program Package, install Standard Program Package again according to *Chapter 1 (4.4 Standard Program Package Installation)*.

4.6 License Authentication

To use Windows Server 2012 R2, you need finish the license authentication procedure.

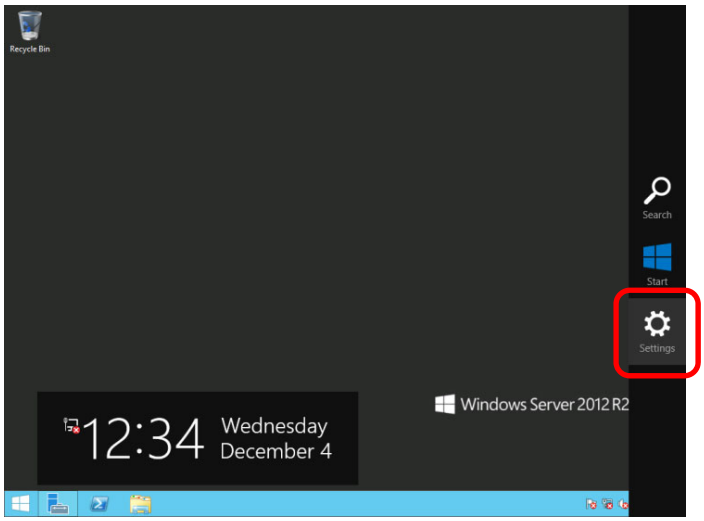
Confirm if your license is authenticated. If not, perform the following procedures to have your license authenticated.

Connect to the Internet to perform the authentication procedure.

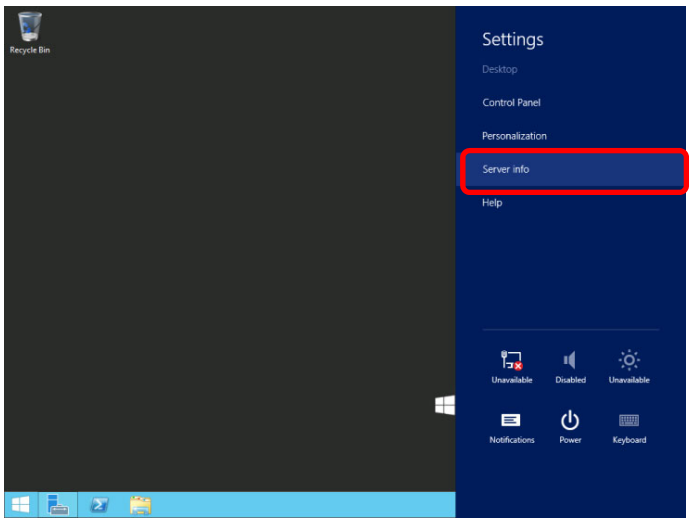
Or, use the telephone to perform the authentication procedure.

(1) Server with a GUI

1. Click **Settings** on the **Charms** bar.



2. Click **Server info**.



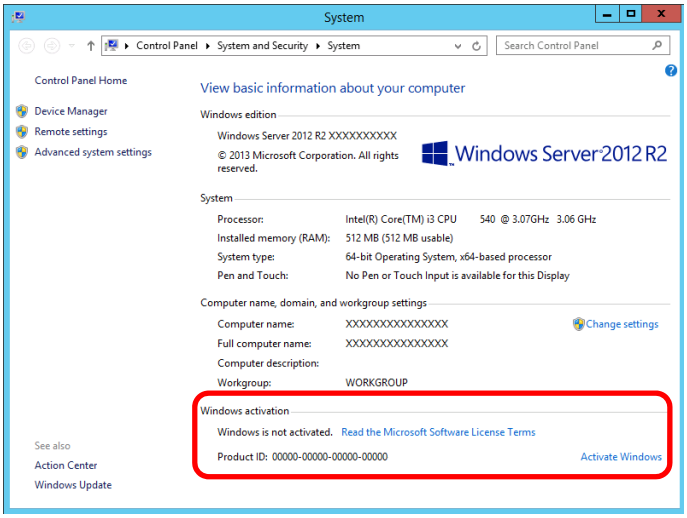
3. Check Windows license authentication.

☐ If "Windows is activated" is displayed:

You do not need to perform this procedure.

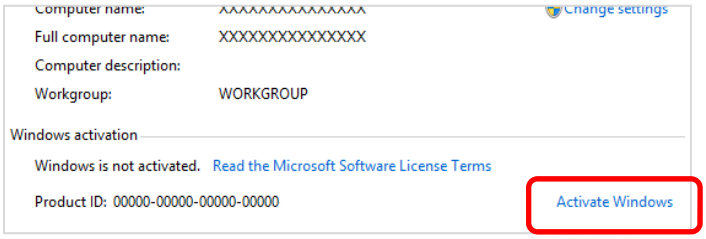
☐ If "Windows is not activated" is displayed:

- When the server is connected to the Internet: Go to step 4.
- When the server is not connected to the Internet: Go to step 5.

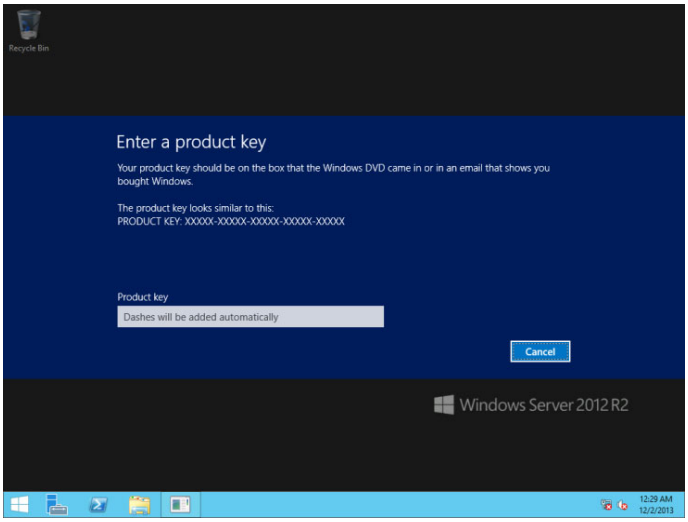


4. When the server is connected to Internet, perform the following process.

4-(1) Click **Activate Windows**.



4-(2) Enter the product key.



License is activated after the entry of the product key.

Complete license authentication process according to the message.

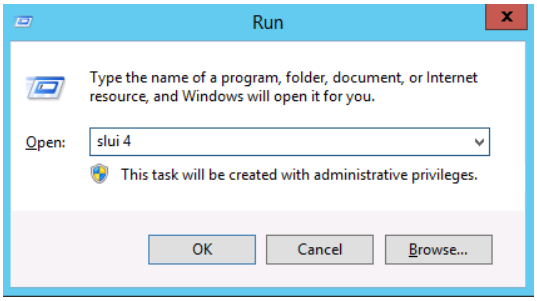
5. When the server is connected to Internet, perform the following process.

5-(1) Open the command prompt as Administrator, type the following and then press <Enter> key.

