

Installation Guide (Windows)

NEC Express Server
Express5800 Series

**Express5800/R110h-1, T110h-S, T110h
EXP335, 335A, 333, 333A, 334, 334A**

Chapter 1 Installing Windows

Chapter 2 Installing Bundled Software

Manuals

Manuals for this product are provided as booklets (📖) and electronic manuals (📄) in EXPRESSBUILDER.



Safety Precautions and
Regulatory Notices

Describes points of caution to ensure the safe use of this server.
Read these cautions before using this server.



Getting Started

Describes how to use this server, from unpacking to operations.
See this guide first and read the outline of this product.

EXPRESSBUILDER



User's Guide

Chapter 1: General Description	Overviews, names, and functions of the server's parts
Chapter 2: Preparations	Installation of additional options, connection of peripheral devices, and suitable location for this server
Chapter 3: Setup	System BIOS configurations and summary of EXPRESSBUILDER
Chapter 4: Appendix	Specifications and other information



Installation Guide (Windows)

Chapter 1: Installing Windows	Installation of Windows and drivers, and precautions for installation
Chapter 2: Installing Bundled Software	Installation of NEC ESMPro, Universal RAID Utility, and other bundled software



Maintenance Guide

Chapter 1: Maintenance	Server maintenance and troubleshooting
Chapter 2: Useful Features	The details of system BIOS settings, RAID Configuration Utility, and EXPRESSBUILDER
Chapter 3: Appendix	Error messages and Windows Event Logs



Other manuals

The details of NEC ESMPro, Universal RAID Utility, and the other features

Contents

Manuals	2
Contents	3
Conventions Used in This Document	6
Signs and symbols for safety	6
Notations used in the text	7
Optical disk drive	7
Hard disk drive	7
Removable media	7
Abbreviations of Operating Systems (Windows)	8
Trademarks	9
License Notification	10
Warnings and Additions to This Document	12
Latest editions	12
Safety notes	12
Chapter 1 Installing Windows	13
1. Before Starting Setup	14
1.1 Starting EXPRESSBUILDER	14
1.2 Supported Windows OS	15
1.3 Supported Service Pack	16
1.4 Mass Storage Controllers Supported by EXPRESSBUILDER	17
1.5 LAN Boards Supported by EXPRESSBUILDER	18
1.6 Using Mass Storage Controller Not Supported by EXPRESSBUILDER	18
2. Setting Up the Operating System	19
3. Setting Up Windows Server 2012 R2	20
3.1 Before Starting Setup	20
3.2 Setup with EXPRESSBUILDER	26
3.2.1 Setup flow	27
3.2.2 Requirements for Setup	28
3.2.3 Setup procedure	29
3.3 Setup with Windows Standard Installer	44
3.3.1 Setup flow	45
3.3.2 Requirements for Setup	46
3.3.3 Setup procedure	47
3.4 Installing Starter Pack	64
3.4.1 Installing Starter Pack after POST	64
3.4.2 Installing Starter Pack using Windows Application	69
3.4.3 Using EXPRESSBUILDER DVD (Option)	70
3.5 Checking installation of EXPRESSBUILDER	71
3.6 Setting Up Device Drivers	72
3.6.1 Installing the LAN drivers	72
3.6.2 Setting up LAN drivers	74
3.6.3 Graphics accelerator driver	75
3.6.4 When a graphics accelerator card of the option is used	75
3.6.5 When using a SAS controller (N8103-142/184)	75
3.6.6 When using a RAID Controller (N8103-176/177/178/179/188)	75
3.6.7 When using a Fibre Channel controller (N8190-157A/158A/159/160)	75
3.7 License Authentication	76
3.8 Setup of Windows Server 2012 R2 NIC Teaming (LBFO)	80
3.9 Installing the Applications	82

3.10	Installation When Multiple Logical Drives Exist	83
4.	Setting Up Windows Server 2012	85
4.1	Before Starting Setup	85
4.2	Setup with EXPRESSBUILDER.....	91
4.2.1	Setup flow.....	92
4.2.2	Requirements for Setup.....	93
4.2.3	Setup procedure	93
4.3	Setup with Windows Standard Installer	109
4.3.1	Setup flow.....	110
4.3.2	Requirements for Setup.....	111
4.3.3	Setup procedure	111
4.4	Installing Starter Pack.....	127
4.4.1	Installing Starter Pack after POST	127
4.4.2	Installing Starter Pack using Windows Application.....	132
4.4.3	Using EXPRESSBUILDER installed in Windows.....	133
4.5	Checking installation of EXPRESSBUILDER.....	134
4.6	Setting Up Device Drivers.....	135
4.6.1	Installing the LAN drivers.....	135
4.6.2	Setting up LAN drivers.....	137
4.6.3	Graphics accelerator driver.....	138
4.6.4	When using a SAS controller (N8103-142/184).....	138
4.6.5	When using a RAID Controller (N8103-176/177/178/179).....	138
4.6.6	When using a Fibre Channel controller (N8190-157A/158A/159/160).....	138
4.7	License Authentication.....	139
4.8	Setup of Windows Server 2012 NIC Teaming (LBFO)	142
4.9	Installing the Applications.....	144
4.10	Installation When Multiple Logical Drives Exist.....	145
5.	Setting Up Windows Server 2008 R2.....	147
5.1	Before Starting Setup	147
5.2	Setup with EXPRESSBUILDER.....	153
5.2.1	Setup flow.....	154
5.2.2	Requirements for Setup.....	155
5.2.3	Setup procedure	156
5.3	Setup with Windows Standard Installer	171
5.3.1	Setup flow.....	172
5.3.2	Requirements for Setup.....	173
5.3.3	Setup procedure	174
5.4	Installing Starter Pack.....	189
5.4.1	Using EXPRESSBUILDER DVD(Optional).....	189
5.4.2	Installing Starter Pack using Windows Application.....	191
5.5	Checking installation of EXPRESSBUILDER.....	192
5.6	Setting Up Device Drivers.....	193
5.6.1	Installing the LAN drivers and teaming utility (PROSet / BACS / QCS)	193
5.6.2	Setting up LAN drivers.....	195
5.6.3	Setting up team (PROSet).....	196
5.6.4	Setting up team/LiveLink (BACS/QSC).....	199
5.6.5	Graphics accelerator driver.....	203
5.6.6	When using a SAS controller (N8103-142).....	203
5.6.7	When using a RAID Controller (N8103-179).....	203
5.6.8	When using a Fibre Channel controller (N8190-157A/158A/159/160).....	203
5.7	License Authentication.....	204
5.8	Applying Service Pack.....	207
5.9	Installing the Applications.....	208
5.10	Installation When Multiple Logical Drives Exist.....	209
6.	Setup for Solving Problems.....	211
6.1	Specifying Memory Dump Settings (Debug Information)	211
6.1.1	For Windows Server 2012 R2 / Windows Server 2012.....	211
6.1.2	For Windows Server 2008 R2.....	216
6.2	How to Create a User-mode Process Dump File	217
6.2.1	For Windows Server 2012 R2 / Windows Server 2012.....	217
6.2.2	For Windows Server 2008 R2.....	218

6.3	Installing Network Monitor.....	219
7.	Windows OS Parameter File.....	220
7.1	Creating Windows OS Parameter File.....	220
Chapter 2	Installing Bundled Software.....	230
1.	Bundled Software for the Server.....	231
1.1	NEC ESMPRO ServerAgentService (for Windows).....	231
1.2	NEC ESMPRO Agent Extension.....	232
1.3	Server Configuration Utility.....	232
1.4	NEC ExpressUpdate Agent.....	232
1.5	Universal RAID Utility.....	233
1.5.1	Installing and setting up Universal RAID Utility.....	233
1.5.2	Management by NEC ESMPRO Manager.....	233
1.6	Express Report Service / Express Report Service (HTTPS).....	234
1.7	NEC Product Info Collection Utility.....	235
1.7.1	Installation.....	235
1.7.2	Uninstallation.....	235
1.8	Ezclct Viewer.....	236
1.8.1	Installation.....	236
1.8.2	Uninstallation.....	236
2.	Bundled Software for "PC for Management".....	237
2.1	NEC ESMPRO Manager.....	237
2.2	Express Report Service (MG).....	238
	Glossary.....	239
	Revision Record.....	240

Conventions Used in This Document

Signs and symbols for safety

WARNING and CAUTION are used in this guide as following meaning.



Indicates there is a risk of death or serious personal injury



Indicates there is a risk of burns, other personal injury, or property damage

Precautions and notices against hazards are presented with one of the following three symbols. The individual symbols are defined as follows:

	Attention	This symbol indicates the presence of a hazard if the instruction is ignored. An image in the symbol illustrates the hazard type.	(Example) (Electric shock risk)
	Prohibited Action	This symbol indicates prohibited actions. An image in the symbol illustrates a particular prohibited action.	(Example) (Do not disassemble)
	Mandatory Action	This symbol indicates mandatory actions. An image in the symbol illustrates a mandatory action to avoid a particular hazard.	(Example) (Disconnect a plug)

(Example in this guide)

Symbol to draw attention

Description of a warning

Term indicating a degree of danger

WARNING

Use only the specified outlet

Use a grounded outlet with the specified voltage. Use of an improper power source may cause a fire or a power leak.

Notations used in the text

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

Important	Indicates critical items that must be followed when handling hardware or operating software. If the procedures described are not followed, <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 refers to the following.

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

Removable media

Unless otherwise stated, *removable media* described in this document refers to the following.

- USB flash drive
- Flash FDD

Abbreviations of Operating Systems (Windows)

Windows Operating Systems are referred to as follows.

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

Notations in this document	Official names of Windows
Windows Server 2012 R2	Windows Server 2012 R2 Standard
	Windows Server 2012 R2 Datacenter
	Windows Server 2012 R2 Foundation
Windows Server 2012	Windows Server 2012 Standard
	Windows Server 2012 Datacenter
Windows Server 2008 R2	Windows Server 2008 R2 Standard
	Windows Server 2008 R2 Enterprise

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UEFI NETWORK STACK 2

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This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).

This product includes software written by Tim Hudson (tjh@cryptsoft.com).

CRYPTO PACKAGE USING WPA SUPPLICANT

WPA Supplicant

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Latest editions

This document was created based on the information available at the time of its creation. The screen images, messages and procedures are subject to change without notice. Substitute as appropriate when content has been modified.

The most recent version of the guide, as well as other related documents, is also available for download from the following website.

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

Safety notes

To use this server safely, read thoroughly *Safety Precautions and Regulatory Notices* that comes with your server.

NEC Express5800 Series Express5800/R110h-1, T110h-S, T110h

1

Installing Windows

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

1. Before Starting Setup

Describes Service Packs and mass storage controllers which is supported by EXPRESSBUILDER.

Important

When a graphics accelerator card of the option is equipped, please check the contents of bundled Startup Guide/User's Guide of a graphics accelerator card, and configure BIOS settings right.

2. Setting Up the Operating System

Describes the flow chart of setting up the operating system.

3. Setting Up Windows Server 2012 R2

Describes how to set up Windows Server 2012 R2.

4. Setting Up Windows Server 2012

Describes how to set up Windows Server 2012.

5. Setting Up Windows Server 2008 R2

Describes how to set up Windows Server 2008 R2.

6. Setting Up for Solving Problems

Describes the features that must be set up in advance so that the server can recover from any trouble early and precisely.

7. Windows OS Parameter File

Describes how to create the parameter file.

***1.* Before Starting Setup**

This section describes the points of using EXPRESSBUILDER to set up Windows operating systems.

***1.1* Starting EXPRESSBUILDER**

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

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

Usage

Remove a CD/DVD and removable media from the server, restart the server and press <F3> key during POST.

If you use an EXPRESSBUILDER DVD that created by ISO image file downloaded from our website, insert the DVD to the server and restart it.

1.2 Supported Windows OS

EXPRESSBUILDER supports the following editions of Windows operating systems.

EB : Setup with EXPRESSBUILDER

OS : Setup with Windows Standard Installer

Windows OS		Boot mode		Installation option	
		UEFI	Legacy	EB	OS
Windows Server 2012 R2	Standard	✓	N/A	✓	✓
	Datacenter	✓	N/A	✓	✓
	Foundation *1	✓	N/A	✓	✓
Windows Server 2012	Standard	✓	N/A	✓	✓
	Datacenter	✓	N/A	✓	✓
Windows Server 2008 R2 *2	Standard	N/A	✓	✓	✓ *3
	Enterprise	N/A	✓	✓	✓ *3

✓ : Supported

*1 Only Express5800/T110h-S, T110h

*2 Precautions for Windows Server 2008 R2 installation are as follows:

- Use EXPRESSBUILDER DVD. Cannot use EXPRESSBUILDER on Internal Flash memory (F3 key function).
- Use an internal optical disk drive on the server when installing. Cannot use a USB interface drive and remote media feature of EXPRESSSCOPE Engine 3.
- Use a display, mouse, keyboard, and other devices connected directly to the server. Cannot use the remote KVM feature of EXPRESSSCOPE Engine 3.

*3 Onboard RAID Controller (LSI Embedded MegaRAID) is not supported.

1.3 Supported Service Pack

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

OS installation media	No Service Pack installation	Service Pack 1 installation
Windows Server 2012 R2	✓	N/A
Windows Server 2012	✓	N/A
Windows Server 2008 R2 with Service Pack 1 (*)	✓	N/A
Windows Server 2008 R2	✓	✓

✓ : Supported

* Service Pack included is also installed when the Windows is installed.

1.4 Mass Storage Controllers Supported by EXPRESSBUILDER

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

If an optional board not mentioned below is connected, set it up while referring to the instructions supplied with the board and *Chapter 1 (1.6 Using Mass Storage Controller Not Supported by EXPRESSBUILDER)*.

	Windows Server 2012 R2	Windows Server 2012	Windows Server 2008 R2
RAID Controllers supporting OS installation by EXPRESSBUILDER			
Onboard RAID Controller (LSI Embedded MegaRAID)	✓	✓	✓ *1
N8103-176 RAID Controller (1GB, RAID 0/1)	✓	✓	✓
N8103-177 RAID Controller (1GB, RAID 0/1/5/6)	✓	✓	✓
N8103-178 RAID Controller (2GB, RAID 0/1/5/6)	✓	✓	✓
N8103-188 RAID Controller (RAID 0/1)	✓	✓	✓
Other options			
N8103-142 SAS Controller	✓	✓	✓
N8103-184 SAS Controller	✓	✓	N/A
N8103-179 RAID Controller (2GB, RAID 0/1/5/6) *2	✓	✓	✓
N8190-157A Fibre Channel Controller(1ch) *2	✓	✓	✓
N8190-158A Fibre Channel Controller(2ch) *2	✓	✓	✓
N8190-159 Fibre Channel Controller(1ch) *2	✓	✓	✓
N8190-160 Fibre Channel Controller(2ch) *2	✓	✓	✓

✓: Supported

*1 Only Setup with EXPRESSBUILDER

*2 Only Express5800/R110h-1

1.5 LAN Boards Supported by EXPRESSBUILDER

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

	Windows Server 2012 R2	Windows Server 2012	Windows Server 2008 R2
LAN board supporting OS installation by EXPRESSBUILDER			
None	N/A	N/A	N/A
Other options			
N8104-145 1000BASE-T Adapter (2ch)	N/A	N/A	✓
N8104-149 10GBASE Adapter (SFP+/2ch)	✓	✓	✓
N8104-150 1000BASE-T Adapter (1ch)	✓	✓	✓
N8104-151 1000BASE-T Adapter (2ch)	✓	✓	✓
N8104-152 1000BASE-T Adapter (4ch)	✓	✓	✓
N8104-153 10GBASE-T Adapter (2ch)	✓	✓	N/A

✓: Supported

1.6 Using Mass Storage Controller Not Supported by EXPRESSBUILDER

To install the Windows when using a mass storage controller not supported by EXPRESSBUILDER such as the newest RAID controller, follow the steps below.

You do not need to perform the following instructions usually.

1. Have the instructions for the mass storage controller ready.

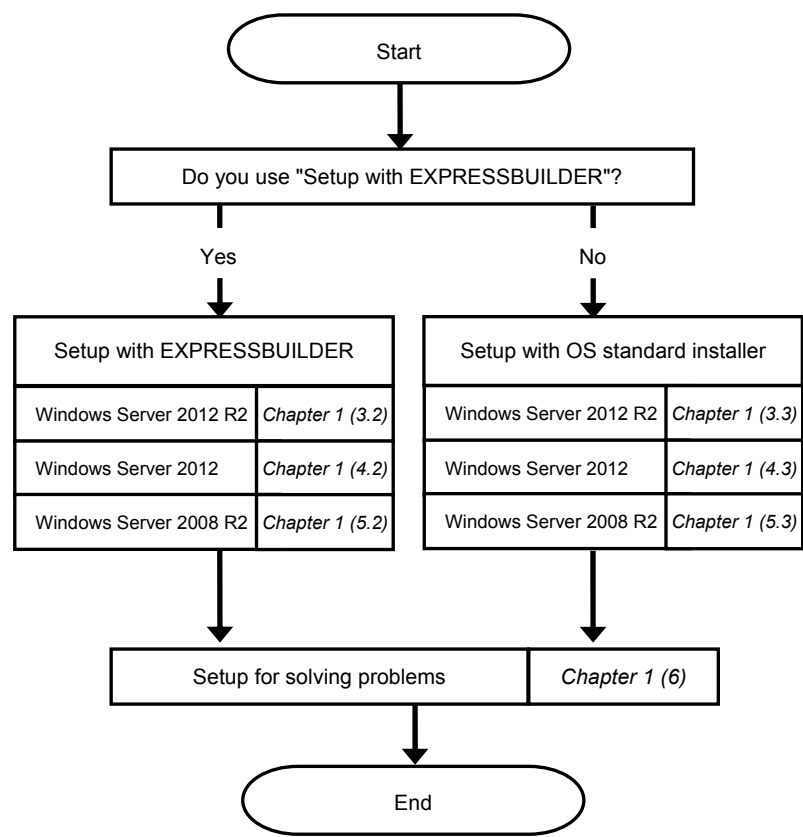
Note

If the contents of this document differ from that of the mass storage controller, prioritize the contents of the controller's document.

2. If you use a RAID controller, follow the controller instructions to configure a RAID system.
3. See *Setup with Windows Standard Installer* of each Windows family in this guide.

2. Setting Up the Operating System

See the figure below to find a section appropriate to your OS installation.



3. Setting Up Windows Server 2012 R2

Set up Windows Server 2012 R2.

3.1 Before Starting Setup

Read through the cautions explained here before starting setup.

- EB

: Confirm during Setup with EXPRESSBUILDER
- OS

: Confirm during Setup with Windows standard installer

BIOS setting	
<div>EB</div> <div>OS</div>	<div>Change Boot Mode to UEFI Mode. See <i>Chapter 2 (1. System BIOS) in Maintenance Guide</i> for details.</div> <div>Boot → Boot Mode → UEFI</div>
<div>EB</div> <div>OS</div>	<div>Select Enabled for X2APIC feature of processor. See <i>Chapter 2 (1. System BIOS) in Maintenance Guide</i> for details.</div> <div>Advanced → Processor Configuration → X2APIC → Enabled</div>
<div>EB</div> <div>OS</div>	<div>At re-installation, open Boot Option Priorities in BIOS SETUP to make sure that the higher boot priority than Windows Boot Manager is specified for optical disk drive.</div> <div><div><div>Example of correct setting</div><div><div>[Boot]–[Boot Option Priorities]</div><div>– Boot Option #1 [UEFI: Optical Disk Drive]</div><div>– Boot Option #2 [Windows Boot Manager]</div><div>→ The system can boot from OS installation media.</div></div></div><div><div>Example of incorrect setting</div><div><div>[Boot]–[Boot Option Priorities]</div><div>– Boot Option #1 [Windows Boot Manager]</div><div>– Boot Option #2 [UEFI: Optical Disk Drive]</div><div>→ The system cannot boot from OS installation media.</div></div></div></div> <div><div>Note</div><div><div>• Before opening BIOS SETUP, be sure to insert OS installation media into optical disk drive.</div><div>• If Windows Boot Manager is not displayed in Boot Option Priorities, you need not to confirm the boot priority.</div></div></div>
<div>EB</div> <div>OS</div>	<div>When a graphics accelerator card of the option is equipped, please check the contents of bundled Startup Guide/User’s Guide of a graphics accelerator card, and configure BIOS settings right.</div>

Hardware configuration		
The following hardware configurations require special procedures.		
EB	OS	Reinstalling to a mirrored volume <p>When you install Windows Server 2012 R2 in an environment with a mirrored volume created using Windows, disable mirroring before installing the operating system and enable it again after the installation. Use [Computer Management] – [Disk Management] to create, disable, or remove the mirrored volume.</p>
EB	OS	Peripheral devices such as RDX/MO <p>Remove an MO device before installing an OS. Some peripheral devices need to be halted before installation. Refer to the manual provided with the peripheral devices for how to set a device appropriate to installation.</p>
EB	OS	DAT, LTO, and similar media <p>Do not set media that is unnecessary to installation during setup.</p>
EB	OS	Installing in internal or external multiple hard disk drives (logical drives) <p>For details on installing operating systems to a system in which two or more RAID Controller exist, or to an external disk drive* that is not subject to setup, refer to <i>Chapter 1 (3.10 Installation When Multiple Logical Drives Exist)</i>.</p> <p>* Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit.</p>
EB	OS	Reinstalling to hard disk drives that have been upgraded to dynamic disks <p>If the hard disk drive has been upgraded to a dynamic disk, the operating system cannot be reinstalled to it with the existing partitions.</p> <p>Set up the operating system with the Windows standard installer.</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. Thus, the partition size for storing debug information (dump file) may not be secured.

If you fail to secure the dump file size, allocate the required file space to multiple disks by performing 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 store the debug information (required dump file size) by referring to *Chapter 1 (6. Setup for Solving Problems)*.

If the hard disk drive does not have enough space 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 space cannot be secured for the paging file, perform either of the following after installing 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 the installed memory size + 400 MB or more in a drive other than the system drive.

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

Example of correct setting

C: No paging file exists

D: Paging file whose size is "installed memory size + 400 MB" or more

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

Example of incorrect setting 1

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

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

Example of incorrect setting 2

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

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

Example of incorrect setting 3

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

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

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

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

<When specifying the file named "dedicateddumpfile.sys" in drive D>

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

Note the following when specifying Dedicated Dump File:

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

System partition size**EB****OS**

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

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

Server with a GUI

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

Server Core installations

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

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

$$9,200\text{MB} + (1,024\text{MB} \times 1.5) + 1,024\text{MB} + 400\text{MB} + 100\text{MB} \\ = 12,260\text{MB}$$

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.

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

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

*1 GB = 1,024 MB

Note

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

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

Tips

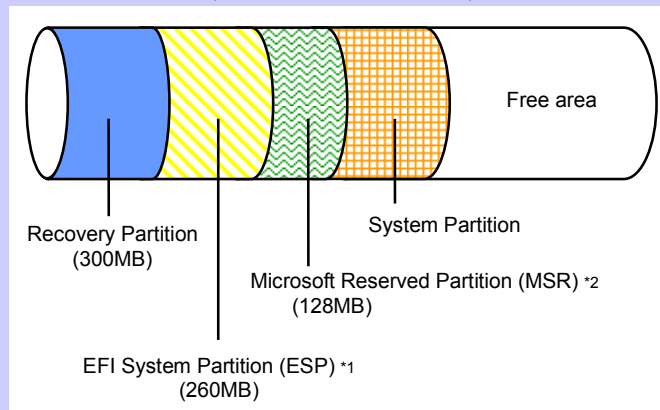
When creating a partition, Windows OS creates the following partitions at the top of hard disk drive.

- Recovery Partition: 300MB
- EFI System Partition (ESP): 260MB *1
- Microsoft Reserved Partition (MSR): 128MB *2

528MB is allocated for these three partitions out of the specified partition size.

For example, when 61,440MB is specified for partition size, the area available free area is calculated as follows:

$$61,440\text{MB} - (300\text{MB} + 260\text{MB} + 128\text{MB}) = 60,752\text{MB}$$



*1 May be 100MB in size depending on hard disk drive type.

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

Windows Server 2012 R2 Hyper-V support

EB

OS

Refer to the following web site for information related to Windows Server 2012 R2 Hyper-V.

<http://www.58support.nec.co.jp/global/download/w2012r2/hyper-v/hyper-v-ws2012r2.html>

Using BitLocker

If using BitLocker, note the following.

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

Important

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

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

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

EB

OS

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

Support for NIC teaming in Windows Server 2012 R2

EB

OS

The NIC teaming feature, which used to be provided by network interface card (NIC) vendors, is built into Windows Server 2012 R2. In Windows Server 2012 R2, this feature is also called "load balancing and failover (LBFO)".

Refer to *3.8 Setup of Windows Server 2012 R2 NIC Teaming (LBFO)* and specify any required settings.

3.2 Setup with EXPRESSBUILDER

This section describes how to install Windows with EXPRESSBUILDER.

This feature automatically recognizes the RAID controller connected to the server and configures the RAID system. Therefore the hardware installation of the server needs to be finished by following "*User's Guide*".

Important

- Setup with EXPRESSBUILDER may delete all data of the hard disk drive depending on the settings. Pay attention to input parameters. You must be especially careful when configuring the following:
 - RAID settings
 - Partition SettingsBacking up user data, as needed, is recommended.
- Before starting setup, be sure to disconnect hard disk drives from the RAID Controller that is not to be setup. Install those hard disk drives after setup has completed. Conducting setup with hard disk drives being connected with RAID Controller may cause existing data to be erased unintentionally. It is recommended to make backup copy of user data before starting setup.

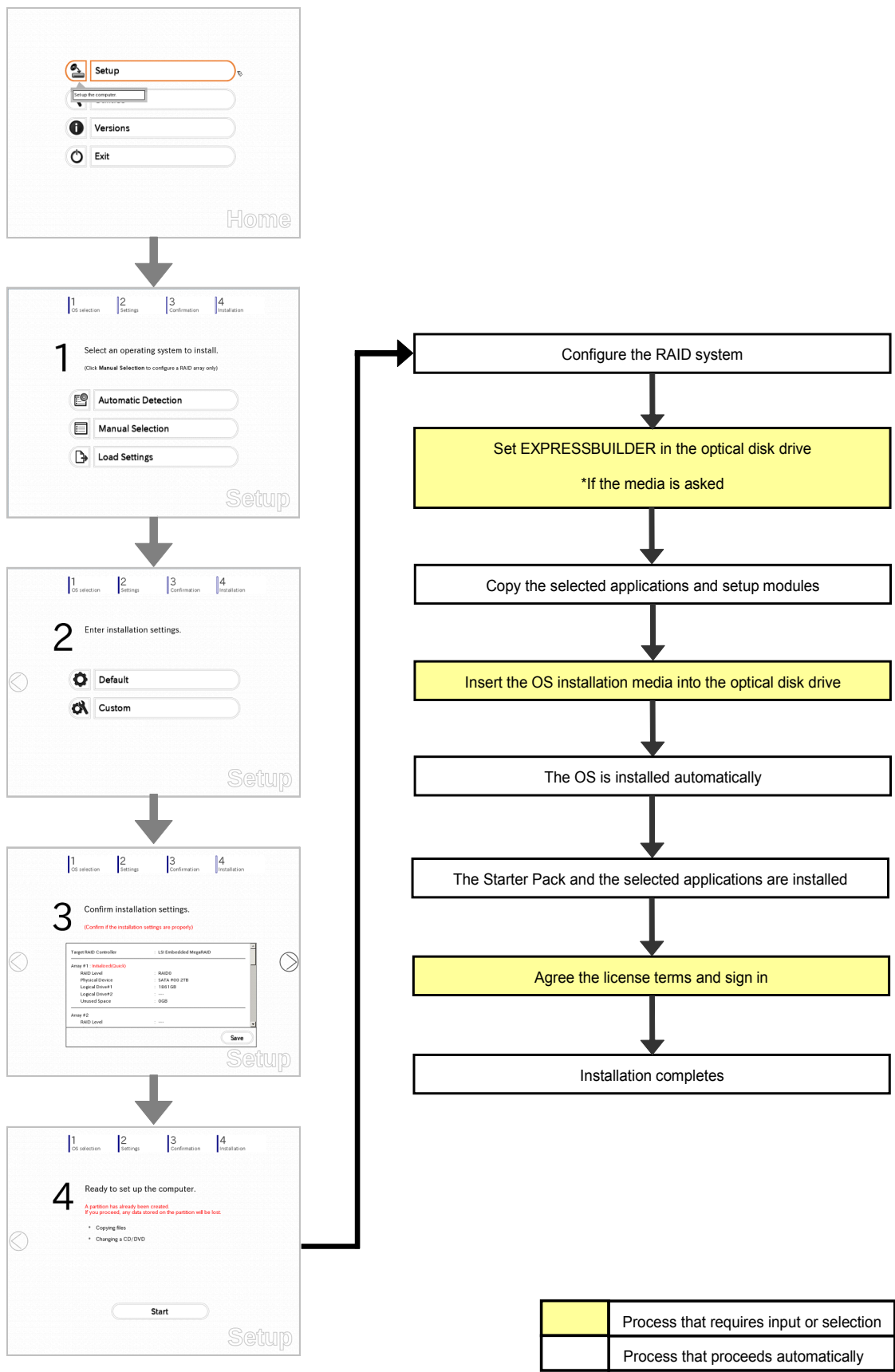
Note

- The Scalable Networking Pack (SNP) function is disabled on systems that have been installed by using EXPRESSBUILDER.
The setting of SNP function may affect the system performance.
Contact your sales representative for details.
- When using an onboard RAID controller (LSI Embedded MegaRAID):
Do not support the creation of RAID10 by using the onboard RAID controller.
Refer to Chapter 2 (5. RAID System Configuration) in "Maintenance Guide" when creating RAID10.

