

Installation Guide (Windows Server 2016)

**NEC Express Server
Express5800 Series**

Express5800/R120h-1M, R120h-1M (2nd-Gen), R120h-1M (3rd-Gen)

Express5800/R120h-2M, R120h-2M (2nd-Gen), R120h-2M (3rd-Gen)

Express5800/R120h-1E

Express5800/R120h-2E

Express5800/T120h

Express5800/R110j-1

Chapter 1 Installing Windows

Chapter 2 Maintenance

Chapter 3 Appendix

Contents

Contents	2
Introduction	4
Conventions Used in This Document	5
Notations used in the text	5
Optical disk drive.....	5
Hard disk drive	5
Removal Media	5
Abbreviations of Operating Systems.....	6
About description of model names	6
Trademarks	6
License Notification	7
License sentence	7
Warnings and Additions to This Document.....	10
Latest editions.....	10
Chapter 1 Installing Windows	11
1.1 Information of Windows Installation	12
1.1.1 Starting EXPRESSBUILDER	12
1.1.2 Supported Windows OS.....	13
1.1.3 Supported Mass Storage Controllers.....	14
1.1.4 Supported Optional LAN board.....	18
2.1 Flow of Windows Installation	22
3.1 Installing Windows Server 2016	23
3.1.1 Precautions of Windows Server 2016 Installation.....	23
3.1.2 Rapid Setup	30
3.2.1 Setup flow	30
3.2.2 Requirements for Setup	31
3.2.3 Installation procedure	31
3.1.3 Manual Installation	40
3.3.1 Setup flow	40
3.3.2 Requirements for Setup.....	41
3.3.3 Installation procedure	41
3.1.4 Standard Program Package Installation.....	50
3.4.1 Installing Standard Program Package on Desktop Experience.....	51
3.4.2 Installing Standard Program Package on Server Core	53
3.1.5 Setup of Device Drivers	54
3.5.1 Installing the LAN drivers	54
3.5.2 Setting up LAN drivers	56
3.5.3 Using Graphics Accelerator	57
3.5.4 Using SAS Controller (N8103-197).....	57
3.5.5 Using RAID Controller (N8103-189/190/191/192/193/194/195/196/201).....	57
3.5.6 Using Fibre Channel Controller (N8190-163/164/165/166/171/172).....	57
3.1.6 License Authentication	58
3.6.1 Desktop Experience.....	58
3.6.2 Server Core	62
3.1.7 Setup of Windows Server 2016 NIC Teaming (LBFO)	63
3.7.1 Launching the NIC teaming setup tool	63
3.7.2 Creating a team	63
3.7.3 Notes and restrictions	64
3.1.8 Installing Applications	65

4.	Setting up for Maintenance	67
4.1	Specifying Memory Dump Settings (Debug Information)	67
4.2	How to Create a User-mode Process Dump File	72
5.	Backup of system information	73
Chapter 2	Maintenance	74
1.	Failure Information.....	75
1.1	Collecting Event Logs	75
1.2	Collecting Configuration Information.....	77
1.3	Collecting User-Mode Process Dump	78
1.4	Collecting Memory Dump.....	78
2.	Troubleshooting	79
3.	Windows System Recovery.....	79
3.1	Recovery of Windows Server 2016	79
Chapter 3	Appendix.....	81
1.	List of Windows Event Log	82
Revision Record	94

Introduction

Thank you for purchasing our product.

When using the **EXPRESSBUILDER E8.10-009.01 (3.64.2)**, see this manual before installing Windows.

Please read carefully the instructions and keep this document for your future reference.

Conventions Used in This Document

Notations used in the text

The symbols used in this document include the following:

Important	Indicates critical items that must be followed when handling hardware or operating software. If the procedures described are not followed, <u>hardware failure, data loss, and other serious malfunctions could occur.</u>
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 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

About description of model names

The following models are supported by this document. If not mentioned especially, the contents is for all models. When the contents differs by model, each contents are described with model name.

Supported model is as follows.

Express5800/R120h-1M, R120h-1M (2nd-Gen), R120h-1M (3rd-Gen)

Express5800/R120h-2M, R120h-2M (2nd-Gen), R120h-2M (3rd-Gen)

Express5800/R120h-1E

Express5800/R120h-2E

Express5800/T120h

Express5800/R110j-1

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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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<https://www.nec.com/>

Installing Windows

This manual explains the setup procedure for a physical environment.

Read through this chapter to set up the Windows correctly.

1. Information of Windows Installation

Describes Supported Windows OS 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. Setting up for Maintenance

Describes the features that should be set up for maintenance in advance.

5. Backup of system information

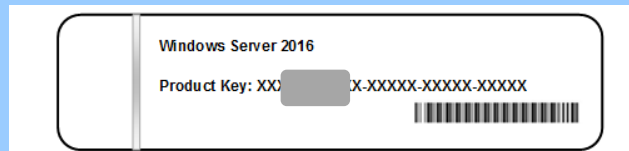
Describes how to back up the setting information of the system in advance of troubles.

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.

Refer to the following for the installation of virtual OS.

If your virtualization infrastructure is Hyper-V:

Refer to the following web site for the Hyper-V setting and the installation procedure of the guest OS and so on.

<https://www.58support.nec.co.jp/global/download/w2016/hyper-v/hyper-v-ws2016.html>

If your virtualization infrastructure is not Hyper-V:

Refer to the manual provided by virtualization infrastructure vendor to prepare the virtual environment.

Prepare a media or an ISO image of the OS to install.

1. Start the virtual machine from a media or an ISO image of the OS to install.
2. Follow the on-screen instruction to complete the OS installation.
3. Refer to the manual provided by virtualization infrastructure vendor to install the necessary services and applications.

1.1 Starting EXPRESSBUILDER

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

For details, see *Chapter 2 (3. 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 : Rapid Setup

OS : Manual installation

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

✓ : Supported

* "Nano Server" is not supported.

1.3 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.

(1) Express5800/R120h-1M, R120h-1M (2nd-Gen), R120h-1M (3rd-Gen)

Express5800/R120h-2M, R120h-2M (2nd-Gen), R120h-2M (3rd-Gen)

	R120h-1M	R120h-2M	R120h-1M (2nd-Gen)	R120h-2M (2nd-Gen)	R120h-1M (3rd-Gen)	R120h-2M (3rd-Gen)
RAID controller supporting the installation of OS at EXPRESSBUILDER						
Onboard RAID Controller	✓	✓	✓	✓	✓	✓
N8103-189 RAID Controller (RAID 0/1)	✓	✓	✓	✓	✓	✓
N8103-190 RAID Controller (2GB, RAID 0/1/5/6)	✓	✓	✓	✓	✓	✓
N8103-191 RAID Controller (4GB, RAID 0/1/5/6)	✓	✓	✓	✓	✓	✓
N8103-192 RAID Controller (RAID 0/1)	✓	N/A	✓	N/A	✓	N/A
N8103-193 RAID Controller (2GB, RAID 0/1/5/6)	✓	N/A	✓	N/A	✓	N/A
N8103-194 RAID Controller (4GB, RAID 0/1/5/6)	✓	N/A	✓	N/A	✓	N/A
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

(2) Express5800/R120h-1E, Express5800/R120h-2E

	R120h-1E	R120h-2E
RAID controller supporting the installation of OS at EXPRESSBUILDER		
Onboard RAID Controller	✓	✓
N8103-189 RAID Controller (RAID 0/1)	N/A	✓
N8103-190 RAID Controller (2GB, RAID 0/1/5/6)	N/A	✓
N8103-191 RAID Controller (4GB, RAID 0/1/5/6)	N/A	N/A
N8103-192 RAID Controller (RAID 0/1)	✓	N/A
N8103-193 RAID Controller (2GB, RAID 0/1/5/6)	✓	N/A
N8103-194 RAID Controller (4GB, RAID 0/1/5/6)	N/A	N/A
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

(3) Express5800/T120h

	T120h
RAID controller supporting the installation of OS at EXPRESSBUILDER	
Onboard RAID Controller	✓
N8103-189 RAID Controller (RAID 0/1)	✓
N8103-190 RAID Controller (2GB, RAID 0/1/5/6)	✓
N8103-191 RAID Controller (4GB, RAID 0/1/5/6)	✓
N8103-192 RAID Controller (RAID 0/1)	N/A
N8103-193 RAID Controller (2GB, RAID 0/1/5/6)	N/A
N8103-194 RAID Controller (4GB, RAID 0/1/5/6)	N/A
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

(4) Express5800/R110j-1

	R110j-1
RAID controller supporting the installation of OS at EXPRESSBUILDER	
Onboard RAID Controller	✓
N8103-192 RAID Controller (RAID 0/1)	✓
N8103-193 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

1.4 Supported Optional LAN board

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

(1) Express5800/R120h-1M, R120h-1M (2nd-Gen), R120h-1M (3rd-Gen)

Express5800/R120h-2M, R120h-2M (2nd-Gen), R120h-2M (3rd-Gen)

	R120h-1M	R120h-2M	R120h-1M (2nd-Gen)	R120h-2M (2nd-Gen)	R120h-1M (3rd-Gen)	R120h-2M (3rd-Gen)
N8104-171 Quad Port 1000BASE-T LOM Card	✓	✓	✓	✓	N/A	N/A
N8104-172 Quad Port 1000BASE-T LOM Card	✓	✓	✓	✓	✓	✓
N8104-173 Dual Port 10GBASE-T LOM Card	✓	✓	✓	✓	N/A	N/A
N8104-175 Dual Port 10GBASE-T LOM Card	✓	✓	✓	✓	✓	✓
N8104-176 Dual Port 10GBASE SFP+ LOM Card	✓	✓	✓	✓	N/A	N/A
N8104-177 Dual Port 25GBASE SFP+ LOM Card	✓	✓	✓	✓	N/A	N/A
N8104-178 Dual Port 1000BASE-T Adapter	✓	✓	✓	✓	✓	✓
N8104-179 Quad Port 1000BASE-T Adapter	✓	✓	✓	✓	✓	✓
N8104-180 Dual Port 1000BASE-T Adapter	✓	✓	✓	✓	✓	✓
N8104-181 Quad Port 1000BASE-T Adapter	✓	✓	✓	✓	✓	✓
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	✓	✓	✓	✓	✓	✓

✓ : Supported

(2) Express5800/R120h-1E, Express5800/R120h-2E

	R120h-1E	R120h-2E
N8104-171 Quad Port 1000BASE-T LOM Card	✓	✓
N8104-172 Quad Port 1000BASE-T LOM Card	✓	✓
N8104-173 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	✓	✓
N8104-181 Quad Port 1000BASE-T Adapter	✓	✓
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	✓	✓
N8104-193 Dual Port 1000BASE-T LOM Card	✓	✓
N8104-194 Dual Port 10GBASE-SR LOM Card	✓	✓
N8104-195 Dual Port 10GBASE-T LOM Card	✓	✓

✓ : Supported

(3) Express5800/T120h

	T120h
N8104-178 Dual Port 1000BASE-T Adapter	✓
N8104-179 Quad Port 1000BASE-T Adapter	✓
N8104-180 Dual Port 1000BASE-T Adapter	✓
N8104-181 Quad Port 1000BASE-T Adapter	✓
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	✓

✓ : Supported

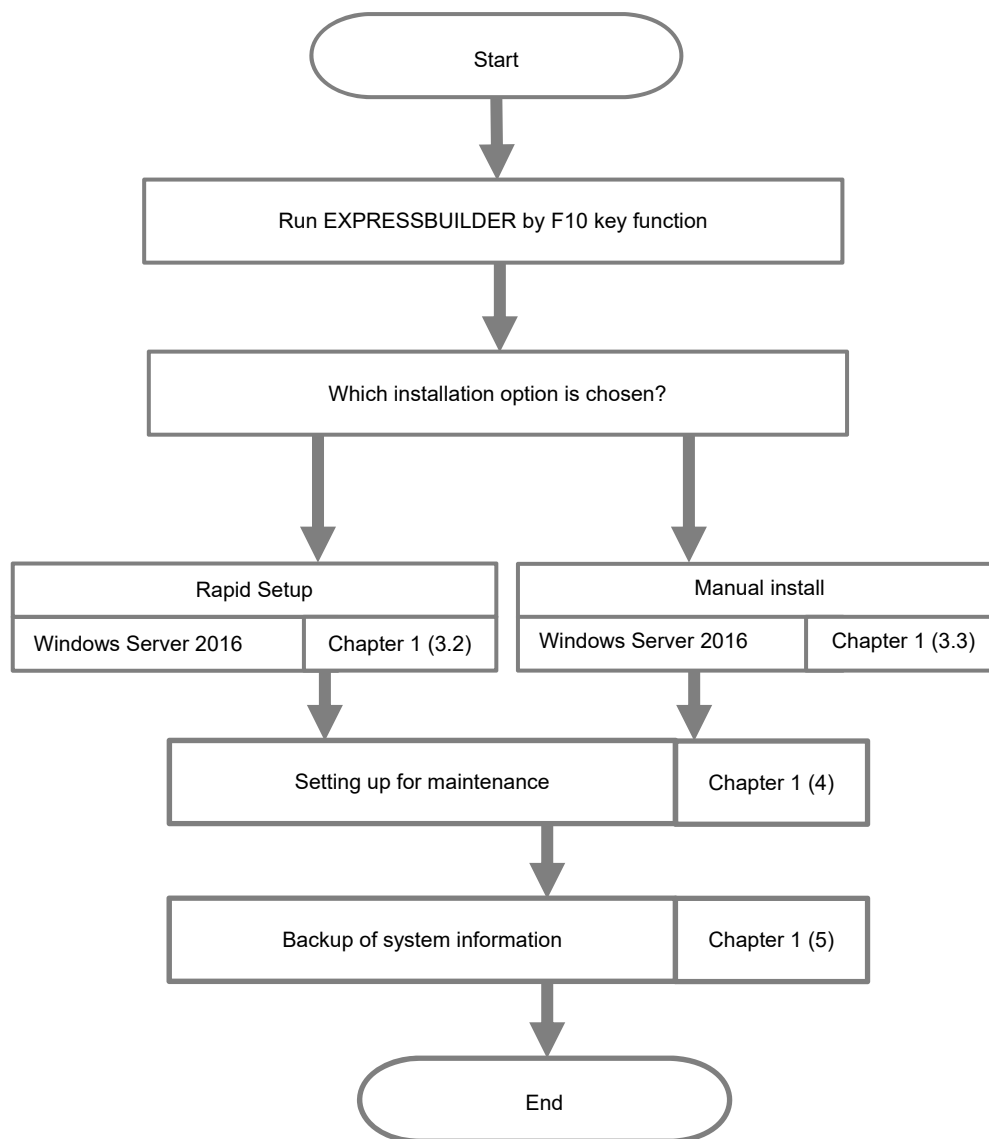
(4) Express5800/R110j-1

	R110j-1
N8104-171 Quad Port 1000BASE-T LOM Card	✓
N8104-172 Quad Port 1000BASE-T LOM Card	✓
N8104-173 Dual Port 10GBASE-T LOM Card	✓
N8104-176 Dual Port 10GBASE SFP+ LOM Card	✓
N8104-178 Dual Port 1000BASE-T Adapter	✓
N8104-179 Quad Port 1000BASE-T Adapter	✓
N8104-180 Dual Port 1000BASE-T Adapter	✓
N8104-181 Quad Port 1000BASE-T Adapter	✓
N8104-182 Dual Port 10GBASE-T Adapter	✓
N8104-183 Dual Port 10GBASE-T Adapter	✓
N8104-185 Dual Port 10GBASE SFP+ Adapter	✓
N8104-186 Dual Port 10GBASE SFP+ Adapter	✓

✓ : Supported

2. Flow of Windows Installation

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



Important After building environment, back up the setting information of the system in advance of any troubles.

3. Installing Windows Server 2016

3.1 Precautions of Windows Server 2016 Installation

Read the precautions explained this section before installing.