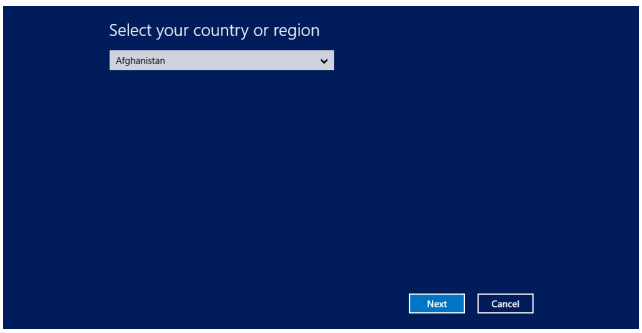
```
slmgr /ipk <product key>
```

5-(2) Activate your license by phone.

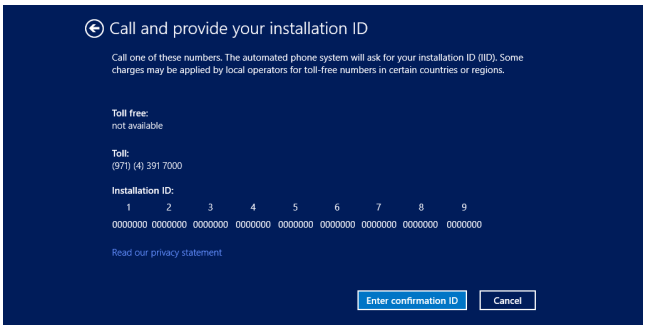
Open **Run**, type "slui 4", and then press the <Enter> key."



5-(3) On the next screen, select your country, and then click **Next**.

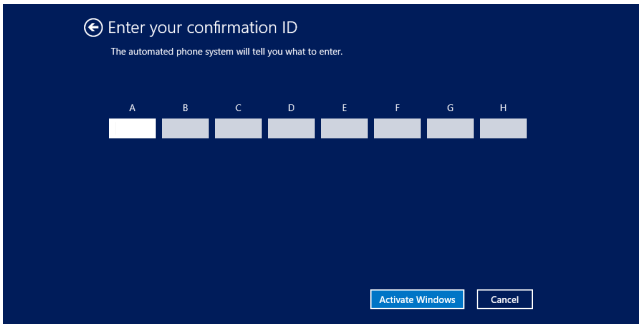


Acquire the installation ID required for license activation.



5-(4) Call the Microsoft license activation hotline and then tell your installation ID.

Type the acquired confirmation ID, and then click **Activate Windows**.



This completes authentication.

(2) Server Core installations

1. Confirm if your license is activated.
   At the command prompt, enter the following, and then press <Enter> key.

```
C:\Users\administrator>slmgr -dli
```

   If license authentication is required, go to the next step.
   If your license is already authenticated, you can skip the next and the subsequent steps.

2. Change the product key.

   When using Backup DVD-ROM:

   Type the following command, and then press the <Enter> key.

```
C:\Users\administrator>slmgr -ipk <Product key on COA label>
```

   When using Windows Server 2012 R2 DVD-ROM:

   You do not need to change the product key.
   Go to the next step.

3. Perform license authentication.

   When connected to the Internet:

   License authentication is performed via the Internet.
   Type the following command, and then press the <Enter> key.

```
C:\Users\administrator>slmgr -ato
```

   This completes authentication.

   When not connected to the Internet:

   Use telephone for license authentication.
   Type the following command to get an Install ID for authentication, and then press the <Enter> key.

```
C:\Users\administrator>slmgr -dti
```

   Acquire the installation ID required for license activation.

   Refer to the file `%systemroot%\system32\sppui\phone.inf` to confirm the telephone number of Microsoft Licensing Center.

   Call Microsoft Licensing Center and tell them your Install ID.
   Type the confirmation ID you have received in the following command line, and then press the <Enter> key.

```
C:\Users\administrator>slmgr -atp <Confirmation ID>
```

   This completes authentication.

4.7 Setup of Windows Server 2012 R2 NIC Teaming (LBFO)

Set up the network adapter teaming feature as shown below.

(1) Launching the NIC teaming setup tool

1. Launch **Server Manager**.
2. Select **Local Server**.
3. In the **Properties** window, click **Enable** or **Disable** for **NIC teaming**.

   The NIC teaming setup tool will launch.

Tips The NIC teaming setup tool can also be launched by opening the **Run** dialog box, typing `lbfoadmin`, and then pressing <Enter> key.

(2) Creating a team

Create a team by using the NIC teaming setup tool.

1. In the **Servers** section, select the name of the server to set up.

   If there is only one server connected, the name of the server is selected automatically.
2. In the **Teams** section, under **Tasks**, select **New Team**. The **New Team** wizard then starts.
3. Type the name of the team to create, and then select the network adapter to include in the team from the **Member adapters** list.
4. Click **Additional properties**.
5. Specify the required settings, and then click **OK**.

Teaming mode

Static Teaming	Configures static link aggregation between the NIC and switches.
Switch Independent	Configures teaming on the NIC side without depending on the switch settings.
LACP	Configures dynamic link aggregation between the NIC and switches.

Load balancing mode

Address Hash	Distributes the load based on IP addresses and port numbers.
Hyper-V Port	Distributes the load to each of the virtual switch ports used by the virtual machines.
Dynamic	● Distributes the load based on IP addresses and port numbers in sending. ● Distributes the load same to "Hyper-V Port" in receiving.

Standby adapter

Select one adapter to be set to standby mode from the adapters in the team.

Setting all adapters to active mode is also possible.

Primary team interface

Any VLAN ID can be specified for the primary team interface.

(3) Notes and restrictions

- NIC teaming on a guest OS is not supported.
- Teaming of virtual NICs on the host OS is not supported in the Hyper-V environment.
- When STP (Spanning Tree Protocol) is enabled on network switch ports to which network adapters of the team are connected, network communications may be disrupted. Disable STP, or configure "PortFast" or "EdgePort" to the ports.
  * About setting the network switch of the connection destination, see the manual of the network switch.
- All NICs in the team must be connected to the same subnet.
- Teaming of different speed NICs is not supported.
- Teaming of different vendor's NICs is not supported.

Refer to the following website for the latest information.

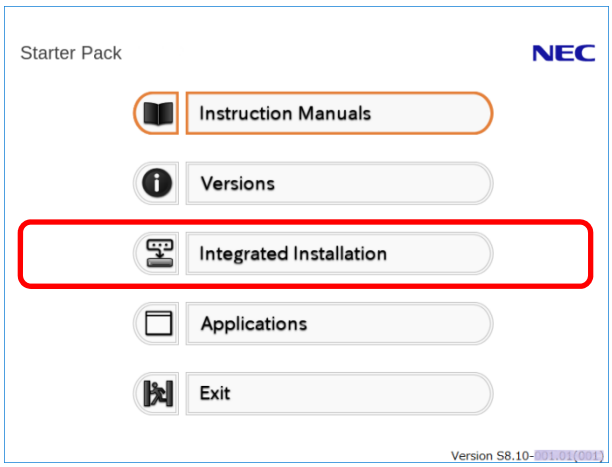
http://www.58support.nec.co.jp/global/download/w2012r2/index.html

- [Technical Information] - [NIC Teaming (LBFO)]

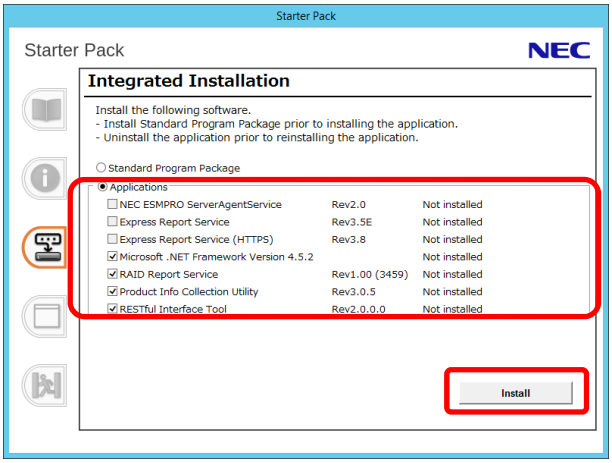
4.8 Installing Applications

Some applications included in Starter Pack can be installed easily by performing the procedures described below. When installing these applications individually, see *Chapter 2* (*Installing Bundled Software*). This feature is only available on the server with a GUI.