Tips

- Setup with EXPRESSBUILDER allows you to use a pre-specified parameter file or save the parameters specified in setup as a parameter file on removable media or Internal Flash Memory.
- For details on creating a parameter file, refer to *Chapter 1 (7. Windows OS Parameter File)*.

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 2012 R2 DVD-ROM*)
- Either of the following EXPRESSBUILDER
 - **Internal Flash Memory**
 - **EXPRESSBUILDER DVD** (Option)
- Prepare if needed:
 - **Removable media for Windows OS parameter file**

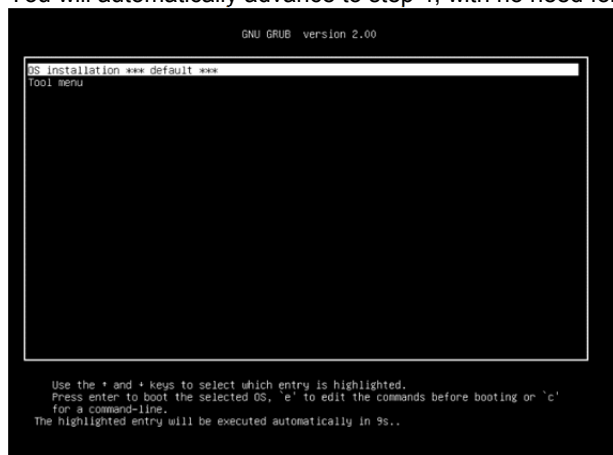
3.2.3 Setup procedure

During Setup with EXPRESSBUILDER, parameters are specified through the wizard. You can also save the parameters as one file (a parameter file) to removable media.

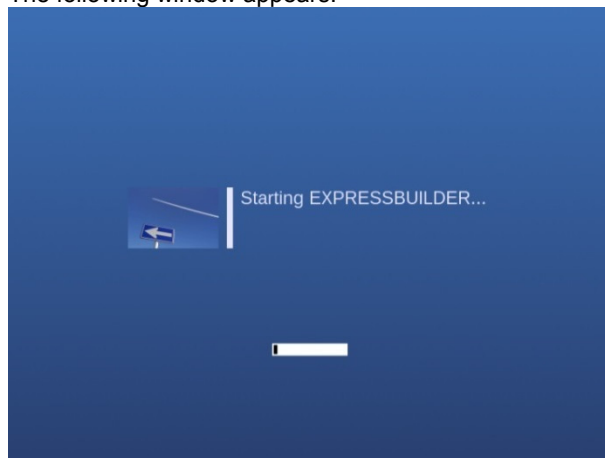
Note

Read through the items in *Chapter 1 (3.1 Before Starting Setup)* prior to installing Windows.

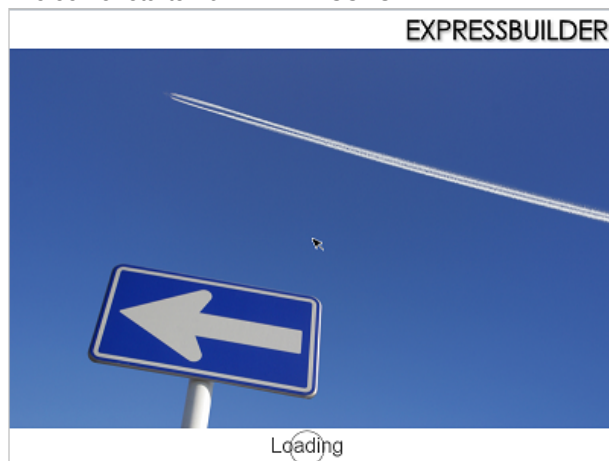
1. Turn peripheral device (such as a display) power on, and then turn the server power on.
2. Start EXPRESSBUILDER according to *Chapter 1 (1.1 Starting EXPRESSBUILDER)*.
3. Select **OS installation *** default *****.
You will automatically advance to step 4, with no need for further input.



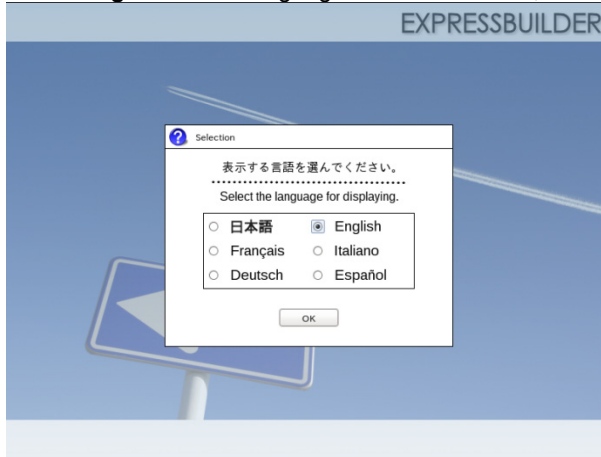
The following window appears.



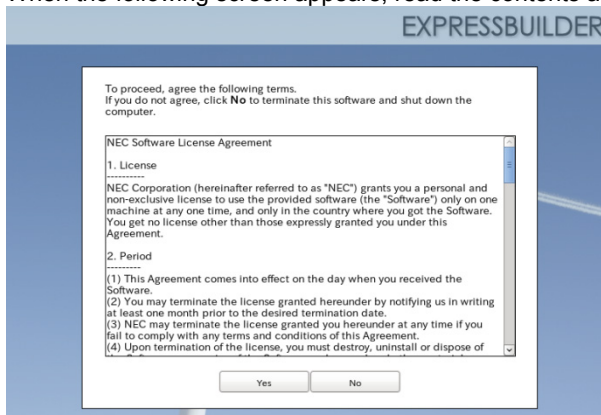
The server starts from EXPRESSBUILDER.



4. Select **English** on the language selection window, and then click **OK**.



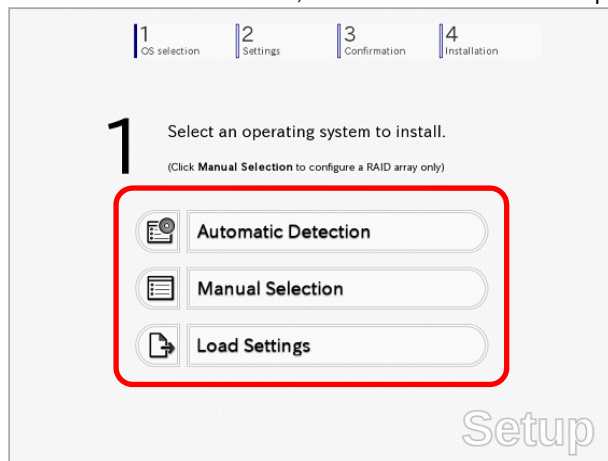
5. When the following screen appears, read the contents and click **Yes**.



6. Click **Setup**.



7. On the **OS selection** menu, select the OS to install or specify the parameter file.



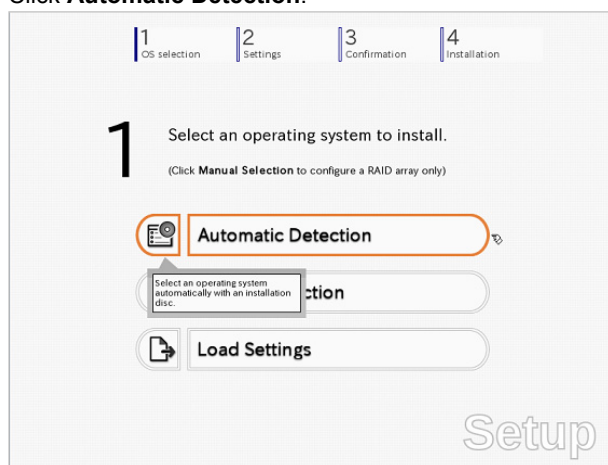
- ☐ When *not using* a parameter file : Select **Automatic Detection**, and then go to Step 8.
Select **Manual Selection**, and then go to Step 9.
- ☐ When *using* a parameter file : Select **Load Settings**, and then go to Step 10.

Note

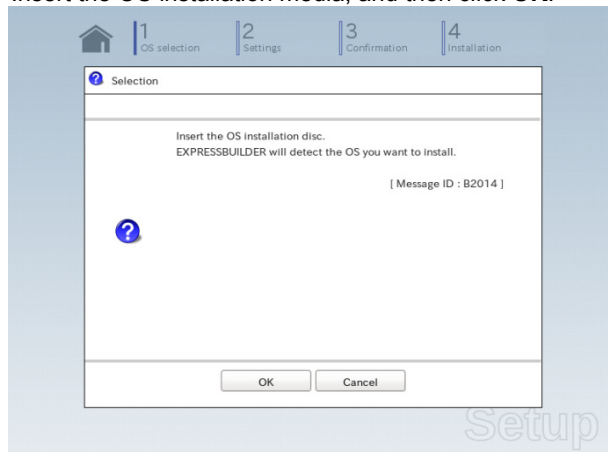
When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.


8. When *not using* a parameter file, let the OS on the installation media be recognized by using the following procedure.

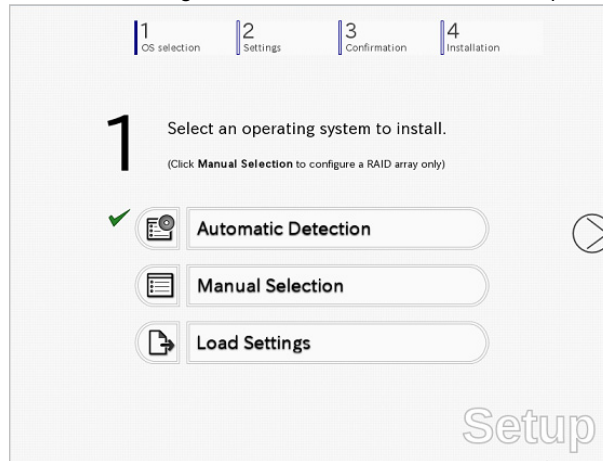
- 8-(1) Click **Automatic Detection**.



- 8-(2) Insert the OS installation media, and then click **OK**.

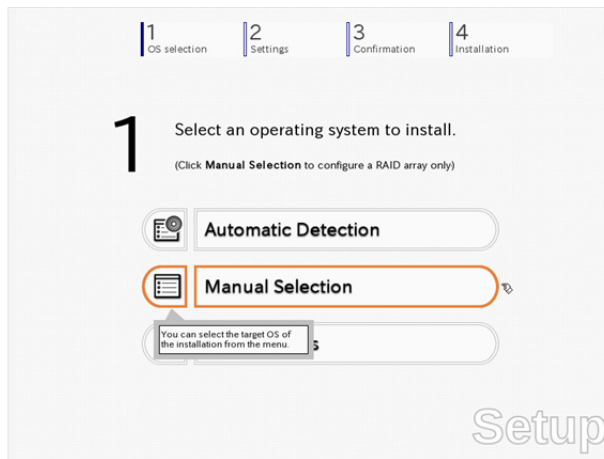


8-(3) Click  on the right side of the screen. → Go to step 11.

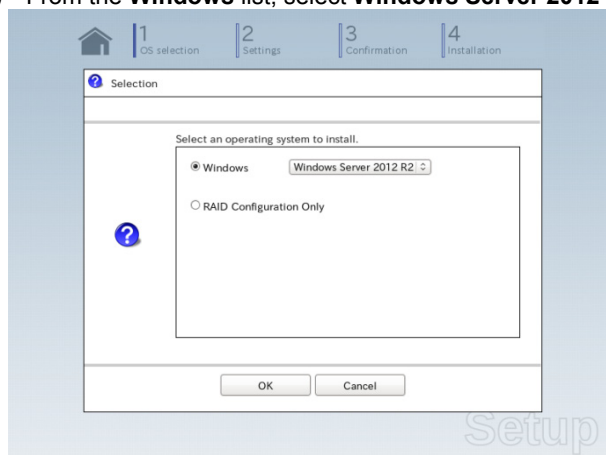



9. When *not using* a parameter file, select an OS by using the following procedure.

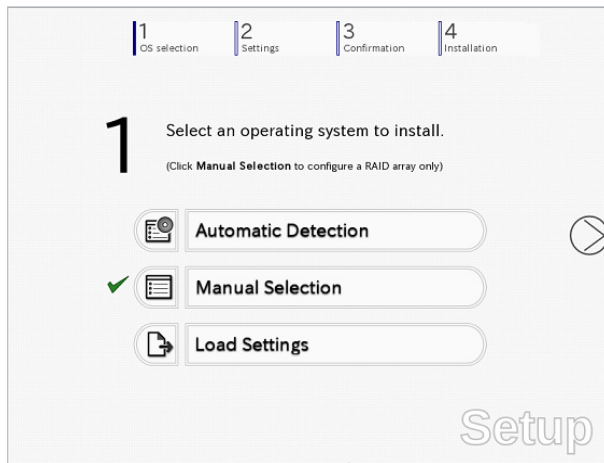
9-(1) Click **Manual Selection**.



9-(2) From the **Windows** list, select **Windows Server 2012 R2**, and then click **OK**.

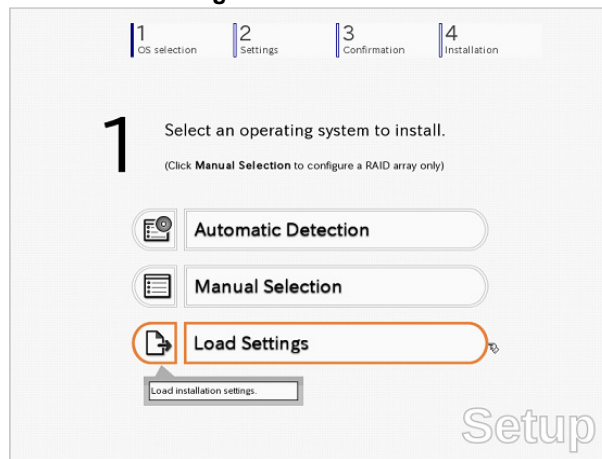


9-(3) Click  on the right side of the screen. → Go to step 11.

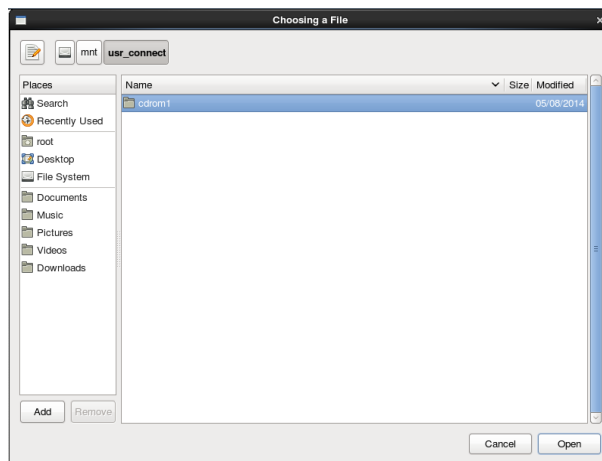


10. When *using* the parameter file, load the parameter file by using the following procedure.

10-(1) Click **Load Settings**.




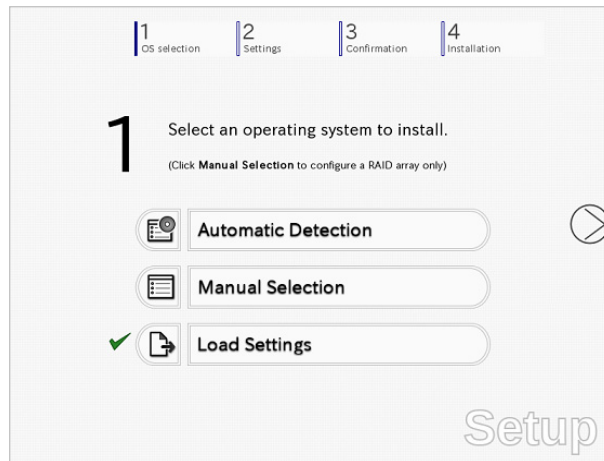
10-(2) Follow the on-screen instruction to load the parameter file (*.tre).




Tips

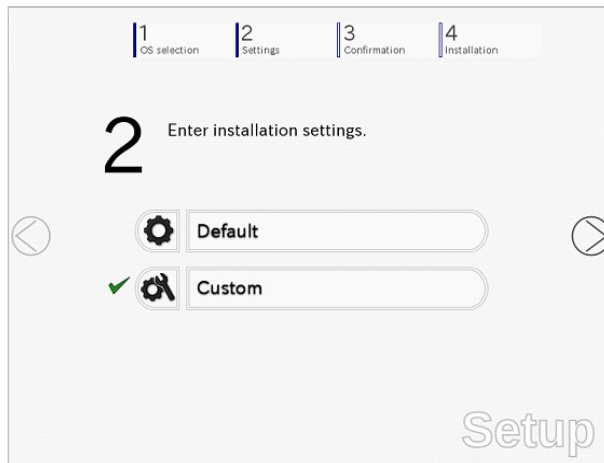
For the removable media in which the parameter file is saved, see `"/mnt/usr_connect/usb*" (* indicates a number).`

10-(3) Click  on the right side of the screen.



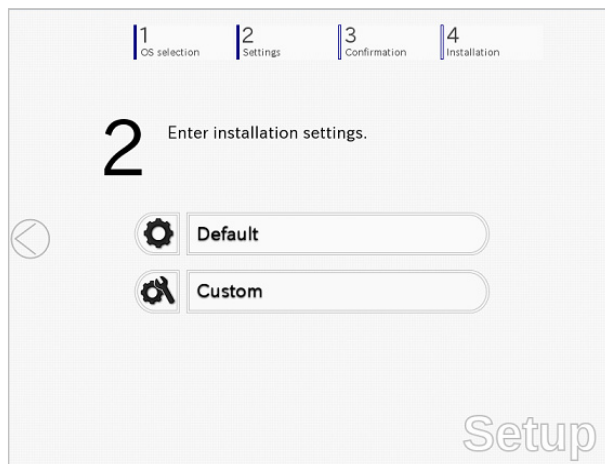
10-(4) When the parameter file is correctly loaded, click  on the right side of the screen.
→ Go to step 14.

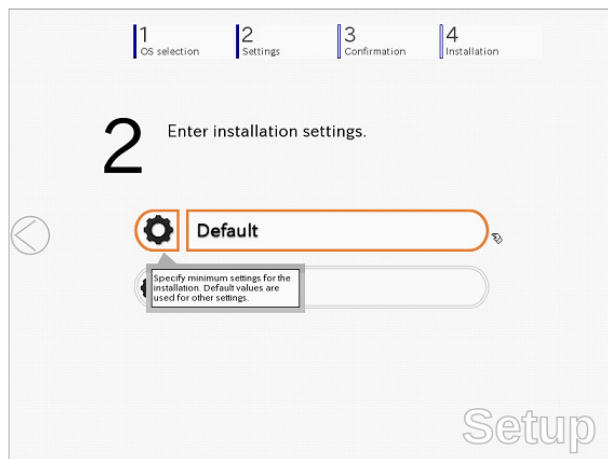
Click **Custom** to check and modify the setting in the wizard.
→ Go to step 13-(1).



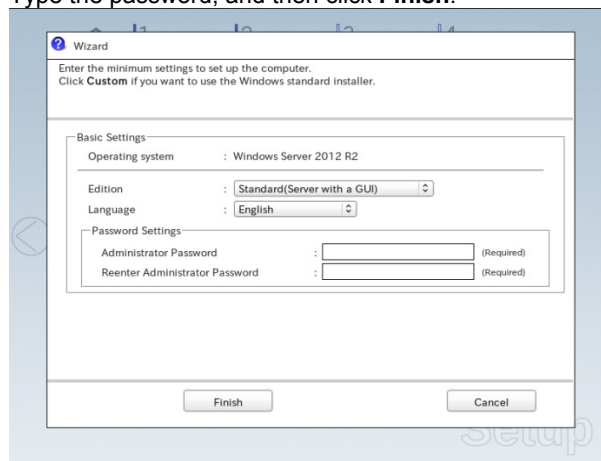
11. Specify the setup parameters by using either of the following methods:

- ☐ When selecting **Default** : Go to Step 12.
- ☐ When selecting **Custom** : Go to Step 13.




12. Click **Default**.

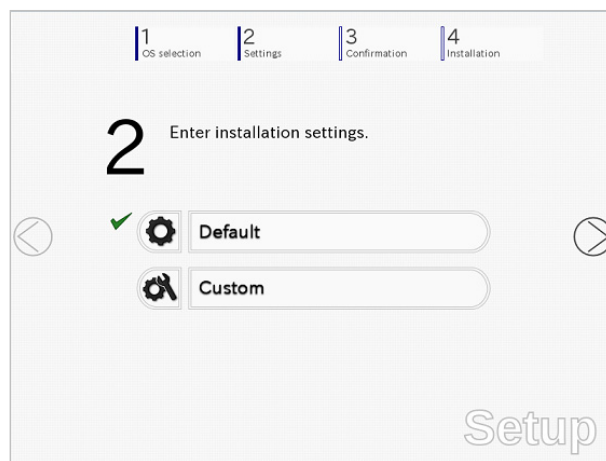
- 12-(1) Select the edition of the OS to install from the **Edition** list.
Type the password, and then click **Finish**.

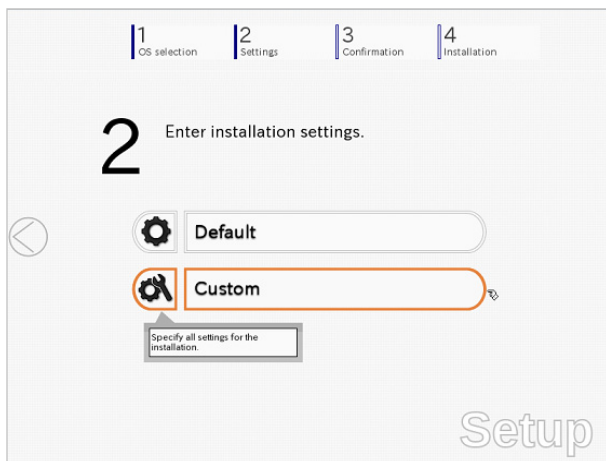
**Note**

Computer name and Administrator Password are required parameters.
Enter Administrator Password that satisfies the following conditions:

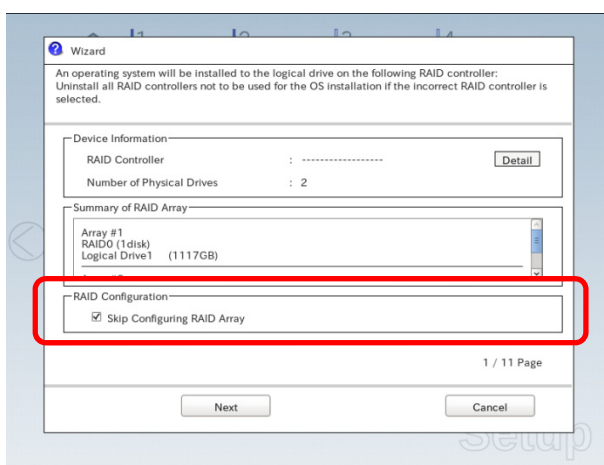
- Contains 6 or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z) , and symbols.

- 12-(2) Click  on the right side of the screen. → Go to step 14.



13. Click **Custom**.

13-(1) Use this menu to configure the RAID system and logical drives as needed.

**Note**

When using an onboard RAID controller (LSI Embedded MegaRAID):
Do not support the creation of RAID10 by using the onboard RAID controller.
Refer to Chapter 2 (5. RAID System Configuration) in "Maintenance Guide" when creating RAID10.

When creating new logical drives

With the **Skip a RAID Configuration** check box cleared, click **Next**.
Set up the logical drives according to the wizard.

Important

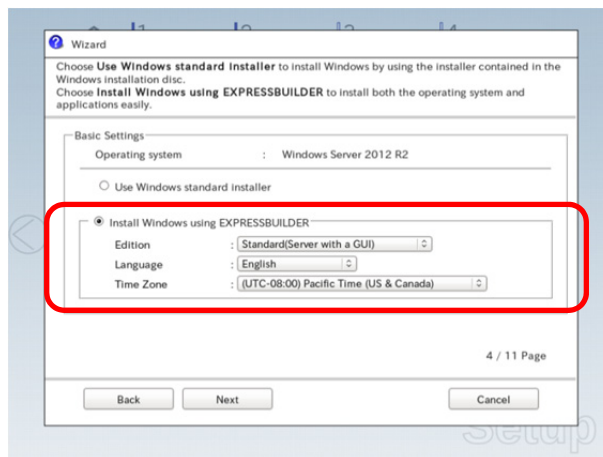
If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

When skipping the creation of new logical drives

Select the **Skip a RAID Configuration** check box, and then click **Next**.

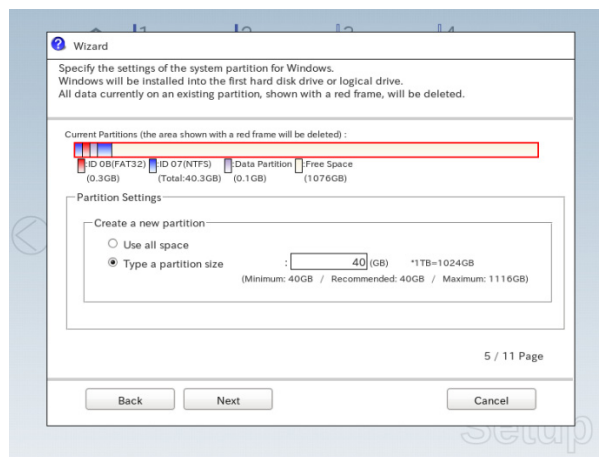
13-(2) Check the settings specified for **Basic Settings**.

Choose **Install Windows using EXPRESSBUILDER**, and then click **Next**.



13-(3) Check the settings specified for **Partition Settings**.

Modify the settings as needed, and then click **Next**.

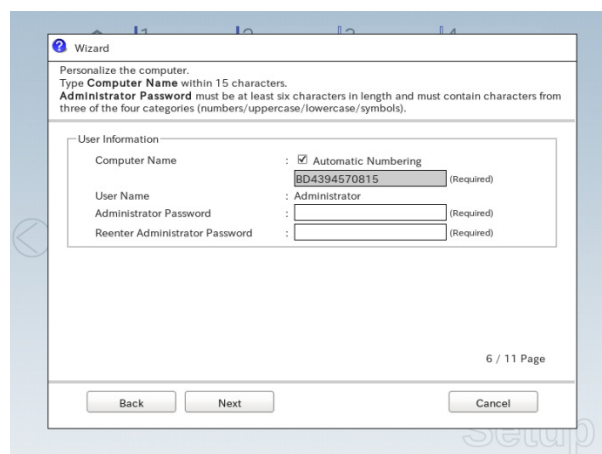


Important

• Partition size

- Specify a partition size larger than the minimum required for installing the operating system. (Refer to *Chapter 1 (3.1 Before Starting Setup)*.)
- The maximum partition size is 2,097,152 MB.
- The entire contents of the destination hard disk drive will be deleted.