EB

: Rapid Setup

OS

: Manual Installation

BIOS setting			
—	EB	OS	<p>Change Boot Mode to UEFI Mode. For details, see <i>Chapter 2 (1. System Utilities) in Maintenance Guide</i>.</p> <p>System Configuration > BIOS/Platform Configuration (RBSU) > Boot Options > Boot Mode > UEFI Mode</p>
—	EB	OS	<p>Select Enabled for x2APIC feature of processor. For details, see <i>Chapter 2 (1. System Utilities) in Maintenance Guide</i>.</p> <p>System Configuration > BIOS/Platform Configuration (RBSU) > Processor Options > Processor x2APIC Support > Enabled</p>
—	EB	OS	<p><u>R120h-1M, R120h-2M, R120h-1E, R120h-2E, T120h</u> Change time zone to the Unspecified Time Zone. For details, see <i>Chapter 2 (1. System Utilities) in Maintenance Guide</i>.</p> <p>System Configuration > BIOS/Platform Configuration (RBSU) > Date and time > Time Zone : Unspecified Time Zone</p>
—	EB	OS	<p><u>R120h-1M, R120h-2M, R120h-1E, R120h-2E, T120h</u> Change time format to the Local Time. For details, see <i>Chapter 2 (1. System Utilities) in Maintenance Guide</i>.</p> <p>System Configuration > BIOS/Platform Configuration (RBSU) > Date and time > Time Format : Local Time</p>
—	EB	OS	<p><u>R120h-1M(2nd-Gen)/(3rd-Gen), R120h-2M(2nd-Gen)/(3rd-Gen), R110j-1</u> Change time format to the Coordinated Universal Time (UTC). For details, see <i>Chapter 2 (1. System Utilities) in Maintenance Guide</i>.</p> <p>System Configuration > BIOS/Platform Configuration (RBSU) > Date and time > Time Format : Coordinated Universal Time (UTC)</p>
—	EB	OS	<p><u>R120h-1M(2nd-Gen)/(3rd-Gen), R120h-2M(2nd-Gen)/(3rd-Gen), R110j-1</u> Change time zone to the Set arbitrary time zone. For details, see <i>Chapter 2 (1. System Utilities) in Maintenance Guide</i>.</p> <p>System Configuration > BIOS/Platform Configuration (RBSU) > Date and time > Time Zone : Set arbitrary time zone</p>

—	EB	OS	<p>If your system has 64 or more logical CPU per 1 processor, set one of the following settings. For details, see <i>Chapter 1 (1. System Utilities)</i> in <i>Maintenance Guide (Common)</i>.</p> <p><u>If [Sub-NUMA Clustering] is [Disabled]</u></p> <p>System Configuration > BIOS/Platform Configuration (RBSU) > Memory Options > Virtual NUMA > [Enabled]</p> <p><u>If [Sub-NUMA Clustering] is [Enable SNC2 (2-clusters)] *</u></p> <p>System Configuration > BIOS/Platform Configuration (RBSU) > Memory Options > Virtual NUMA > [Disabled]</p> <p>* Sub-NUMA Clustering depends on hardware configuration.</p> <p>For hardware configurations where this feature is not available, set according to the case of setting [Disabled].</p> <p>For details, see <i>Chapter 1 (1. System Utilities)</i> in <i>Maintenance Guide (Common)</i>.</p>
Hardware configuration			
The following hardware configurations require special procedures.			
—	EB	OS	<p>Using RAID controller</p> <ul style="list-style-type: none"> Before you install Windows Server 2016, if using a RAID controller, configure the RAID system in advance according to the <i>Maintenance Guide</i>. Configuring the RAID system of Rapid Setup is not supported.
—	EB	OS	<p>Installation When Multiple Logical Drives Exist</p> <p>If you select wrong hard disk drive in Windows Server 2016 installation, the setup may erase existing data unexpectedly.</p> <p>Refer to displayed disk capacity or partition size to find target hard disk drive.</p>
—	EB	OS	<p>Reinstalling to a mirrored volume</p> <p>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.</p>
—	EB	OS	<p>Peripherals such as RDX</p> <p>Remove a RDX 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.</p>
—	EB	OS	<p>DAT, LTO, and similar media</p> <p>Do not set media that is unnecessary to installation during setup.</p>
—	EB	OS	<p>Reinstalling to dynamic disks</p> <p>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 Installation.</p>

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 (4. 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 (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 x 0.5"
D : Paging file whose size is "installed memory size x 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 + 400MB (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 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 x 1.5
Dump file size	=	installed memory size + 400MB (installed memory size is 4 TB or less) = installed memory size + 1,100MB (installed memory size is exceeding 4 TB)
Application size	=	as required by the application

Server Core

Size required to install the OS	=	10,300MB
Paging file size (recommended)	=	installed memory size x 1.5
Dump file size	=	installed memory size + 400MB (installed memory size is 4 TB or less) = installed memory size + 1,100MB (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:

$$15,200\text{MB} + (2,048\text{MB} \times 1.5) + 2,048\text{MB} + 400\text{MB} + 100\text{MB} = 20,820\text{MB}$$

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 : 32,768MB(32GB) or more

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

* 1GB = 1,024MB

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.

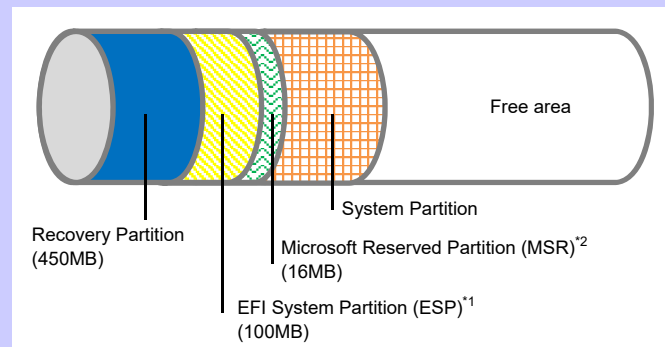
● When installing using Rapid Setup

Tips

The Windows OS creates three partitions at the head of the hard disk drive.

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

566 MB of disk space is allotted to the three 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 Installation

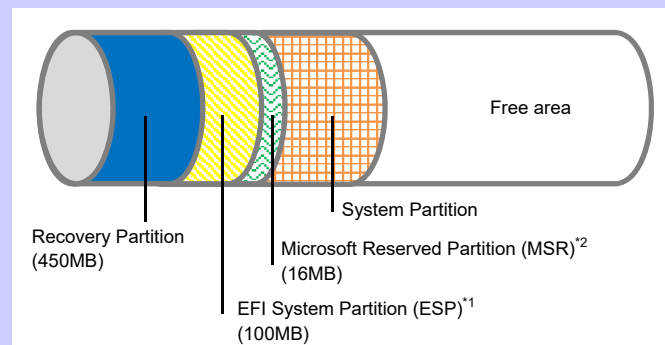
Tips

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:

$$61,440\text{MB} - (499\text{MB} + 100\text{MB} + 16\text{MB}) = 60,825\text{MB}$$



*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. https://www.58support.nec.co.jp/global/download/w2016/hyper-v/hyper-v-ws2016.html
Using BitLocker		
—	EB OS	<p>If using BitLocker, note the following.</p> <ul style="list-style-type: none"> ● Be sure to keep the recovery password secure. Do not keep it near a server running BitLocker. <p>Important</p> <div style="background-color: #e6f2ff; padding: 10px; border: 1px solid #0070c0;"> <p>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:</p> <ul style="list-style-type: none"> – Replacement of motherboard – Change of BIOS setting – Initialization of trusted platform module (TPM) * <p>* Depending on your system, it may not be supported. Refer to the Instruction Manuals about hardware.</p> </div> <ul style="list-style-type: none"> ● 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	<p>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)".</p> <p>Refer to <i>Chapter 1 (3.7 Setup of Windows Server 2016 NIC Teaming (LBFO))</i> and specify any required settings.</p>

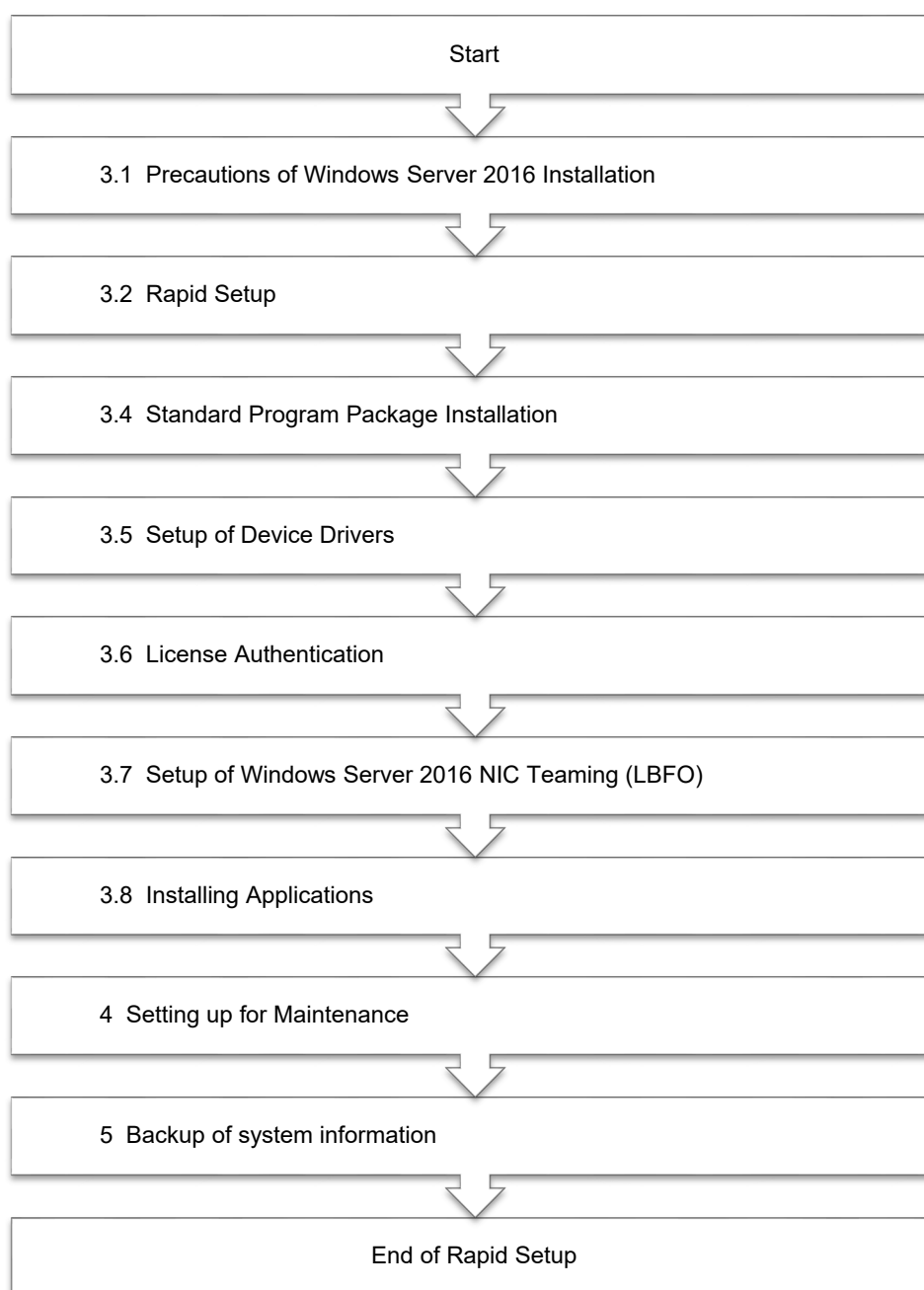
3.2 Rapid Setup

This section describes how to install Windows Server 2016 with Rapid Setup .

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.

3.2.1 Setup flow



3.2.2 Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

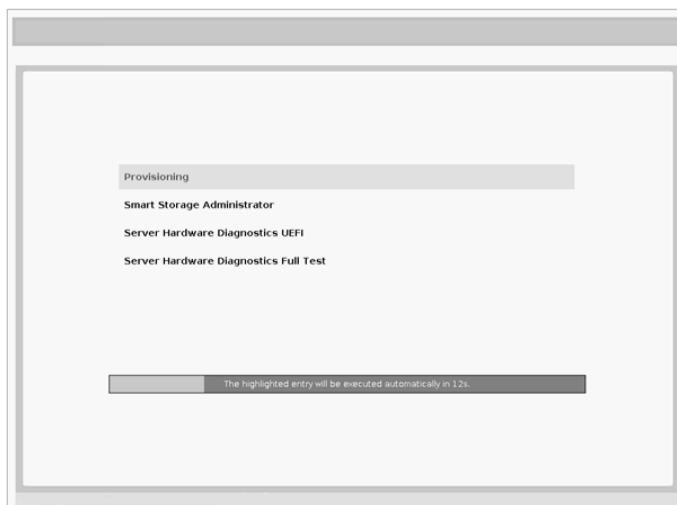
- Either of the following OS installation media
 - **NEC operating system installation media** (hereafter referred to as *Backup DVD-ROM*)
 - **Microsoft operating system installation media** (hereafter referred to as *Windows Server 2016 DVD-ROM*)
- Starter Pack
 - **Starter Pack DVD** (Optional or downloading from our website)
 - The Starter Pack which supports Windows Server 2016 is "S8.10-009.01" or later.
Download it from Web site.

3.2.3 Installation procedure

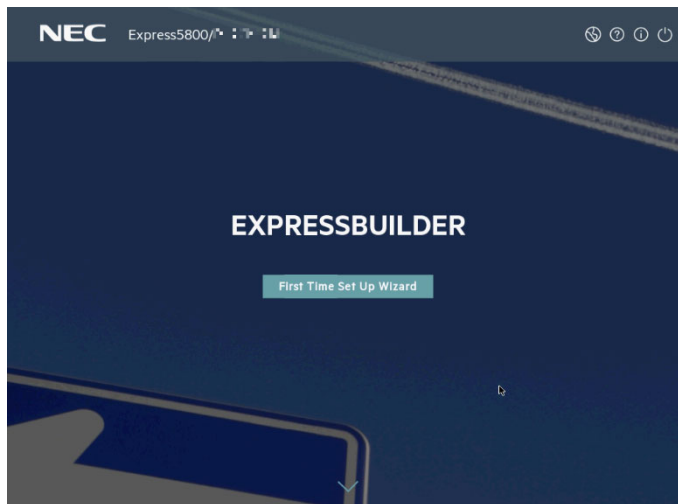
Note

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.

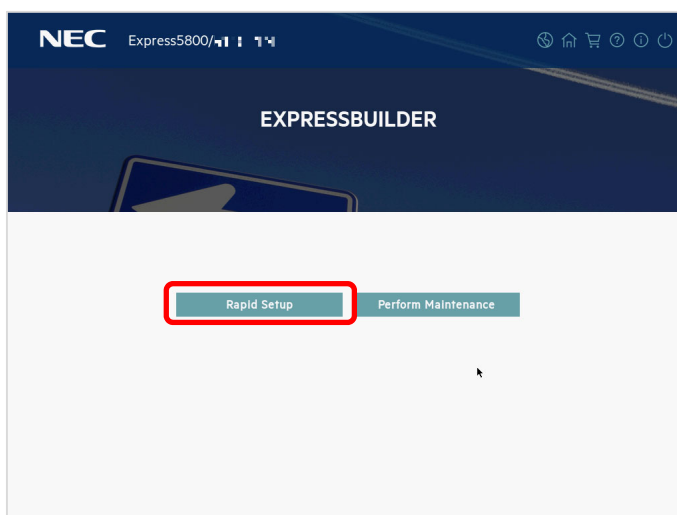


Only when running an OS for the first time, operating environment of EXPRESSBUILDER is set.
When the following screen appears, click "First Time Set Up Wizard".
When setting is completed, the process proceed to step 3.

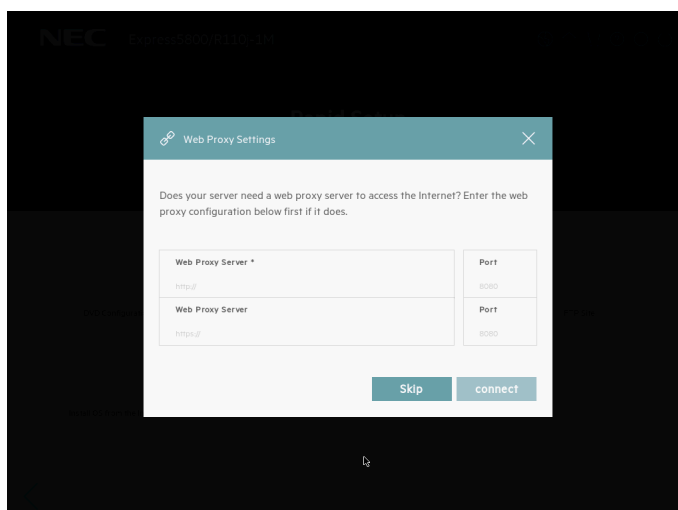


For details of EXPRESSBUILDER and "FIRST TIME SET UP WIZARD", see *Chapter 2 (3.Details of EXPRESSBUILDER) in Maintenance Guide*.

3. The next screen is displayed, click **Rapid Setup**.



4. When the following window appears, click **Skip**.

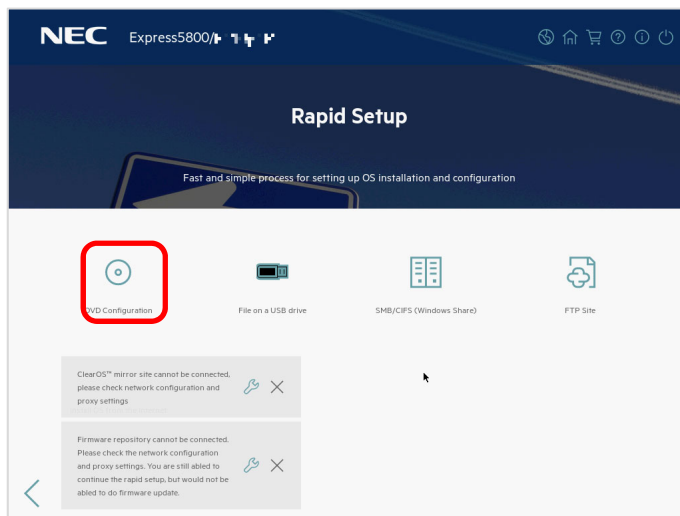


5. Select **DVD Configuration**.

When the message appears in the lower left of the screen, click "x" to close it.

Note

When choosing **DVD Configuration** or **File on a USB drive**, click ">" icon after setting the media.



Choose an OS installation source from the following types.

DVD Configuration	DVD-ROM
File on a USB drive	USB flash drive
SMB/CIFS (Windows Share)	Network sharing folder
FTP Site	This option is not available.
Install OS from the internet	This option is not available.

Each media supports the following file format.