1. Sign-in to the Windows with an Administrators privilege.
2. Insert the Starter Pack DVD into the optical disk drive.
3. Run the start_up.bat under the root folder on DVD.
4. Click **Integrated Installation** on the menu.



5. On the following screen, choose the check boxes corresponding to the applications you want to install, and then click **Install**. The chosen applications are automatically installed.



Note

- Applications available for installation are chosen by default.
- If your system environment does not satisfy the prerequisite for an application, you cannot install it. For details, see the on-screen information and *Chapter 2 Installing Bundled Software.*

6. When a message indicating restart appears, click **OK** to restart the server.
7. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.

Now installation of applications is complete.

4.9 Disabling a Virtual Install Disk

There may be a case that a virtual install disk (a drive named "VID") exists on the OS of Windows.

You can disable a virtual install disk with the steps bellow.

Tips

In the Virtual Install Disk, the drivers used during the installation of Windows OS are stored.

When Virtual Install Disk is installed by the manual option, it is automatically enabled and automatically install the necessary drivers.

1. Press the F10 key during POST to start the EXPRESSBUILDER.
2. After restarting from EXPRESSBUILDER, click **Perform Maintenance**.
3. Click **BIOS/Platform Configuration**.
4. Go to **BIOS/Platform Configuration (RBSU)** - **System Options** - **USB Options** - **Virtual Install Disk** and set to Disabled.
5. Click the **BIOS/Platform Configuration (RBSU)** on the left pane and click **Update**.
6. After restarting, VID will be disabled.

With this, the procedure is completed.

5. Setting up for Maintenance

We recommend setting up the following features for maintenance.

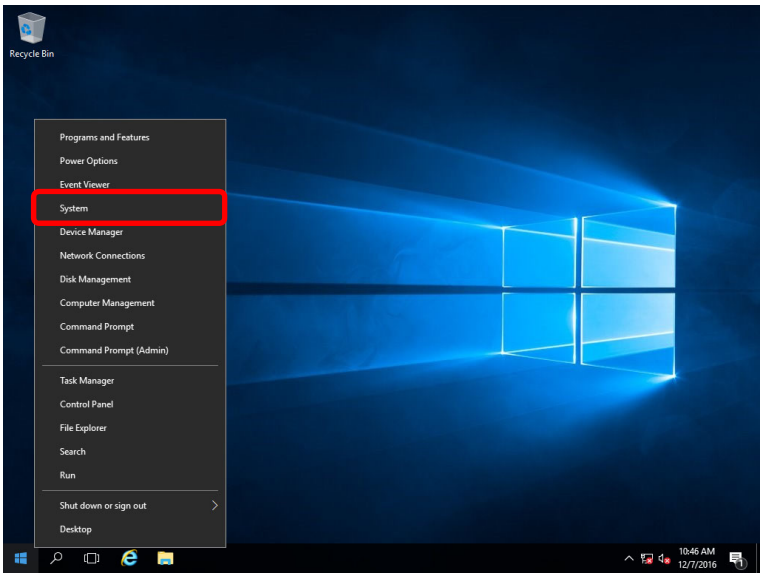
5.1 Specifying Memory Dump Settings (Debug Information)

This section explains the procedures for collecting a memory dump (debug information) in the server.

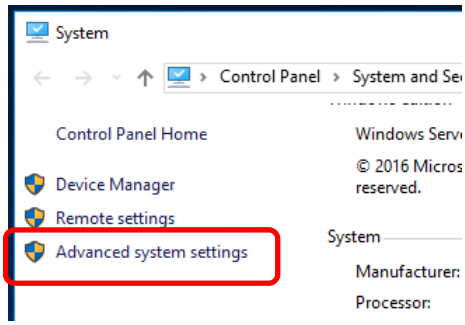
Important **Do not reset during dumping memory or restarting the server even if the message of virtual memory shortage appears.**

5.1.1 For Windows Server 2016

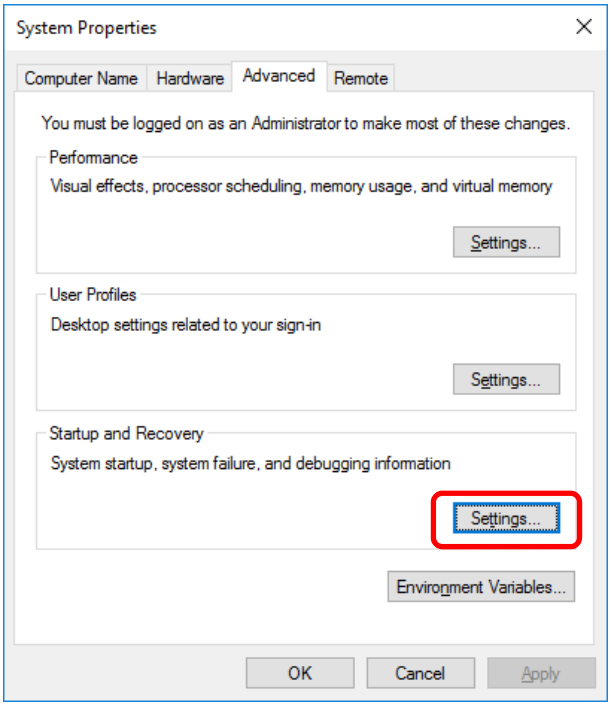
1. Right-click the lower left of the screen, and click **System** from the menu displayed.



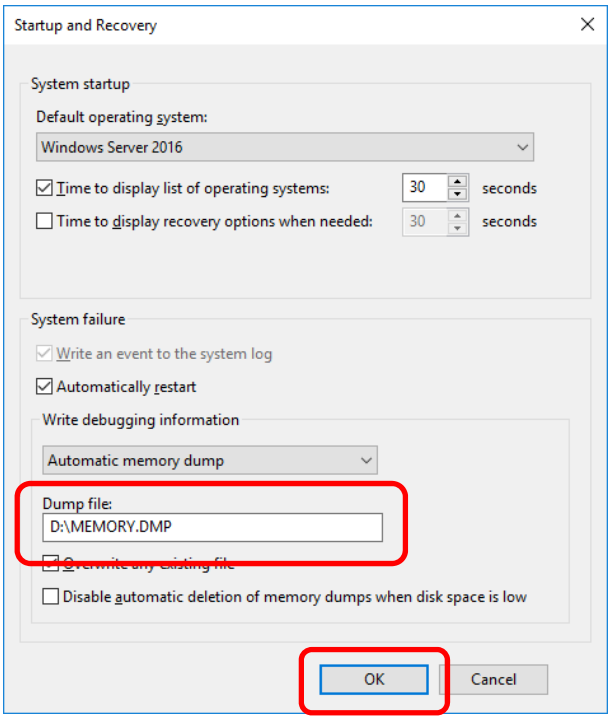
2. Click **Advanced system settings**.