13-(4) Enter the user information, and then click **Next**.



Note

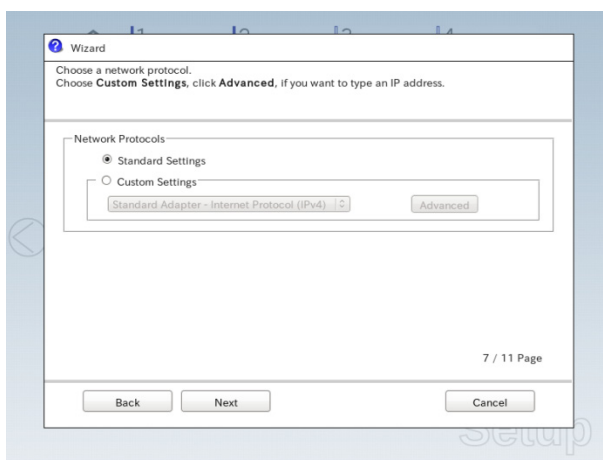
Computer name and Administrator Password are required parameters.
Enter Administrator Password that satisfies the following conditions:

- Contains 6 or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), and symbols.

Tips

- The Computer name has been assigned by automatic assignment function. If you need to assign another computer name, remove the checkmark from "Auto", and enter the desired computer name.
- If a parameter file is used for setup or if you return to a previous screen, ●●●●● is displayed in the Administrator password and Reenter Administrator password text boxes.

- 13-(5) Check the settings specified for **Network Protocols**.
Modify the settings as needed, and then click **Next**.

**Tips**

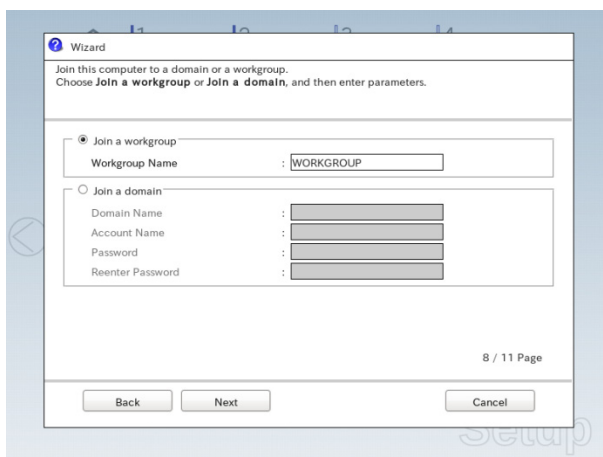
The order of entry in **Custom settings** may differ from the numbering of LAN ports.

Note

Even when an optional network board is connected, **Custom settings** only shows standard network boards.

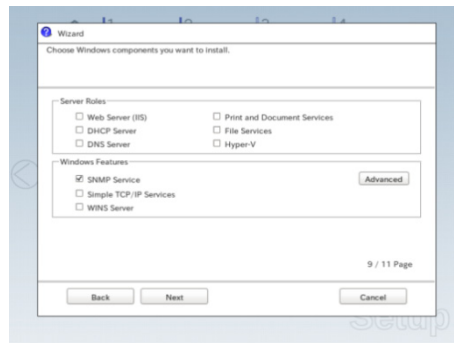
After finishing Setup with EXPRESSBUILDER, specify the optional network settings again.

- 13-(6) Specify the domain or workgroup.
Check the settings, modify them as needed, and then click **Next**.

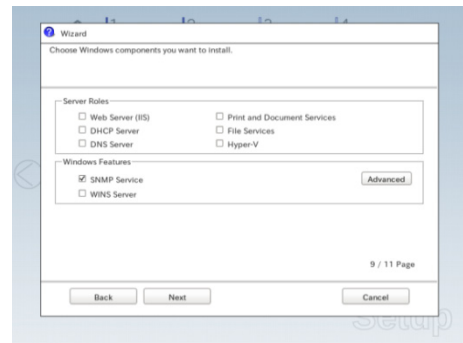


13-(7) Check the settings of Windows components.

Modify the settings as needed, and then click **Next**.

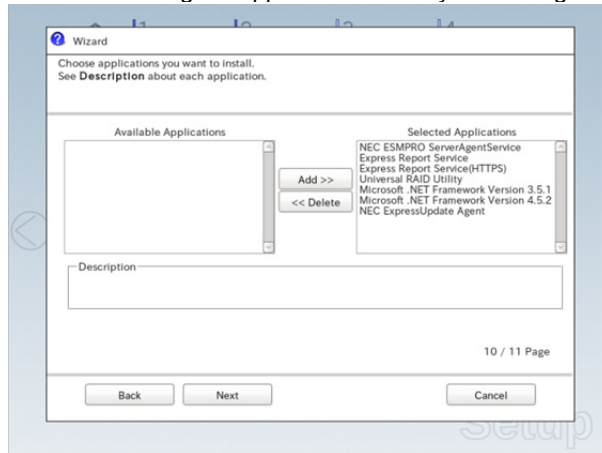


Server with a GUI

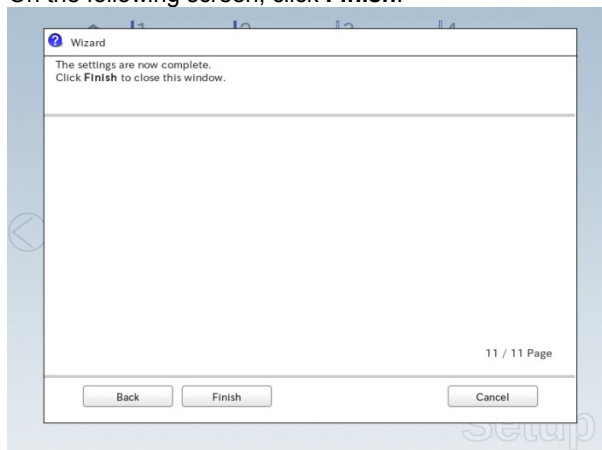


Server Core Installations

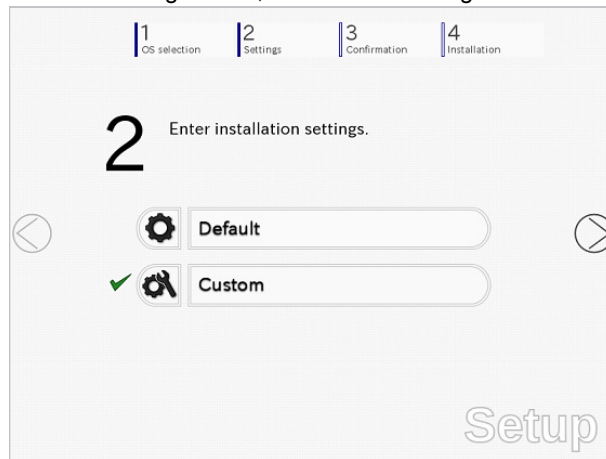
13-(8) Check the settings of applications. Modify the settings as needed, and then click **Next**.



On the following screen, click **Finish**.

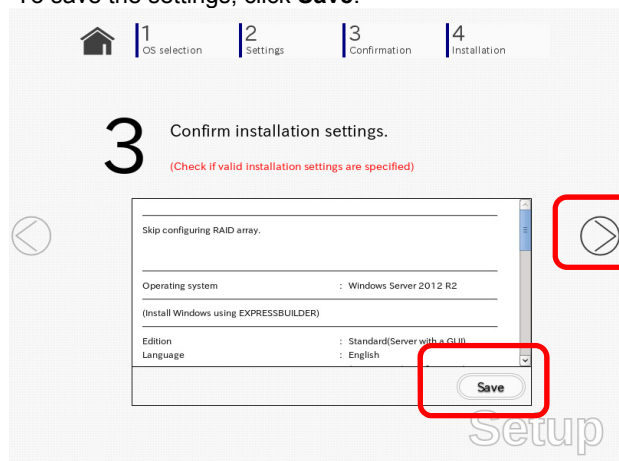


On the following screen, click  on the right side of the screen.



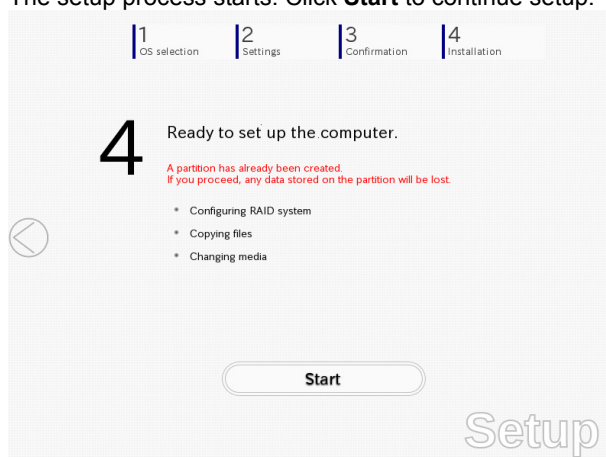
14. Check the parameter settings.

To save the settings, click **Save**.



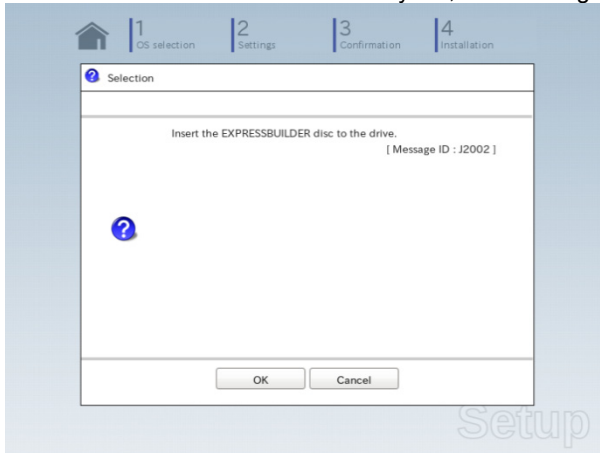
Click  on the right side of the screen.

15. The setup process starts. Click **Start** to continue setup.

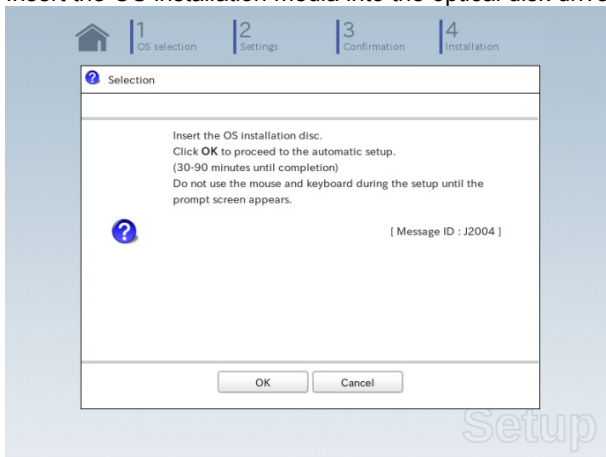


16. If the server has started from the EXPRESSBUILDER DVD, insert the EXPRESSBUILDER disk into the optical disk drive, and then click **OK**.

If EXPRESSBUILDER DVD is already set, this message will not appear.



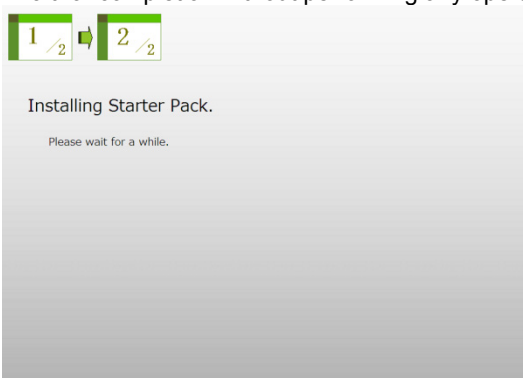
17. Insert the OS installation media into the optical disk drive, and then click **OK**.

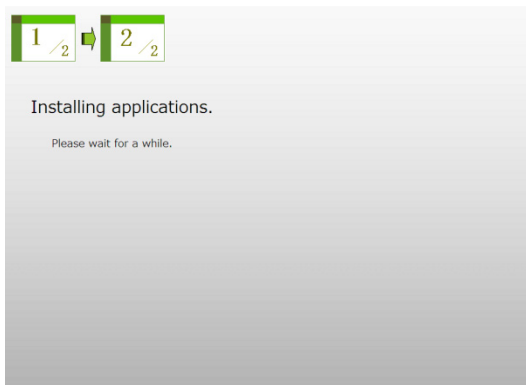


Windows Server 2012 R2 is installed automatically.

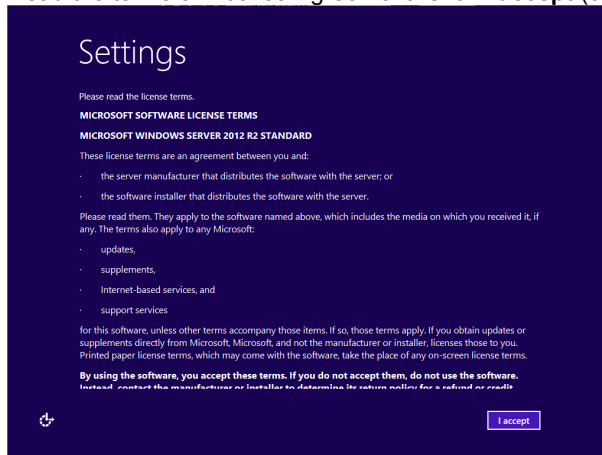
Wait for completion (about 40 minutes) without performing any operation.

18. The Starter Pack and the selected applications are automatically installed.
Wait for completion without performing any operation.





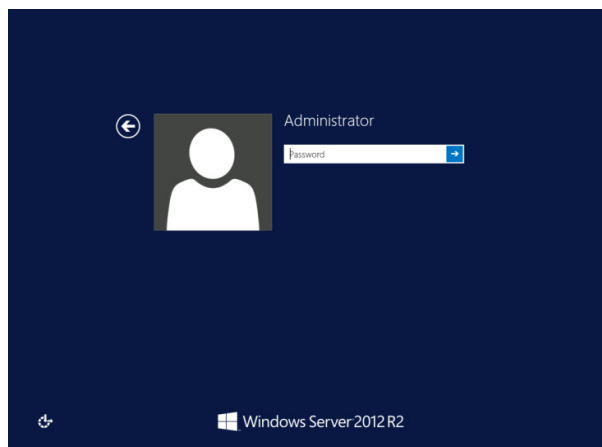
19. Read the terms of License Agreement. Click **I accept** (only in the server with a GUI).



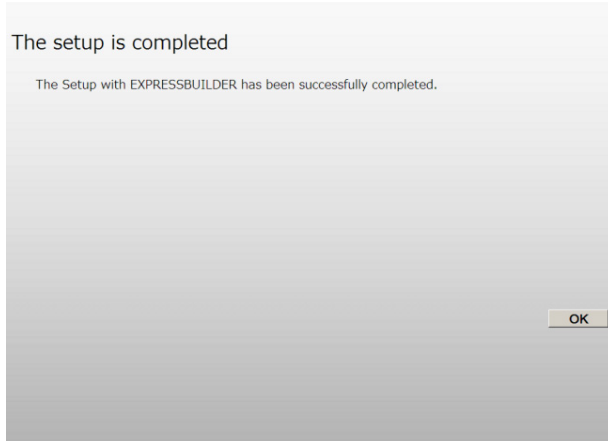
20. Press the CTRL+ALT+DEL keys to sign in.



Type the password you have specified in step 12-(1) or 13-(4).



21. Click **OK**.



- 22. See "Chapter 1 (3.5 Checking installation of EXPRESSBUILDER)" to confirm that EXPRESSBUILDER has been installed in Windows.
- 23. Follow the instructions described in *Chapter 1 (3.6 Setting Up Device Drivers)* to set up the device drivers.
- 24. Confirm if Windows is activated according to *Chapter 1 (3.7 License Authentication)*.
- 25. See *Chapter 1 (3.8 Setup of Windows Server 2012 R2 NIC Teaming (LBFO))* to setup a team as needed.
- 26. Execute setup by following the instructions described in *Chapter 1 (6. Setup for Solving Problems)*.
- 27. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.

Setup with EXPRESSBUILDER is now complete.

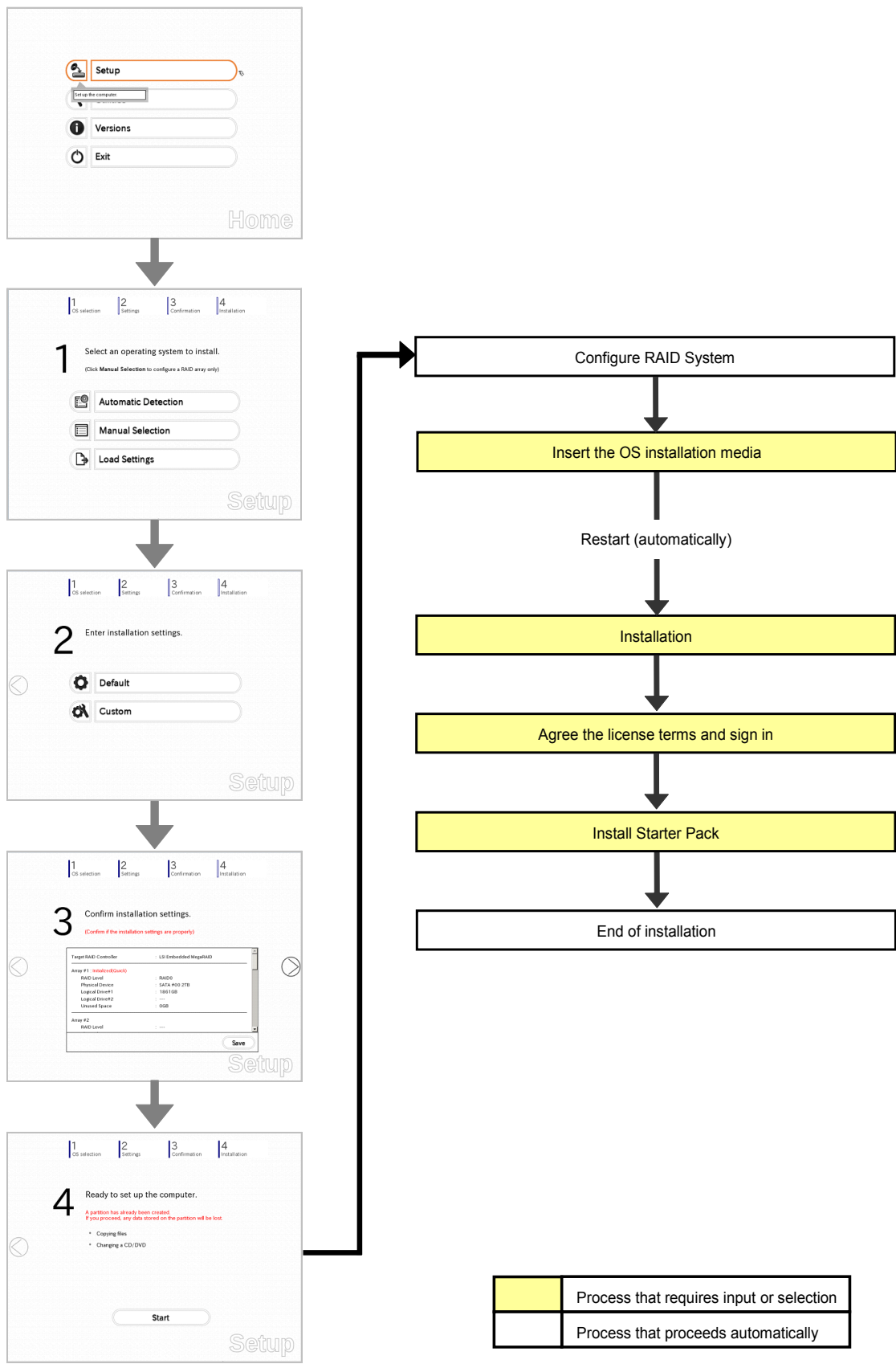
3.3 Setup with Windows Standard Installer

This section describes how to install Windows with Windows Standard Installer.

This feature automatically recognizes the RAID controller connected to the server and configures the RAID system. Therefore the hardware installation of the server needs to be finished by following "*User's Guide*".

- | | |
|------------------|--|
| Important | <p>Setup with Windows standard Installer may delete all data of the hard disk drive depending on the settings. Pay attention to input parameters. You must be especially careful when configuring the following:</p> <ul style="list-style-type: none">– RAID settings <p>When re-installing an OS, backing up user data, as needed, is recommended.</p> |
| Note | <p>When using an onboard RAID controller (LSI Embedded MegaRAID): Do not support the creation of RAID10 by using the onboard RAID controller. Refer to Chapter 2 (5. RAID System Configuration) in "Maintenance Guide" when creating RAID10.</p> |
| Tips | <ul style="list-style-type: none">• Setup with Windows Standard Installer allows you to use a pre-specified parameter file or save the parameters specified in setup as a parameter file on removable media or Internal Flash Memory.• For details on creating a parameter file, refer to <i>Chapter 1 (7. Windows OS Parameter File)</i>. |

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 2012 R2 DVD-ROM*)
- Either of the following EXPRESSBUILDER
 - **Internal Flash Memory**
 - **EXPRESSBUILDER DVD** (Option)
- Prepare if needed:
Removable media for Windows OS parameter file

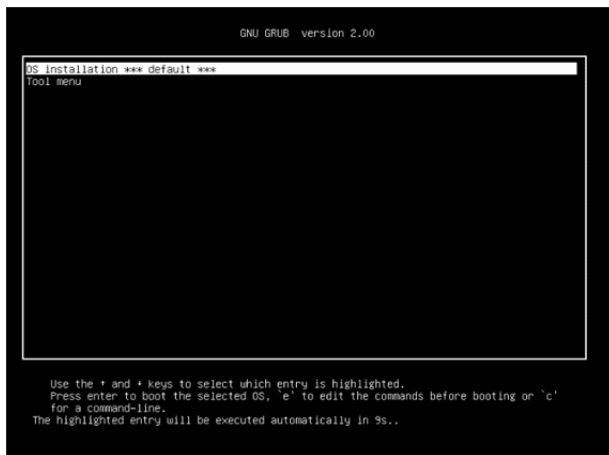
3.3.3 Setup procedure

Note

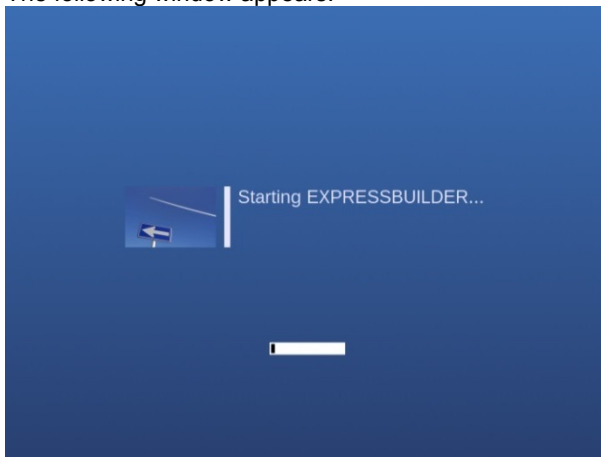
Read through the items in *Chapter 1 (3.1 Before Starting Setup)* prior to installing Windows.

1. Turn peripheral device (such as a display) power on, and then turn the server power on.
2. Start EXPRESSBUILDER according to *Chapter 1 (1.1 Starting EXPRESSBUILDER)*.
3. Select **OS installation *** default *****.

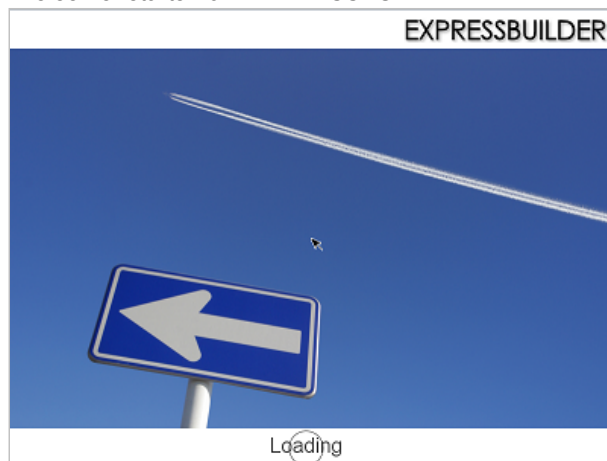
You will automatically advance to step 4, with no need for further input.



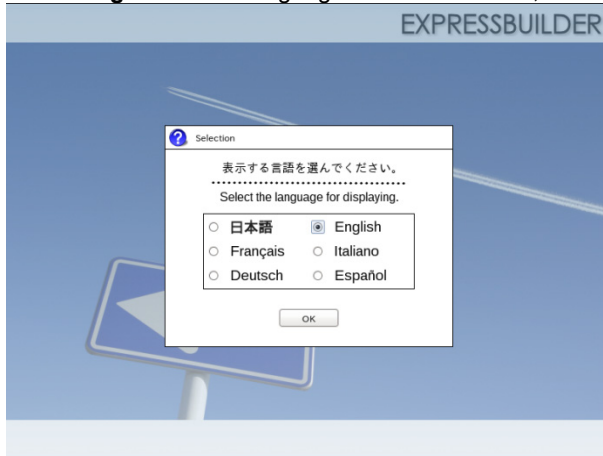
The following window appears.



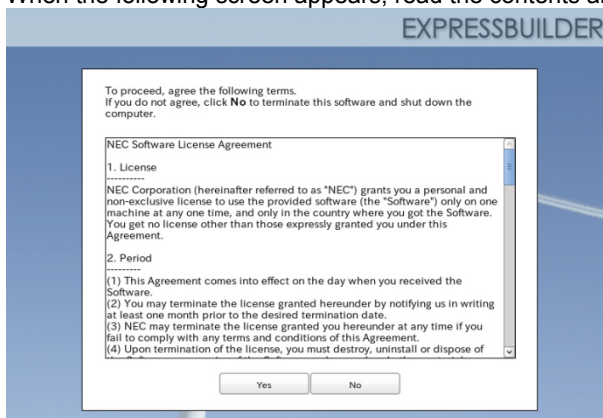
The server starts from EXPRESSBUILDER.



4. Select **English** on the language selection window, and then click **OK**.



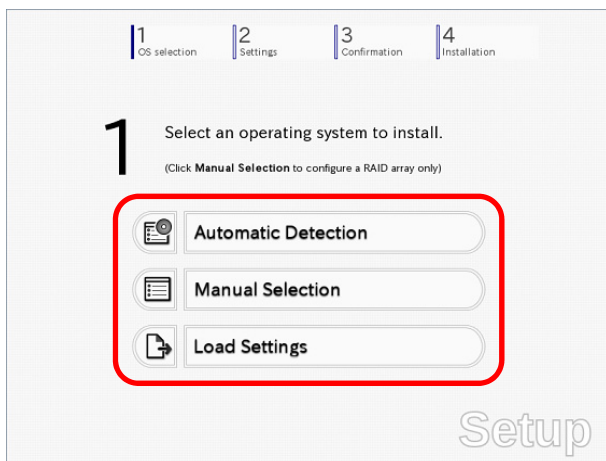
5. When the following screen appears, read the contents and click **Yes**.



6. Click **Setup**.



7. On the **OS selection** menu, select the OS to install or specify the parameter file.



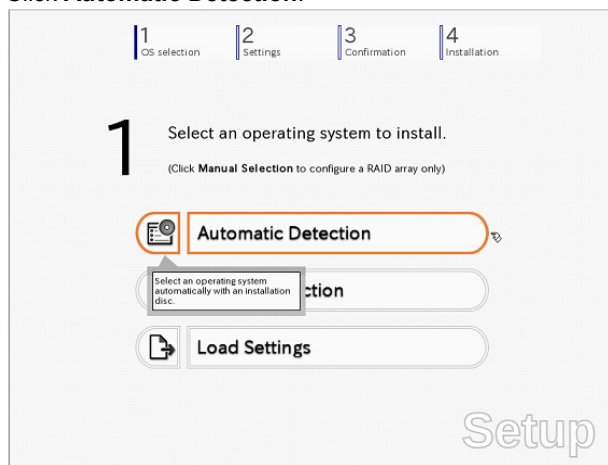
- ☐ When *not using* a parameter file : Select **Automatic Detection**, and then go to Step 8.
: Select **Manual Selection**, and then go to Step 9.
- ☐ When *using* a parameter file : Select **Load Settings**, and then go to Step 10.