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

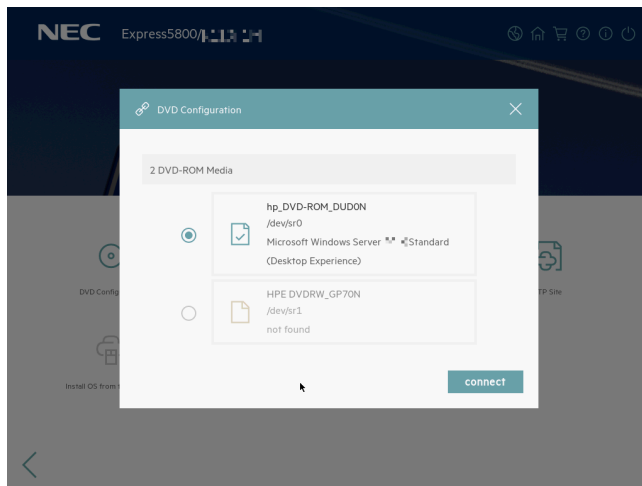
Flat: a standard folder/file structure

ISO: single ISO or UDF file

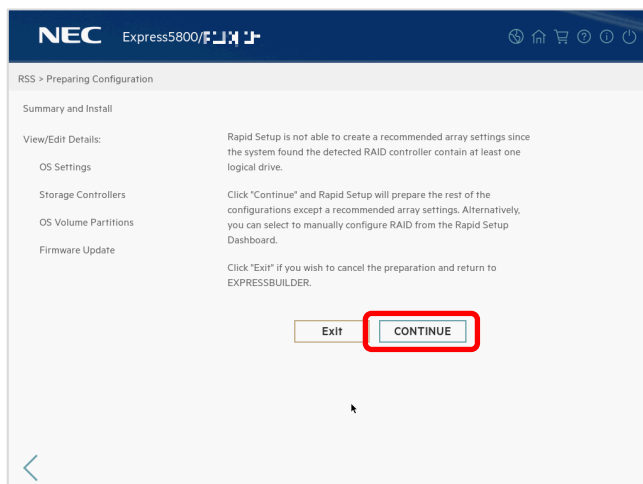
Choose an OS source media depending on the media type.


DVD Configuration	Automatically detects on OS installation media. If the detection fails, return to step 4 and retry.
File on a USB drive	Choose OS installation file on USB flash drive connected. Supports only a USB drive formatted with FAT or exFAT format.
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. <ul style="list-style-type: none"> ● Server Name/IP Address ● Share Name ● Domain Name ● Network Share User ● Network Share Password ● Confirm Password

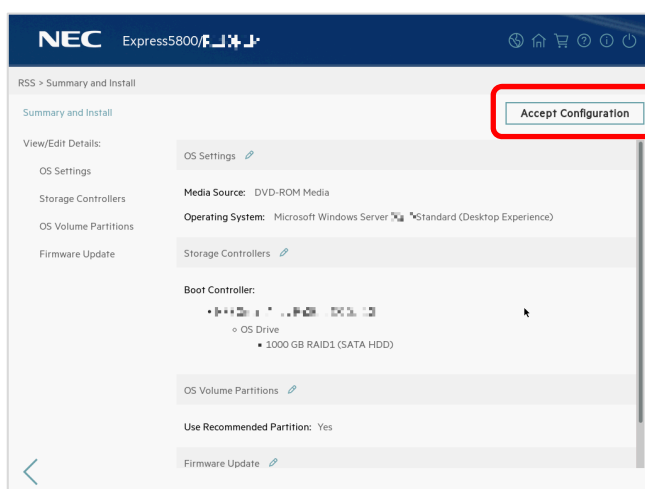
When you select "DVD Configuration" and connected multiple optical disk drive, next screen is displayed.
Select the optical disk drive in which the OS installation media was inserted.
Click **connect** of the lower right of the screen.



6. Mounted RAID controller is automatically recognized. Wait until installation completes.
When the following screen appears, and then click **CONTINUE**.



7. Click menu of left pane or edit button  on the item you want to edit to confirm and modify details.
After completion, click **Accept Configuration** to start installation.



Confirm the settings and specify any required settings.

OS Setting

- On the following "Operating System", specify settings for the OS installation.
- Password can be used alphanumeric characters only.
If a sign (such as "!") is included, an error message will appear.
- Set your time zone.
- You can enable the functions of Windows, if necessary.

Install the HyperV role on this system	The HyperV role can be Enabled.
Enable Windows Firewall	Windows Firewall can be Enabled.

Storage controller

- Choose the RAID controller of installation destination.
RAID system configuration with Rapid Setup is not supported.
When you use RAID controller, refer to maintenance guide to configure RAID system before starting Rapid Setup.

Tips

When you connect multiple cage of hard disk drive, a part of information of box may not be displayed. This event does not affect system operation.

Partition of the OS volume

- Specify the any partition size, and then select **Manual configure partition**.
Enter the partition size of Basic data partition to installation destination (Unit: MB *), or specify it with percentage. The following partitions cannot be changed.
 - Recovery
 - EFI system partition
 - Microsoft reserved partition
- When not choosing **Manual configure partition**, the OS is installed using all area of a hard disk drive.
- Select hard disk drive (logical drive) to install OS.

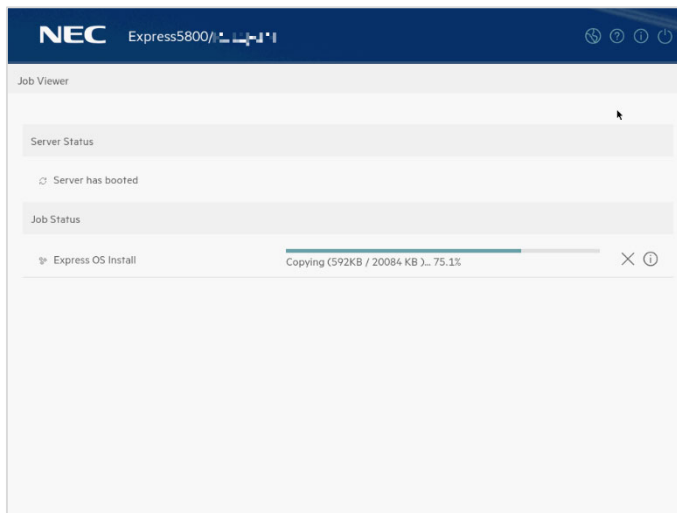
Important

Recognize OS destination hard disk drive (logical drive) by size of hard disk drive. When you can not recognize by size, disconnect hard disk drive that is not used for OS installation before setup. If you select wrong hard disk drive for OS destination hard disk drive, existing data may be deleted unexpectedly. Be careful to select hard disk drive to install.

Firmware Update

- This feature is the reservations in future.

8. When copying is complete, the system restart automatically.

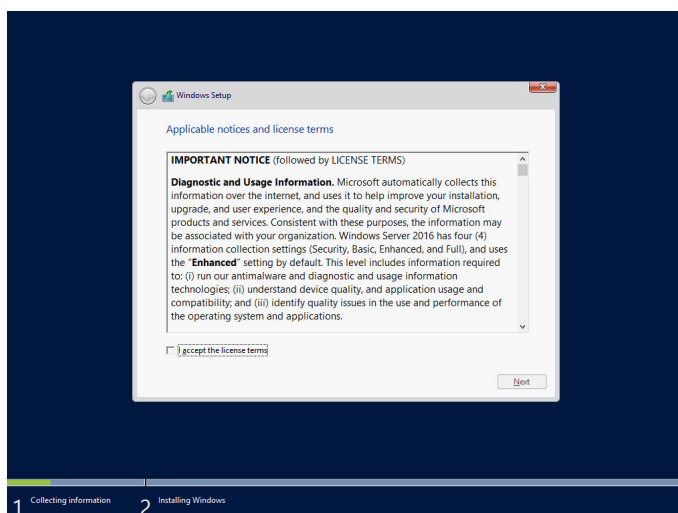


9. Confirm the license terms.

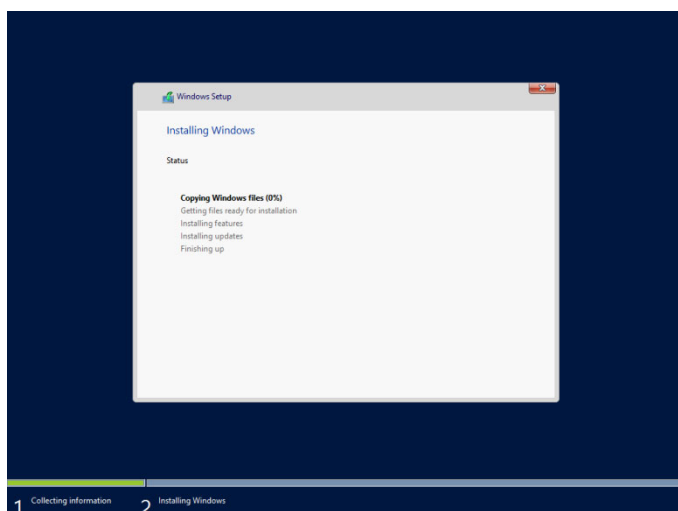
Click **I accept the license terms** if you accept this license, and then click **Next**.

Tips

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.



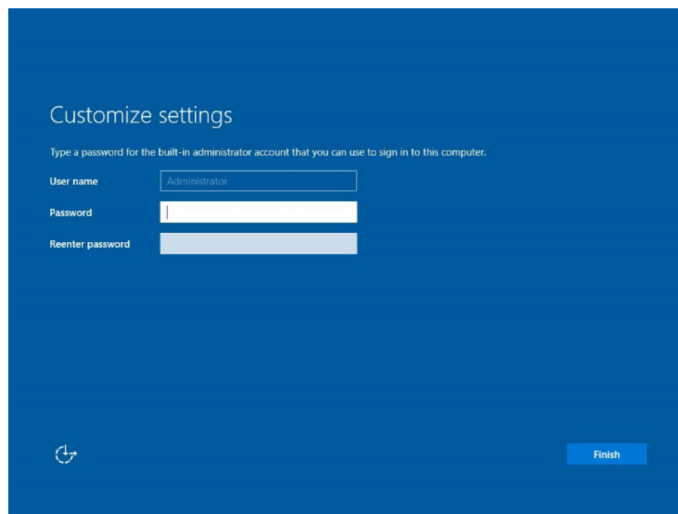
The following screen is displayed, and Windows installation automatically starts.



10. The following screen appears depending on the setting of Step 6.

Desktop Experience

Type a password and click **Finish**.

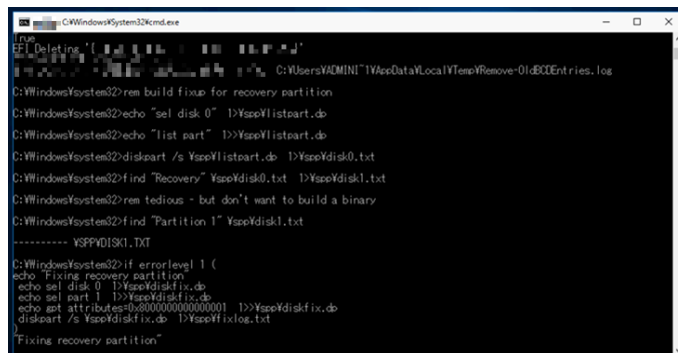


Tips

If you entered a password in step 6, this screen is not displayed.

After signing in, installation automatically resumes.

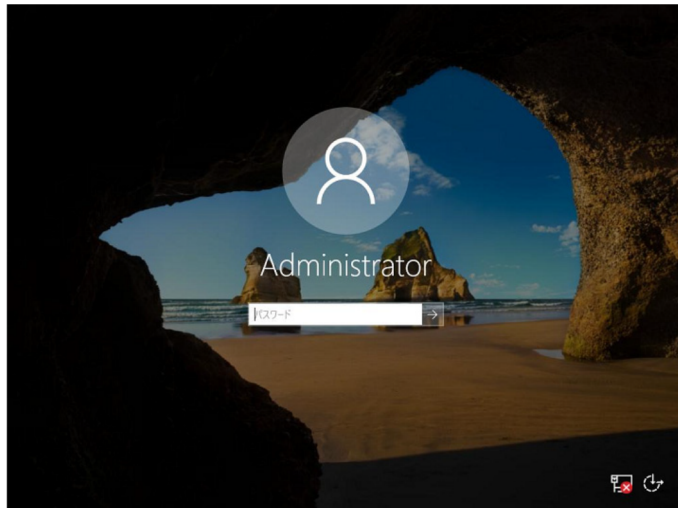
After installation is complete, the system automatically restarts.



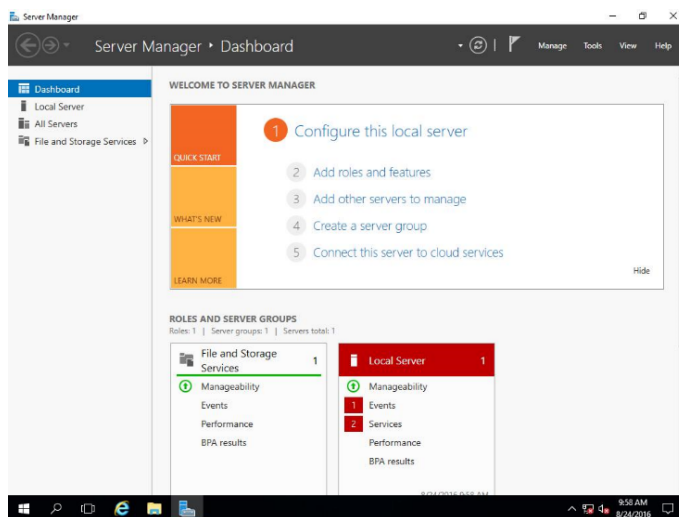
Press <Ctrl> + <Alt> + <Delete> key to unlock.



Enter the password and press <Enter> key.



Windows Server 2016 starts.



Server Core

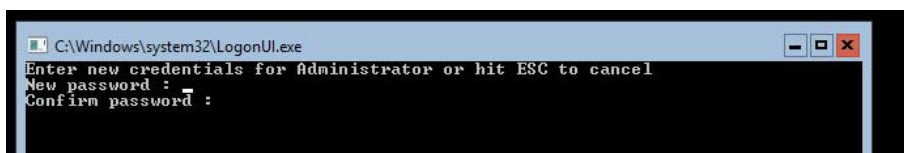
Press <Ctrl> + <Alt> + <Delete> keys to unlock.



Tips

If you entered a password in step 6, this screen is not displayed.

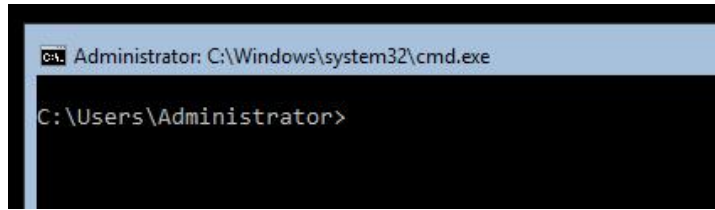
Type a new password and press <Enter> key.



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

<https://technet.microsoft.com/us-en/library/jj574091.aspx>

11. After signing in, installation automatically resumes.
After installation is complete, the system automatically restarts.
12. See *Chapter 1 (3.4 Standard Program Package Installation)* to install SPP.
13. Install drivers and specify detailed settings according to *Chapter 1 (3.5 Setup of Device Drivers)*.
14. Confirm if Windows is activated according to *Chapter 1 (3.6 License Authentication)*.
15. See *Chapter 1 (3.7 Setup of Windows Server 2016 NIC Teaming (LBFO))* to setup a team as needed.
16. Install the applications as needed according to *Chapter 1 (3.8 Installing Applications)*.
17. Set the other OS settings according to *Chapter 1 (4. Setting up for Maintenance)*.
18. See *Chapter 1 (5. Backup of system information)* to back up the system.

The Windows installation with Rapid Setup option is now complete.

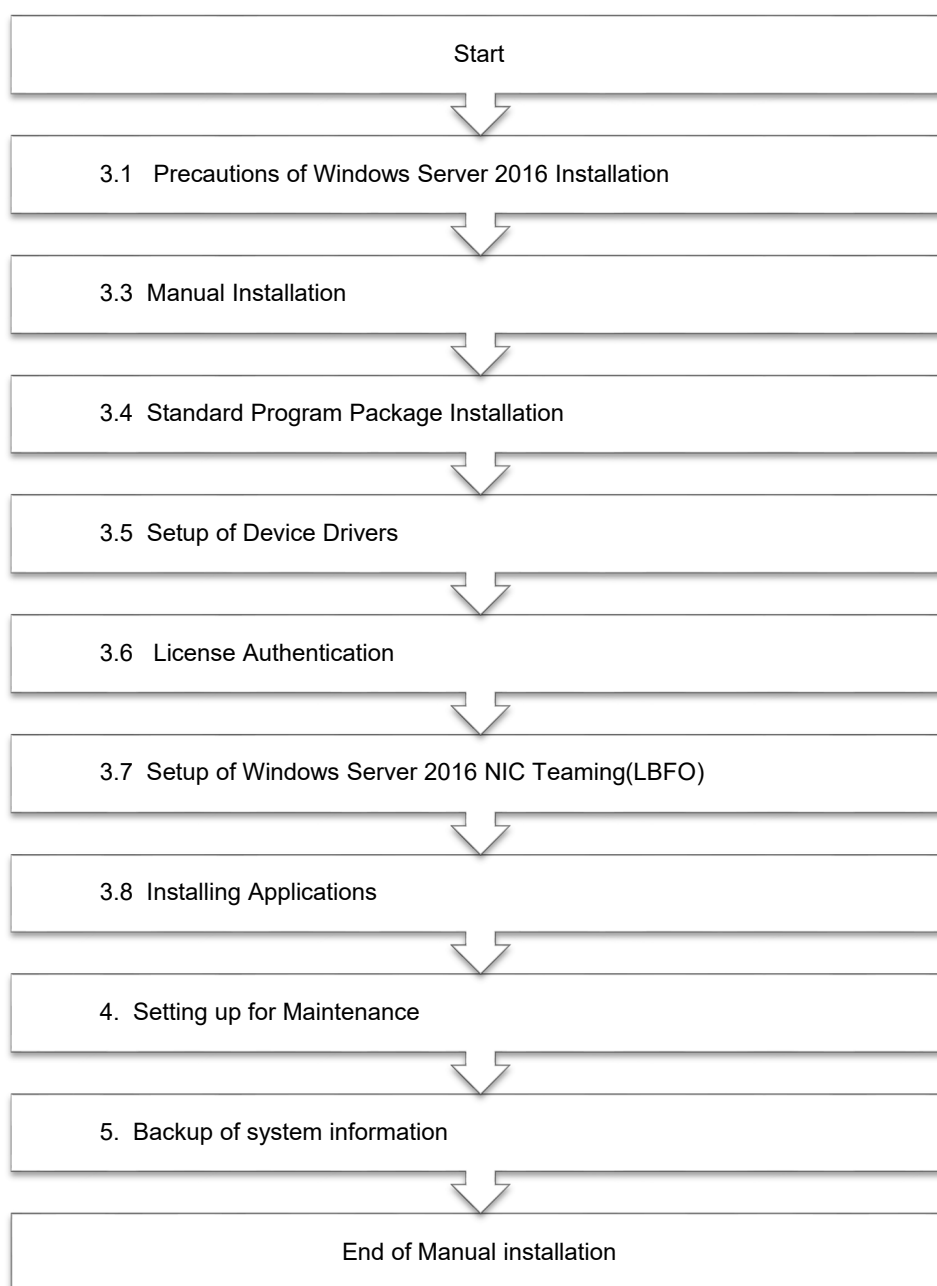
3.3 Manual Installation

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

Important | Disconnect hard disk drives from the RAID controller that is not to be setup.