3. In **Startup and Recovery**, click **Settings**.



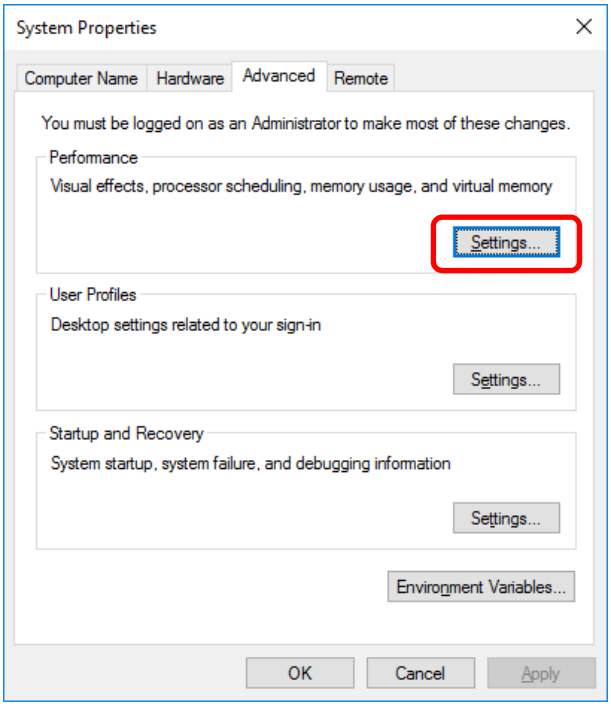
4. Type a file name to store the debug information in the **Dump file** text box, and then click **OK**.



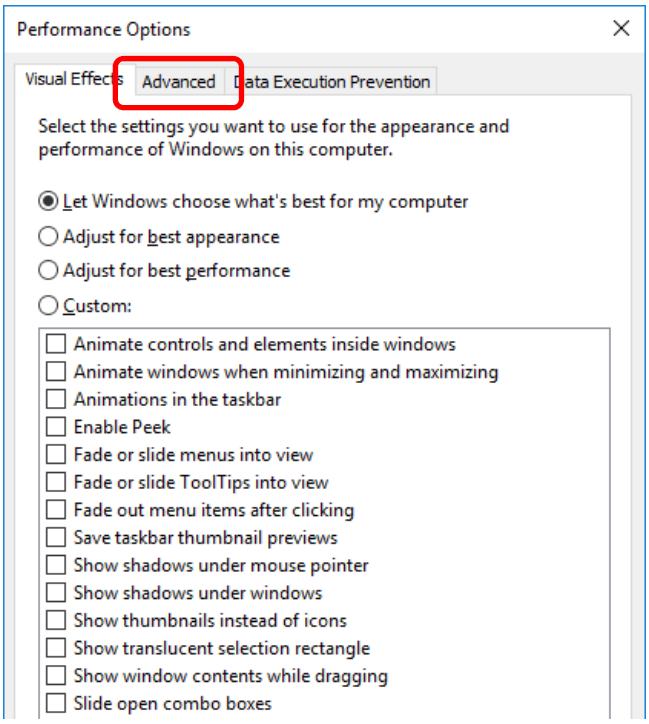
Note the following when specifying a dump file:

- We recommend specifying **Kernel memory dump** for **Write debugging information**.
- Specify a drive that has a free area of at least "total size of physical memory" + 400 MB (total size of physical memory + 1,100 MB when the total size is 4 TB or more).

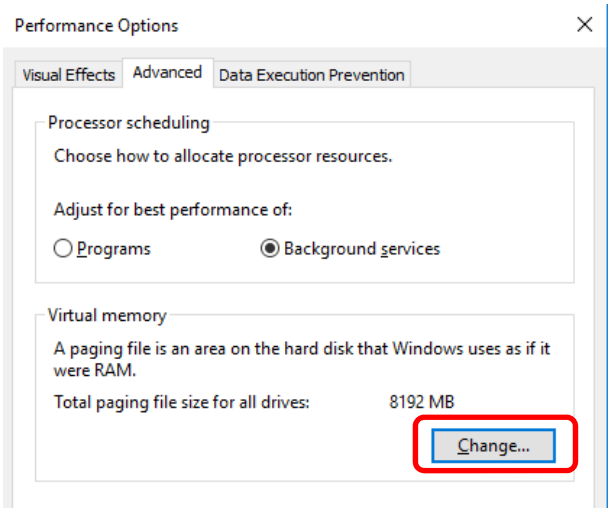
5. In **Performance**, click **Settings**.



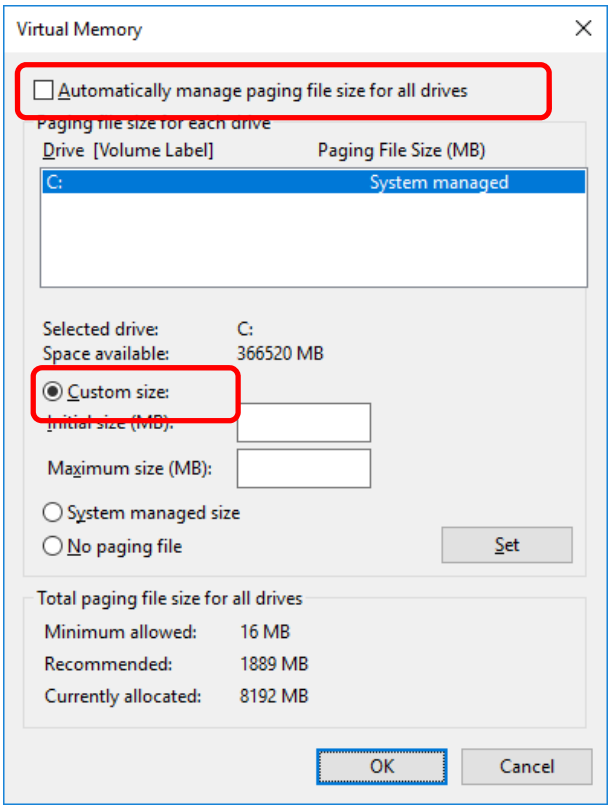
6. Click the **Advanced** tab on the **Performance Options** window.



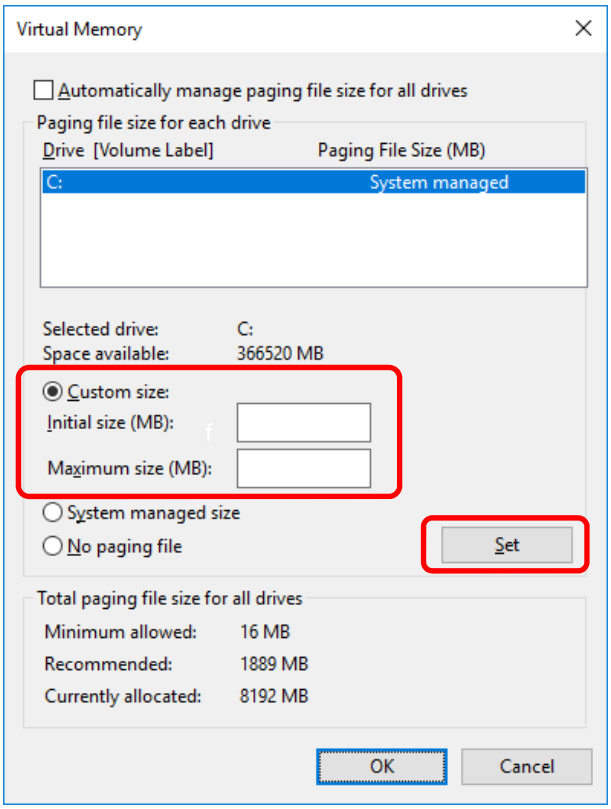
7. In **Virtual memory**, click **Change**.