Note

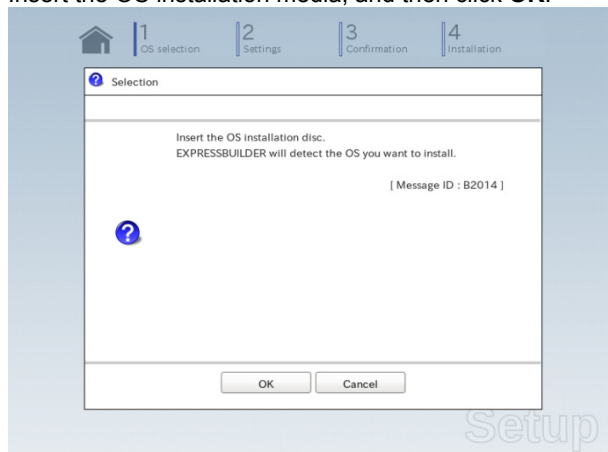
When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.


8. When *not using* a parameter file, let the OS on the installation media be recognized by using the following procedure.

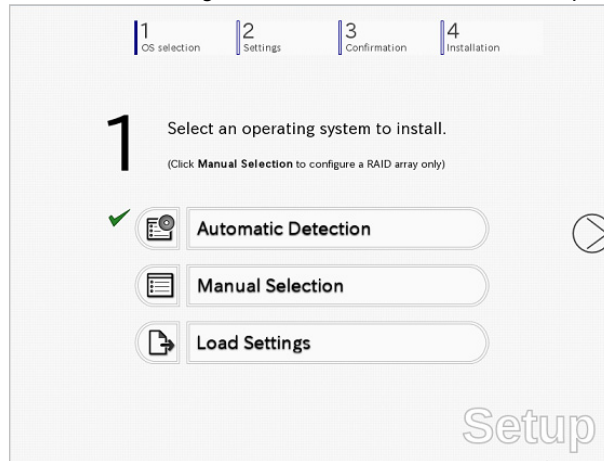
- 8-(1) Click **Automatic Detection**.



- 8-(2) Insert the OS installation media, and then click **OK**.

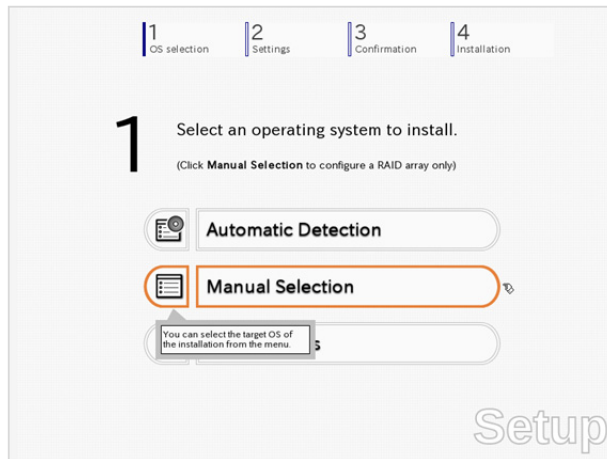


8-(3) Click  on the right side of the screen. → Go to step 11.

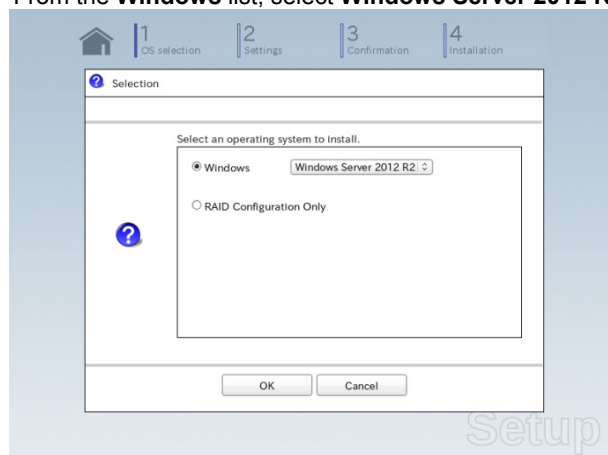



9. When *not using* a parameter file, select an OS by using the following procedure.

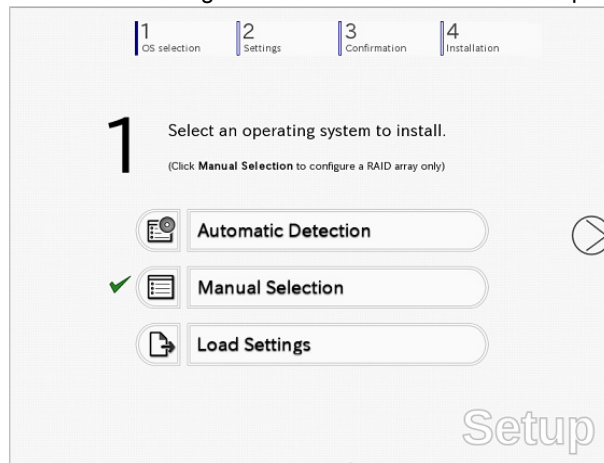
9-(1) Click **Manual Selection**.



9-(2) From the **Windows** list, select **Windows Server 2012 R2**, and then click **OK**.

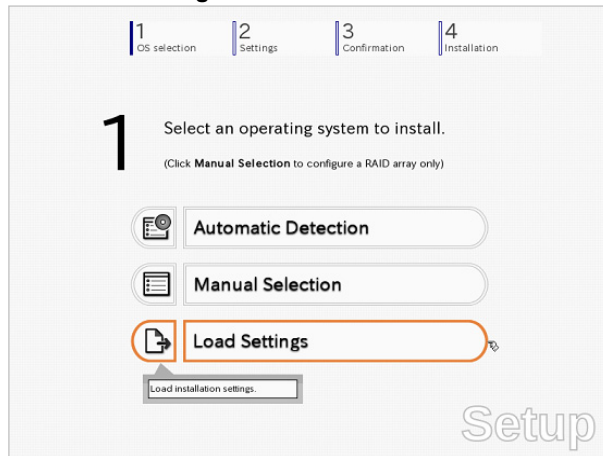


9-(3) Click  on the right side of the screen. → Go to step 11.

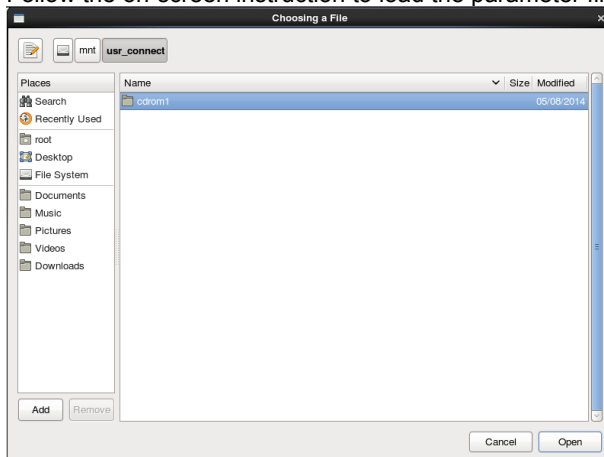


10. When *using* the parameter file, load the parameter file by using the following procedure.

10-(1) Click **Load Settings**.




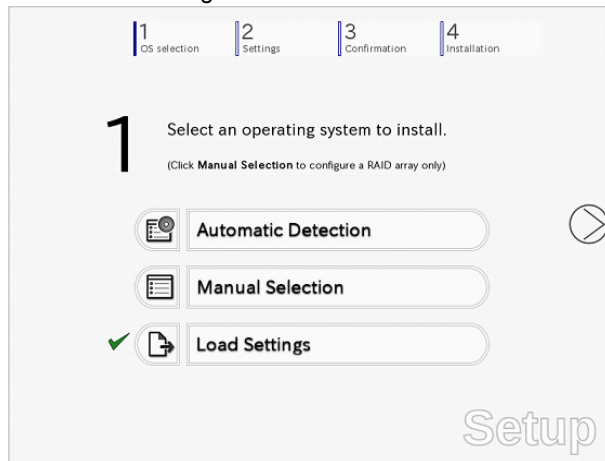
10-(2) Follow the on-screen instruction to load the parameter file (*.tre).




Tips

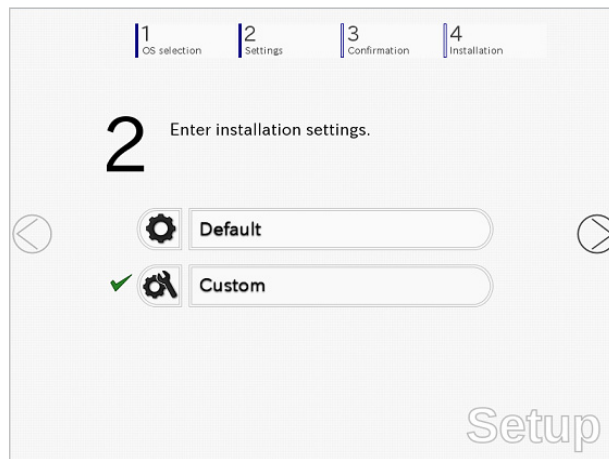
For the removable media in which the parameter file is saved, see `"/mnt/usb_connect/usb*"` (* indicates a number).

10-(3) Click  on the right side of the screen.

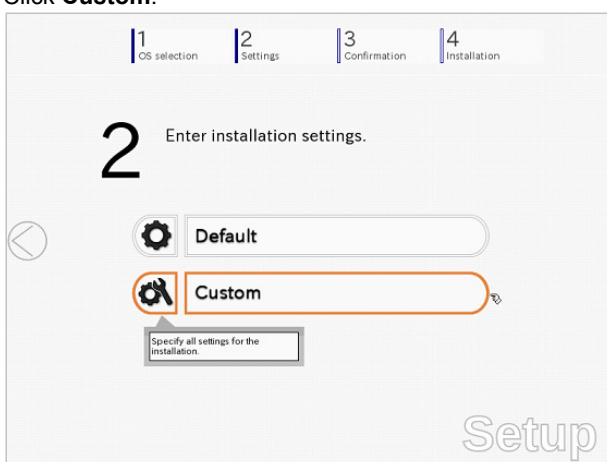


10-(4) When the parameter file is correctly loaded, click  on the right side of the screen.
→ Go to step 12.

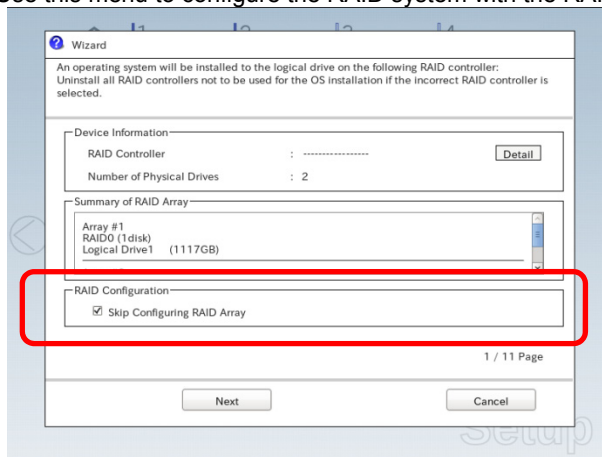
Click **Custom** to check and modify the setting in the wizard.
→ Go to step 11-(1).



11. Click **Custom**.



- 11-(1) Use this menu to configure the RAID system with the RAID controller detected automatically.



Note

When using an onboard RAID controller (LSI Embedded MegaRAID):
Do not support the creation of RAID10 by using the onboard RAID controller.
Refer to Chapter 2 (5. RAID System Configuration) in "Maintenance Guide" when creating RAID10.

When creating new logical drives

With the **Skip a RAID Configuration** check box cleared, click **Next**.
Set up the logical drives according to the wizard.

Important

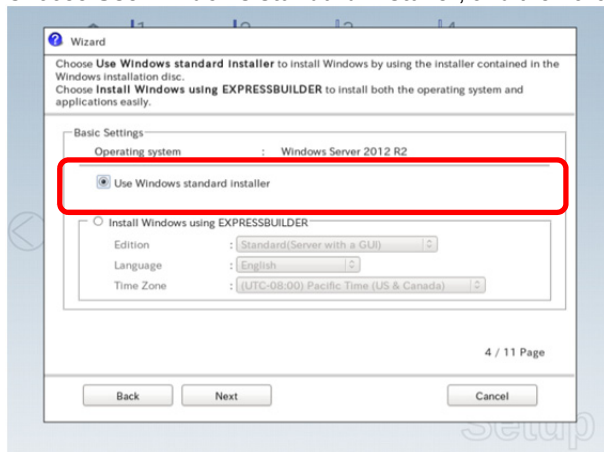
If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

When skipping the creation of new logical drives

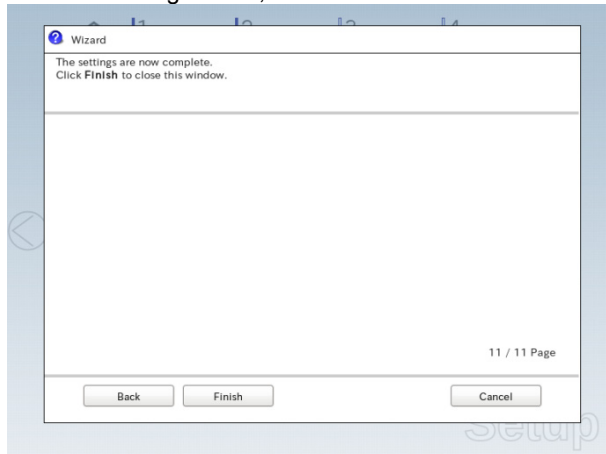
Select the **Skip a RAID Configuration** check box, and then click **Next**.


- 11-(2) Check the settings specified for **Basic Settings**.

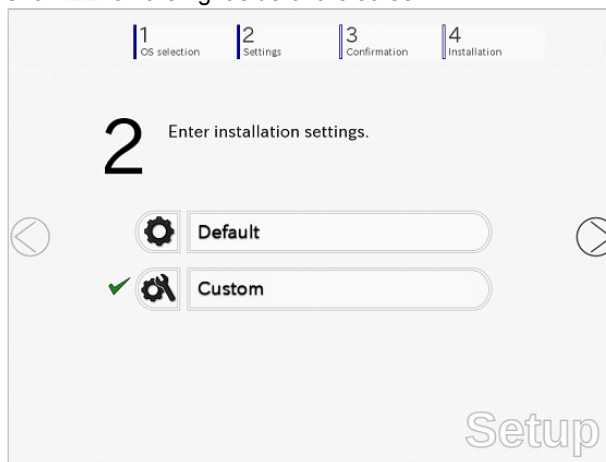
Choose **Use Windows standard installer**, and then click **Next**.




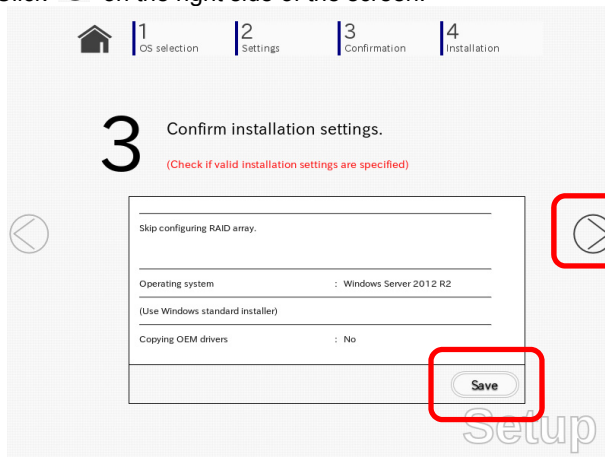
On the following screen, click **Finish**.



11-(3) Click  on the right side of the screen.

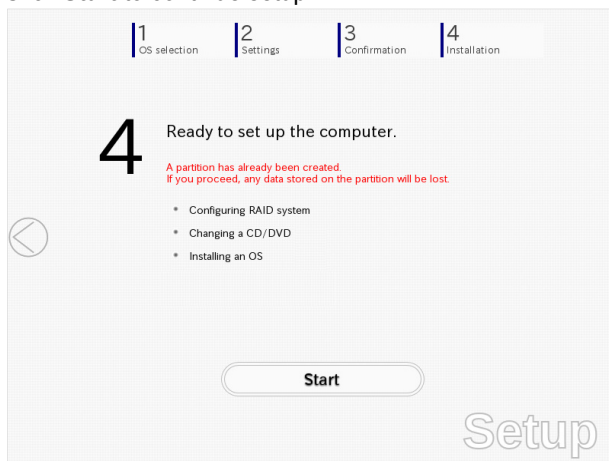


12. Check the parameter settings. To save the settings, click **Save**.
Click  on the right side of the screen.

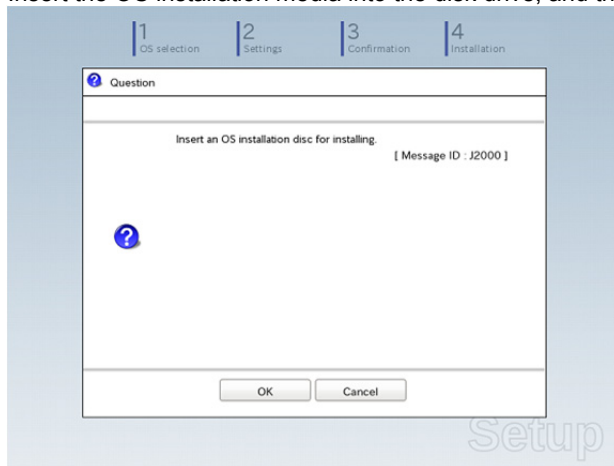


13. The setup process starts.

Click **Start** to continue setup.



14. Insert the OS installation media into the disk drive, and then click **OK**.



15. The server reboots automatically. Press the <F3> key when the following message appears during POST.

Press <F2> Setup, <F3> Internal Flash Memory, <F4> ROM Utility, <F12> Network

16. The system starts from the OS installation media.

The message "Press any key to boot from CD or DVD..." is displayed on the top of the screen.

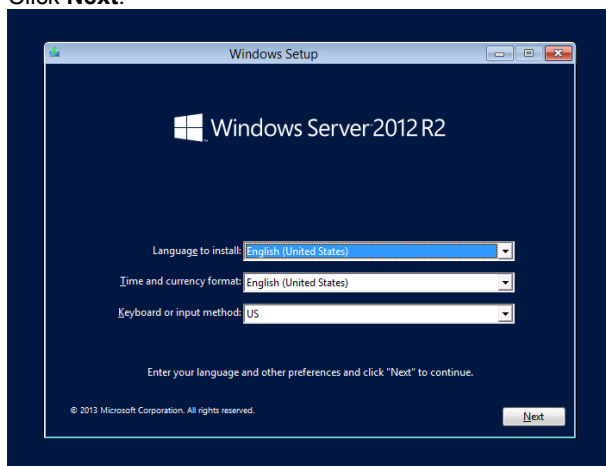
Press <Enter> key to start the system from the installation media.

The boot sequence proceeds and the message "Windows is loading files..." appears.

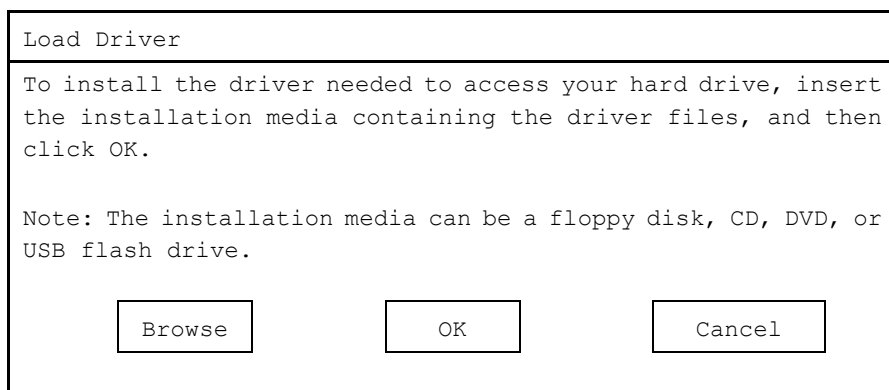
Note

If "Windows is loading files..." message does not appear, <Enter> key was not pressed correctly. Reboot and retry.

17. Click **Next**.



- If the following message appears, go to step 18.
- If not, go to step 20.



18. Select the destination, and then click **OK**.
Specify the displayed drive as **INTER-FLASH**.

\\011\win\winnt\drivers\01_storage\1_al_07

Tips

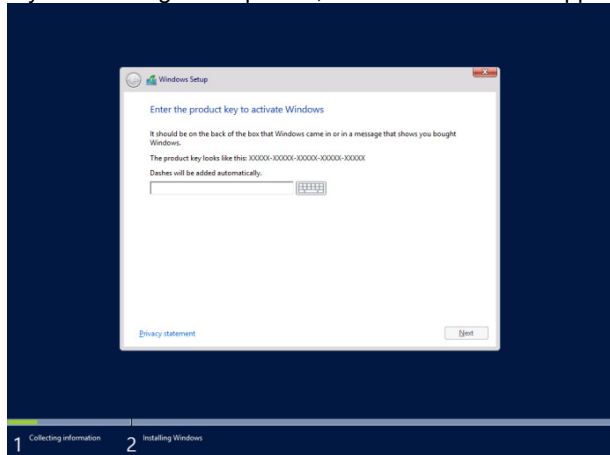
- The volume label of Internal Flash Memory is INTER-FLASH.
- If INTER-FLASH label is not displayed, reboot the server, and then perform setup again from step 14.

19. Select the following driver from the driver list shown, and then click **Next**.

LSI Embedded MegaRAID

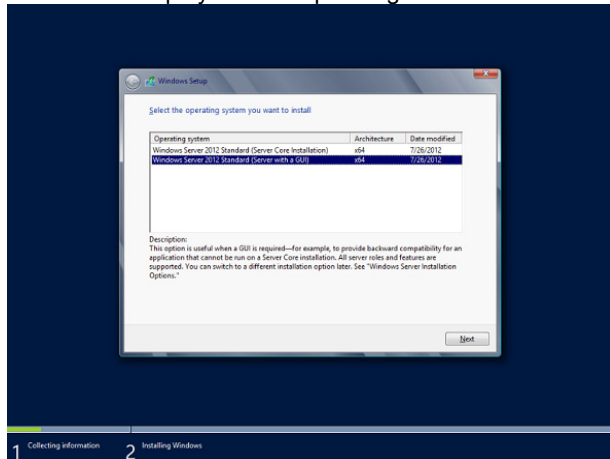
20. Type the product key, and then click **Next**.

If you are using Backup DVD, this screen does not appear. Go to the next step.



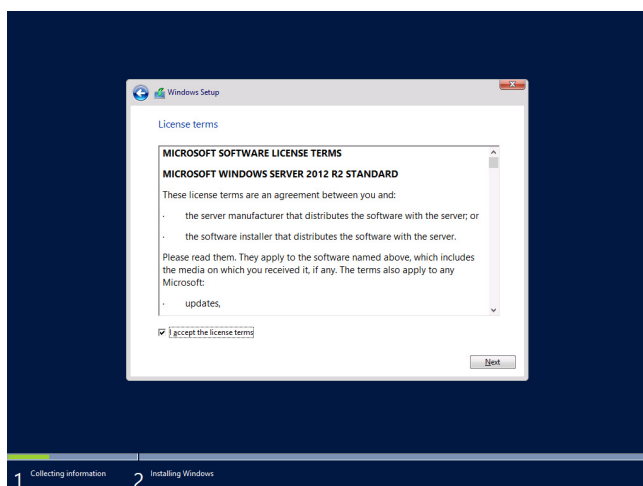
21. Select the operating system to install, and then click **Next**.

The screen display differs depending on an OS installation media you are using.



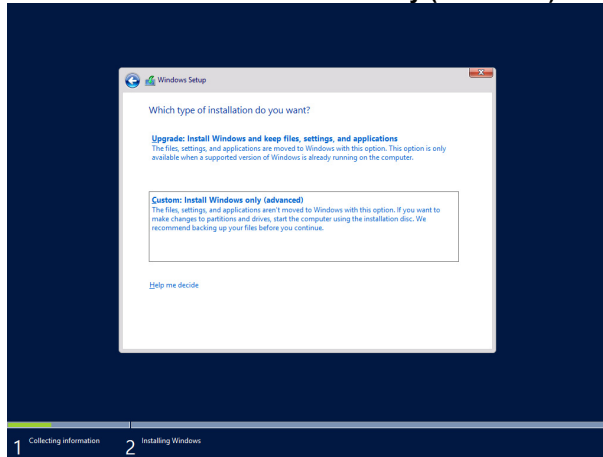
22. When the following window appears, confirm the content of the license agreement.

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



23. Select the installation type.

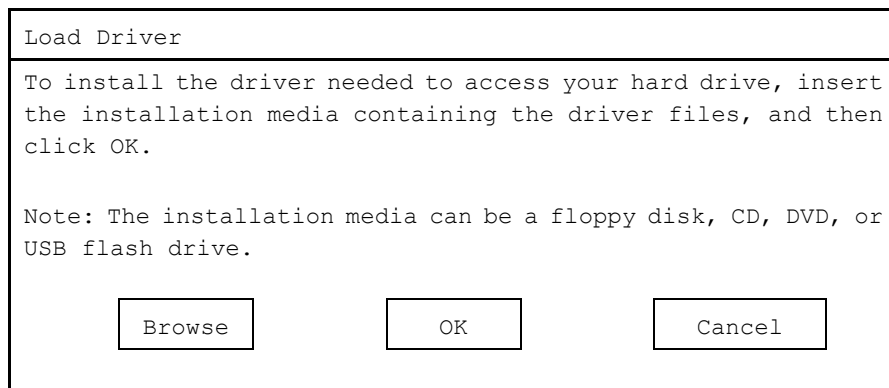
Select **Custom: Install Windows only (advanced)** in this case.



24. "Where do you want to install Windows?" window appears.

If the driver was loaded in step 18 and 19, or if a RAID controller is not used, go to step 28.

If you select Load Driver, the following message appears.



25. Select the destination, and then click **OK**.

Specify the displayed drive as **INTER-FLASH**.

Onboard RAID Controller (LSI Embedded MegaRAID):

`\011\win\winnt\drivers\01_storage\1_al_07`

Tips

- When using an EXPRESSBUILDER DVD, replace the DVD media in step 24 and select the optical disk drive.
- When using an onboard RAID controller, the driver can be loaded from the EXPRESSBUILDER DVD by using USB optical disk drive.
- If INTER-FLASH label is not displayed, reboot the server, and then perform setup again from step 14.

26. Select the following driver from the driver list shown, and then click **Next**.

LSI Embedded MegaRAID

27. If you inserted the EXPRESSBUILDER DVD in Step 24, remove it, and then insert the OS installation media.

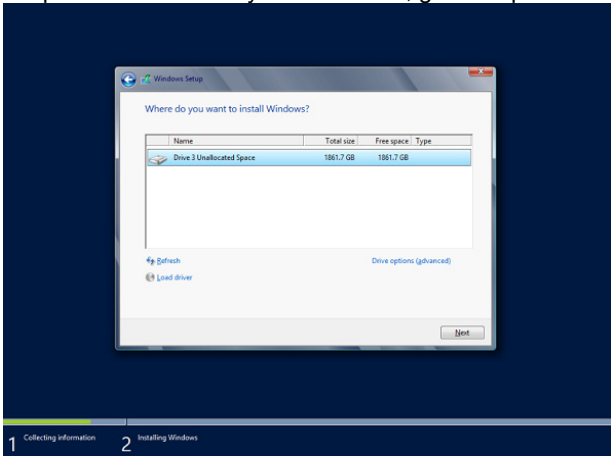
Tips

If you have not replaced the OS installation media after loading the driver, the following message may appear.

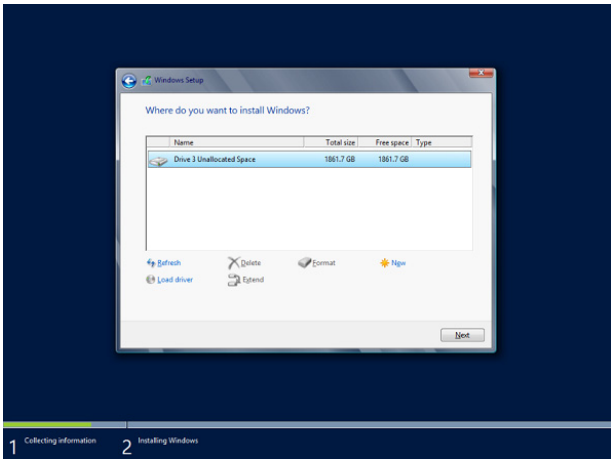


If it appears, replace the OS installation media, and then click **Refresh**.