Note | "Manual Installation" installs OS without EXPRESSBUILDER.

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)
 - The Starter Pack which supports Windows Server 2016 is "S8.10-009.01" or later.
Download it from Web site.

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.

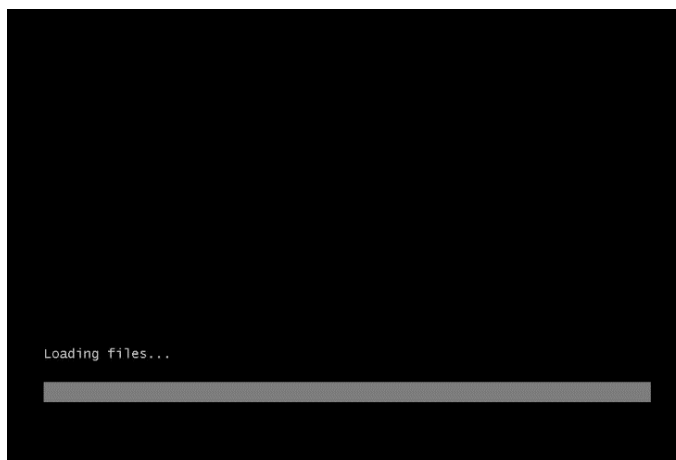
```
<Starter Pack>:\software\009\drivers\sw_raid1_driver
```

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.
Insert OS installation media into the drive.
2. To run EXPRESSBUILDER, press <F11> key during POST.
On the **One-Time Boot Menu**, select the optical disk drive in which the OS installation media was inserted.
3. 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.



Note

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.

4. Click **Next**.

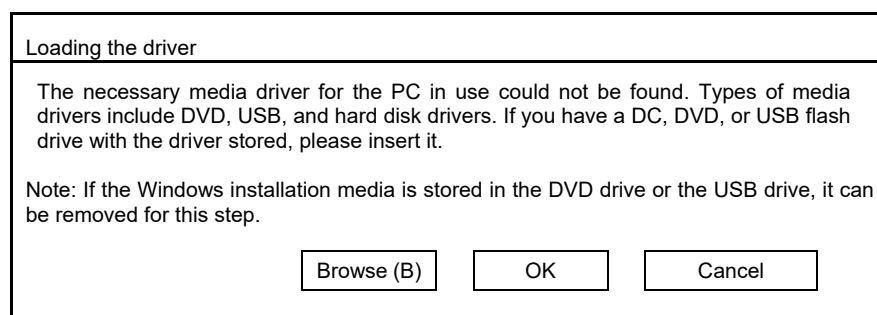


5. Click **Install now**.



If the following message is displayed: Go to Step 6.

If the following message is not displayed: Go to Step 8.



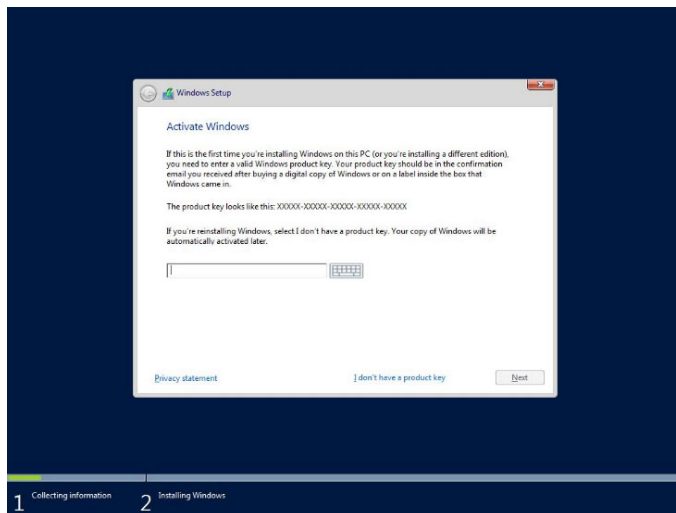
6. After connecting the removable media where the onboard RAID controller driver was copied, specify the path and click **OK**.

<Removable media>:\sw_raid1_driver

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

HPE Smart Array S100i SR Gen10 SW RAID

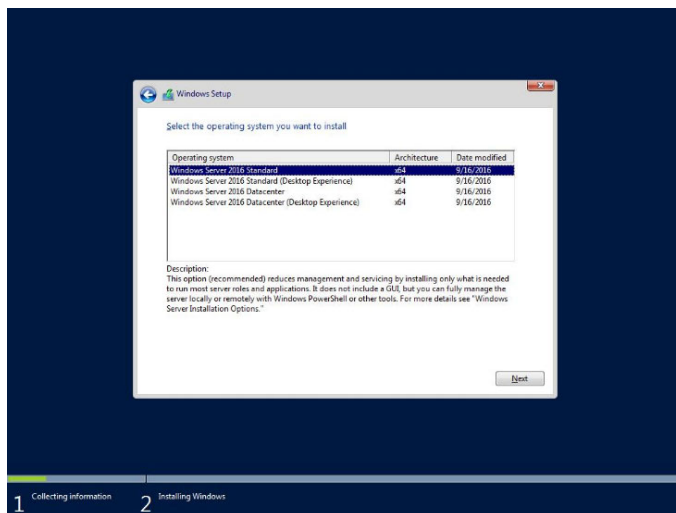
8. Type the product key, and then click **Next**.



Tips

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

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



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

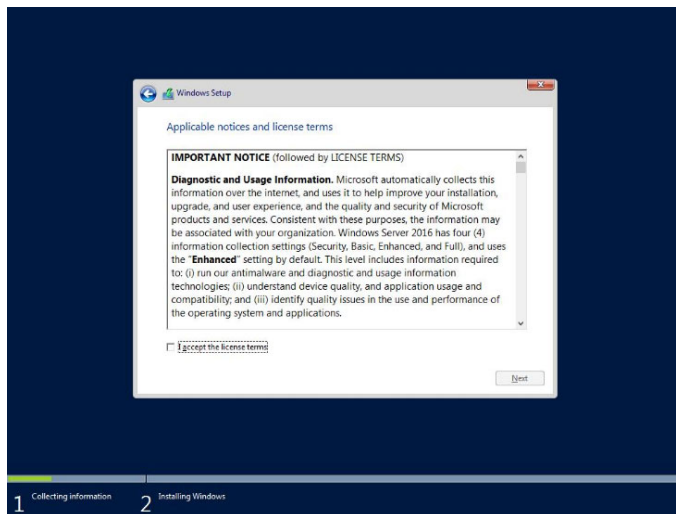
Tips

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

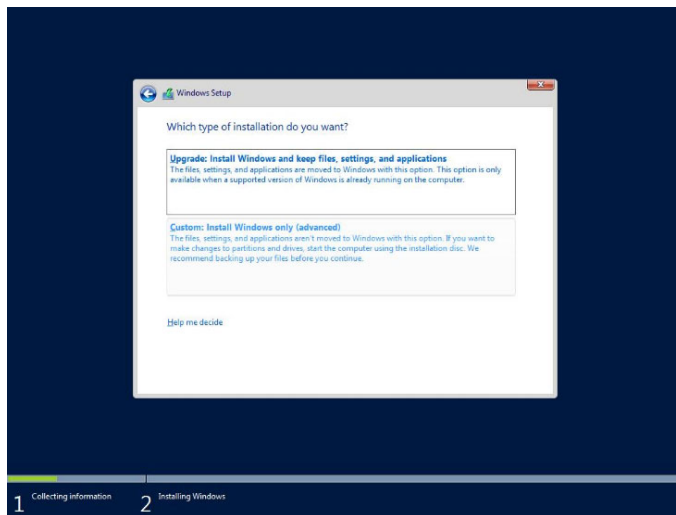
- Windows Server 2016 Standard or Windows Server 2016 Datacenter
→ Described as “Server Core” by this manual
- Windows Server 2016 Standard (Desktop Experience) or Windows Server 2016 Datacenter (Desktop Experience)
→ Described as “Desktop Experience” by this manual

10. Read the license terms carefully.

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



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



12. The "Select Windows installation location" screen is displayed.

If the driver was loaded in steps 6 and 7, or if the onboard RAID controller is not in use, proceed to step 15.

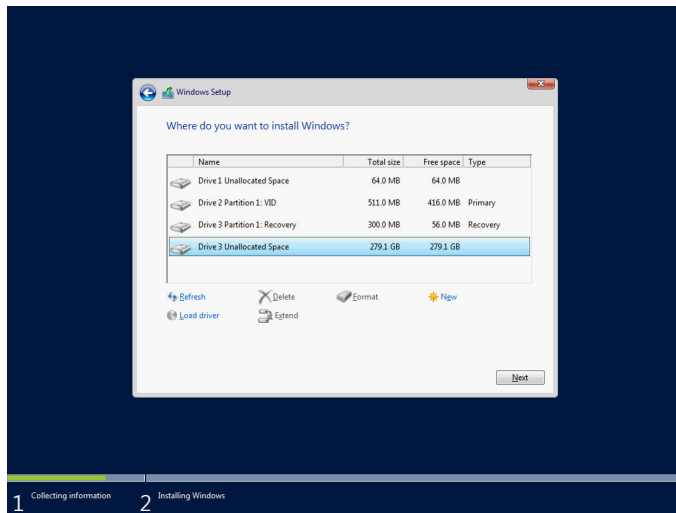
If you select **Load driver** here, the following screen will be displayed.



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

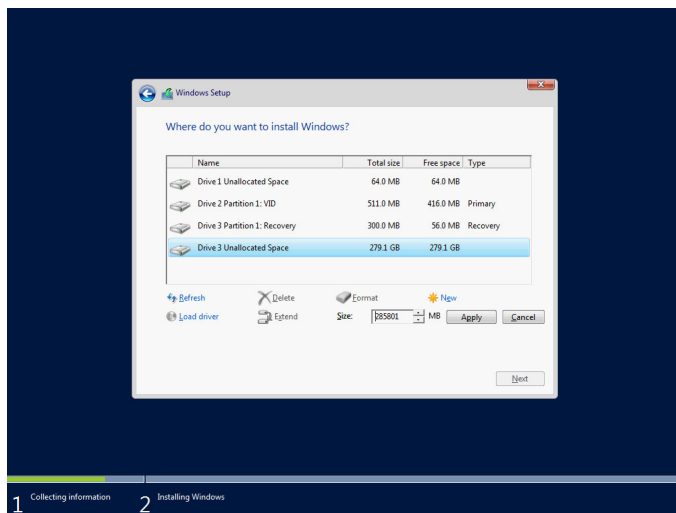
- Onboard RAID Controller
`<Starter Pack DVD>:\software\009\drivers\sw_raid1_driver`
- RAID Controller (N8103-189/190/191/192/193/194/195/201)
`<Starter Pack DVD>:\software\009\drivers\dac1_driver`

14. Select the following driver from the displayed list of drivers, and click **Next**.
 - onboard RAID Controller : **HPE Smart Array S100i SR Gen10 SW RAID**
 - RAID Controller (N8103-189/192) : **HPE Smart Array E208i-a SR Gen10**
 - RAID Controller (N8103-190/193) : **HPE Smart Array P408i-a SR Gen10**
 - RAID Controller (N8103-191/194) : **HPE Smart Array P816i-a SR Gen10**
 - RAID Controller (N8103-195) : **HPE Smart Array E208i-p SR Gen10**
 - RAID Controller (N8103-201) : **HPE Smart Array P408i-p SR Gen10**
15. Click **New**.

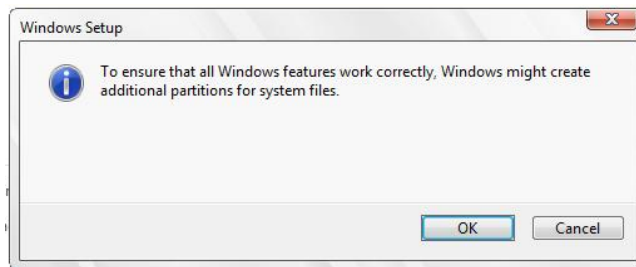
**Tips**

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

16. Specify the partition size in the text box, and then 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.

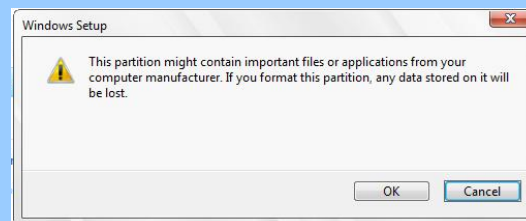
- Recovery Partition
- EFI System Partition (ESP)
- Microsoft Reserved Partition (MSR)

17. Select the partition created in step 16, and then click **Format**.

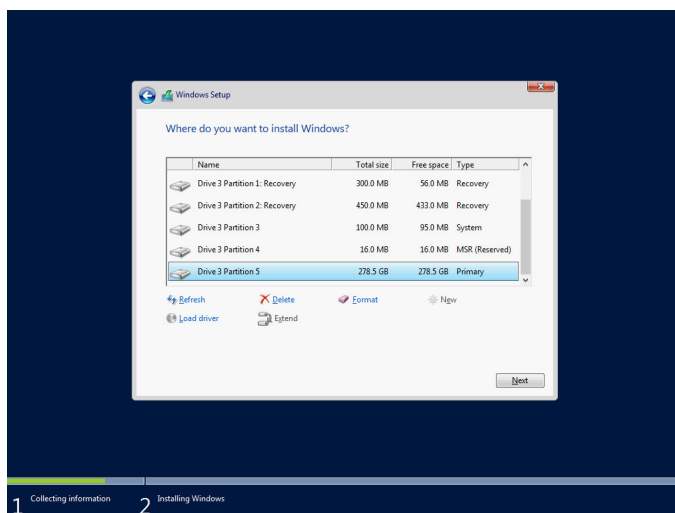
Important

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.



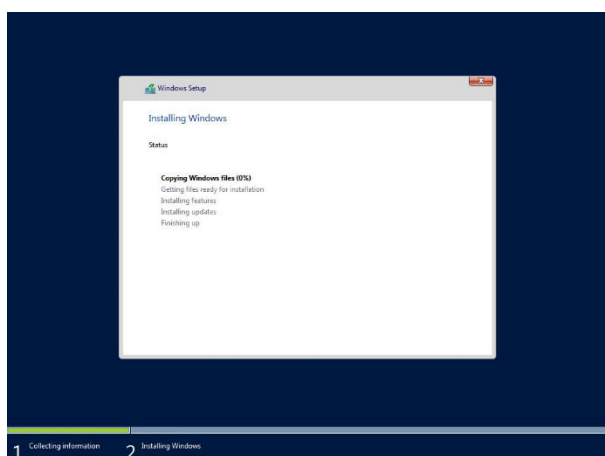
18. Select the created partition, and then click **Next**.



Tips

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

If Starter Pack DVD is in the drive, change it to the OS disk, and then click **Refresh**.
When the following message appears, Windows installation starts automatically.

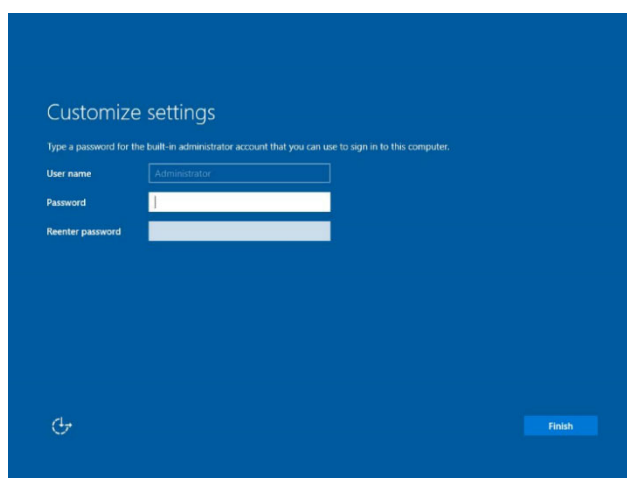


The server will automatically restart after Windows Server 2016 is installed.
You will proceed to Windows setup after restart.