8. Clear the **Automatically manage paging file size for all drives** check box, and then click **Custom size**.



9. In **Paging file size for each drive**, enter the value equal or larger than the recommended value for **Initial size**, and the value larger than **Initial size** for **Maximum size**, and then click **Set**.



Note the following when specifying a paging file size:

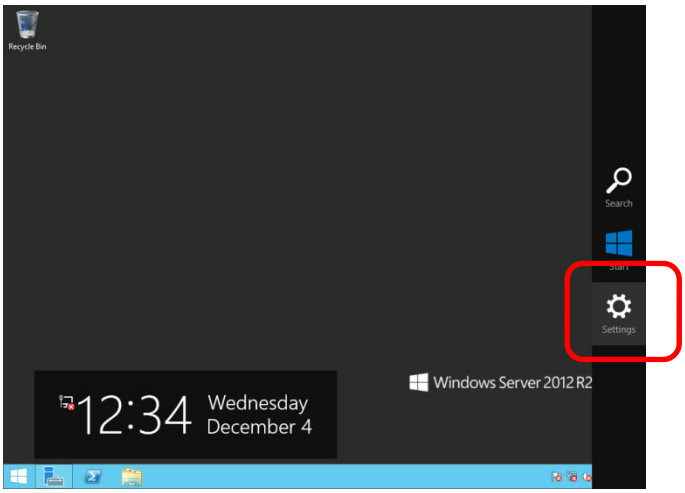
- The paging file is used to collect debug information (dump file). The boot volume must have a paging file of its initial size ("total size of physical memory" + 400 MB (total size of physical memory + 1,100 MB when the total size is 4 TB or more) or more) is enough to store the dump file. Make sure to specify a sufficient paging file size. Recommended size: "the installed memory size" x1.5 or more
- See "System Partition" in *Chapter 1 (3.1 Precautions of Windows Server 2016 Installation)* for recommended value.

10. Click **OK**.
If a message to restart Windows appears, restart the system according to on-screen message.

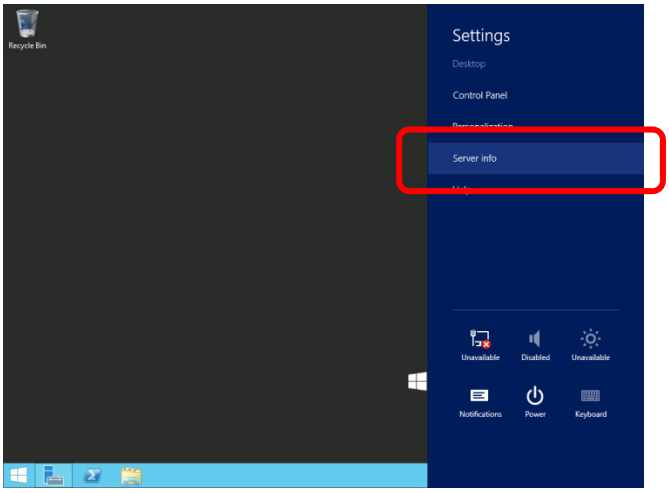
Specification of the memory dump settings is now complete.

5.1.2 For Windows Server 2012 R2

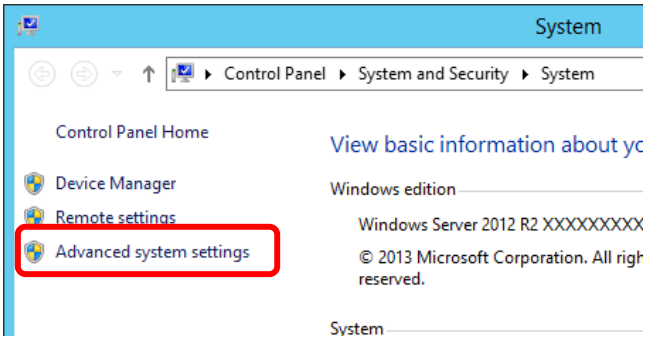
1. On Charms Bar, click **Settings.**



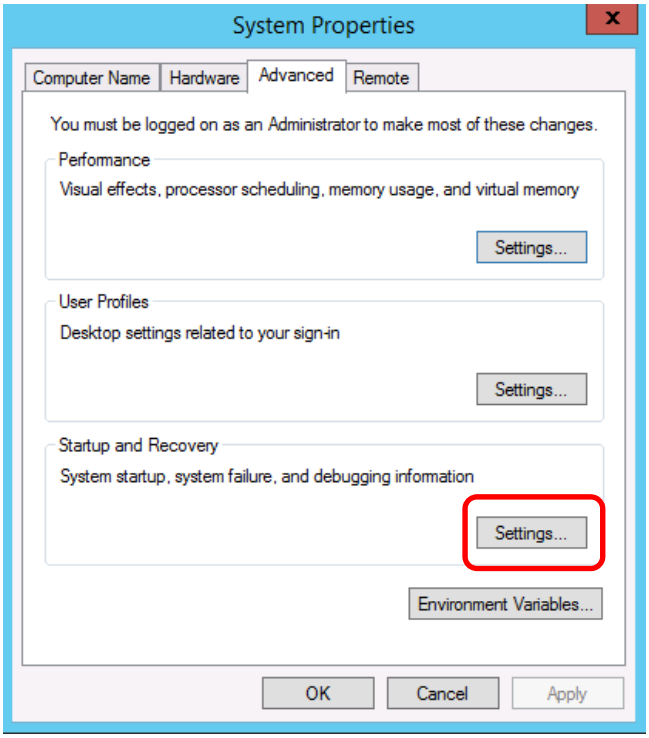
2. Click **Server info**.