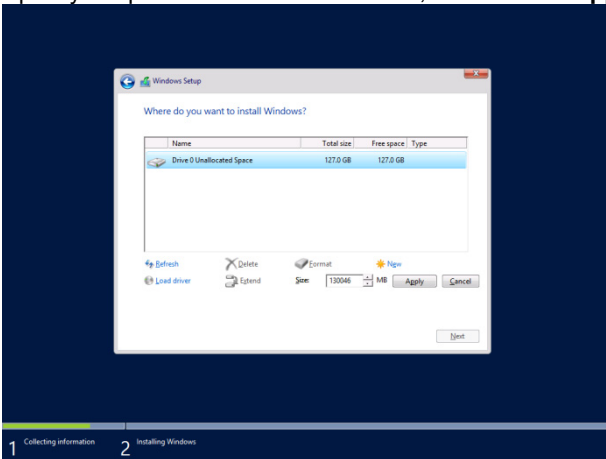
28. Create a partition to install an OS.
To create a partition, click **Drive options (advanced)**.
If a partition has already been created, go to step 32.



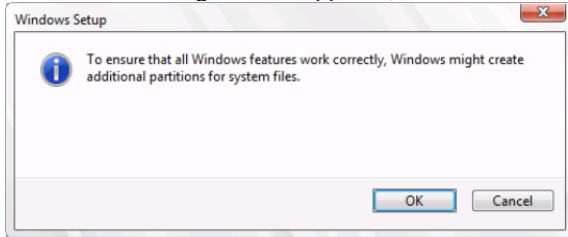
29. Click **New**.



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



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



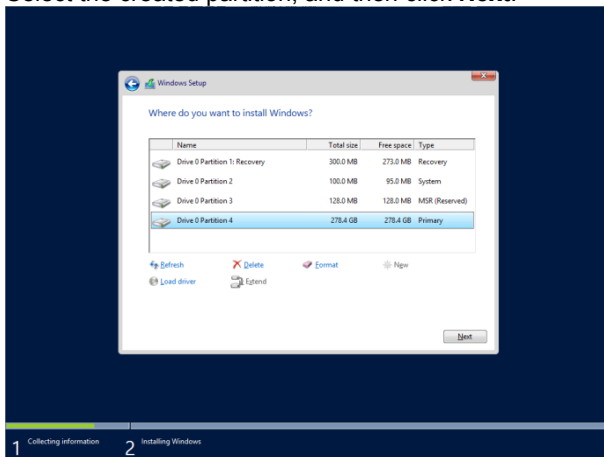
Tips

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

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

31. Select the partition created in step 30, and then click **Format**.

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



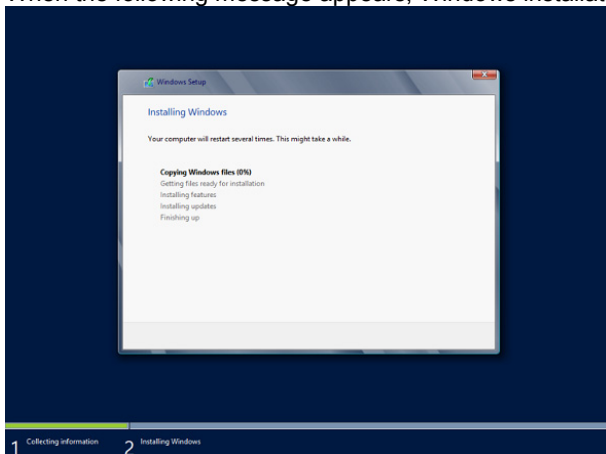
Important

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

Tips

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

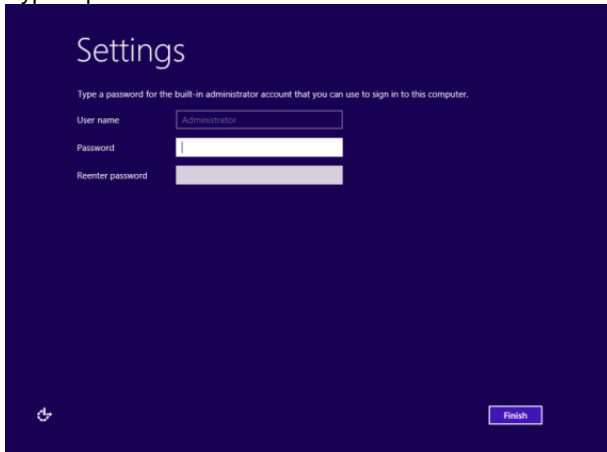
When the following message appears, Windows installation starts automatically.



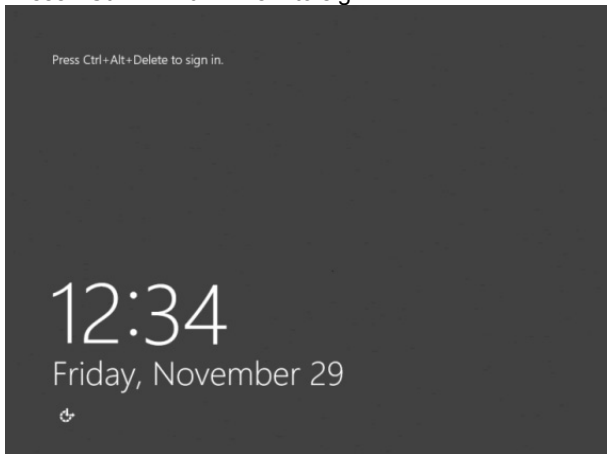
33. The following screen appears according to the operating system selected in Step 21.

Server with a GUI

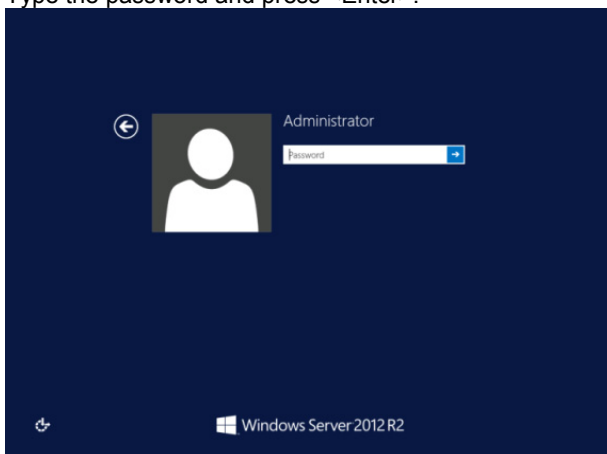
Type a password and click **Finish**.



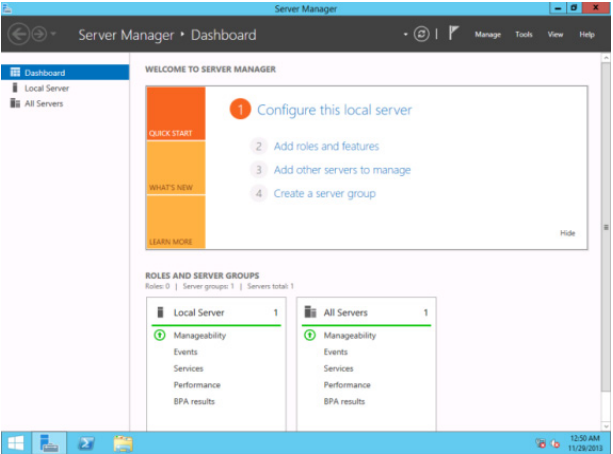
Press <Ctrl>+<Alt>+ to sign-in.



Type the password and press <Enter>.

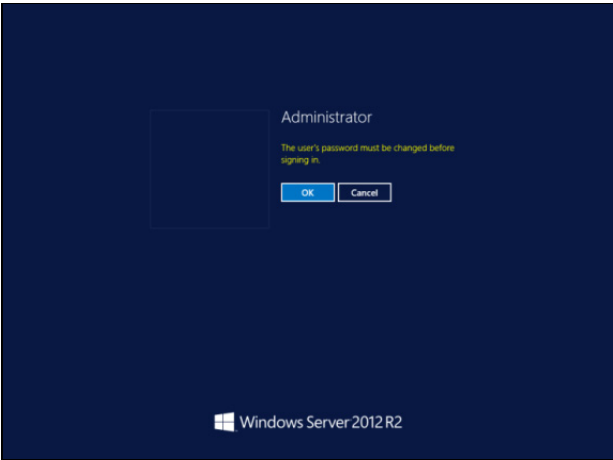


Windows Server 2012 R2 starts.

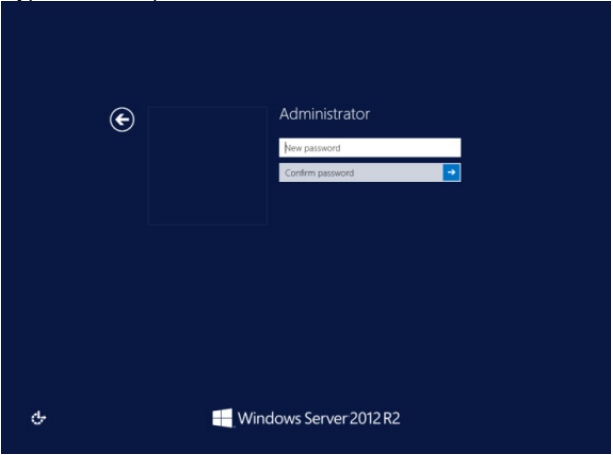


Server Core Installations

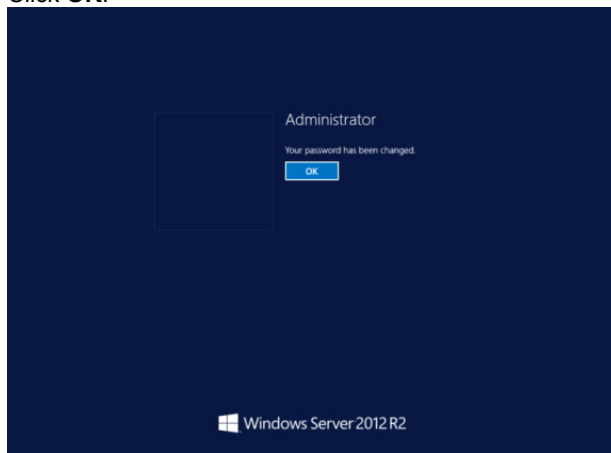
Click **OK**.



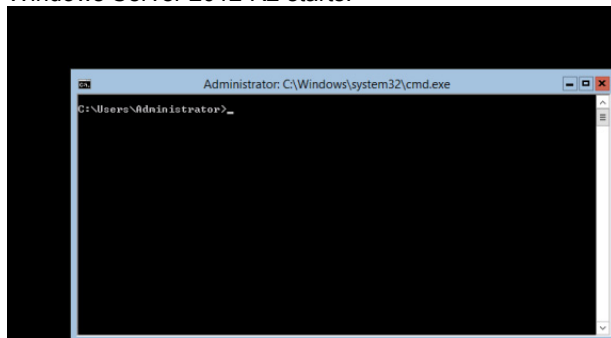
Type the new password.



Click **OK**.



Windows Server 2012 R2 starts.



Tips

Refer to Microsoft Website for more details.

Configure and Manage Server Core Installations

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

34. Install Starter Pack by referring to *Chapter 1 (3.4 Installing Starter Pack)*.

Start EXPRESSBUILDER by either of the following two ways:

- Internal Flash Memory : 3.4.1 *Installing Starter Pack after POST*
- EXPRESSBUILDER DVD : 3.4.3 *Using EXPRESSBUILDER DVD (Option)*

35. See “Chapter 1 (3.5 Checking installation of EXPRESSBUILDER)” to confirm that EXPRESSBUILDER has been installed in Windows.
36. Install drivers and specify detailed settings by referring to *Chapter 1 (3.6 Setting Up Device Drivers)*.
37. Confirm if Windows is activated according to *Chapter 1 (3.7 License Authentication)*.
38. See *Chapter 1 (3.8 Setup of Windows Server 2012 R2 NIC Teaming (LBFO))* to setup a team as needed.
39. Install the applications as needed by referring to *Chapter 1 (3.9 Installing the Applications)*.
40. Execute setup by following the instructions described in *Chapter 1 (6. Setup for Solving Problems)*.

Setup with Windows standard installer is now complete.

3.4 Installing Starter Pack

Starter Pack contains drivers customized for this server.

When Starter Pack is not installed on the server, in the case such as the server is set up using Windows Standard installer, be sure to apply Starter Pack before running the system.

Important

- Also install Starter Pack in the following cases.
 - The motherboard of the server has been replaced
(If a dialog box prompting you to reboot the system is displayed, reboot the system according to the on-screen instructions, and then apply the Starter Pack.)
 - If the system was restored using a restore process
 - If a system has been restored using the backup tool
- After installing build-in options, you may need to install Starter Pack.
For detail, refer to Chapter 1(3.6 Setting Up Device Drivers).

Note

The Scalable Networking Pack (SNP) function is disabled upon Starter Pack installation is complete.
The setting of SNP function may affect the system performance.

Tips

If the OS is installed by using EXPRESSBUILDER, Starter Pack is already applied.
If the configuration is not changed, you do not need to apply Starter Pack again.

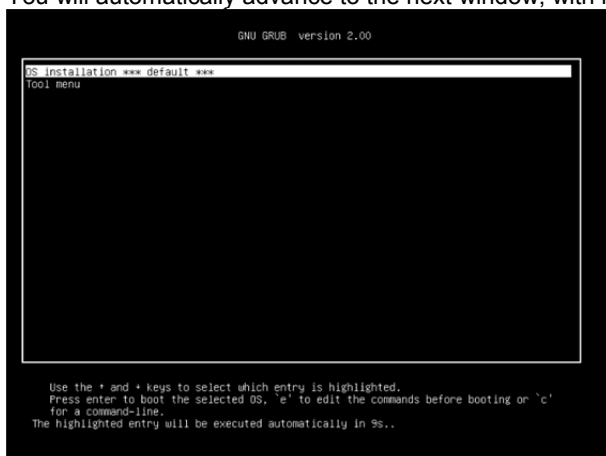
3.4.1 Installing Starter Pack after POST

1. After installing the operating system, restart the server.
2. When “Press <F2> Setup, <F3> Internal Flash Memory, <F4> ROM Utility, <F12> Network” appears during POST, press <F3> key.

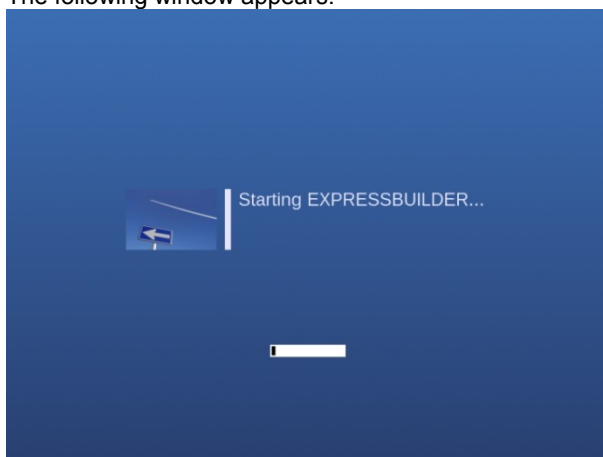
Note

At this time, be sure to remove the DVD from the optical disk drive.

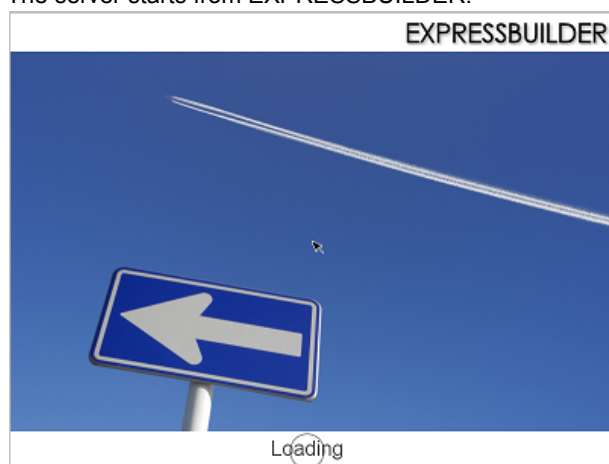
3. When the following message appears, select **OS installation *** default *****.
You will automatically advance to the next window, with no need for further input.



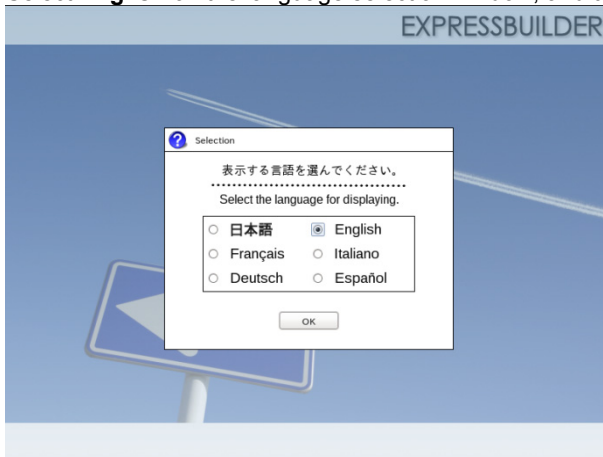
The following window appears.



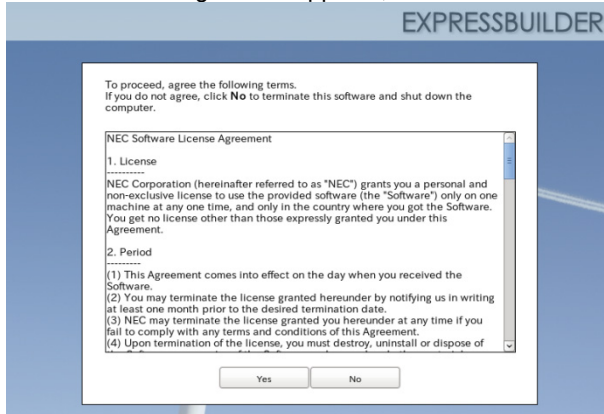
The server starts from EXPRESSBUILDER.



4. Select **English** on the language selection window, and then click **OK**.



5. When the following screen appears, read the contents and click **Yes**.



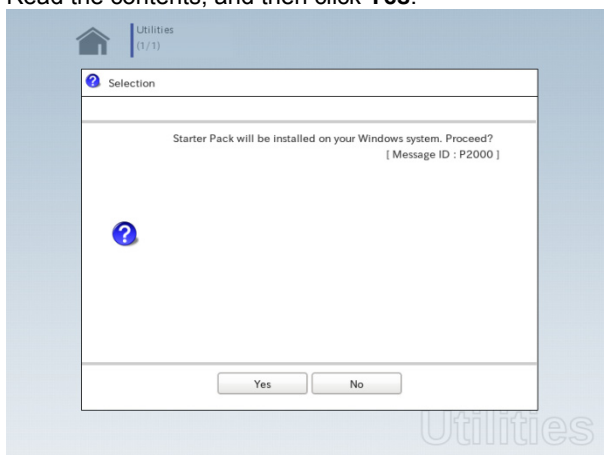
6. Click **Utilities**.



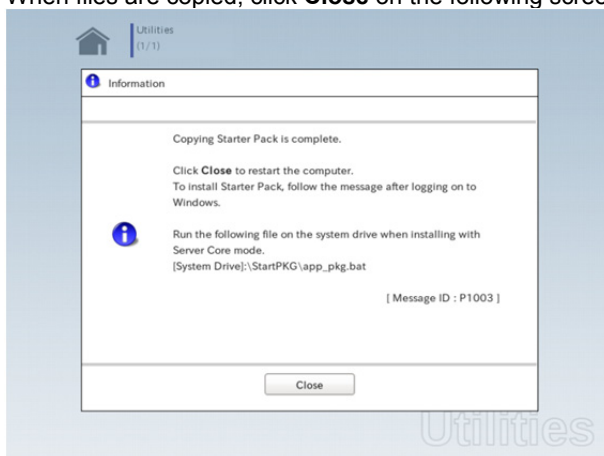
7. Click **Starter Pack Installation**.



8. Read the contents, and then click **Yes**.



9. When files are copied, click **Close** on the following screen.



The server then restarts. Do not press <F3> key and allow OS to start.

10. On Server Core installations, install Starter Pack following steps as below.
On the server with a GUI, go to step 12.

- (1) Enter the following command at the command prompt, and then open the folder under the system drive (drive C).

```
Cd /d C:\StartPKG
```

```
C:\Users\administrator>cd /d C:\StartPKG
```

- (2) Enter the following, and then press <Enter> key.

```
app_pkg.bat
```

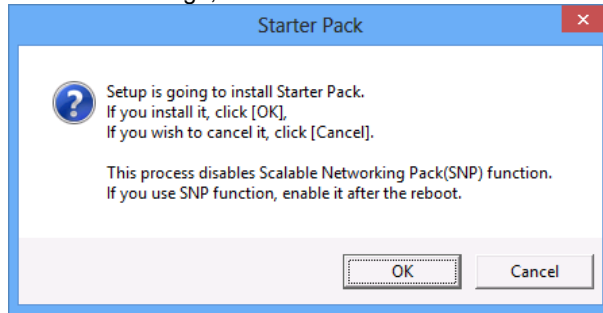
```
C:\StartPKG>app_pkg.bat
```

11. The following screen appears.

Starter Pack is in preparation for application. Wait for a while (about 1 to 3 minutes.)

```
Applying Starter Pack is in preparation. Please wait for a while.
```


12. Read the message, and then click **OK**.

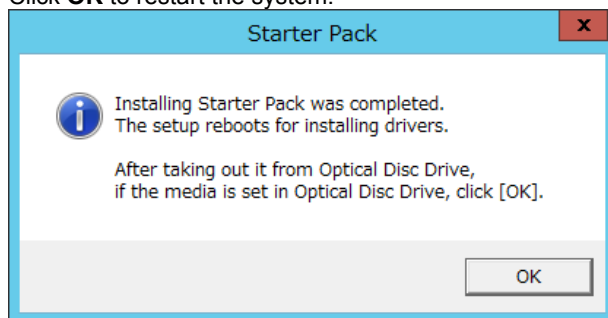


Wait until the installation of the Starter Pack is complete. (About 3 to 5 minutes)

Note

The screen may black out instantaneously or resolution may change while Starter Pack is installed, but it is not a failure.

13. Click **OK** to restart the system.

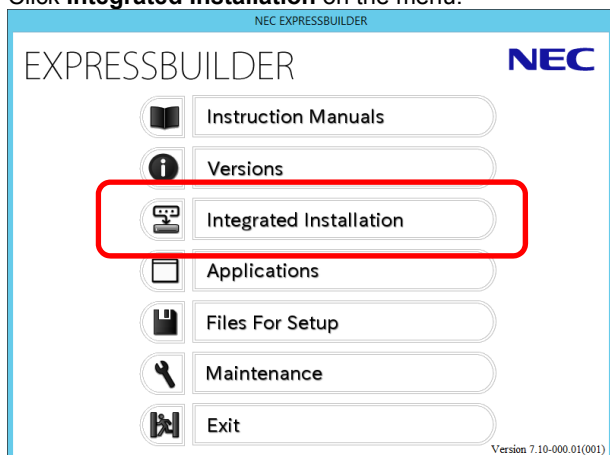


Installation of Starter Pack is now complete.

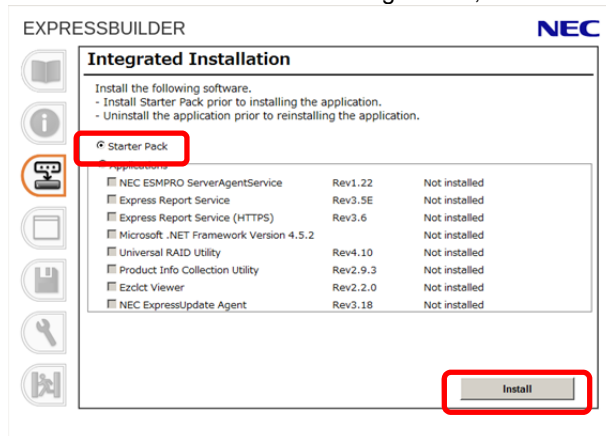
3.4.2 Installing Starter Pack using Windows Application

When EXPRESSBUILDER is installed on Windows, you can launch it as a Windows application. See Chapter 2 (3.5 Checking installation of EXPRESSBUILDER).

1. Sign-in to the system with the administrator account.
2. Click the shortcut on your desktop screen or choose NEC EXPRESSBUILDER from the Start screen.
3. Click **Integrated Installation** on the menu.



4. Select **Starter Pack** on the following screen, and then click **Install**.



5. See Step 12 and the subsequent steps in Chapter 1 (3.4.1 *Installing Starter Pack after POST*) for further procedure.

3.4.3 Using EXPRESSBUILDER DVD (Option)

When you use EXPRESSBUILDER DVD (option), follow the steps below.

Installation from Windows (Server with a GUI)

1. Sign-in to the system with the administrator account.
2. Insert EXPRESSBUILDER DVD into the optical disk drive.
3. See Step 3 and the subsequent steps in Chapter 1 (3.4.2 Installing Starter Pack using Windows Application) for further procedure.

Installation from Windows (Server Core Installations)

1. From the command prompt, type the following command.
In the example below, the optical disk drive is the D drive.

```
cd /d D:\011\win\winnt\bin
```

```
C:\Users\administrator>cd /d D:\011\win\winnt\bin
```

2. Enter the following, and then press the <Enter> key.

```
pkgsetup.vbs
```

```
D:\011\win\winnt\bin>pkgsetup.vbs
```

Wait until installation completes (about 1 to 3 minutes).

Installation of Starter Pack is now complete.

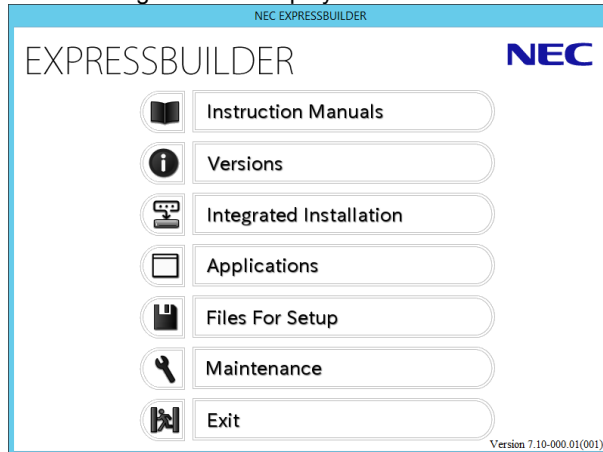
3.5 Checking installation of EXPRESSBUILDER

Confirm that EXPRESSBUILDER has been installed in Windows.

(1) Server using GUI

1. Click the shortcut on the desktop or select “NEC EXPRESSBUILDER” from the Windows start screen.

The following screen is displayed.



2. Click “Exit” to quit the menu.

Check is now complete.

(2) Server Core Installation

1. Enter the following at the command prompt and press the <Enter> key.
`eb_cli.exe 'show /repository'`

The following steps are not required when a folder path is displayed after „RepositoryPath=“.
Go to step 2 when the following message is displayed.

The repository has not been created. After creating the repository by "load /repository", please run again.

2. Enter the following at the command prompt and press the <Enter> key.
Wait for a while until the command is completed.
`eb_cli.exe 'load /repository'`

Check is now complete.

3.6 Setting Up Device Drivers

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

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

3.6.1 Installing the LAN drivers

(1) LAN drivers

For the system that network adapter is connected, if it is setup with EXPRESSBUILDER, the LAN driver will automatically be installed.

For the system that network adapter is connected, if it is setup with Windows standard installer, apply StarterPack to install the LAN driver.

Important Wake On LAN (WOL) is supported by the standard network adapters only. Wake On LAN will be able to be used in the state after the installation of the LAN Driver. For BIOS settings, check the "User's 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.
- Be sure to select the **Internet Protocol (TCP/IP)** check box when specifying an IP address.

(2) Optional LAN board

This server supports the following optional LAN boards.

Optional LAN boards: N8104-149/150/151/152/153

The drivers for LAN boards are automatically installed using the OS plug-and-play function.