19. Set user settings according to operating system chosen in step 9.

Desktop Experience

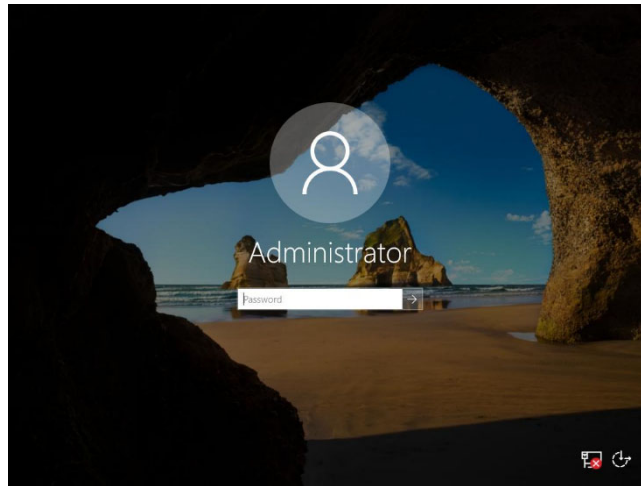
Type a password and click **Finish**.



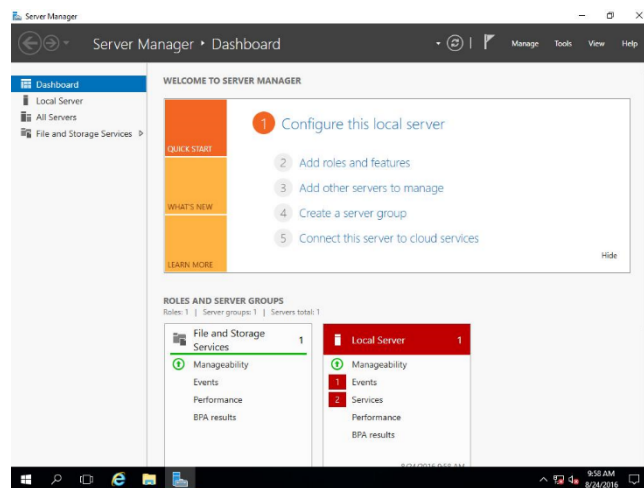
Press <Ctrl> + <Alt> + <Delete> keys to unlock.



Enter the password and press <Enter> key.



Windows Server 2016 starts.



Server Core

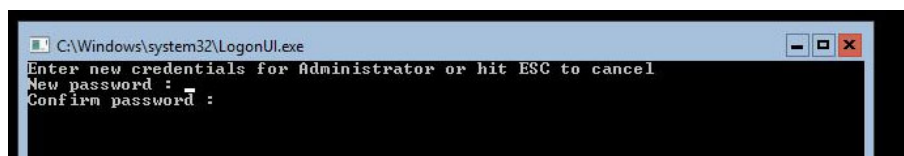
Press <Ctrl> + <Alt> + <Delete> keys to unlock.



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



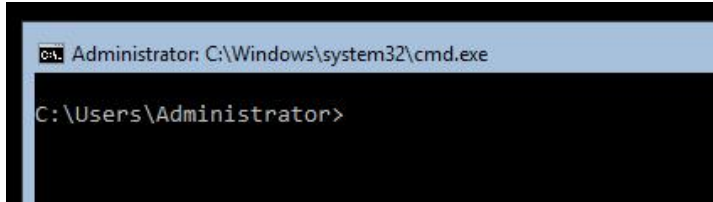
Enter a new password and press <Enter> key.



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

<https://technet.microsoft.com/us-en/library/jj574091.aspx>

20. See *Chapter 1 (3.4 Standard Program Package Installation)* to install SPP.
21. Install drivers and specify detailed settings according to *Chapter 1 (3.5 Setup of Device Drivers)*.
22. Confirm if Windows is activated according to *Chapter 1 (3.6 License Authentication)*.
23. See *Chapter 1 (3.7 Setup of Windows Server 2016 NIC Teaming (LBFO))* to setup a team as needed.
24. Install the applications as needed according to *Chapter 1 (3.8 Installing Applications)*.
25. Set the other OS settings according to *Chapter 1 (4. Setting up for Maintenance)*.
26. See *Chapter 1 (5. Backup of system information)* to back up the system.

The Windows installation with Manual Installation is now complete.

3.4 Standard Program Package Installation

Standard Program Package (SPP) contains drivers customized for this server.

Make sure to install Standard Program Package before running the server system.

System reboot is required after applying Standard Program Package.

This program can apply using iLO remote console and iLO virtual media.

Important

- **Make sure to update firmware by booting "Starter Pack DVD" before applying Standard Program Package. If you mistake procedure, the system may not start.**
- **When you use these options, refer to the following procedure to install these drivers individually from "Starter Pack DVD" before installing SPP. SPP may be stopped with error if you do not install the driver beforehand.**

When the R120h-1M / R120h-1M (2nd-Gen) / R120h-2M / R120h-2M (2nd-Gen) / R110j-1 standard LAN adapter or N8104-171/178/179 is installed to the server

Run **\packages\cp045019.exe** on the DVD.

Although the message indicated that the latest version has already been installed may be displayed, proceed with the installation.

After that, restart the server.

When N8103-189/190/191/192/193/194/195/196/197/201 is installed to the server

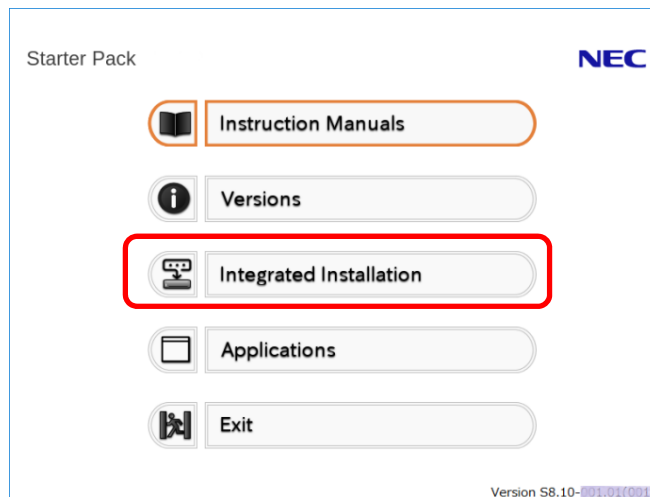
When the RAID controller is installed to the server,

\packages\cp044563.exe on the DVD to install the driver.

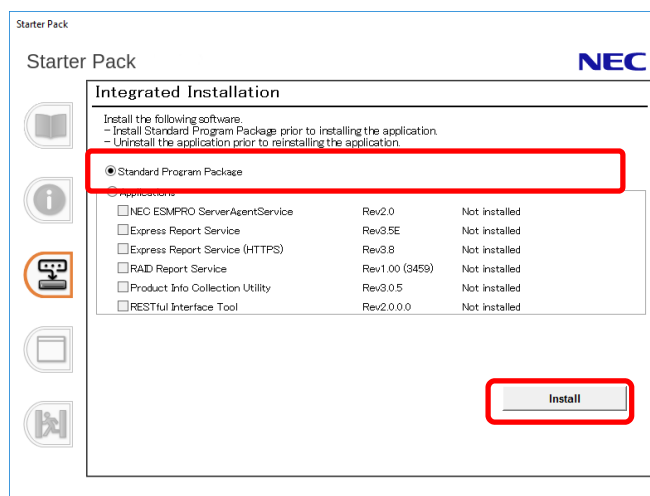
After that, restart the server.

3.4.1 Installing Standard Program Package on Desktop Experience

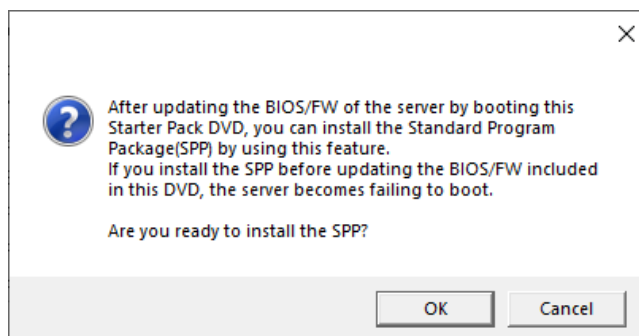
1. Sign-in to the Windows with an Administrators privilege.
2. Set the Starter Pack DVD to the drive.
3. Run the **start_up.bat** under the root folder on DVD.
4. Click **Integrated Installation** on the menu.



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

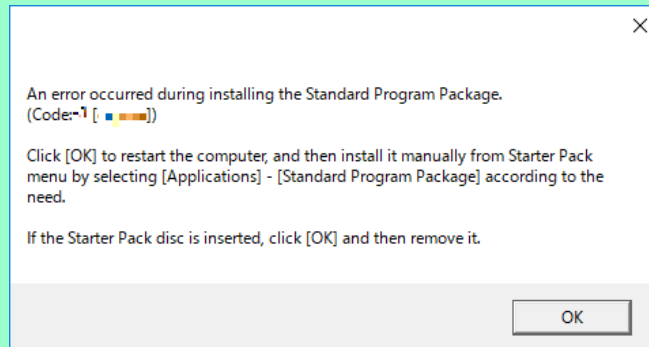


6. If you had updated firmware beforehand, click **OK** to start the installation of Standard Program Package. Wait until installation completes (about 5 to 15 minutes).



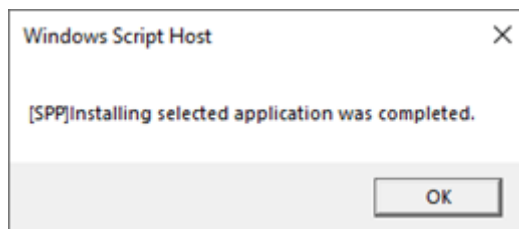
Note

- If the following message displayed during installing the Standard Program Package, reboot the system and retry Step1-6.



- iLO may be reset during applying Standard Program Package.
If iLO is reset, iLO remote console and iLO virtual media is disconnected.
When iLO remote console and iLO virtual media is disconnected, connect again after 30 seconds or more.

7. Click **OK**.



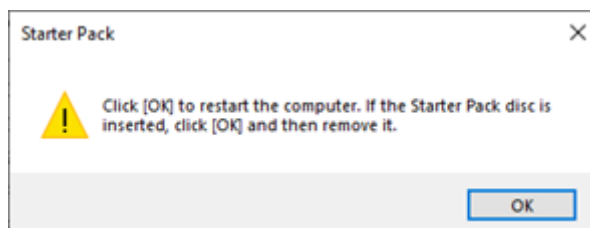
Note

If the following message displayed during installing the Standard Program Package, click **No** to continue process.

Stop running this script?
A script on this page is causing your web browser to run slowly.
If it continues to run, your computer might become unresponsive.

8. Windows Server 2016 restarts automatically.

Then, remove the Starter Pack DVD.



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\009\win\seamless

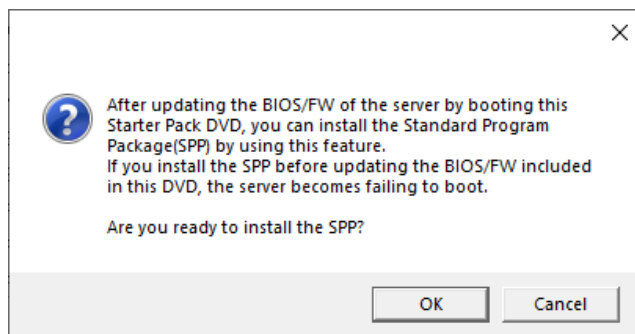
```
C:\Users\administrator>cd /d D:\software\009\win\seamless
```

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

instcmd.vbs spp /s

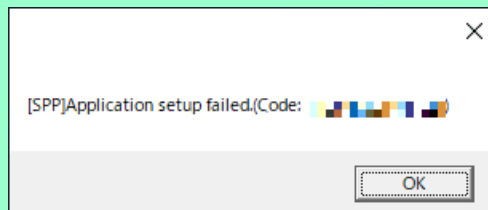
```
D:\software\009\win\seamless >instcmd.vbs spp /s
```

5. If you had updated firmware beforehand, click **OK** to start the installation of Standard Program Package.
Wait until installation completes (about 5 to 15 minutes).



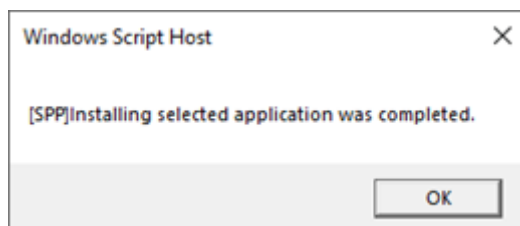
Note

- If the following message displayed during installing the Standard Program Package, reboot the system and retry Step1-5.



- iLO may be reset during applying Standard Program Package.
If iLO is reset, iLO remote console and iLO virtual media is disconnected. When iLO remote console and iLO virtual media is disconnected, connect again after 30 seconds or more.

6. Click **OK**.



7. After removing the Starter Pack DVD, restart Windows Server 2016 manually.

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.

Important

Wake On LAN (WOL) is supported by onboard network adapters and N8104-171/172/173/175/193/194/195 only. Wake On LAN is available after installing the LAN driver.

For Wake On LAN of R120h-1E / R120h-2E / T120h onboard network adapters and N8104-172/175/193/194/195, when using Wake On LAN see Chapter 1 (3.5.2 Setting up LAN drivers - (3) 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.

R120h-1M R120h-1M (2nd-Gen) R120h-2M R120h-2M (2nd-Gen)	N8104-171/172/173/175/176/177/178/179/180/181/182/183/184/185/186/187
R120h-1M (3rd-Gen) R120h-2M (3rd-Gen)	N8104-172/175/178/179/180/181/182/183/184/185/186/187
R120h-1E R120h-2E	N8104-171/172/173/175/176/177/178/179/180/181/182/183/184/185/186/187/ 193/194/195
T120h	N8104-178/179/180/181/182/183/184/185/186/187
R110j-1	N8104-171/172/173/176/178/179/180/181/182/183/185/186

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)*.

(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**

R120h-1M R120h-1M (2nd-Gen) R120h-2M R120h-2M (2nd-Gen)	HPE Ethernet 1Gb 4-port 331i Adapter #xx(*1)
R120h-1E R120h-2E	HPE Ethernet 1Gb 2-port 368i Adapter #xx(*1)
T120h	HPE Ethernet 1Gb 4-port 369i Adapter #xx(*1)
R110j-1	HPE Ethernet 1Gb 2-port 332i Adapter #xx(*1)

- **If connecting with an optional LAN board:**

N8104-171	HPE Ethernet 1Gb 4-port 331FLR Adapter #xx(*1)
N8104-172	HPE Ethernet 1Gb 4-port 366FLR Adapter #xx(*1)
N8104-173	HPE FlexFabric 10Gb 2-port 533FLR-T 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	HPE Ethernet 1Gb 2-port 361T Adapter #xx(*1)
N8104-181	HPE 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)
N8104-193	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 N8104-173/177/182/183/185/187 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 adapter name displayed in the device manager may be different from the one listed above.

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

1. Start **Device Manager**.
2. Open **Network Adapters**, right click on the relevant adapter, 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 adapter for N8104-177/185/187, the network adapter 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.

Tips

When using the N8104-177/183/187, **Link control** set to **Driver controlled**.
*When **Link control** is **Preboot controlled**, link speed setting of BIOS take a priority.

4. Click **OK** in the **Network Adapter Properties** dialog box.
5. Restart the system.

The link speed setting is now complete.

(2) Configuring Flow Control

Flow Control is a feature to stop transmitting frames temporarily by sending a pause frame to the destination device when the receive buffer is about to run out. When it receives a pause frame, it regulates the transmission. Configure the Flow Control following the procedure below

Tips

The settings of Flow Control of the network adapter should match those of the destination device. For example, if Flow Control in the destination device is set as Enabled, that in the network adapter should be set as Enabled.

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 **Flow Control** to show Value.
4. The Value can be changed by the down-arrow button.
5. Click **OK**, and then restart the system.

The Flow Control setting is now complete.

(3) Setting up Wake on LAN

When using R120h-1E / R120h-2E / T120h onboard network adapters and N8104-172/175/193/194/195 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 drivers are installed by Standard Program Package.

If you install the Graphics Accelerator driver after installing Standard Program Package, install Standard Program Package again according to *Chapter 1 (3.4 Standard Program Package Installation)*.

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 (N8103-189/190/191/192/193/194/195/196/201)

The drivers are installed by Standard Program Package.

If you install the RAID controller (N8103-189/190/191/192/193/194/195/196/201) 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)*.

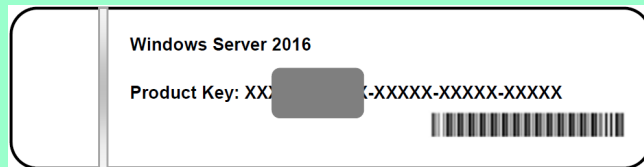
3.6 License Authentication

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

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

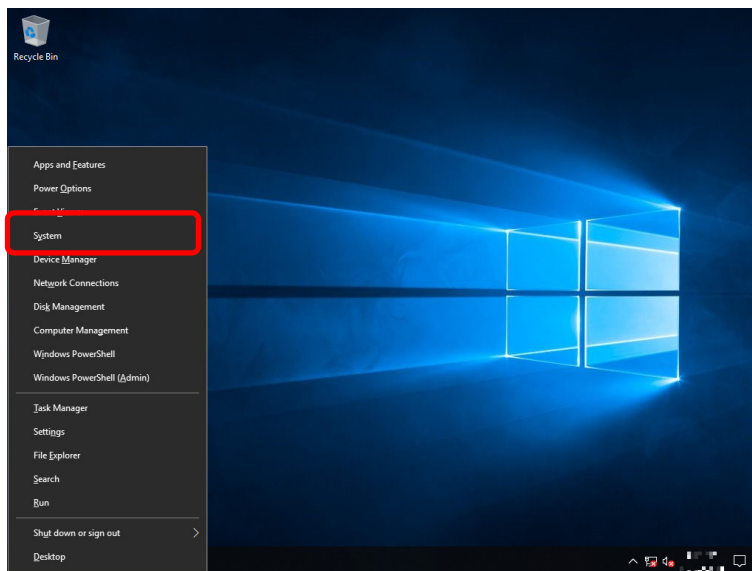
Note

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

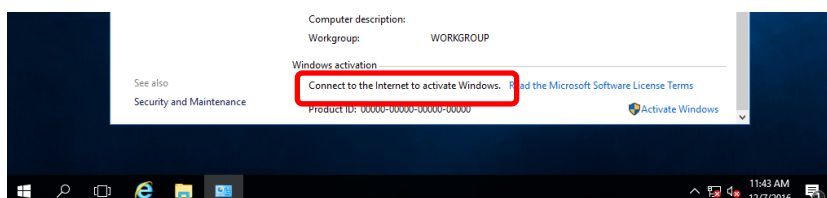
1. Right-click the lower left of the screen, and click **System** from the menu displayed.