3. Click **Advanced system settings**.

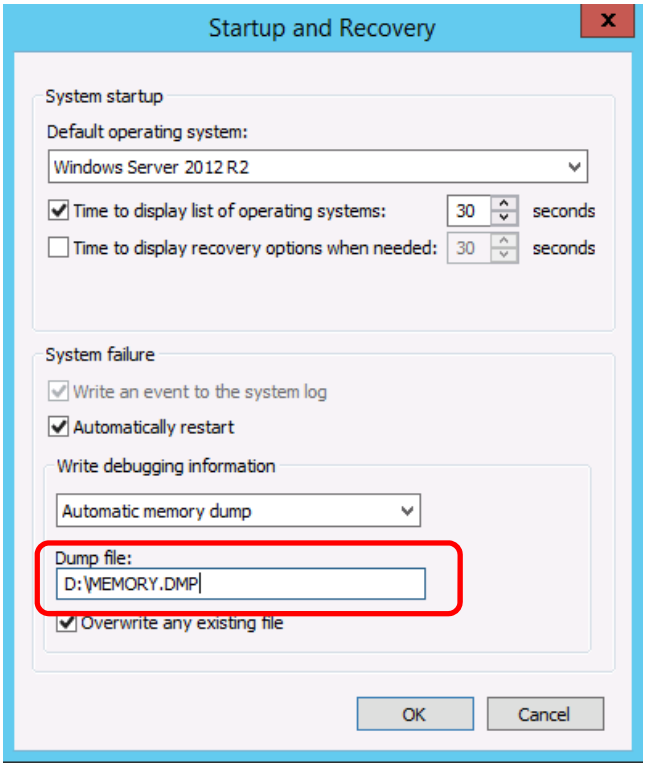


4. **In Startup and Recovery**, click **Settings.**



5. Type the path to a dump file in **Dump file**, and then click **OK**.

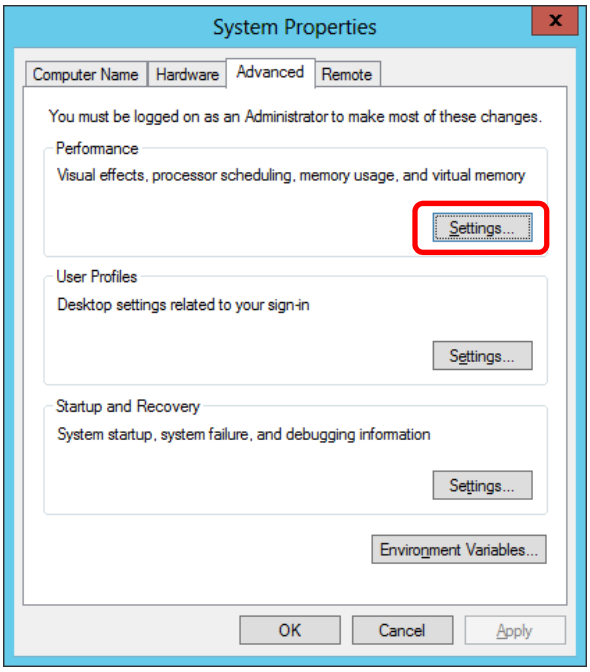
<Example for specifying "MEMORY.DMP" on drive D>



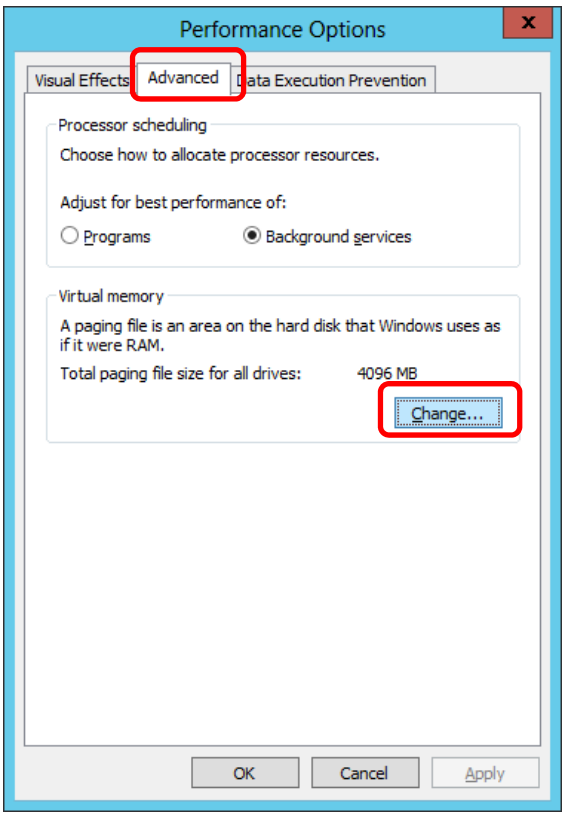
Note the following when specifying a dump file:

- We recommend specifying **Kernel memory dump** for **Write debugging information**.
- Specify a drive that has a free area of at least "total size of physical memory" + 400 MB.

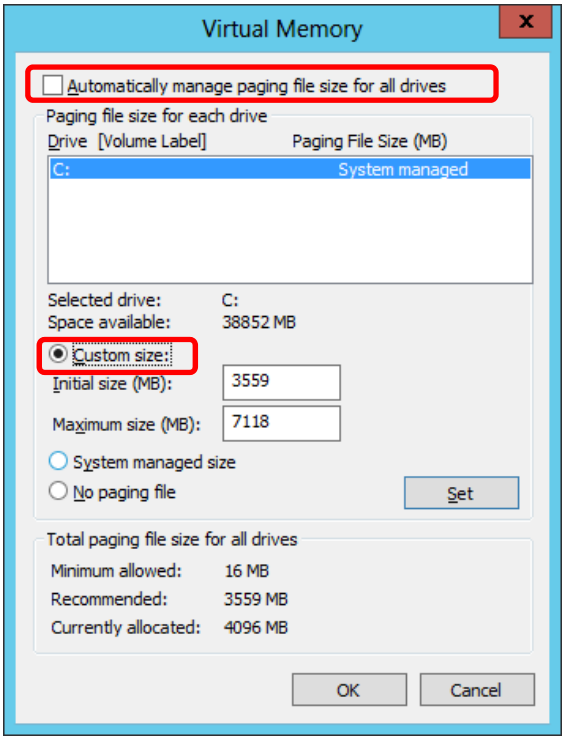
6. In **Performance**, click **Settings**.
   The **Performance Options** window will appear.



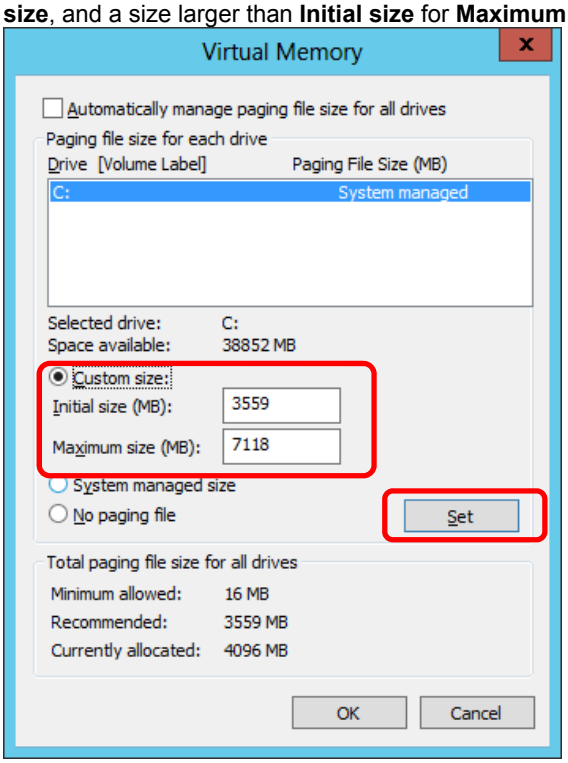
7. Click the **Advanced** tab on the **Performance Options** window.
   In **Virtual memory**, click **Change.**



8. Clear the **Automatically manage paging file size for all drives** check box, and then click **Custom size**.



9. In **Paging file size for each drive**, type a size equal or larger than the recommended size for **Initial size**, and a size larger than **Initial size** for **Maximum size**, and then click **Set.**



Note the following when specifying a paging file size:

- The paging file is used to collect debug information (dump file). The boot volume must have a paging file of its initial size ("total size of physical memory" + 400 MB or more) is enough to save the dump file.

- Make sure to specify a sufficient paging file size. Recommended size: "total size of physical memory" x 1.5 or more
- See "System Partition" in *Chapter 1* (*4.1 Precautions of Windows Server 2012 R2 Installation*) for recommended value.