The LAN driver is not installed if N8104-149/153 is not installed at the time of installation of the OS by using EXPRESSBUILDER or at installation of Starter Pack.

Perform the steps below to install the N8104-149/153 LAN driver manually.

N8104-149

Note When **QLogic Driver Installer** is shown to **Programs and Features**, this step is unnecessary.

1. Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

```
C:\Program Files(x86)\EXPRESSBUILDER\repository\011\win\winnt\drivers
\02_network\1_as_02\install_ws2012r2.bat
```

If using EXPRESSBUILDER, run the following file.

```
\011\win\winnt\drivers\02_network\1_as_02\install_ws2012r2.bat
```

2. When the following message appears, restart the system.

QLOGIC Driver Installation Completed!

3. When LAN board is new addition, setting each LAN board by referring to Chapter 1(3.6.2 Setting up LAN drivers).

Setup is now completed.

N8104-153

Note

When **Intel(R) Network Connections Drivers** is shown to **Programs and Features**, this step is unnecessary.

1. Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

```
C:\Program Files(x86)\EXPRESSBUILDER\Repository\011\win\winnt\drivers
\02_network\1_ag_01\install_ws2012r2.bat
```

If using EXPRESSBUILDER, run the following file.

```
\011\win\winnt\drivers\02_network\1_ag_01\install_ws2012r2.bat
```

2. When the following message appears, restart the system.

Intel Driver Installation Completed!

3. When LAN board is new addition, setting each LAN board by referring to Chapter 1(3.6.2 Setting up LAN drivers).

Setup is now completed.

(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

Broadcom NetXtreme Gigabit Ethernet #xx (*1)

If connecting with an optional LAN board:

[N8104-149] : QLogic BCM57810 10 Gigabit Ethernet (NDIS VBD Client) #xx (*1)

[N8104-150/151/152] : Broadcom NetXtreme Gigabit Ethernet #xx (*1)

[N8104-153] : Intel(R) Ethernet Controller X540-AT2 #xx (*1)

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

Tips

The ID for N8104-149 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.

3.6.2 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

When using N8104-149, you can specify "10 Gb Full" for network adapter and "Auto Negotiation" to switching hub.

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

The link speed setting is now complete.

(2) When using N8104-150/151/152

When using N8104-150/151/152 with the server, follow the procedure below to set it.

1. Run the following file on the system drive (drive C).

```
C:\Program Files(x86)\EXPRESSBUILDER\repository\011\win\winnt\drivers
\02_network\1_ah_02\pgdyavd_disable.vbs
```

If using EXPRESSBUILDER DVD (option), run the following file on the DVD.

```
\011\win\winnt\drivers\02_network\1_ah_02\pgdyavd_disable.vbs
```

2. When the following message appears, click **OK**.

Configuration Completed
 [Option:PopUp RLV Disabled(Action:Done)]
 Reboot the system

Tips

The message "Action:Non" indicates that the LAN driver is already set.

3. Restart the system.

Setup is now completed.

3.6.3 Graphics accelerator driver

The graphics accelerator driver for standard configurations is installed when Starter Pack is installed from EXPRESSBUILDER.

The graphic accelerator driver is automatically installed on setup with EXPRESSBUILDER.

Tips

In Server Core environment, the graphics accelerator driver is not installed automatically. Install it by the procedures described below.

To install drivers separately, take the following steps.

1. Double-click the `install.bat` icon in the following folder.
 - If Starter Pack was installed from Internal Flash Memory:
`C:\Program Files(x86)\EXPRESSBUILDER\repository\011\win\winnt\drivers\03_graphics\1 aj_02\install.bat`
 - When using EXPRESSBUILDER DVD:
`\011\win\winnt\drivers\03_graphics\1 aj_02\install.bat`
2. You will be prompted to confirm the End User License Agreement during this process. Click the **ACCEPT** button to continue.
3. Restart the system.

Graphic accelerator driver installation is now complete.

3.6.4 When a graphics accelerator card of the option is used

When a graphics accelerator card of the option is equipped, please check the contents of bundled Startup Guide/User's Guide of a graphics accelerator card.

3.6.5 When using a SAS controller (N8103-142/184)

The driver for SAS controller N8103-142/184 is automatically installed by Windows Plug-and-Play.

3.6.6 When using a RAID Controller (N8103-176/177/178/179/188)

The driver for RAID Controller N8103-176/177/178/179/188 is automatically installed by Windows Plug-and-Play.

3.6.7 When using a Fibre Channel controller (N8190-157A/158A/159/160)

The driver for Fibre Channel controller N8190-157A/158A/159/160 is automatically installed by Windows Plug-and-Play.

If Fibre Channel controller (N8190-157A/158A/159/160) is additionally installed after the OS has been installed, you need install Starter Pack again.

3.7 License Authentication

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

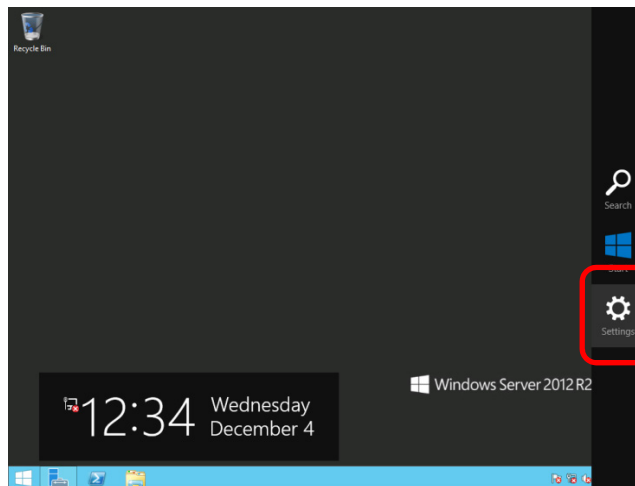
Confirm if your license is authenticated. If not, perform the following procedures to have your license authenticated.

Connect to the Internet to perform the authentication procedure.

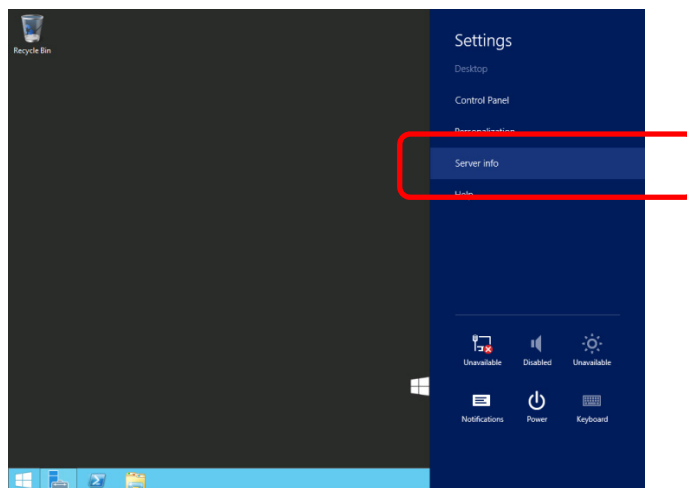
Or, use the telephone to perform the authentication procedure.

(1) Server with a GUI

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

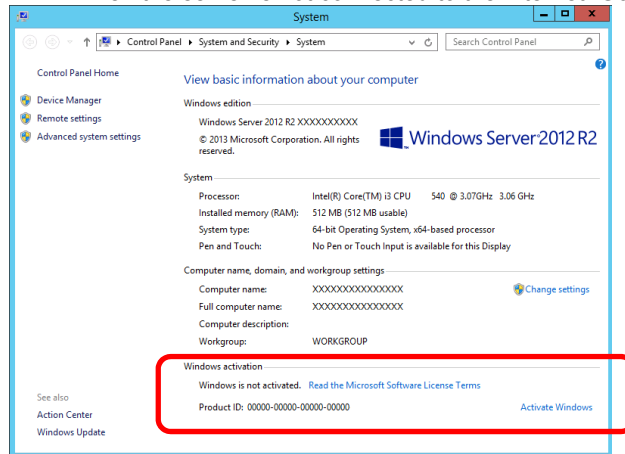
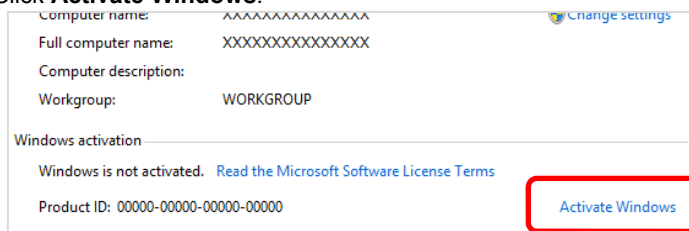


2. Click **Server info**.

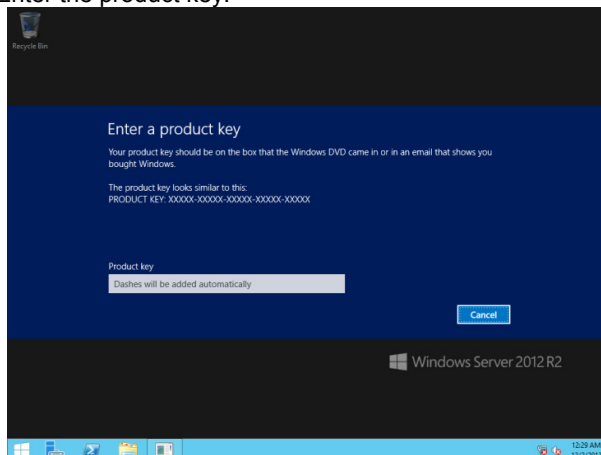


3. Check Windows license authentication.

- ☐ If "Windows is activated" is displayed:
You do not need to perform this procedure.
- ☐ If "Windows is not activated" is displayed:
 - When the server is connected to the Internet: Go to step 4.
 - When the server is not connected to the Internet: Go to step 6.

4. Click **Activate Windows**.

5. Enter the product key.



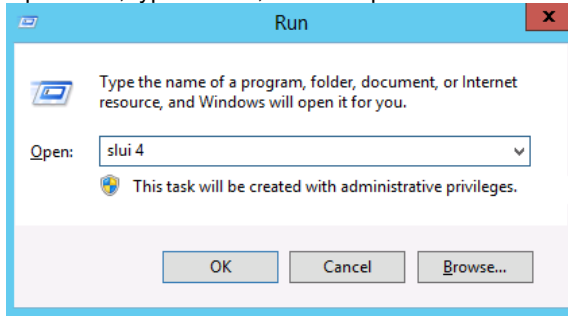
License is activated after entering the product key.

Complete license authentication process according to the message.

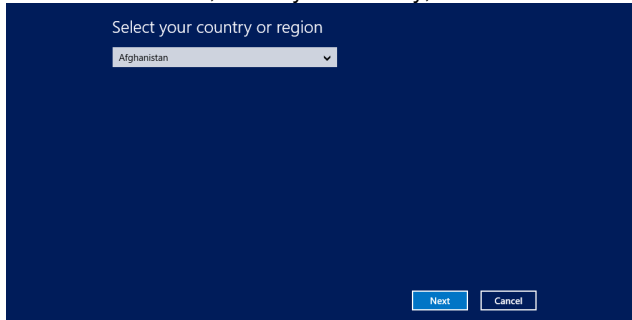
6. When the server is not connected to the Internet, launch the command prompt with an administrator right, enter the following command.

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

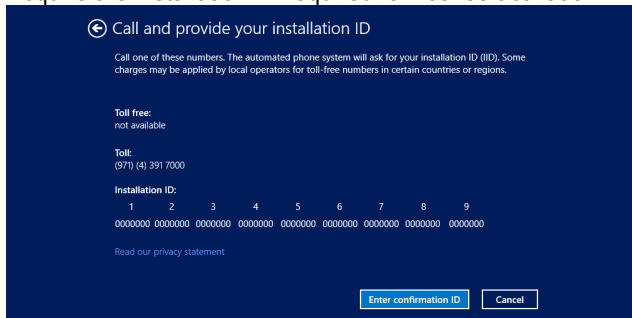

7. Activate your license by phone.
Open **Run**, type "slui 4", and then press the <Enter> key."



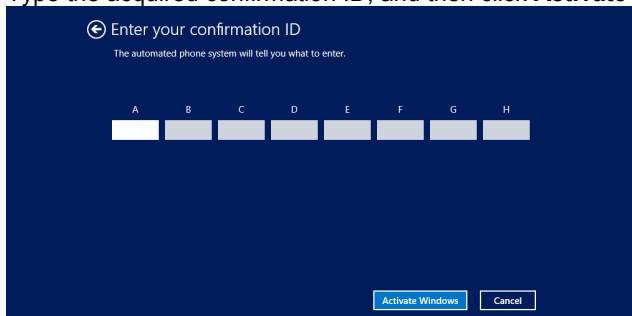
8. On the next screen, select your country, and then click **Next**.



Acquire the installation ID required for license activation



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



(2) Server Core installation

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

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

If license authentication is required, go to the next step.

If your license is already authenticated, you can skip the next and the subsequent steps.

2. Change the product key.

When using Backup DVD-ROM:

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

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

When using Windows Server 2012 R2 DVD-ROM:

You do not need to change the product key.

Go to the next step.

3. Perform license authentication.

When connected to the Internet:

License authentication is performed via the Internet.

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

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

This completes authentication.

When not connected to the Internet:

Use telephone for license authentication.

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

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

Acquire the installation ID required for license activation.

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

Call Microsoft Licensing Center and tell them your Install ID.

Type the confirmation ID you have received in the following command line, and then press the <Enter> key.

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

This completes authentication.

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

Set up the network adapter teaming feature as shown below.

(1) Launching the NIC teaming setup tool

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

The NIC teaming setup tool will launch.

Tips

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

(2) Creating a team

Create a team by using the NIC teaming setup tool.

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

Teaming mode

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

Load balancing mode

Address Hash	Distributes the load based on IP addresses and port numbers.
Hyper-V Port	Distributes the load to each of the virtual switch ports used by the virtual machines.
Dynamic	<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) Notes and restrictions

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

Refer to the following website for the latest information.

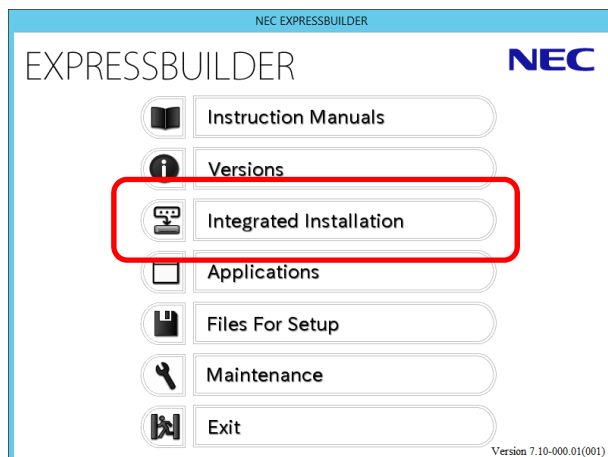
<http://www.58support.nec.co.jp/global/download/w2012r2/index.html>

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

3.9 Installing the Applications

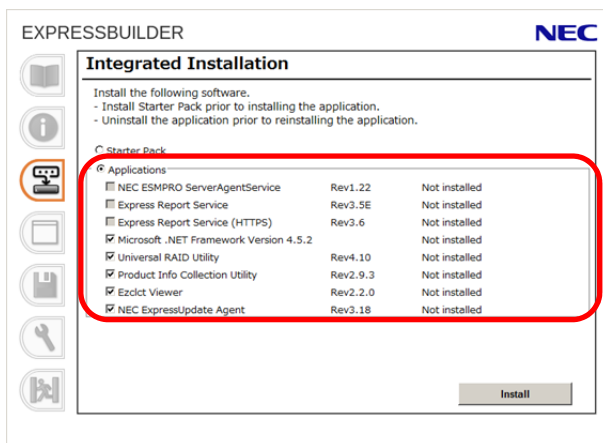
Some applications stored in EXPRESSBUILDER can be installed collectively by performing the procedures described below. When installing these applications individually, see *Chapter 2 (Installing Bundled Software)*. This feature is *only available on the server with a GUI*.

1. Sign-in to the system with the built-in administrator, which has administrative privileges.
2. Click the shortcut on your desktop screen or choose NEC EXPRESSBUILDER from the Start screen.
Or, Insert the EXPRESSBUILDER DVD (option) into the optical disk drive.
3. Click **Integrated Installation** on the menu.



4. Select **Applications**, select the check boxes corresponding to the applications to be installed, and then click **Install**.

The selected applications are automatically installed.



Note

- Applications available for installation are selected by default.
- If your system environment does not satisfy the prerequisite for an application, you cannot install it. (For details, refer to the on-screen information and *Chapter 2*.)

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

Now installation of applications is completed.

3.10 Installation When Multiple Logical Drives Exist

Before starting installation, backup data for future use in case of data loss.

(1) Installation process

- Setup with EXPRESSBUILDER

Important

- Before starting setup, be sure to disconnect hard disk drives from the RAID Controller that is not used for setup, if the server has two or more RAID Controllers installed.
- Disconnect an external disk (*) from the server by turning the power of it off or disconnecting cables. Install those hard disk drives and cables after setup has completed. Conducting setup with those being connected with the server may cause existing data to be erased unintentionally.

* Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit

Refer to *Chapter 1 (3.2 Setup with EXPRESSBUILDER)*, and proceed with setup.

In this case, EXPRESSBUILDER installs the Windows on the first detected hard disk drive or logical drive.

- Setup with Windows standard installer

1. Refer to *Chapter 1 (3.3 Setup with Windows Standard Installer)*, and start setup.
2. When the following message appears, select the partition to which you want to install the operating system.

Select the location to which Windows will be installed

The order and numbers of the disks displayed on the screen **might not match the server's slot** of the hard disk drives. **Distinguish between the hard disk drives by viewing the hard disk drive capacity and partition size** displayed on the screen, and then select a drive to install the Windows system.

Selecting an improper drive might cause an unintentional corruption of the existing data. Be careful when selecting a hard disk drive on which to install the system.

Important

- For details, refer to the following Microsoft website:
<http://support.microsoft.com/kb/937251/en-us>
- You cannot edit the drive letters for the system volume or boot volume after setup is complete. Make sure that the drive letters assigned in this window are correct, and then proceed with setup.

3. Refer to *Chapter 1 (3.3 Setup with Windows Standard Installer)*, and proceed to setup Windows with Windows standard installer and the instructions.

Tips

The drive letter might change after installation. If you want to change the drive letter, use the procedure shown in *Changing drive letter assignments* below.

(2) Changing drive letter assignments

To change the drive letter, follow the steps below. However, these steps cannot change drive letter assignments for the system volume or boot volume.

1. On the **Start** menu, right-click **Computer**, and then select **Management**. Next, launch **Server Manager**.
2. From the window on the left, select **Storage**, and then **Disk Management**.
3. Right-click the volume whose drive letter you want to change, and then select **Change drive letter and path**.
4. Click **Assign next drive letter**, and then select the drive letter you want to assign.
5. Click **OK**.
6. Close the **Server Manager**.

4. Setting Up Windows Server 2012

Set up Windows Server 2012.

4.1 Before Starting Setup

Read through the cautions explained here before starting setup.

- EB

: Confirm during Setup with EXPRESSBUILDER
- OS

: Confirm during Setup with Windows standard installer

BIOS setting	
<div>EB</div> <div>OS</div>	<p>Change Boot Mode to UEFI Mode.</p> <p>See <i>Chapter 2 (1. System BIOS)</i> in <i>Maintenance Guide</i> for details.</p> <p>Boot → Boot Mode → UEFI</p>
<div>EB</div> <div>OS</div>	<p>Select Enabled for X2APIC feature of processor. See <i>Chapter 2 (1. System BIOS)</i> in <i>Maintenance Guide</i> for details.</p> <p>Advanced → Processor Configuration → X2APIC → Enabled</p>
<div>EB</div> <div>OS</div>	<p>At re-installation, open Boot Option Priorities in BIOS SETUP to make sure that the higher boot priority than Windows Boot Manager is specified for optical disk drive.</p> <div><div>Example of correct setting</div><div><p>[Boot]–[Boot Option Priorities]</p><ul style="list-style-type: none">– Boot Option #1 [UEFI: Optical Disk Drive]– Boot Option #2 [Windows Boot Manager]<p>→ The system can boot from OS installation media.</p></div><div>Example of incorrect setting</div><div><p>[Boot]–[Boot Option Priorities]</p><ul style="list-style-type: none">– Boot Option #1 [Windows Boot Manager]– Boot Option #2 [UEFI: Optical Disk Drive]<p>→ The system cannot boot from OS installation media.</p></div></div> <div><div>Note</div><div><ul style="list-style-type: none">• Before opening BIOS SETUP, be sure to insert OS installation media into optical disk drive.• If Windows Boot Manager is not displayed in Boot Option Priorities, you need not to confirm the boot priority.</div></div>

Hardware configuration		
The following hardware configurations require special procedures.		
EB	OS	Reinstalling to a mirrored volume <p>When you install Windows Server 2012 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	Peripheral devices such as RDX/MO <p>Remove an MO device before installing an OS. Some peripheral devices need to be halted before installation. Refer to the manual provided with the peripheral devices for how to set a device appropriate to installation.</p>
EB	OS	DAT, LTO, or similar media <p>Do not set any media such as DAT or LTO during setup.</p>
EB	OS	Installing in internal or external multiple logical drives <p>For details on installing operating systems to a system in which two or more RAID Controller exist, or to an external disk drive* that is not subject to setup, refer to <i>Chapter 1 (4.10 Installation When Multiple Logical Drives Exist)</i>.</p> <p>* Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit.</p>
EB	OS	Reinstalling to hard disk drives that have been upgraded to dynamic disks <p>If the hard disk drive has been upgraded to a dynamic disk, the operating system cannot be reinstalled to it with the existing partitions.</p> <p>Set up the operating system with the Windows standard installer.</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. Thus, the partition size for storing debug information (dump file) may not be secured.

If you fail to secure the dump file size, allocate the required file space to multiple disks by performing 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 store the debug information (required dump file size) by referring to *Chapter 1 (6. Setup for Solving Problems)*.

If the hard disk drive does not have enough space 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 space cannot be secured for the paging file, perform either of the following after installing 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 the installed memory size + 400 MB or more in a drive other than the system drive.

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

Example of correct setting

C: No paging file exists

D: Paging file whose size is "installed memory size + 400 MB" or more

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

Example of incorrect setting 1

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

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

Example of incorrect setting 2

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

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

Example of incorrect setting 3

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

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

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

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

<When specifying the file named "dedicateddumpfile.sys" in drive D>

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

Note the following when specifying Dedicated Dump File:

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

System partition size																								
EB	OS	<p>The system partition size can be calculated by using the following formula.</p> <p>Size required to install the OS + paging file size + dump file size + application size</p> <p>Server with a GUI</p> <table><tr><td>Size required to install the OS</td><td>= 9,400MB</td></tr><tr><td>Paging file size (recommended)</td><td>= installed memory size × 1.5</td></tr><tr><td>Dump file size</td><td>= installed memory size + 400MB</td></tr><tr><td>Application size</td><td>= as required by the application</td></tr></table> <p>Server Core installations</p> <table><tr><td>Size required to install the OS</td><td>= 6,300MB</td></tr><tr><td>Paging file size (recommended)</td><td>= installed memory size × 1.5</td></tr><tr><td>Dump file size</td><td>= installed memory size + 400MB</td></tr><tr><td>Application size</td><td>= as required by the application</td></tr></table> <p>For example, if the installed memory size is 1 GB (1,024 MB), application size is 100MB, and Server with a GUI is selected, the partition size is calculated as follows:</p> $9,400\text{MB} + (1,024\text{MB} \times 1.5) + 1,024\text{MB} + 400\text{MB} + 100\text{MB}$ $= 12,460\text{MB}$ <p>The above mentioned partition size is the minimum partition size required for system installation. Ensure that the partition size is sufficient for system operations.</p> <p>The following partition sizes are recommended.</p> <table><tr><td>Server with a GUI</td><td>:</td><td>32,768MB(32GB) or more</td></tr><tr><td>Server Core installations</td><td>:</td><td>32,768MB(32GB) or more</td></tr></table> <p>*1 GB = 1,024 MB</p> <p>Note</p> <div><ul style="list-style-type: none">• The above paging file sizes are recommended for collecting debug information (dump file). The initial size of the Windows partition paging file must be large enough to store dump files. Make sure you set a sufficient paging file size. If the paging file is insufficient, there will be a virtual memory shortage that may result in an inability to collect correct debug information.• Regardless of the sizes of internal memory and write debug information, the maximum size of the dump file is "size of internal memory + 400 MB".• When installing other applications or other items, add the amount of space needed by the application to the partition.</div> <p>If the partition size for installing Windows is smaller than the recommended size, expand the partition size or add another hard disk drive.</p>	Size required to install the OS	= 9,400MB	Paging file size (recommended)	= installed memory size × 1.5	Dump file size	= installed memory size + 400MB	Application size	= as required by the application	Size required to install the OS	= 6,300MB	Paging file size (recommended)	= installed memory size × 1.5	Dump file size	= installed memory size + 400MB	Application size	= as required by the application	Server with a GUI	:	32,768MB(32GB) or more	Server Core installations	:	32,768MB(32GB) or more
Size required to install the OS	= 9,400MB																							
Paging file size (recommended)	= installed memory size × 1.5																							
Dump file size	= installed memory size + 400MB																							
Application size	= as required by the application																							
Size required to install the OS	= 6,300MB																							
Paging file size (recommended)	= installed memory size × 1.5																							
Dump file size	= installed memory size + 400MB																							
Application size	= as required by the application																							
Server with a GUI	:	32,768MB(32GB) or more																						
Server Core installations	:	32,768MB(32GB) or more																						

Tips

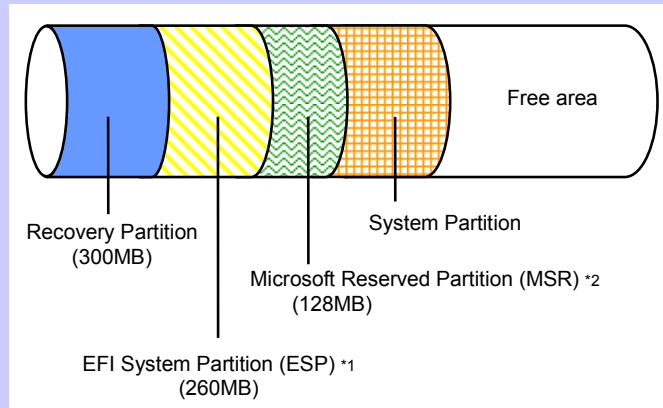
When creating a partition, Windows OS creates the following partitions at the top of hard disk drive.

- Recovery Partition: 300MB
- EFI System Partition (ESP): 260MB *1
- Microsoft Reserved Partition (MSR): 128MB *2

528MB is allocated for these three partitions out of the specified partition size.

For example, when 61,440MB is specified for partition size, the area available free area is calculated as follows:

$$61,440\text{MB} - (300\text{MB} + 260\text{MB} + 128\text{MB}) = 60,752\text{MB}$$



*1 May be 100MB in size depending on hard disk drive type.

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

Windows Server 2012 Hyper-V support

EB OS

Refer to the following web site for information related to Windows Server 2012 Hyper-V.

<http://www.58support.nec.co.jp/global/download/w2012/hyper-v/hyper-v-ws2012.html>

Using BitLocker

EB OS

If using BitLocker, note the following.

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

Important

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

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

* Depending on your system, it may not be supported.

Refer to the document about hardware.

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

Support for NIC teaming in Windows Server 2012

EB OS

The NIC teaming feature, which used to be provided by network interface card (NIC) vendors, is built into Windows Server 2012. In Windows Server 2012, this feature is also called "load balancing and failover (LBFO)".

Refer to Chapter 1 (4.8 *Setup of Windows Server 2012 NIC Teaming (LBFO)*) and specify any required settings.

4.2 Setup with EXPRESSBUILDER

This section describes how to install Windows with EXPRESSBUILDER.

This feature automatically recognizes the RAID controller connected to the server and configures the RAID system. Therefore the hardware installation of the server needs to be finished by following "User's Guide".

Important

- Setup with EXPRESSBUILDER may delete all data of the hard disk drive depending on the settings. Pay attention to input parameters. You must be especially careful when configuring the following:
 - RAID settings
 - Partition SettingsWhen re-installing an OS, backing up user data is recommended.
- Before starting setup, be sure to disconnect hard disk drives from the RAID Controller that is not to be setup. Install those hard disk drives after setup has completed. Conducting setup with hard disk drives being connected with RAID Controller may cause existing data to be erased unintentionally. It is recommended to make backup copy of user data before starting setup.