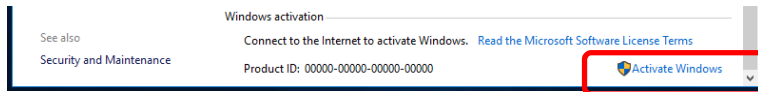
2. Check Windows license authentication.

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

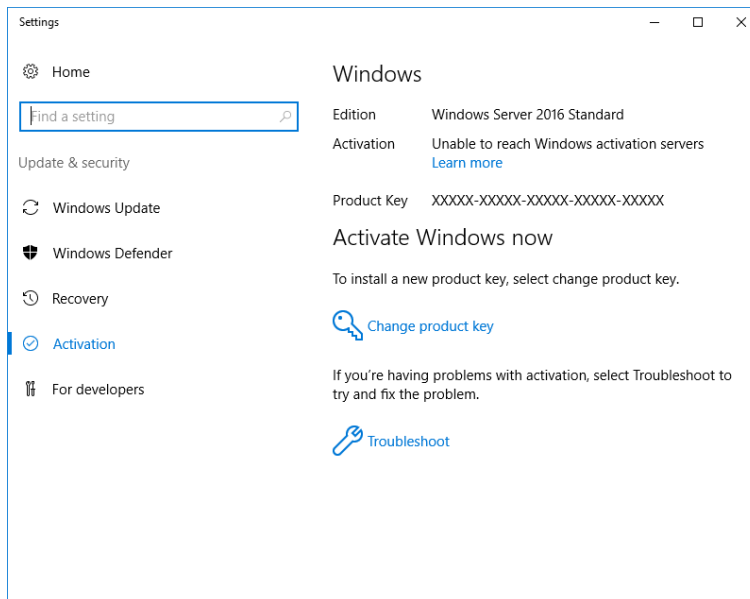
When "Connect to the internet to activate Windows." is displayed, go to step 3.



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.

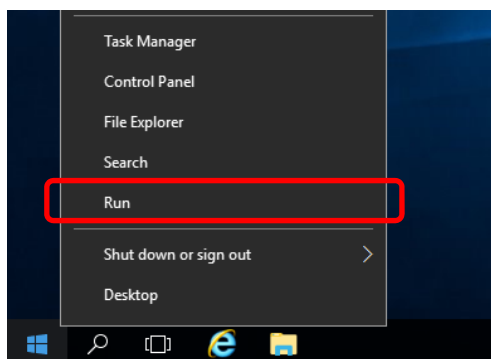
Backup DVD-ROM: Go to Step 6.

Windows Server 2016 DVD-ROM:

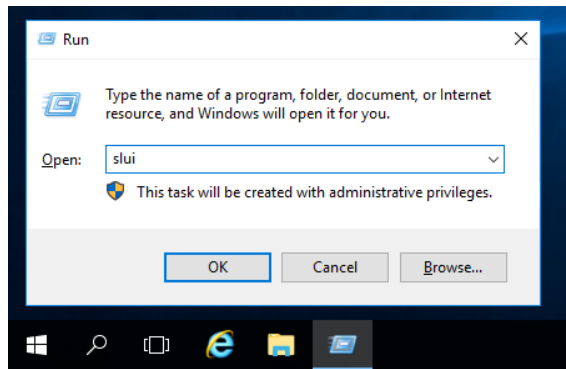
Product key is already entered: Go to Step 9.

Product key is not entered: Go to Step 6.

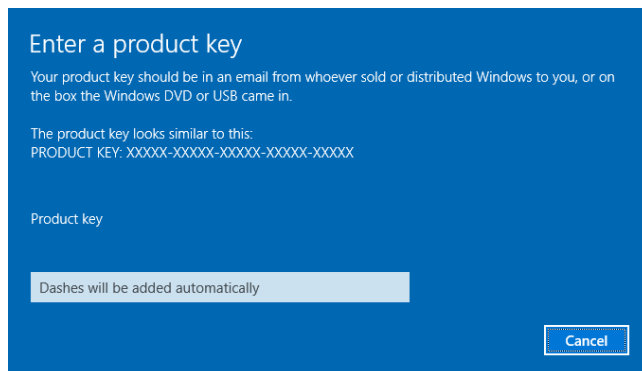
6. Right-click the lower left of the screen, and click **Run** from the menu displayed.



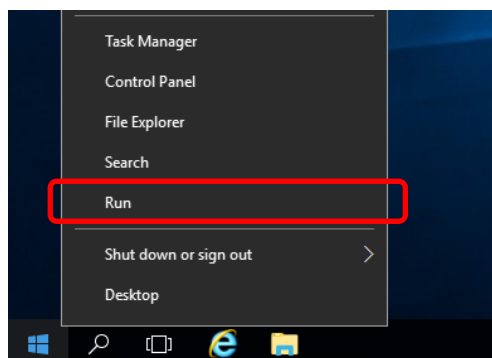
7. Type "slui", and then press <Enter> key.



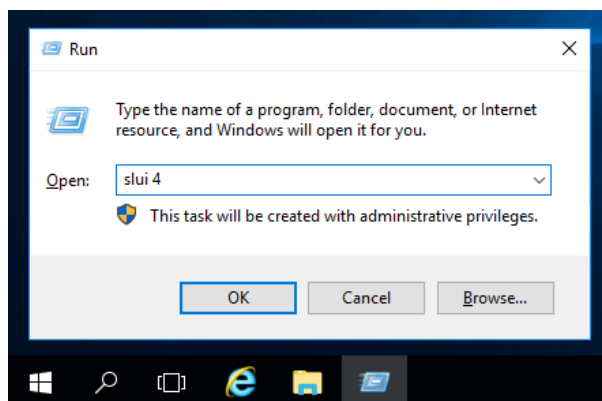
8. Change the product key. On the next screen, type the product key.



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**.

Select your country or region

Afghanistan ▼

Next Cancel

Get the installation ID required for license activation.

← Call and provide your installation ID

Call one of these numbers. The automated phone system will ask for your installation ID (IID). Some charges may be applied by local operators for toll-free numbers in certain countries or regions.

Toll free:
not available

Toll:
(971) (4) 391 7000

Installation ID:

1	2	3	4	5	6	7	8	9
0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000

[Read our privacy statement](#)

Enter confirmation ID Cancel

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

← Enter your confirmation ID

The automated phone system will tell you what to enter.

A	B	C	D	E	F	G	H

Activate Windows Cancel

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.

3.7.1 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.

3.7.2 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	<ul style="list-style-type: none"> • 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.

3.7.3 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.

<https://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 *the manual of each applications*. This feature is **only available on Desktop Experience**.

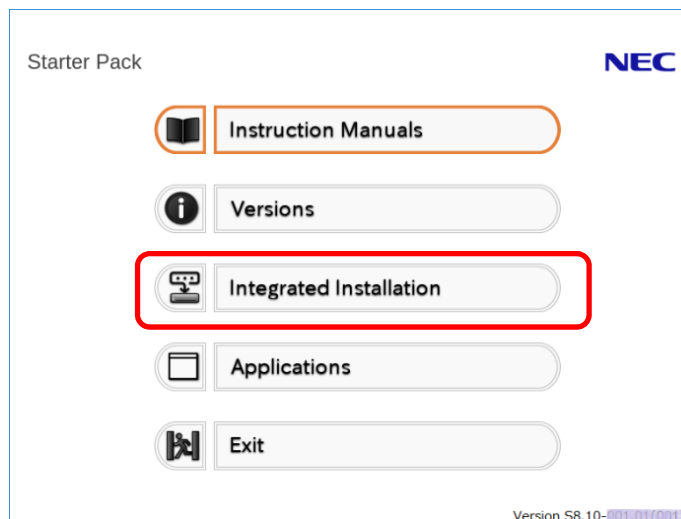
System reboot is required after installing applications.

Application can install using iLO remote console and iLO virtual media.

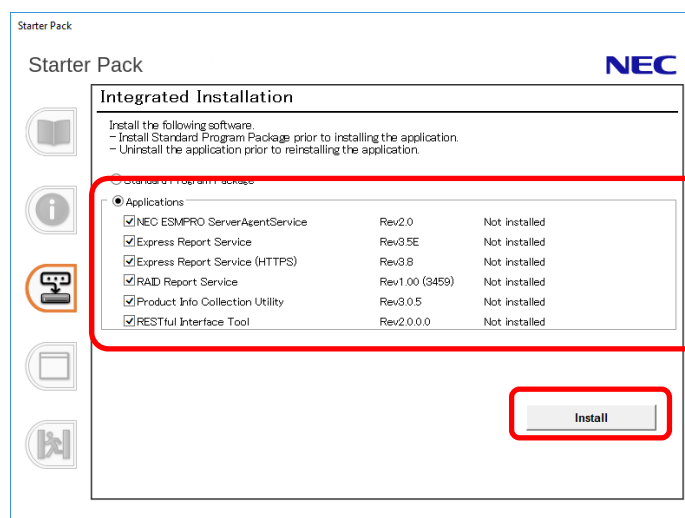
Tips

This function supports clean installation of applications only. If you re-install installed application, refer to *the manual of each applications*.

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 *the manual of each applications*.
- 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.
- If the following message displayed during installing applications, click **No** to continue process.

Stop running this script?

A script on this page is causing your web browser to run slowly.
If it continues to run, your computer might become unresponsive.

6. When a message indicating restart appears, click **OK** to restart the server.
7. See *the manual of each applications* to install the bundled software or confirm that the software is appropriate to your operating environment.

Now installation of applications is complete.

4. Setting up for Maintenance

We recommend setting up the following features for maintenance.

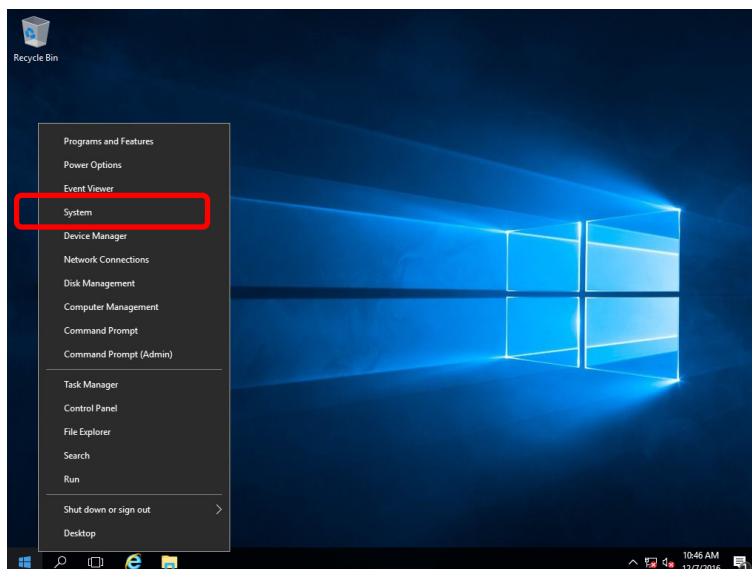
4.1 Specifying Memory Dump Settings (Debug Information)

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

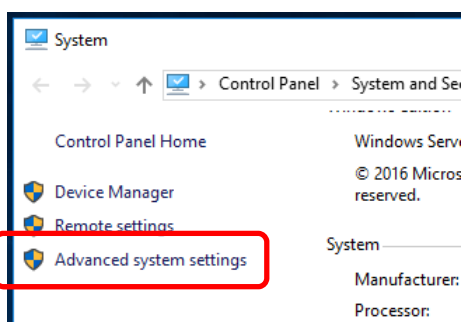
Important

When you restart the system to save the memory dump, a message informing you that the system is short of virtual memory might appear. Ignore this message and proceed with the restart. If you reset or restart the system again, the memory dump might not be saved normally.

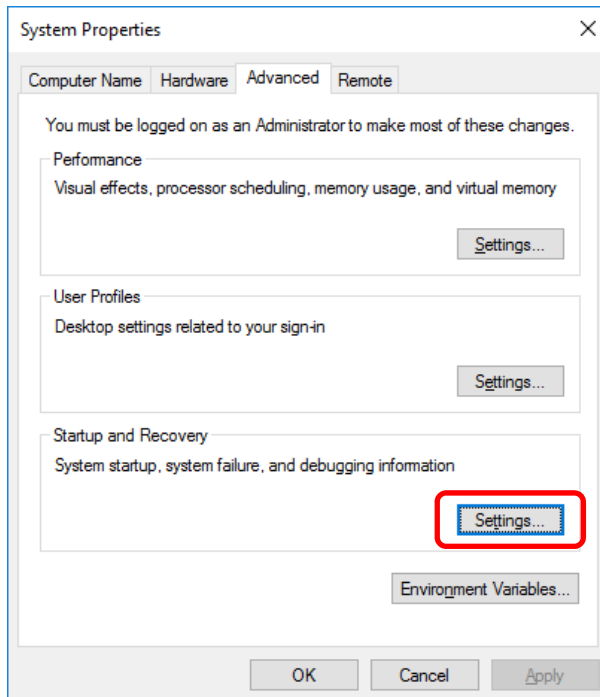
1. Right-click the left bottom of screen, and click **System** from the menu displayed.



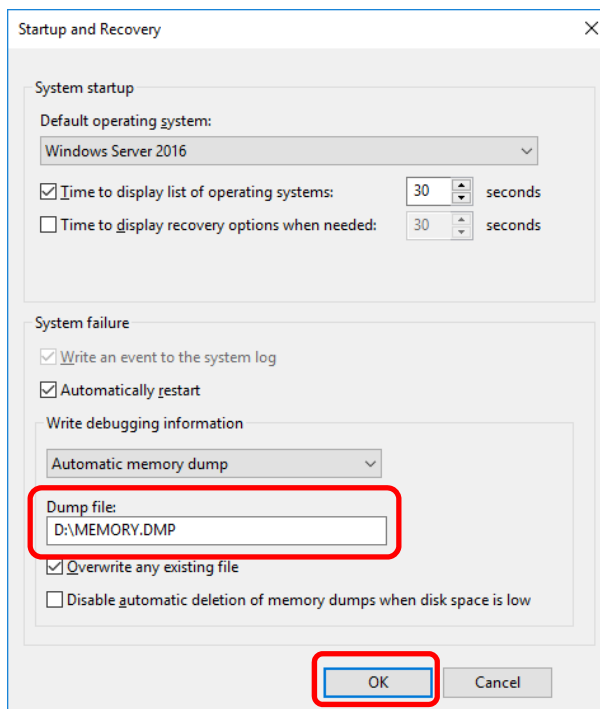
2. Click **Advanced system settings**.



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



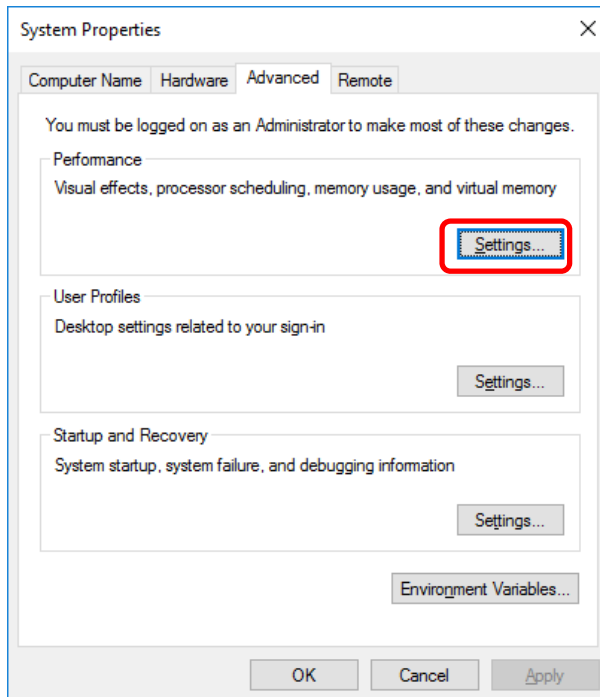
4. Type a file name to store the debug information in the **Dump file** text box, and then click **OK**.