Click **OK.**
If a message to restart Windows appears, restart the server according to on-screen message.

Specification of the memory dump settings is now complete.

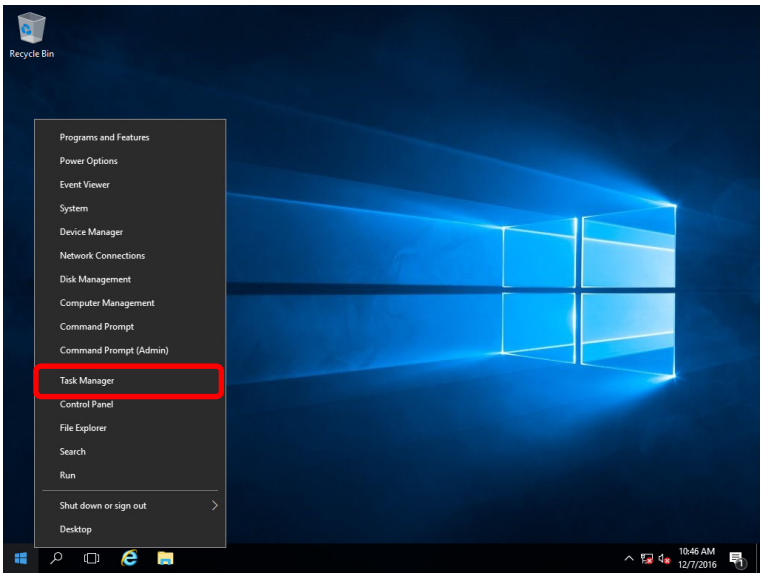
5.2 How to Create a User-mode Process Dump File

The user-mode process dump file records debugging information if an application error occurs.

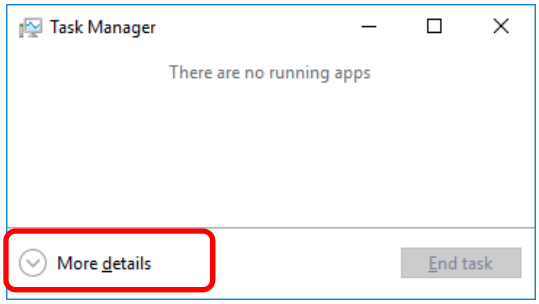
You can get a user-mode process dump file using the following procedures without closing the pop-up window that reported the error:

5.2.1 For Windows Server 2016

1. Right-click an empty area of the taskbar and then click **Task Manager** or press <Ctrl> + <Shift> + <Esc> keys to start **Task Manager**.



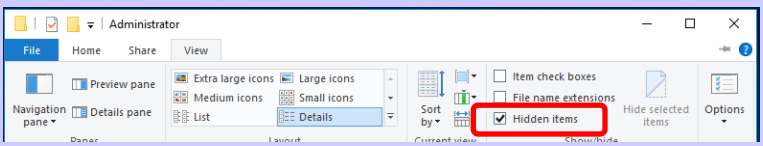
2. Click **More details**.



3. Click the **Processes** tab.
4. Right-click the name of the process that you want to get dump information for, and then click **Create Dump File**.
5. A dump file for the process is created in the following folder:

   `C:\Users\user name\AppData\Local\Temp`

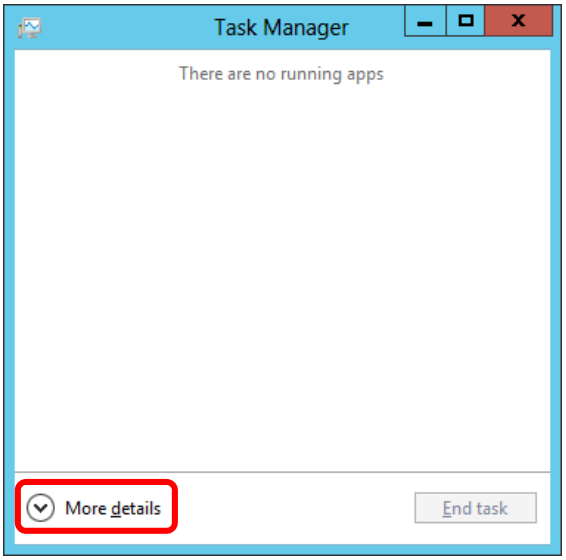
Tips If the folder is not displayed, open Explorer, select **Hidden items** on the **View** tab.



Get the user-mode process dump file from the folder shown in step 5.

5.2.2 For Windows Server 2012 R2

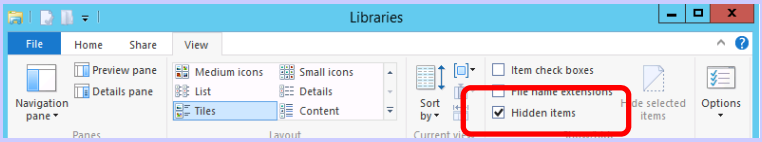
1. Right-click an empty area of the taskbar and then click **Task Manager** or press <Ctrl> + <Shift> + <Esc> keys to start **Task Manager**.
2. Click **More details**.



3. Click the **Processes** tab.
4. Right-click the name of the process that you want to get debugging information, and then click **Create Dump File**.
5. A dump file for the process is created in the following folder:

   C:\Users*user name*\AppData\Local\Temp

Tips If the folder is not displayed, open Explorer, select **Hidden items** on the **View** tab.



Get the user-mode process dump file from the folder shown in step 5.

NEC Express5800 Series
Express5800/R120h-1E, R120h-2E

2 Installing Bundled Software

This chapter explains the bundled software and how to install them.

1. **Bundled Software for the Server**
   Describes the bundled software to be installed in the server.

2. **Bundled Software for "PC for Management"**
   Describes the bundled software to be installed in “PC for Management” that is used to monitor and manage the server.

1. Bundled Software for the Server

This section explains the software bundled in the server. Refer to the documentation that comes with software for details.

1.1 RESTful Interface Tool (Windows version)

RESTful Interface Tool is a command line interface tool able to control systems using iLO RESTful API.
When you use NEC Product Info Collection Utility, install this tool in advance.

Follow the steps below to install.

1. After signing in Windows installed into the server, set Starter Pack DVD in the optical disk drive.

2. Run the "start_up.bat" under the root folder of DVD.
   The Starter Pack menu will appear.

3. From the menu, click **Applications**, **RESTful interface tool**.
   The installer will start and the tool will be installed into "C:\Program Files \OEM\RESTful Interface Tool" folder with default setting.
   ("C:" means the system drive to which Windows was installed)

1.2 NEC ESMPRO ServerAgentService (for Windows)

NEC ESMPRO ServerAgentService (for Windows) is an application used to monitor the server.

When installing NEC ESMPRO ServerAgentService (for Windows) individually, see "*NEC ESMPRO ServerAgentService Installation Guide (Windows)*" in Starter Pack.

1.3 Smart Storage Administrator

Smart Storage Administrator is an application used to manage and monitor the following RAID controllers:

- Onboard RAID Controller
- N8103-189 RAID Controller (0GB, RAID 0/1)
- N8103-190 RAID Controller (2GB, RAID 0/1/5/6)
- N8103-192 RAID Controller (0GB, RAID 0/1)
- N8103-193 RAID Controller (2GB, RAID 0/1/5/6)
- N8103-195 RAID Controller (0GB, RAID 0/1)
- N8103-201 RAID Controller (2GB, RAID 0/1/5/6)
- N8103-196 RAID Controller (4GB, RAID 0/1/5/6)

For details about Smart Storage Administrator, *see Smart Storage Administrator User's Guide* on the following website.