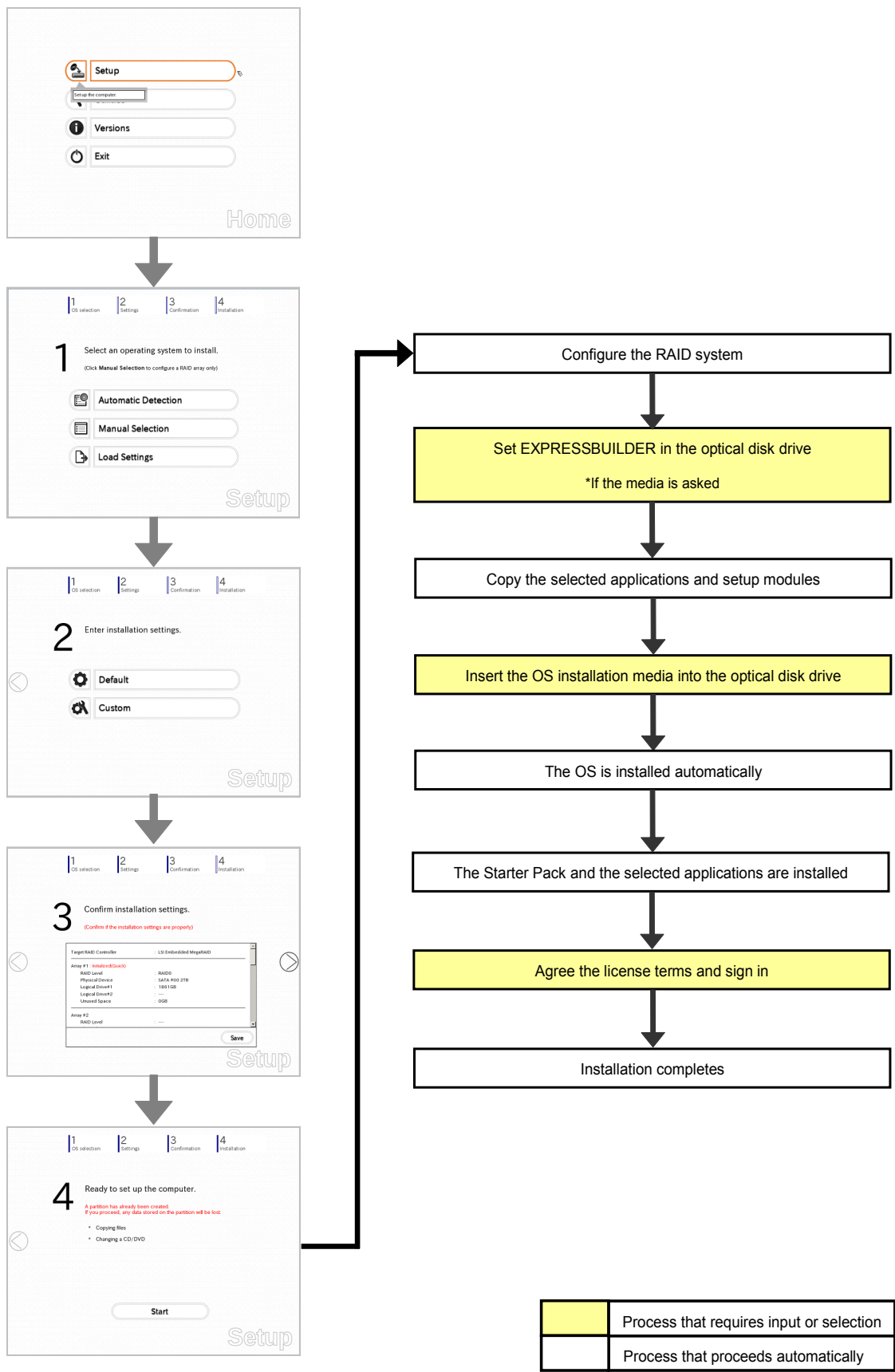
Note

- The Scalable Networking Pack (SNP) function is disabled on systems that have been installed by using EXPRESSBUILDER. The setting of SNP function may affect the system performance. Contact your sales representative for details.
- When using an onboard RAID controller (LSI Embedded MegaRAID): Do not support the creation of RAID10 by using the onboard RAID controller. Refer to Chapter 2 (5. RAID System Configuration) in "Maintenance Guide" when creating RAID10.

Tips

- Setup with EXPRESSBUILDER allows you to use a pre-specified parameter file or save the parameters specified in setup as a parameter file on removable media or Internal Flash Memory.
- For details on creating a parameter file, refer to *Chapter 1 (7. Windows OS Parameter File)*.

4.2.1 Setup flow



4.2.2 Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

- Either of the following OS installation media
 - **NEC operating system installation media** (hereafter referred to as *Backup DVD-ROM*)
 - **Microsoft operating system installation media** (hereafter referred to as *Windows Server 2012 DVD-ROM*)
- Either of the following EXPRESSBUILDER
 - **Internal Flash Memory**
 - **EXPRESSBUILDER DVD** (Option)
- Prepare if needed:
 - **Removable media for Windows OS parameter file**

Tips

This server allows you to launch EXPRESSBUILDER from Internal Flash Memory and install an OS without using EXPRESSBUILDER DVD.

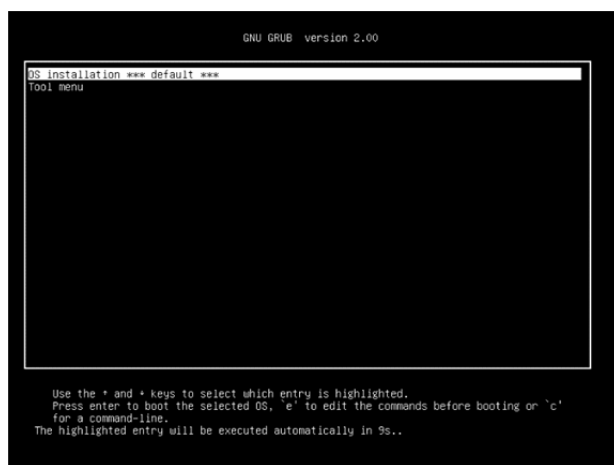
4.2.3 Setup procedure

During Setup with EXPRESSBUILDER, parameters are specified through the wizard. You can also save the parameters as one file (a parameter file) to removable media.

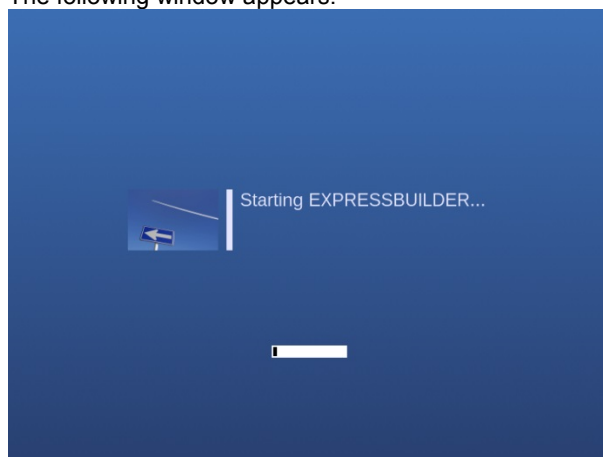
Note

Read through the items in *Chapter 1 (4.1 Before Starting Setup)* prior to installing Windows.

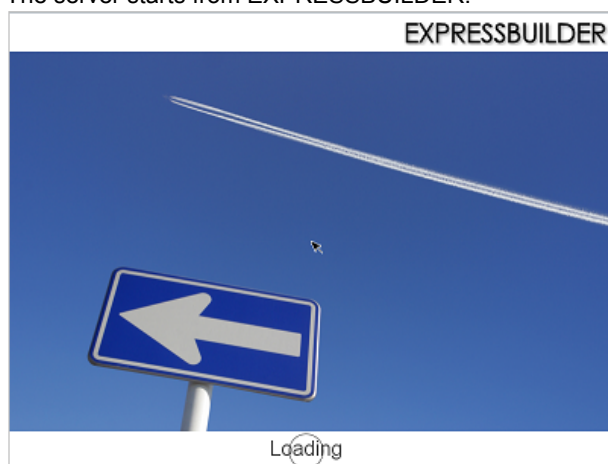
1. Turn peripheral device (such as a display) power on, and then turn the server power on.
2. Start EXPRESSBUILDER according to *Chapter 1 (1.1 Starting EXPRESSBUILDER)*.
3. Select **OS installation *** default *****.
You will automatically advance to step 4, with no need for further input.



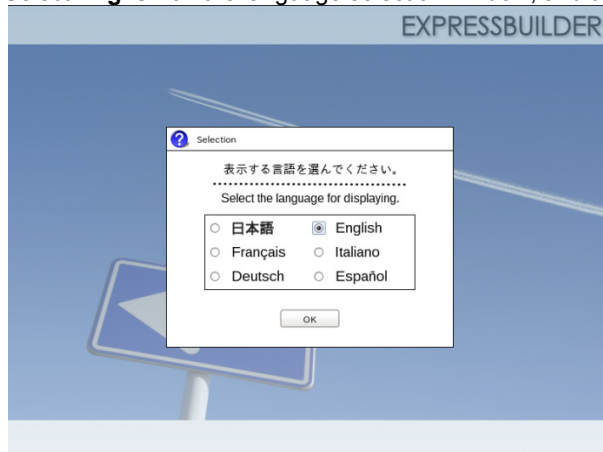
The following window appears.



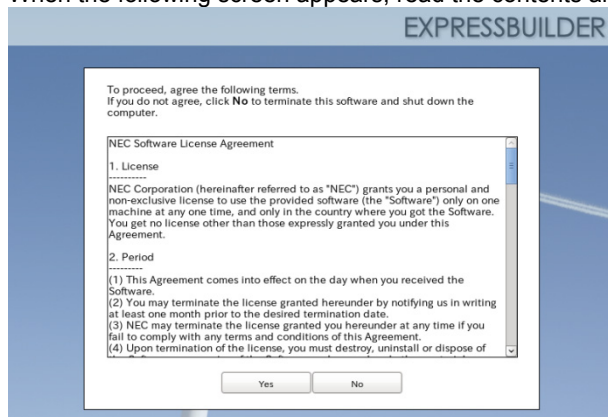
The server starts from EXPRESSBUILDER.



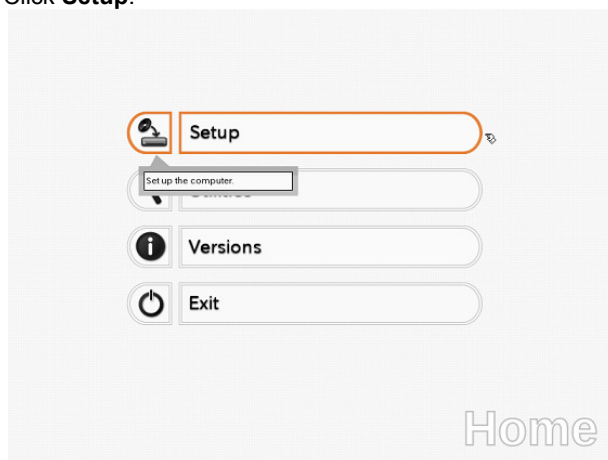
4. Select **English** on the language selection window, and then click **OK**.



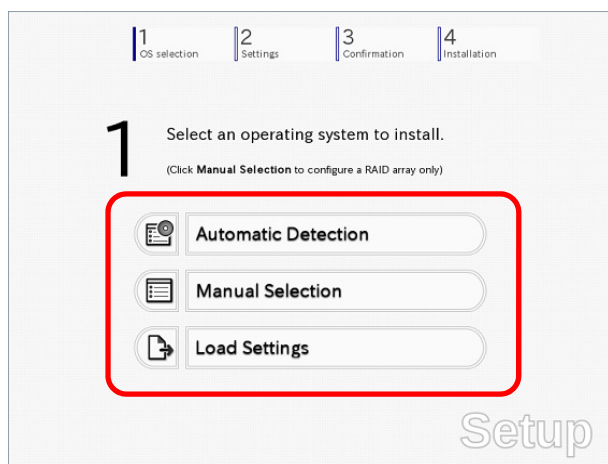
5. When the following screen appears, read the contents and click **Yes**.



6. Click **Setup**.



7. On the **OS selection** menu, select the OS to install or specify the parameter file.



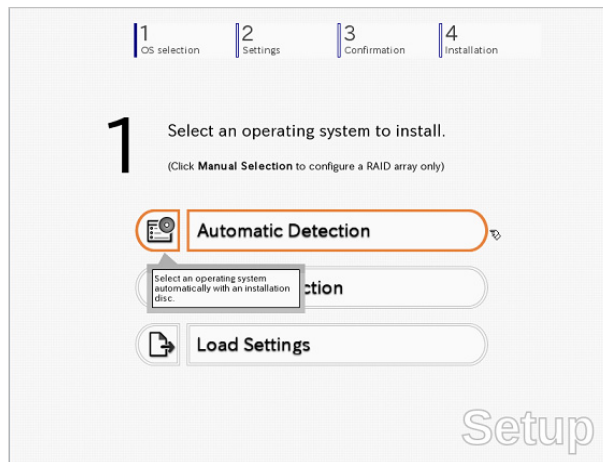
- ☐ When *not using* a parameter file : Select **Automatic Detection**, and then go to Step 8.
Select **Manual Selection**, and then go to Step 9.
- ☐ When *using* a parameter file : Select **Load Settings**, and then go to Step 10.

Note

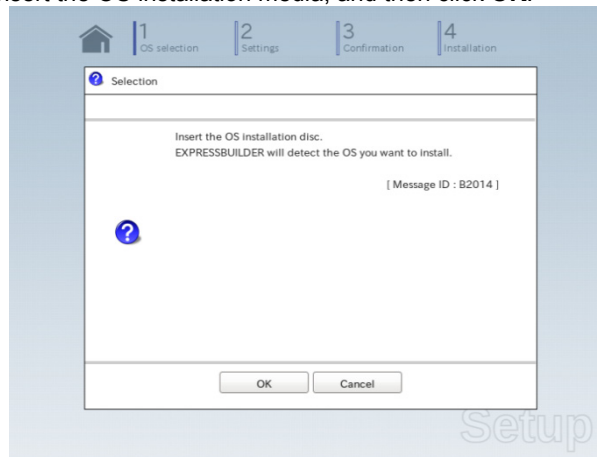
When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.


8. When *not using* a parameter file, let the OS on the installation media be recognized by using the following procedure.

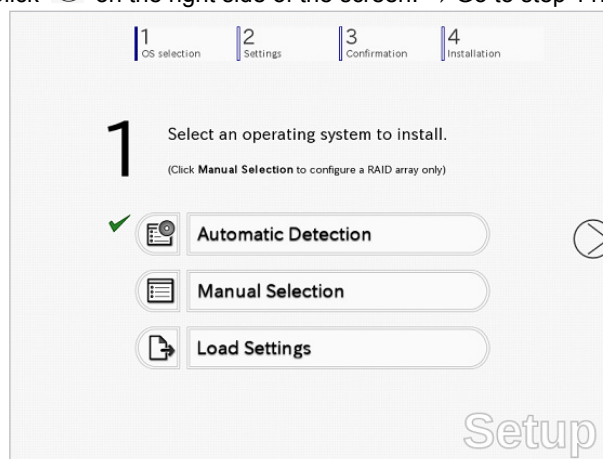
8-(1) Click **Automatic Detection**.



8-(2) Insert the OS installation media, and then click **OK**.

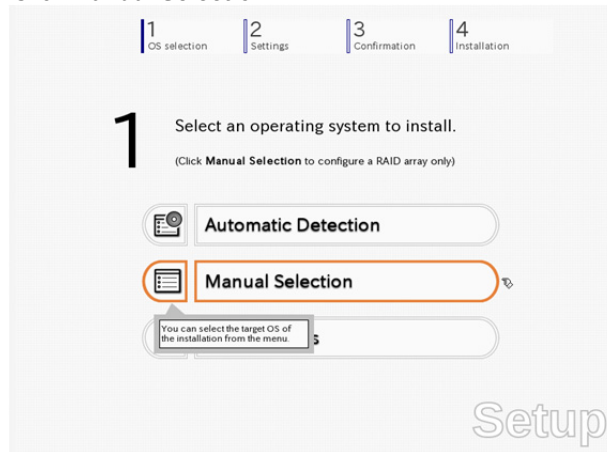


8-(3) Click  on the right side of the screen. → Go to step 11.

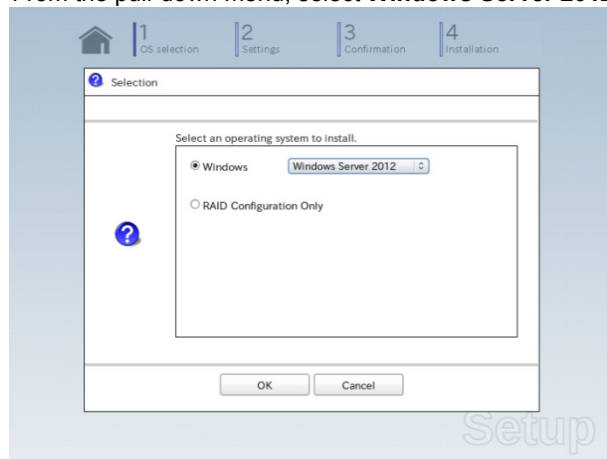



9. When *not using* a parameter file, select an OS by using the following procedure.

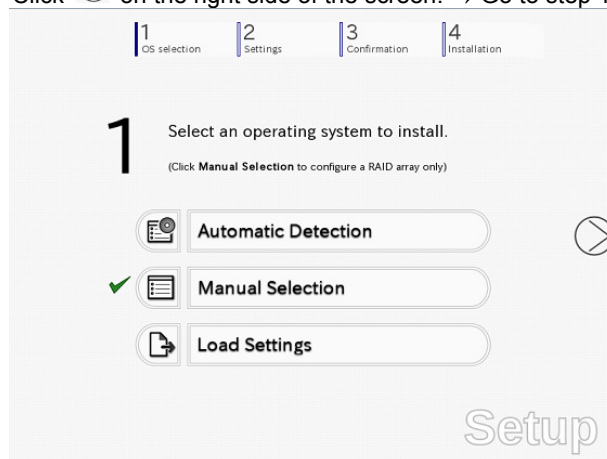
9-(1) Click **Manual Selection**.



9-(2) From the pull-down menu, select **Windows Server 2012**, and then click **OK**.

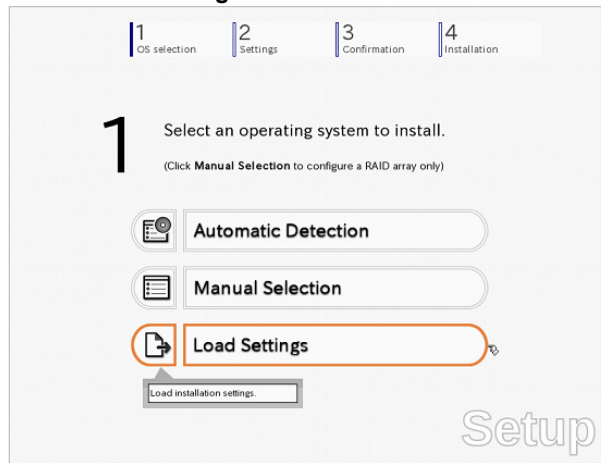


9-(3) Click  on the right side of the screen. → Go to step 11.

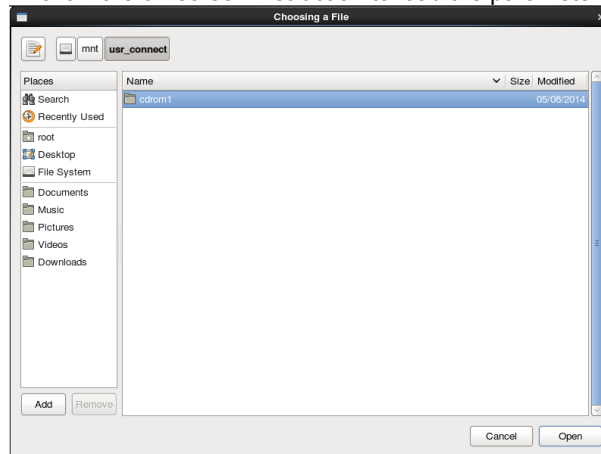


10. When *using* the parameter file, load the parameter file by using the following procedure.

10-(1) Click **Load Settings**.




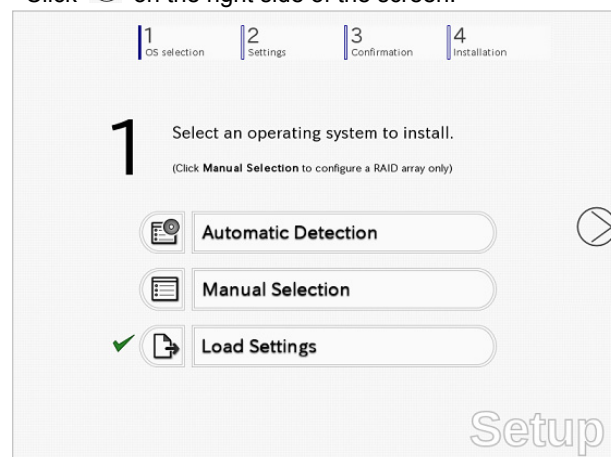
10-(2) Follow the on-screen instruction to load the parameter file (*.tre).




Tips

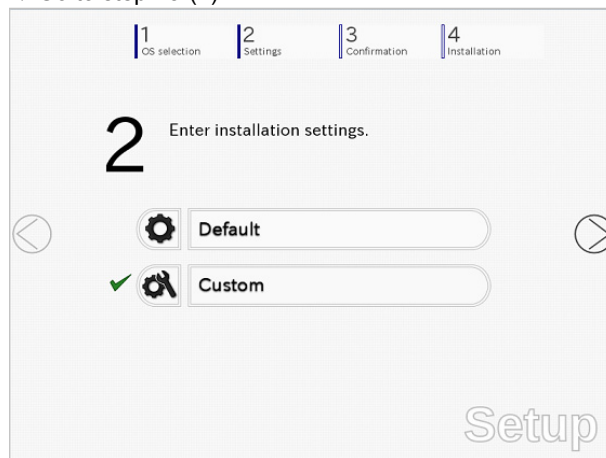
For the removable media in which the parameter file is saved, see `"/mnt/usr_connect/usb*"` (* indicates a number).

10-(3) Click  on the right side of the screen.



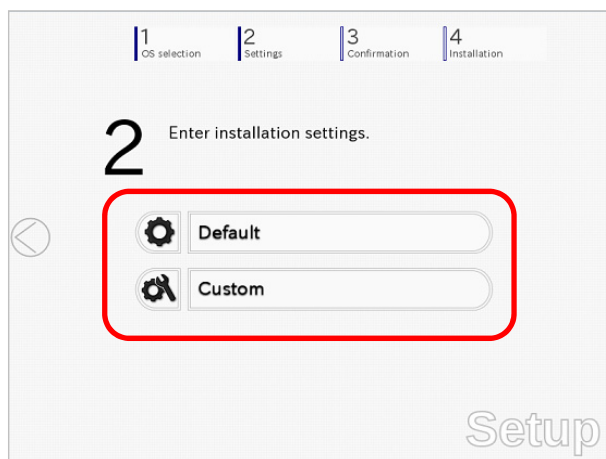
- 10-(4) When the parameter file is correctly loaded, click  on the right side of the screen.
→ Go to step 14.

Click **Custom** to check and modify the setting in the wizard.
→ Go to step 13-(1).

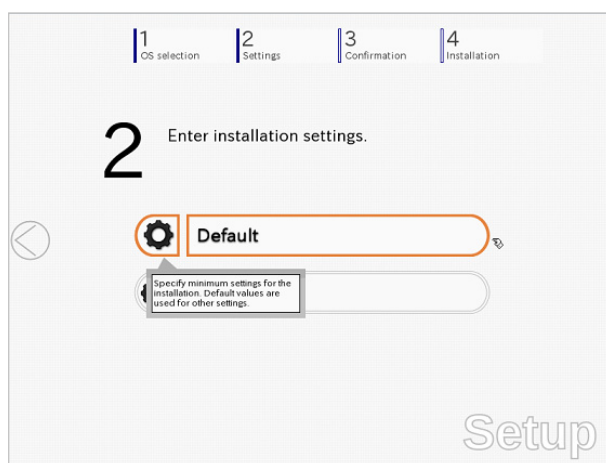


11. Specify the setup parameters by using either of the following methods:

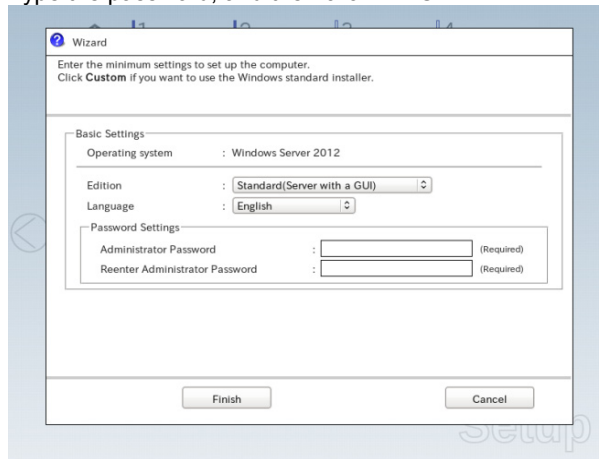
- ☐ When selecting **Default** : Go to Step 12.
- ☐ When selecting **Custom** : Go to Step 13.



12. Click **Default**.




- 12-(1) Select the edition of the OS to install from the pull-down menu.
Type the password, and then click **Finish**.

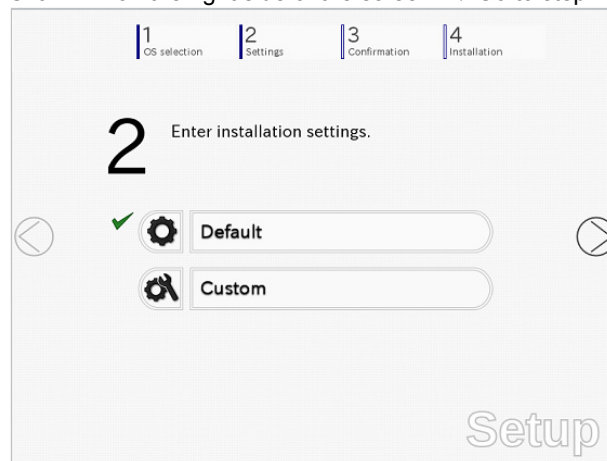
**Note**

Computer name and Administrator Password are required parameters.

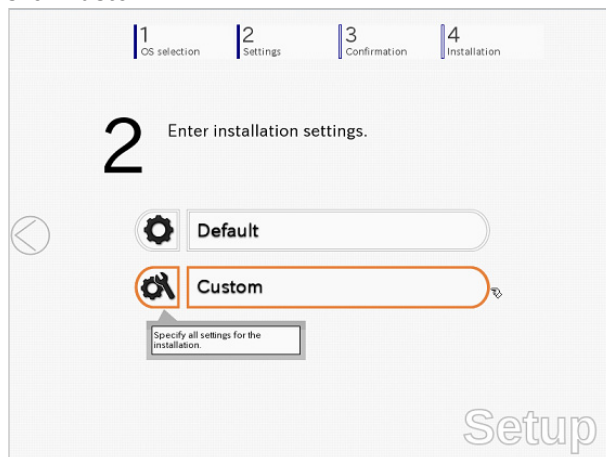
Enter Administrator Password that satisfies the following conditions:

- Contains 6 or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), and symbols.

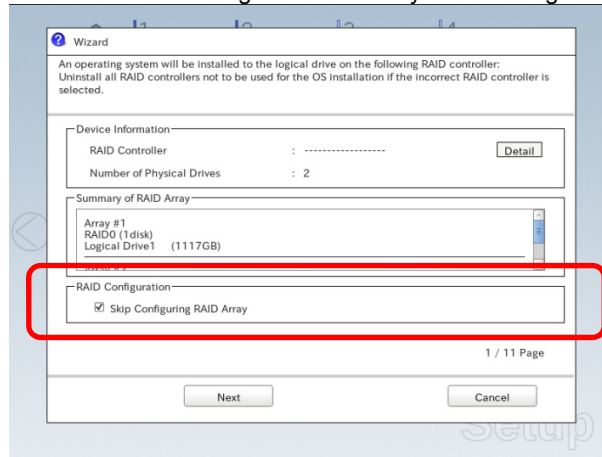
- 12-(2) Click  on the right side of the screen. → Go to step 14.