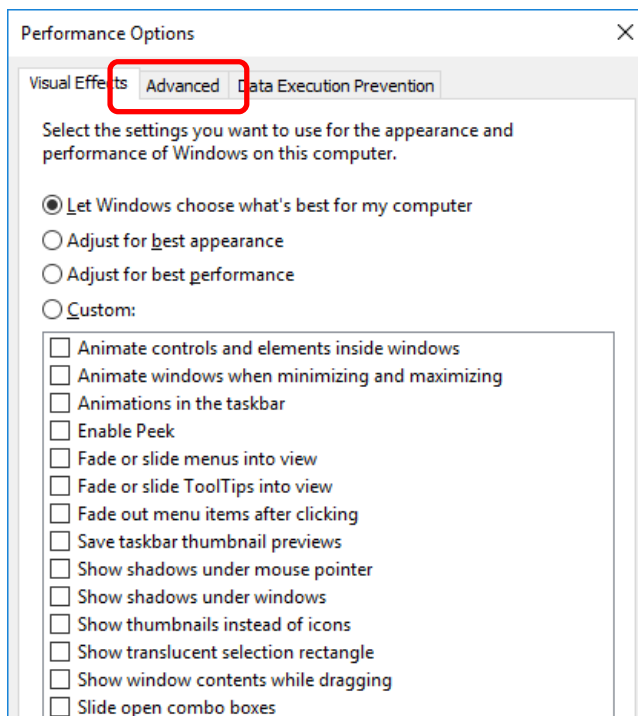
Note the following when specifying a dump file:

- 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).
- The size of the debug information (memory dump) changes if DIMM is added. Make sure that the free space of the drive to save the debug information is sufficient.

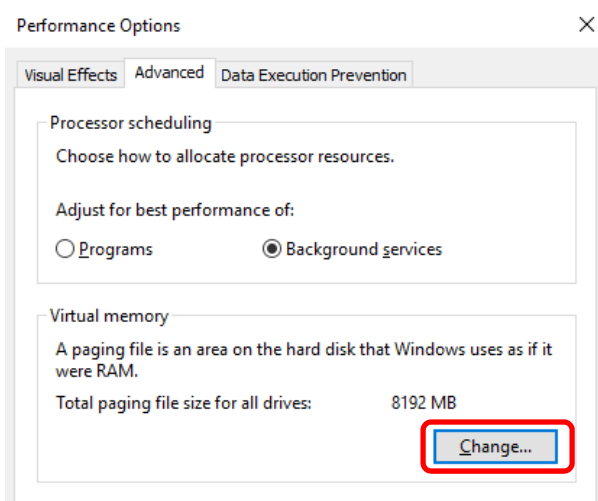
5. In **Performance**, click **Settings**.



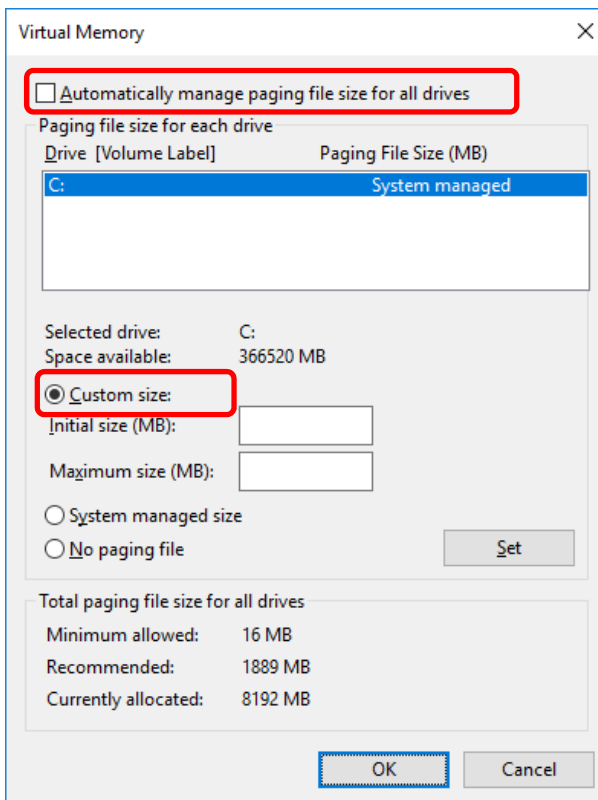
6. Click the **Advanced** tab on the **Performance Options** window.



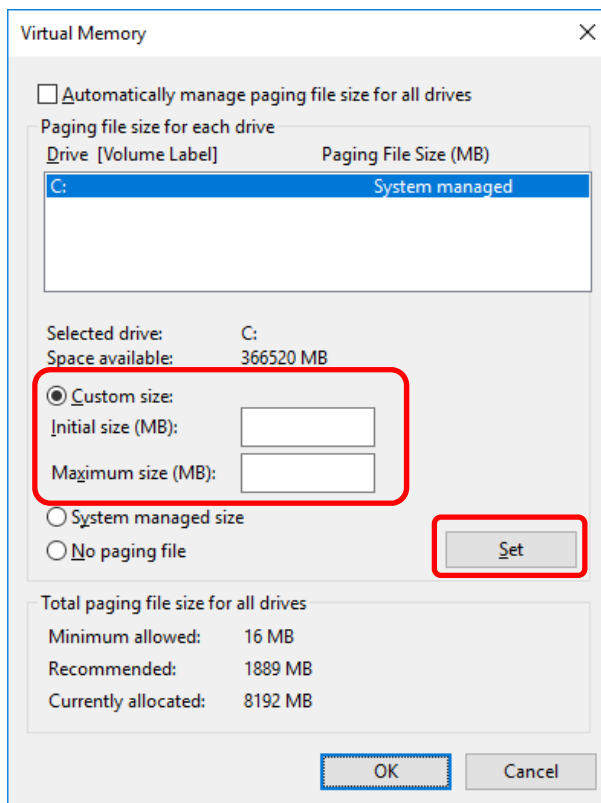
7. In **Virtual memory**, click **Change**.



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.
- When DIMM is added, re-specify the paging file according to the increased memory size.

10. Click **OK**.

If a message to restart Windows appears, restart the system according to on-screen message.

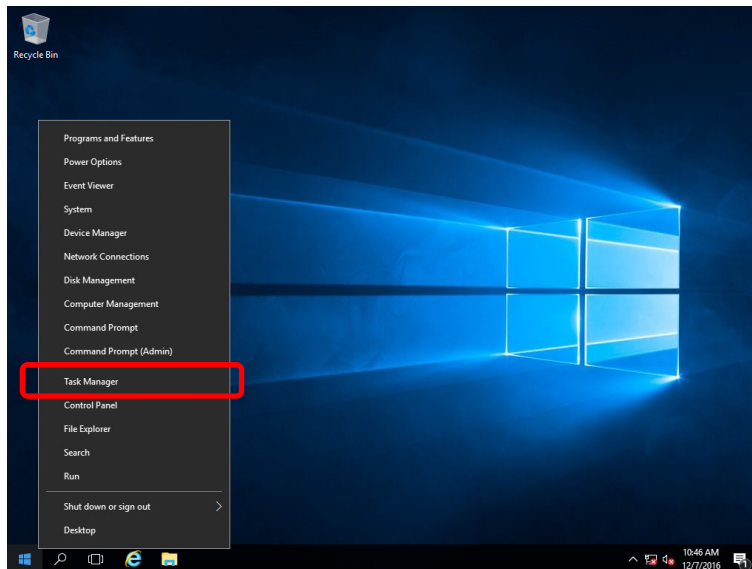
Specification of the memory dump settings is now complete.

4.2 How to Create a User-mode Process Dump File

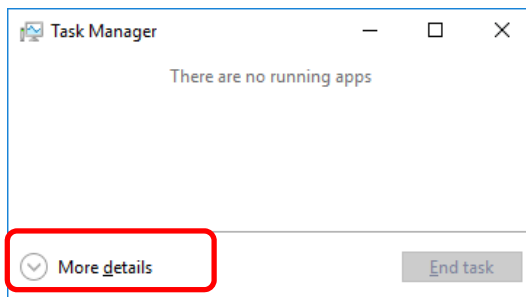
The user-mode process dump file records information when an application error occurs.

If an application error occurs, get user-mode process dump information using the following procedures without closing the pop-up window that reported the error:

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



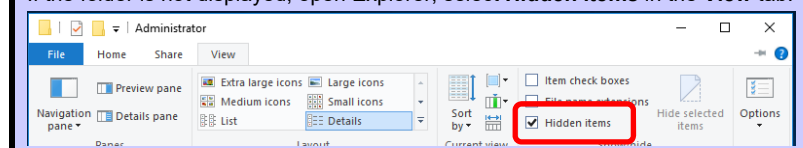
2. Click **More details**.



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** in the **View** tab.



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

5. Backup of system information

After environment building, back up the setting information of the system in advance of any troubles.

- Back up system settings contained in system utility.

See *User's Guide (2. Description on System Utility)* for details of system utility.

- Back up detail information of iLO 5.

See *"iLO 5 User's Guide"* for details of procedure.

Maintenance

This chapter explains maintenance of server, and what actions are to be taken in case of trouble when operating this server.

1. Failure Information

Describes how to collect the failure information. See this section in case of a failure.

2. Troubleshooting

Describes how to troubleshoot the server. See this section if you suspect a failure.

3. Windows System Recovery

Describes Windows recovery setup. See this section if the Windows is corrupt.

1. Failure Information

If the server does not work normally, you can collect failure information by using the following way.

The failure information to be described is to be collected only at the request of your sales representative.

Important

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

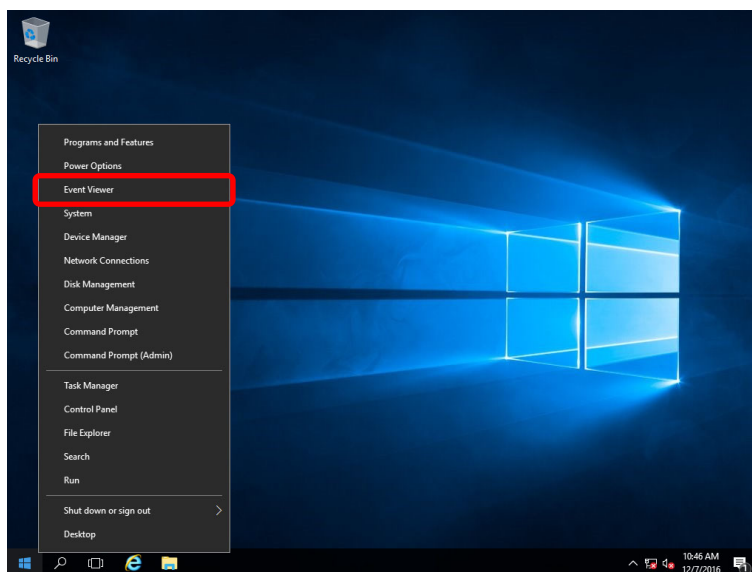
1.1 Collecting Event Logs

To collect the various event logs of the server, follow the steps below.

Tips

If a STOP error, system error, or stall occurs, restart the system and then follow the steps below.

1. Right-click the left bottom of screen, and click **Event Viewer** from the menu displayed.

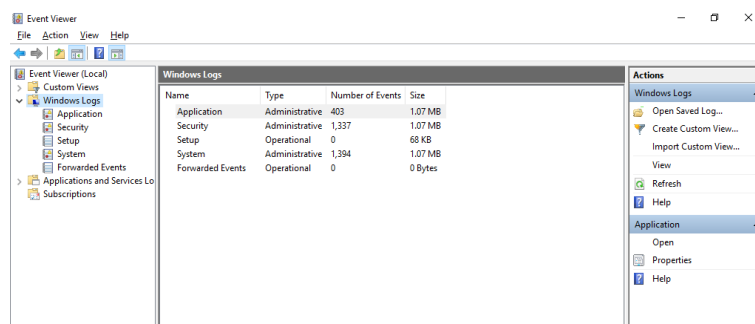


2. Select the type of log in **Windows Logs**.

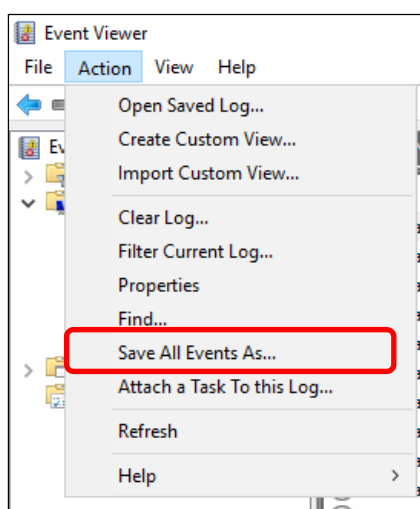
Application records events related to running applications.

Security records events related to security.

System records events that occur in Windows system components.



3. Click **Save All Events As...** from **Action** menu



4. Type the file name of the archived log in **File name**.
5. Select the type of the log file you want to save in **Save as type**, and then click **Save**.

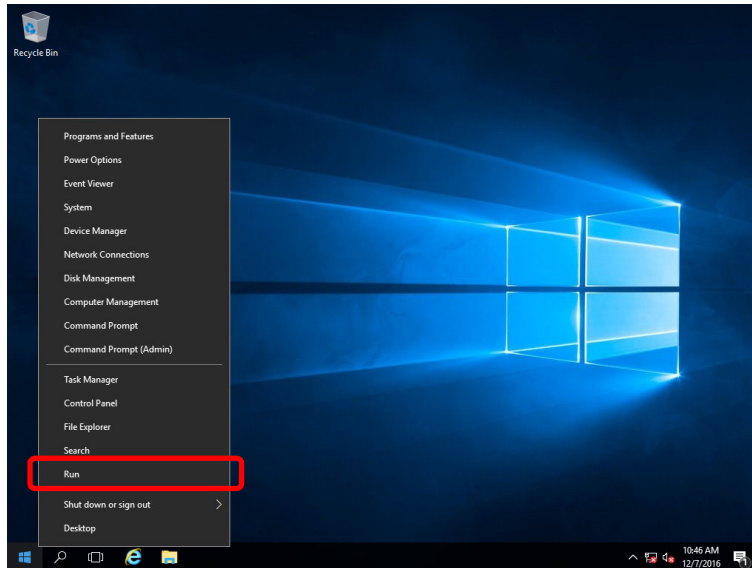
1.2 Collecting Configuration Information

This section describes how to collect hardware information or configuration.

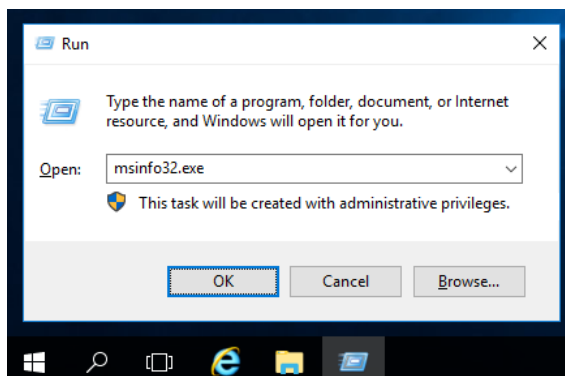
Tips

If a STOP error, system error, or stall occurs, restart the system and then follow the steps below.

1. Right-click the left bottom of screen, and click **Run** from the menu displayed.



2. Type `msinfo32.exe`, and then press <Enter> key.



System Information starts.

3. Click **Export** from **File** menu.
4. Type a file name to save in **File Name**, and then Click **Save**.

1.3 Collecting User-Mode Process Dump

The user-mode process dump is the failure information related to application errors.

For details, see *Chapter 1 (4.2 How to Create a User-Mode Process Dump File)*.

1.4 Collecting Memory Dump

If an error occurs, the dump file will be saved to get necessary information. You can specify any location for saving the diagnostic information. For details, see *Chapter 1 (4.1 Specifying Memory Dump Settings (Debug Information))*.

Consult with your sales representative before dumping the memory. Dumping the memory while the server is in operating normally will affect the system operation.

Important

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

2. Troubleshooting

If this system does not operate as intended, check it according to the contents of *Maintenance Guide* before sending it for repair. If an item in the checklist corresponds with a problem you are experiencing, follow the processing instructions.

3. Windows System Recovery

Recover the Windows system by using the following instructions if the system does not work normally.

Note

- After recovering Windows, install drivers and the Starter Pack referring to *Chapter 1 (3.5 Setup of Device Drivers)* and *Chapter 1 (3.4 Standard Program Package Installation)*.
- If the Windows system cannot find hard disk drives, you cannot recover the Windows system.

3.1 Recovery of Windows Server 2016

If the Windows does not start normally, you can recover it using the feature of the Windows installation media. To run this feature, start the installation media, and then choose **Repair your computer** in the setup wizard. We recommend that this option is performed by the system administrator.

If the RAID controller driver is required, take the following steps:

Note

When the server configures an on-board RAID controller and an internal optical disk drive, load the driver from a removable media.

Copy the following folder from Starter Pack DVD to a removable media in advance.

`\\software\\009\\drivers\\sw_raid1_driver`

1. After turning on the server or restarting the server, insert the OS installation media into the server.
2. Press <F11> key during POST to start Boot Menu.
In **One-Time Boot Menu**, select the optical disk drive to which OS installation media is set by Step 1, and then exit the menu.
3. When the message "Press any key to boot from CD or DVD..." appears on the upper of the screen, press <Enter> key to boot from the media.
While boot-up proceeds, the message "Loading files..." appears.
4. Choose **Repair your computer** in the setup wizard.
5. Click **Troubleshoot**.

6. Click **Command Prompt**.
7. After setting Starter Pack DVD to the drive, run the following command to load the driver:
("D:" means a drive name of DVD and this name depends on your system)

For on-board RAID controller:

```
drvload D:\software\009\drivers\sw_raid1_driver\SmartDQ.inf
```

Tips

When the server configures an on-board RAID controller and an internal optical disk drive, load the driver from a removable media. ("E:" means a drive name of removable media and this name depends on your system)

```
drvload E:\sw_raid1_driver\SmartDQ.inf
```

For RAID controller (N8103-189/190/191/192/193/194/195/201)

```
drvload D:\software\009\drivers\dac1_driver\SmartPqi.inf
```

Tips

The volume label for each drive can be checked from the display result of the dir command.

Example: **dir C:**

8. Exit the command prompt.

The driver installation is completed.

Appendix

1. List of Windows Event Logs

Shows a list of Windows event logs.