NEC corporate site: **http://www.nec.com/express/**
[Products & Solutions]-[Servers]-[NEC Express5800 Server Series]-[Download]

If the system requirements for Smart Storage Administrator described in *Smart Storage Administrator User's Guide* differ from *User's Guide* of the server, follow *User's Guide* of the server.

1.3.1 Setup of Smart Storage Administrator

(1) Setup using Starter Pack

To install Smart Storage Administrator from Starter Pack, run the menu, and then click "Integrated Installation" or "Applications". You can install Smart Storage Administrator by installing Standard Program Package.

For details, see *Chapter 2* (6. *Details of Starter Pack*) in *Maintenance Guide*.

(2) Setup using the program

See the *Smart Storage Administrator User's Guide* if installing Smart Storage Administrator downloaded from the website.

1.3.2 RAID Report Service

This service monitors the RAID status and notifies failures.

See the *Smart Storage Administrator User's Guide* for information on the RAID Report Service, including installation, operation, and function details.

1.4 Express Report Service / Express Report Service (HTTPS)

To avoid system failures or to maintain the server quickly, Express Report Service / Express Report Service (HTTPS) informs the support center of the failure information, preventive maintenance information by E-Mail, modem, or HTTPS. If you want to use this service, contact your sales representative and install NEC ESMPRO ServerAgentService before using this service.

For details about Express Report Service / Express Report Service (HTTPS), see "*Express Report Service / Express Report Service (HTTPS) Installation Guide (Windows)*" in Starter Pack.

1.5 NEC Product Info Collection Utility

NEC Product Info Collection Utility can collect various logs related to the server all at once. You can collect the server information (Product Info) for maintenance by using this utility.

1.5.1 Installation

Follow the steps below to install this utility.

1. Log on to Windows as an Administrator, and then insert Starter Pack DVD into the optical disk drive.
2. Run "start_up.bat" under the DVD root folder.
   The Starter Pack menu will appear.
3. Click **Applications** from the menu and then click **Product Info Collection Utility**.
   The installation will start. Follow the instructions in the dialog boxes until installation is complete.
   This utility is usually installed to the `C:\ezclct` folder.

Tips

- The installation drive requires a free space of at least 2.5 GB.
- To collect full device information with this tool, RESTful interface tool needs to be installed.

1.5.2 Uninstallation

Uninstall the utility depending on the Windows installation type:

- **Full installation (Server with GUI):**
  Choose **Add/Remove Programs** from **Control Panel** and then click **Product Info Collection Utility (Vx.x.x)**. Follow the instructions in the dialog boxes.
- **Server Core installation:**
  Run the following command at the command prompt:

```
Wmic product where name="Product Info Collection Utility" call uninstall
```

2. Bundled Software for "PC for Management"

This section describes the bundled software required to configure “PC for Management” used to manage the server system via network.

2.1 NEC ESMPRO Manager

NEC ESMPRO Manager can remotely control and monitor the hardware of the server.
To use these features, install the bundled software for the server such as NEC ESMPRO ServerAgentService.

NEC ESMPRO Manager installer and manual can be downloaded from the website below.
http://www.nec.com/en/global/prod/express/management/smsa/index.html

For details about NEC ESMPRO Manager, see *NEC ESMPRO Manager Installation Guide*.

2.2 Express Report Service (MG)

To avoid system failures or to maintain the server quickly, Express Report Service (MG) informs the support center of the failure information or preventive maintenance information by E-Mail, modem, or HTTPS.

To use this feature, NEC ESMPRO ServerAgentService is required because Express Report Service usually works with it.
If NEC ESMPRO ServerAgentService cannot be installed to the server, you can install Express Report Service (MG) into NEC ESMPRO Manager instead of it.

Express Report Service (MG) installer and manual can be downloaded from the website below.

http://www.58support.nec.co.jp/global/download/index.html

For details about Express Report Service (MG), see "*Express Report Service (MG) Installation Guide (Windows)*".

Glossary

Term	Description
AHS	Active Health System (AHS) monitors the status/configuration of the server, and records it to a log file if any changes occur. AHS log is used for maintenance to investigate the failure.
AMP	Advanced Memory Protection (AMP) is a technology for realizing a fault tolerance of the server by memory redundancy (such as mirroring).
AMS	Agentless Management Service (AMS) is an OS service for sending information (such as OS events) that iLO cannot collect directly. iLO records the information received by AMS, and send it to Agentless Management.
EXPRESSBUILDER	Software for setting up the server. EXPRESSBUILDER can be started by pressing <F10> key during POST.
Express Report Service	Software that can report the server failure to the contact center by E-mail or modem. This software is installed with NEC ESMPRO ServerAgentService to the server.
Express Report Service (HTTPS)	Software that can report the server failure to the contact center by HTTPS. This software is installed with NEC ESMPRO ServerAgentService to the server.
Hexalobular	A type of screw head characterized by a 6-point star-shaped pattern. This is often called as “Torx” (the Torx is a third party's trademark). Head sizes are described from T1 to T100. This is sometimes abbreviated as 6lobe.
iLO	A built-in controller that supports the IPMI version 2.0 protocol. The controller is called as iLO5 because this server adopts a generation 5 version controller.
NEC ESMPRO ServerAgentService	Software for monitoring the server. This works with NEC ESMPRO Manager. You can choose Service Mode or Non-Service Mode when installing this software. Service Mode resides as the OS service and Non-Service Mode does not use the OS service to reduce memory, CPU power, and other OS resources.
NEC ESMPRO Manager	Software for managing a number of servers on network.
PC for Management	A computer for managing the server on network. A general Windows/Linux computer can be used as “PC for Management”.
Product Info Collection Utility	Software for collecting several hardware/software statuses and event logs. You can easily collect the data for the server maintenance by using this software.
RAID Report Service	This service monitors the RAID status and notifies failures.
RBSU	ROM-Based Setup Utility (RBSU) is a built-in utility that can configure connected devices and BIOS settings. RBSU is called from System Utilities.
RESTful Interface Tool	A tool that supports API based on Representational State Transfer (REST) architecture. You can send maintenance commands in JSON format to iLO by HTTP protocol after installing this tool.
SPP	Standard Program Package (SPP) is a software package that includes BIOS, FW, driver, and other basic software. SPP is included in Starter Pack.
SSA	Smart Storage Administrator (SSA) is a utility that can configure RAID arrays. SSA is provided for Windows/Linux and can also start from F10 key function.
Starter Pack	A software package that includes SPP, instruction manual, application, and other software for the server. This must be installed before using OS on the server. Starter Pack is provided as an optional product and ISO data on our website.
System Maintenance Switch	A DIP switch on motherboard. This switch can enable/disable initialization, password, iLO settings, and other functions of maintenance.
System Utilities	System Utilities is a built-in utility that provides system information, calling RBSU, collecting system log, and other system utilities. You can start System Utilities by F9 key during POST.
TPM Kit	An optional product of Trusted Platform Module for the server.

Revision Record

Revision (Document Number)	Date Issued	Description
10.202.02-102.01	November 2017	Newly created

NEC Express Server

Express5800/R120h-1E, R120h-2E
Installation Guide (Windows)

November 2017

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