1. List of Windows Event Log

ID	Source	Level	Message (Description)
	Timing when an event is logged		Action

All Windows OS "System Log"

1	VDS Basic Provider	Error	Unexpected failure. Error code : 32@01000004
	At the time of a USB Device connection		When it's at the time of a USB Device connection, it's no problem.
10	Smart Update Manager System Log	Warning	The description for Event ID 10 from source Smart Update Manager System Log cannot be found. Either the component that raises this event is not installed on your local computer or the installation is corrupted. You can install or repair the component on the local computer. If the event originated on another computer, the display information had to be saved with the event. The following information was included with the event: Disabling blocked firewall rules
	When applying Standard Program Package		This event may be registered when Firewall is enabled, but this does not affect system operation.
11	Elxhc	Error	The driver detected a controller error on Device\RaidPortX. (X is any number)
	When applying Standard Program Package		This event does not affect system operation.
51	Cdrom	Warning	Error detected on the device \Device\CdRom0 during the paging operation.
	When installing an OS		This event may be registered in the event viewer, but this does not affect system operation.
56	Application Popup	Error	The description for Event ID 56 from source Application Popup cannot be found. Either the component that raises this event is not installed on your local computer or the installation is corrupted. You can install or repair the component on the local computer. If the event originated on another computer, the display information had to be saved with the event. The following information was included with the event: SCSI XXXXXXXXXXXXXXXXXXXX The message resource is present but the message was not found in the message table. * A different number replaces X depending on the connection status of RAID controller and SAS controller.
	When installing an OS, starting system, or applying Starter Pack		When multiple RAID controller or SAS controller are loaded it is registered, but does not affect system operation.

ID	Source	Level	Message (Description)
	Timing when an event is logged		Action

All Windows OS "System Log"

129	SmartDQa	Warning	Reset was issued to the device \Device\RaidPort(x). (x is any number)
	While the system is running		If this message has been registered as a log during heavy I/O, there is no problem since the OS has succeeded in retry. Continue using.
129	SmartPqi	Warning	Reset was issued to the device \Device\RaidPort(x). (x is any number)
	While the system is running		If this message has been registered as a log during heavy I/O, there is no problem since the OS has succeeded in retry. Continue using.
157	Disk	Warning	Disk x is suddenly removed.
	When creating a RAID		If you create new RAID on Windows, this event can be registered, but this does not affect the system operation.
1407	ESMCommonService	Error	This is the event which occurred between this system start-up and the last system stop or system shutdown. Date : YYYY-MM-DD hh:mm:ss Event Class : 0x11 Event Code : 0x0A Status : Critical Description : xxxxx Connectivity status changed to xxxxx for adapter in slot x, port x
	When starting system, or applying Standard Program Package		This event does not affect system operation.
1407	ESMCommonService	Error	This is the event which occurred between this system start-up and the last system stop or system shutdown. Date : YYYY-MM-DD hh:mm:ss Event Class : 0x11 Event Code : 0x0C Status : Criticals Description : Redundancy status changed to xxxxx by adapter in slot x, port x
	When starting system, or applying Standard Program Package		This event does not affect system operation.
1407	ESMCommonService	Error	This is the event which occurred between this system start-up and the last system stop or system shutdown. Date : YYYY-MM-DD hh:mm:ss Event Class : 0x11 Event Code : 0x0D Status : Critical Description : All links are down in adapter xxxxx in slot x
	When starting system, or applying Standard Program Package		This event does not affect system operation.

ID	Source	Level	Message (Description)
	Timing when an event is logged		Action

All Windows OS "System Log"

4367	Agentless Management Service	Error	Description of Event ID 4367, IML Class Code 17, Event Code 13: All links are down in adapter xxxxx in slot x. Check the connection to the adapter and validate the connectivity from the server to any external device, including the cabling. If no problems are found, the adapter or other connectivity device may need replacement.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
4367	Agentless Management Service	Error	Description of IML Event ID 4367, Class Code 17, Event Code 12: Redundancy status changed to decreased by adapter in slot x, port x. If redundancy decreased, check the connection to the adapter and validate the connectivity from the server to any external device, including the cabling. If no problems are found, the adapter or other connectivity device may need replacement.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
4367	Agentless Management Service	Error	Description of IML Event ID 4367, Class Code 17, Event Code 10: xxxxx Connectivity status changed to Link Failure for adapter in slot x, port x. If the connection is lost, then check the physical connection from the server to its destination device such as interconnect, blade, switch etc, including any cables. Refer to the NIC issues flowchart in the Troubleshooting Guide for more information.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
7000	Service Control Manager	Error	QLogic Fibre Channel Service service failed to start due to the following error: the system cannot find the file specified
	Applying Standard Program Package		This event does not affect system operation.
37130	ESMCommonService	Error	Date : YYYY-MM-DD hh:mm:ss Event Class : 0x11 Event Code : 0x0A Status : Critical Description : xxxxx Connectivity status changed to xxxxx for adapter in slot x, port x
	When starting system, or applying Standard Program Package		This event does not affect system operation.
37132	ESMCommonService	Error	Date : YYYY-MM-DD hh:mm:ss Event Class : 0x11 Event Code : 0x0C Status : Critical Description : Redundancy status changed to xxxxx by adapter in slot x, port x
	When starting system, or applying Standard Program Package		This event does not affect system operation.

ID	Source	Level	Message (Description)
	Timing when an event is logged		Action

All Windows OS "System Log"

37133	ESMCommonService	Error	Date : YYYY-MM-DD hh:mm:ss Event Class : 0x11 Event Code : 0x0D Status : Critical Description : All links are down in adapter xxxxx in slot x
	When starting system, or applying Standard Program Package		This event does not affect system operation.

ID	Source	Level	Message (Description)
	Timing when an event is logged		Action

Windows Server 2016 "System Log"

4	l2nd	Warning	HPE Ethernet 10Gb 2-port 530SFP+ Adapter #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
4	l2nd	Warning	HPE Ethernet 10Gb 2-port 530T Adapter #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
4	l2nd	Warning	HPE FlexFabric 10Gb 2-port 533FLR-T Adapter #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
4	l2nd	Warning	QLogic BCM57810 10 Gigabit Ethernet (NDIS VBD Client) #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS		This event does not affect system operation.
4	l2nd2	Warning	HPE Ethernet 10Gb 2-port 521T Adapter #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
4	l2nd2	Warning	HPE Ethernet 10/25Gb 2-port 621SFP28 Adapter #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
4	l2nd2	Warning	HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
4	q57nd60a	Warning	HPE Ethernet 1Gb 2-port 332i Adapter #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
4	q57nd60a	Warning	HPE Ethernet 1Gb 4-port 331i Adapter #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.

ID	Source	Level	Message (Description)
	Timing when an event is logged		Action

Windows Server 2016 "System Log"

4	q57nd60a	Warning	HPE Ethernet 1Gb 4-port 331T Adapter #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
4	q57nd60a	Warning	HPE Ethernet 1Gb 4-port 331FLR Adapter #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
4	q57nd60a	Warning	HPE Ethernet 1Gb 2-port 332T Adapter #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
4	b57nd60a	Warning	Broadcom NetXtreme Gigabit Ethernet #xx: The network link is down. Check to make sure the network cable is properly connected.
	When installing an OS		This event does not affect system operation.
9	bxfc0e	Warning	The SAN link is down for port WWN XX:XX:XX:XX:XX:XX:XX. Check to make sure the network cable is properly connected. (X is any number)
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
9	qefc0e	Warning	The SAN link is down for port WWN XX:XX:XX:XX:XX:XX:XX. Check to make sure the network cable is properly connected. (X is any number)
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
27	e1rexpess	Warning	HPE Ethernet 1Gb 2-port 361T Adapter #xx Network link is disconnected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
27	e1rexpess	Warning	HPE Ethernet 1Gb 4-port 366T Adapter #xx Network link is disconnected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
27	e1rexpess	Warning	HPE Ethernet 1Gb 4-port 366FLR Adapter #xx Network link is disconnected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
27	e1iexpess	Warning	Intel(R) I350 Gigabit Network Connection #xx Network link is disconnected.
	When installing an OS		This event does not affect system operation.
27	ixgbs	Warning	HPE Ethernet 10Gb 2-port 562FLR-T Adapter #xx Network link is disconnected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.

ID	Source	Level	Message (Description)
	Timing when an event is logged		Action

Windows Server 2016 "System Log"

27	ixgbs	Warning	HPE Ethernet 10Gb 2-port 562T Adapter #xx Network link is disconnected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
27	ixgbi	Warning	Intel(R) Ethernet Controller X550 #xx Network link is disconnected.
	When installing OS		This event does not affect system operation.
27	ixgbi	Warning	HPE Ethernet 10Gb 2-port 562T Adapter #xx Network link is disconnected.
	When installing OS		This event does not affect system operation.
27	i40ea	Warning	HPE Ethernet 10Gb 2-port 562SFP+ Adapter #xx Network link is disconnected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
27	i40ea	Warning	HPE Ethernet 10Gb 562SFP+ Adapter #xx Network link is disconnected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
27	i40ea	Warning	HPE Ethernet 10Gb 2-port 562FLR-SFP+ Adapter Network link is disconnected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
27	i40eb	Warning	HPE Ethernet 1Gb 2-port 368i Adapter #xx Network link is disconnected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
27	i40eb	Warning	HPE Ethernet 1Gb 4-port 369i Adapter #xx Network link is disconnected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
27	i40eb	Warning	HPE Ethernet 1Gb 2-port 368FLR-MMT Adapter #xx Network link is disconnected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
27	i40eb	Warning	HPE Ethernet 10Gb 2-port 568FLR-MMSFP+ Adapter #xx Network link is disconnected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
27	i40eb	Warning	HPE Ethernet 10Gb 2-port 568FLR-MMT Adapter #xx Network link is disconnected.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.

ID	Source	Level	Message (Description)
	Timing when an event is logged		Action

Windows Server 2016 "System Log"

27	i40ei	Warning	The description for Event ID 27 from source "i40ei" cannot be found. Either the component that raises this event is not installed on your local computer or the installation is corrupted. You can install or repair the component on the local computer.
	When installing an OS		This event does not affect system operation.
56	qebdrv	Warning	NTPNP_PCIxxxx: RDMA has been implicitly disabled due to RDMA interface incompatibility between NDIS Miniport (ver x.xx.xx.x) and VBD (ver x.xx.x.x) drivers. VBD driver upgrade is required. * "x" depends on the system environment.
	When applying Standard Program Package		This event does not affect system operation.
57	qebdrv	Warning	NTPNP_PCIxxxx: RDMA has been implicitly disabled due to RDMA interface incompatibility between NDIS Miniport (ver x.xx.xx.x) and VBD (ver x.xx.x.x) drivers. NDIS Miniport upgrade is required. * "x" depends on the system environment.
	When applying Standard Program Package		This event does not affect system operation.
69	i40ea	Warning	HPE Ethernet xGb x-port xxxx Adapter The driver for the device detected a newer version of the NVM image than expected. Please install the most recent version of the network driver. **"x" depends on the system environment.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
69	i40eb	Warning	HPE Ethernet xGb x-port xxxx Adapter The driver for the device detected a newer version of the NVM image than expected. Please install the most recent version of the network driver. **"x" depends on the system environment.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
69	i40ei	Warning	The description for Event ID 69 from source "i40ei" cannot be found. Either the component that raises this event is not installed on your local computer or the installation is corrupted. You can install or repair the component on the local computer.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation.
101	i40eb	Warning	HPE Ethernet xGb x-port xxxx Adapter PROBLEM: Flow Control disabled on this interface. For RDMA traffic, it is recommended that flow control be enabled end to end on all network interfaces and switches to avoid performance degradation from dropped packets. ACTION: Enable link level flow control or priority flow control for network direct port 445 on this interface. * "x" depends on the system environment.
	When installing an OS, starting system, or applying Standard Program Package		This event does not affect system operation. After Standard Program Package is applied, this log will no longer be registered.

ID	Source	Level	Message (Description)
	Timing when an event is logged		Action

Windows Server 2016 "System Log"

219	Microsoft-Windows-Kernel-PnP	Warning	The driver \Driver\WudfRd failed to load for the device xxxxxxxxxxxxxxxxx.
	When starting system or connecting a disk		This may be recorded when starting the system or connecting a disk depending on timing, but does not affect system operation.
225	Kernel-PnP	Warning	The application YYY with process id XXX stopped the removal or ejection for the device ZZZ. * ZZZ : Instance name of the device YYY : Name of the process that was using the device XXX : ID of the process that was using the device
	When applying Standard Program Package		This event does not affect system operation if it is logged when applying Standard Program Package.
7023	Service Control Manager	Error	"xxxxxxx service terminated with the following error: A device attached to the system is not functioning."
	When running an OS for the first time		This event does not affect system operation if it is recorded only on the first startup and not recorded repeatedly.
7023	Service Control Manager	Error	The Data Sharing Service service terminated with the following error: %%3239247874 * The message may not be displayed correctly as follows, but there is no problem. The description for Event ID 7023 from source Service Control Manager cannot be found. Either the component that raises this event is not installed on your local computer or the installation is corrupted. You can install or repair the component on the local computer. If the event originated on another computer, the display information had to be saved with the event. The following information was included with the event: Data Sharing Service %%3239247874 The locale specific resource for the desired message is not present.
	When running an OS for the first time or rebooting it, or while the system is in use		This event does not affect system operation.
7024	Service Control Manager	Error	The Intel® Ethernet Thermal Sensor Monitor Service service terminated with the following service-specific error: The operation completed successfully."
	When starting system, or applying Standard Program Package		This event does not affect system operation.
7030	Service Control Manager	Error	The Printer Extensions and Notifications service is marked as an interactive service. However, the system is configured to not allow interactive services. This service may not function properly.
	When running an OS for the first time		This event does not affect system operation if it is recorded only on the first startup and not recorded repeatedly.
10010	Microsoft-Windows-DistributedCOM	Error	The server {XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX} did not register with DCOM within the required timeout.
	When running an OS for the first time or rebooting it		Refer to the following website. https://support.microsoft.com/ja-jp/help/956479 (Japanese)

ID	Source	Level	Message (Description)
	Timing when an event is logged		Action

Windows Server 2016 "System Log"

10317	Microsoft-Windows-NDIS	Error	Miniport Microsoft Network Adapter Multiplexor Driver, {xxxxxxxx-xxxx-xxxx-xxxxxxxxxxxx}, had event Network Interface deleted while PNP Device still exists. Note that this event is provided for informational purpose and might not be an error always (Eg: In case of vSwitch which was recently un-installed or a LBFO team was removed)
	When removing a team		This event does not affect system operation.

ID	Source	Level	Message (Description)
	Timing when an event is logged		Action

Windows Server 2016 "Application Event Log"

1014	Microsoft-Windows-Security-SPP	Warning	Acquisition of End User License failed. hr=0x80072EE7
	When running an OS for the first time		This event does not affect system operation if it is not recorded repeatedly after activating the Windows.
1015	Microsoft-Windows-Security-SPP	Warning	Detailed HRESULT. Returned hr=0xC004F022, Original hr=0x80049E00
	When running an OS for the first time		This event does not affect system operation if it is not recorded repeatedly after activating the Windows.
1534	Microsoft-Windows-User Profiles Service	Warning	Profile notification of event Create for component {2c86c843-77ae-4284-9722-27d65366543c} failed, error code is Not implemented.
	When running an OS for the first time		This event does not affect system operation if it is recorded only on the first startup and not recorded repeatedly.
8198	Microsoft-Windows-Security-SPP	Error	License Activation (slui.exe) failed with the following error code: hr=0x***** Command-line arguments: RuleId=*****
	When running an OS for the first time or rebooting it		This event does not affect system operation if it is not recorded repeatedly after activating the Windows.
8200	Microsoft-Windows-Security-SPP	Error	License acquisition failure details. hr=0x80072EE7
	When running an OS for the first time or rebooting it		This event does not affect system operation if it is not recorded repeatedly after activating the Windows.

ID	Source	Level	Message (Description)
	Timing when an event is logged		Action

Windows Server 2016 "Applications and Services Logs"

69	Microsoft-Windows-AppModel-Runtime	Error	Failed with 0x490 modifying AppModel Runtime status for package ***** for user ***** (current status = 0x0, desired status = 0x20).
	When running an OS for the first time		This event does not affect system operation if it is recorded only on the first startup and not recorded repeatedly.
134	Microsoft-Windows-Time-Service	Warning	NtpClient was unable to set a manual peer to use as a time source because of DNS resolution error on 'time.windows.com,0x8'. NtpClient will try again in 15 minutes and double the reattempt interval thereafter.
	When running an OS for the first time or rebooting it		This event does not affect system operation if it is not recorded after connecting to the internet.
200	Microsoft-Windows-DeviceSetupManager	Warning	When running an OS for the first time or rebooting it
	When running an OS for the first time or rebooting it		This event does not affect system operation if it is not recorded after connecting to the internet.
201	Microsoft-Windows-DeviceSetupManager	Warning	A connection to the Windows Metadata and Internet Services (WMIS) could not be established.
	When running an OS for the first time or rebooting it		This event does not affect system operation if it is not recorded after connecting to the internet.
202	Microsoft-Windows-DeviceSetupManager	Warning	The Network List Manager reports no connectivity to the internet.
	When running an OS for the first time or rebooting it		This event does not affect system operation if it is not recorded after connecting to the internet.
506	Microsoft-Windows-DeviceManagement-Pushrouter	Error	DmWapPushService: Failed to register WNF with EventAggregator for WAP messages received by SMS Router. Result: (0xC002000B).
	When running an OS for the first time		This event does not affect system operation if it is recorded only on the first startup and not recorded repeatedly.

Revision Record

Document Number	Date	Notes
CBZ-002473-212-00	July 2021	The first edition