13. Click **Custom**.



- 13-(1) Use this menu to configure the RAID system and logical drives as needed.



Note

When using an onboard RAID controller (LSI Embedded MegaRAID):
Do not support the creation of RAID10 by using the onboard RAID controller.
Refer to Chapter 2 (5. RAID System Configuration) in "Maintenance Guide" when creating RAID10.

When creating new logical drives

With the **Skip a RAID Configuration** check box cleared, click **Next**. Set up the logical drives according to the wizard.

Important

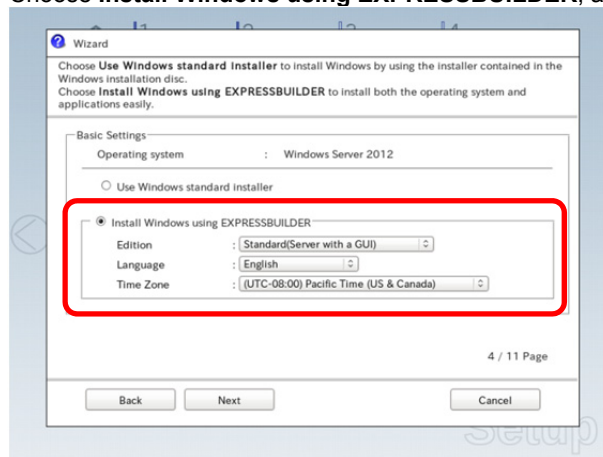
If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

When skipping the creation of new logical drives

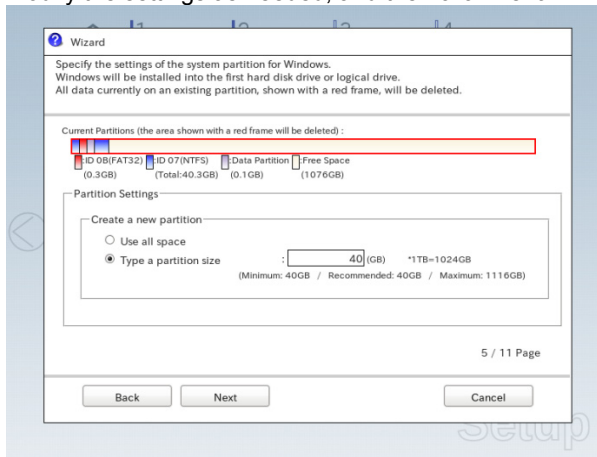
Select the **Skip a RAID Configuration** check box, and then click **Next**.

- 13-(2) Check the settings specified for **Basic Settings**.

Choose **Install Windows using EXPRESSBUILDER**, and then click **Next**.



- 13-(3) Check the settings specified for **Partition Settings**. Modify the settings as needed, and then click **Next**.



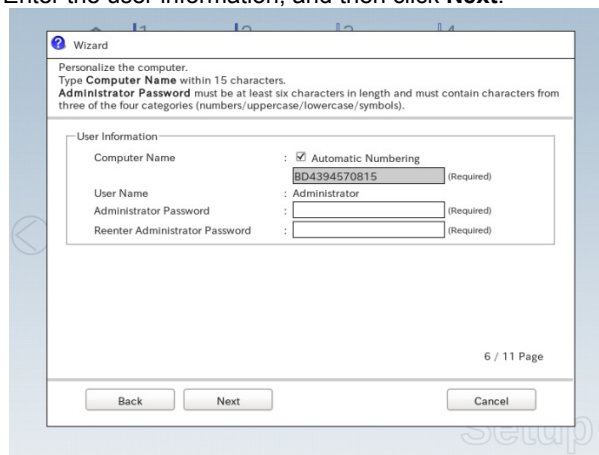
Important

• Partition size

Specify a partition size larger than the minimum required for installing the operating system. (Refer to *Chapter 1 (4.1 Before Starting Setup)*.)

- The entire contents of the hard disk drive will be deleted.

- 13-(4) Enter the user information, and then click **Next**.



Note

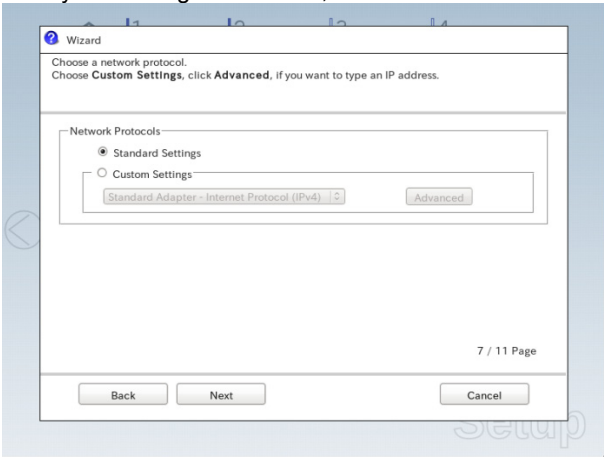
Computer name and Administrator Password are required parameters. Enter Administrator Password that satisfies the following conditions:

- Contains 6 or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), and symbols.

Tips

- The Computer name has been assigned by automatic assignment function. If you need to assign another computer name, remove the checkmark from "Auto", and enter the desired computer name.
- If a parameter file is used for setup or if you return to a previous screen, ●●●●● is displayed in the Administrator password and Reenter Administrator password text boxes.

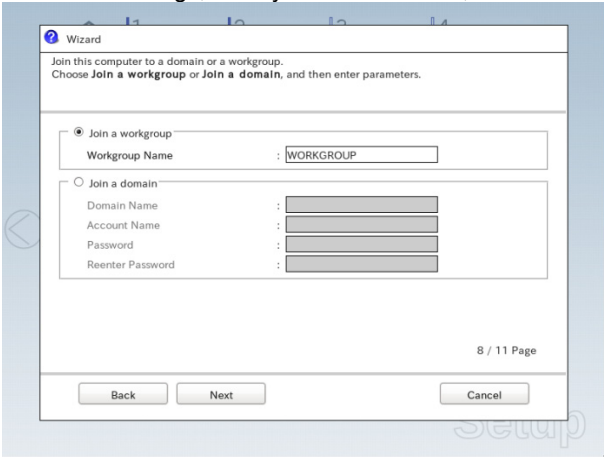
- 13-(5) Check the settings specified for **Network Protocols**.
Modify the settings as needed, and then click **Next**.



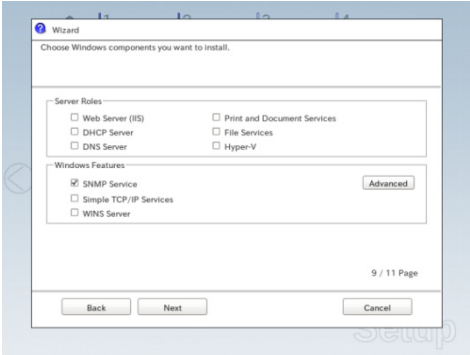
Tips The order of entry in **Custom settings** may differ from the numbering of LAN ports.

Note Even when an optional network board is connected, **Custom settings** only shows standard network boards.
After finishing Setup with EXPRESSBUILDER, specify the optional network settings again.

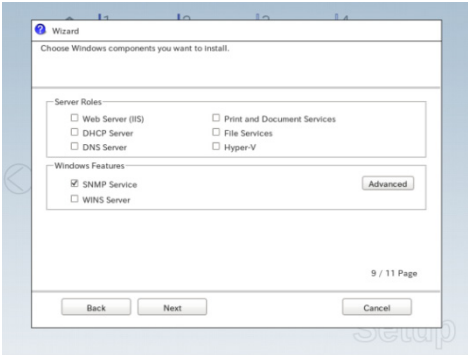
- 13-(6) Specify the domain or workgroup.
Check the settings, modify them as needed, and then click **Next**.



- 13-(7) Check the settings of Windows components.
Modify the settings as needed, and then click **Next**.

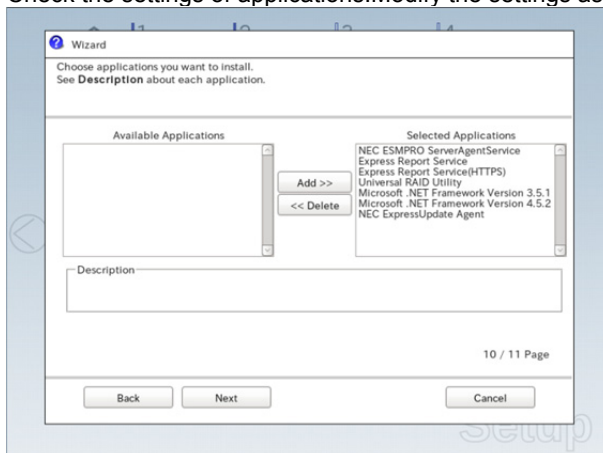


Server with a GUI

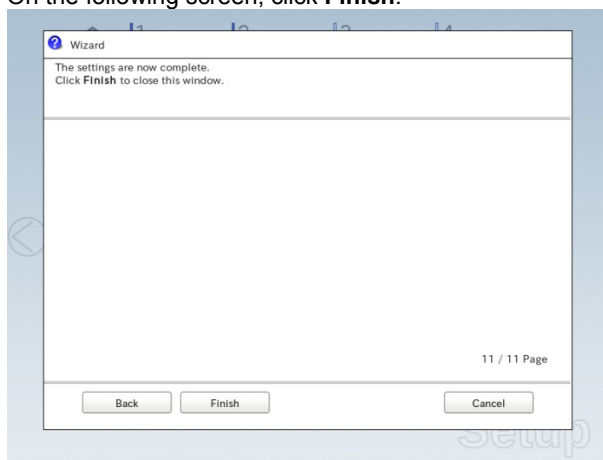


Server Core Installations

13-(8) Check the settings of applications. Modify the settings as needed, and then click **Next**.



On the following screen, click **Finish**.

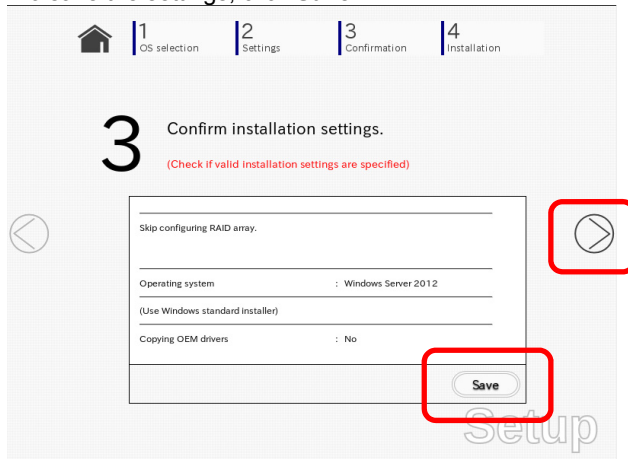


On the following screen, click  on the right side of the screen.



14. Check the parameter settings.

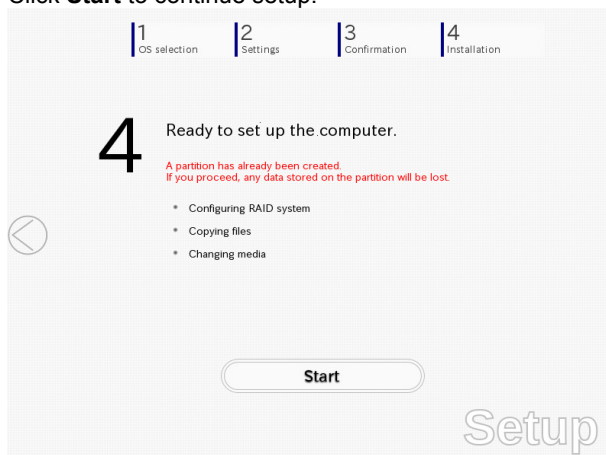
To save the settings, click **Save**.



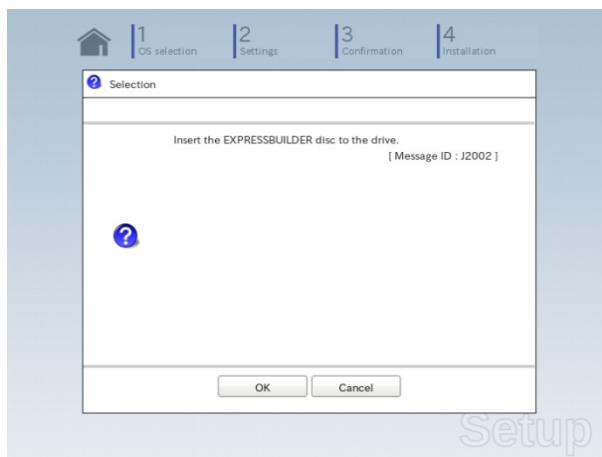
Click  on the right side of the screen.

15. The setup process starts.

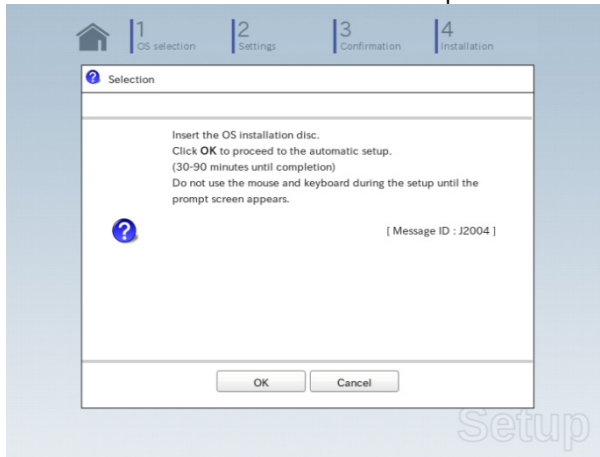
Click **Start** to continue setup.

16. If the server has started from the EXPRESSBUILDER DVD, insert the EXPRESSBUILDER disk into the optical disk drive, and then click **OK**.

If EXPRESSBUILDER DVD is already set, this message will not appear.



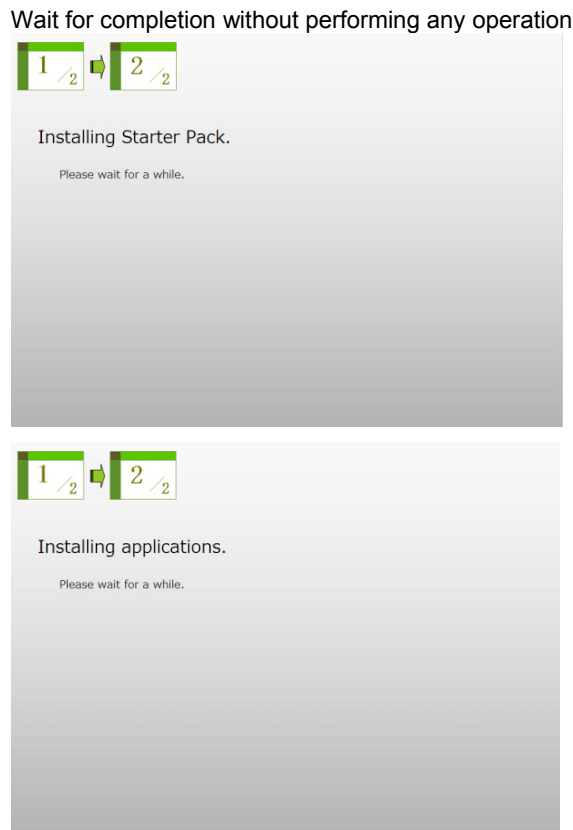
17. Insert the OS installation media into the optical disk drive, and then click **OK**.



Windows Server 2012 is installed automatically.

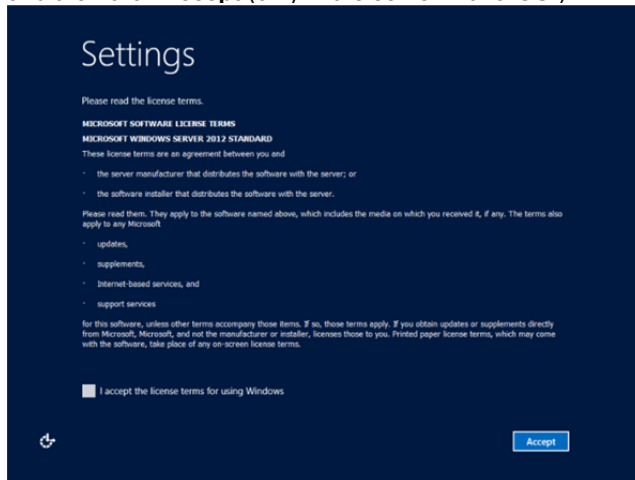
Wait for completion (about 40 minutes) without performing any operation.

18. The Starter Pack and the selected applications are automatically installed.

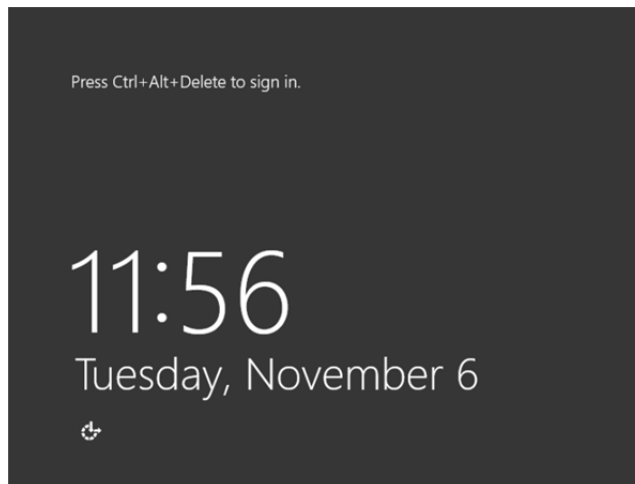


19. Read the terms of License Agreement.

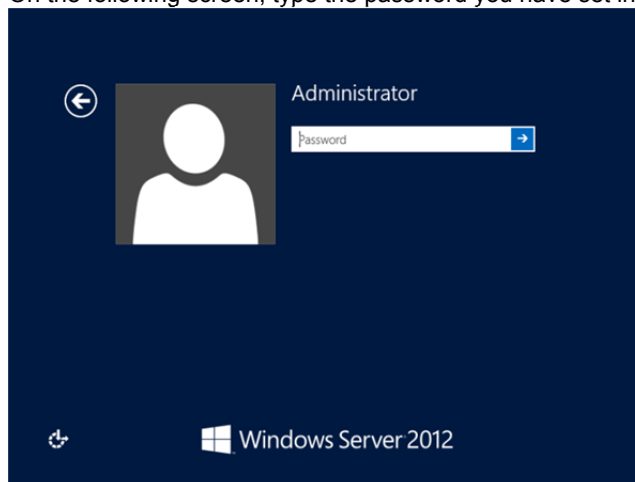
If you agree, select the **I accept the license terms for using Windows** check box, and then click **Accept** (only in the server with a GUI).



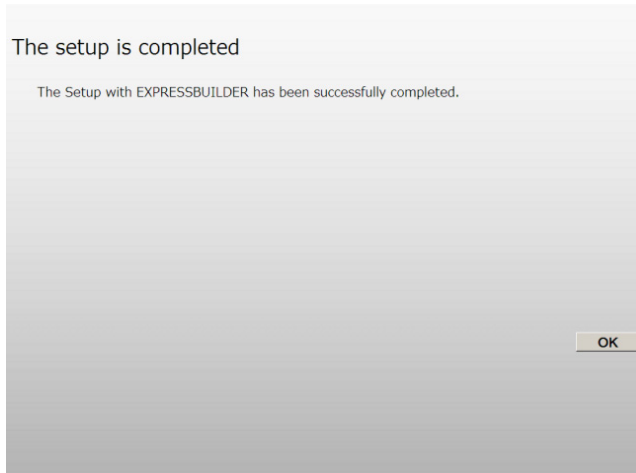
20. Press the CTRL+ALT+DEL keys to sign in.



On the following screen, type the password you have set in Step 11-(1) or 12-(4).



21. Click **OK**.



22. See “Chapter 1 (4.5 Checking installation of EXPRESSBUILDER)” to confirm that EXPRESSBUILDER has been installed in Windows.
23. Follow the instructions described in *Chapter 1 (4.6 Setting Up Device Drivers)* to set up the device drivers.
24. Confirm if Windows is activated according to *Chapter 1 (4.7 License Authentication)*.
25. See *Chapter 1 (4.8 Setup of Windows Server 2012 NIC Teaming (LBFO))* to setup a team as needed.
26. Execute setup by following the instructions described in *Chapter 1 (6. Setup for Solving Problems)*.
27. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.

Setup with EXPRESSBUILDER is now complete.

4.3 Setup with Windows Standard Installer

This section describes how to install Windows with Windows Standard Installer.

This feature automatically recognizes the RAID controller connected to the server and configures the RAID system. Therefore the hardware installation of the server needs to be finished by following "*User's Guide*".

Important Setup with Windows standard Installer may delete all data of the hard disk drive depending on the settings. Pay attention to input parameters. You must be especially careful when configuring the following:

– RAID settings

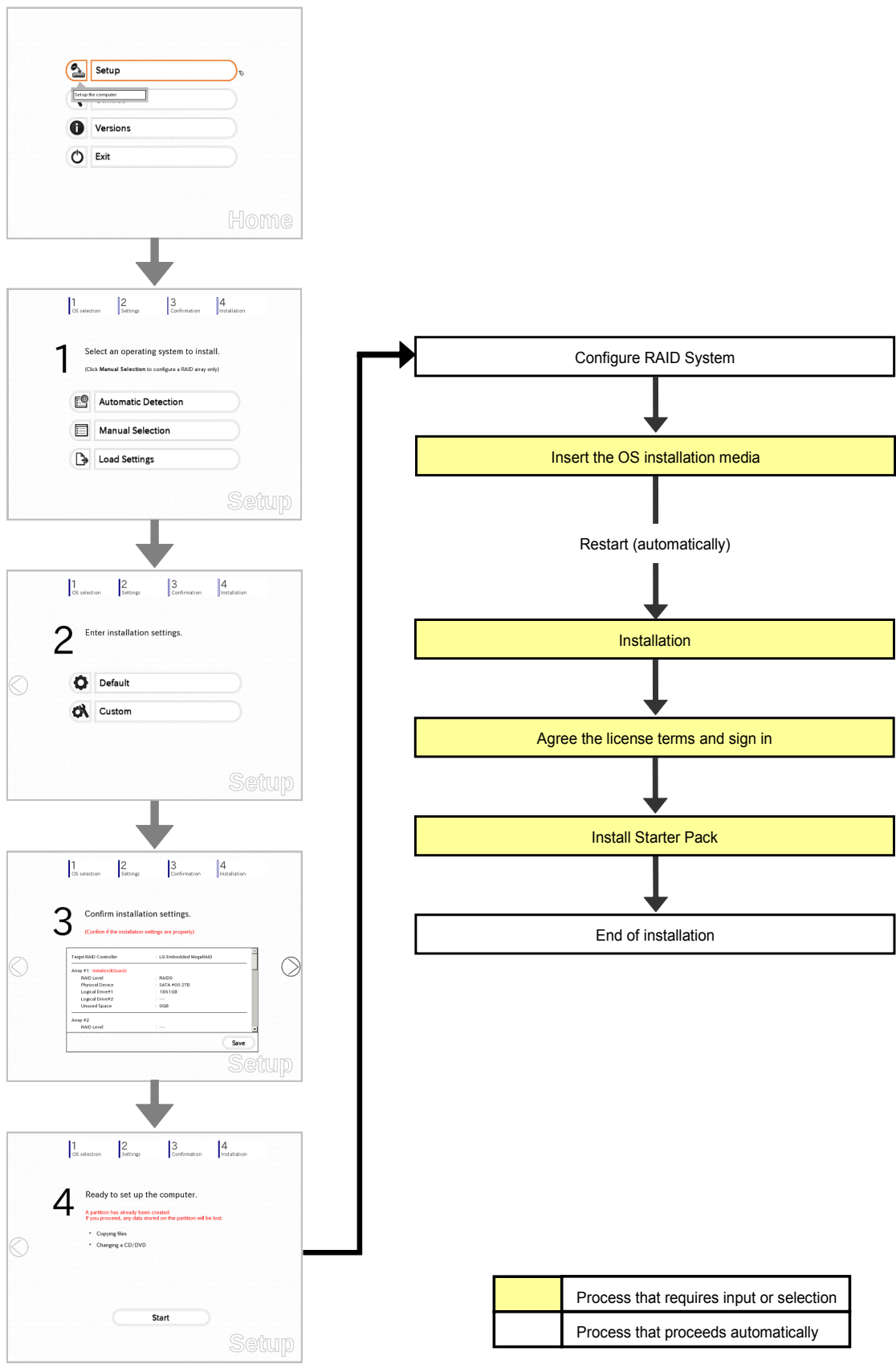
When re-installing an OS, backing up user data is recommended.

Note When using an onboard RAID controller (LSI Embedded MegaRAID):
Do not support the creation of RAID10 by using the onboard RAID controller.
Refer to Chapter 2 (5. RAID System Configuration) in "Maintenance Guide" when creating RAID10.

Tips

- Setup with Windows Standard Installer allows you to use a pre-specified parameter file or save the parameters specified in setup as a parameter file on removable media or Internal Flash Memory.
- For details on creating a parameter file, refer to *Chapter 1 (7. Windows OS Parameter File)*.

4.3.1 Setup flow



4.3.2 Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

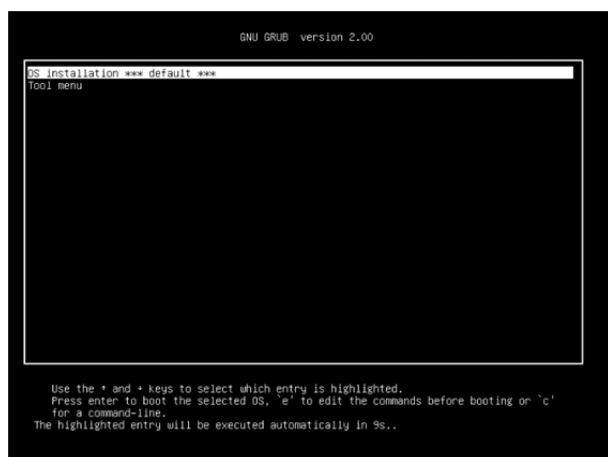
- Either of the following OS installation media
 - **NEC operating system installation media** (hereafter referred to as *Backup DVD-ROM*)
 - **Microsoft operating system installation media** (hereafter referred to as *Windows Server 2012 DVD-ROM*)
- Either of the following EXPRESSBUILDER
 - **Internal Flash Memory**
 - **EXPRESSBUILDER DVD** (option)
- Prepare if needed:
 - **Removable media for Windows OS parameter file**

4.3.3 Setup procedure

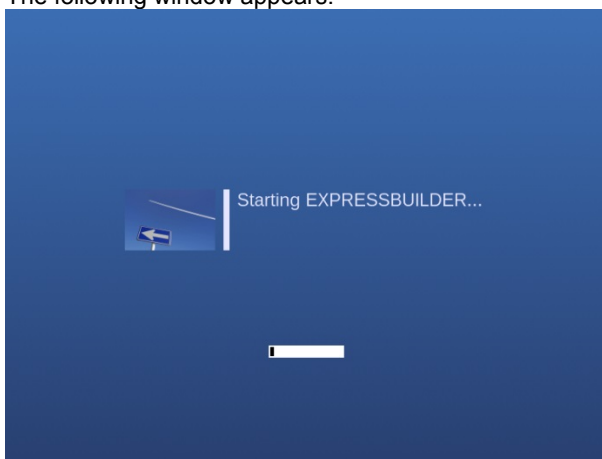
Note

Read through the items in *Chapter 1 (4.1 Before Starting Setup)* prior to installing Windows.

1. Turn peripheral device (such as a display) power on, and then turn the server power on.
2. Start EXPRESSBUILDER according to *Chapter 1 (1.1 Starting EXPRESSBUILDER)*.
3. Select **OS installation *** default *****.
You will automatically advance to step 4, with no need for further input.



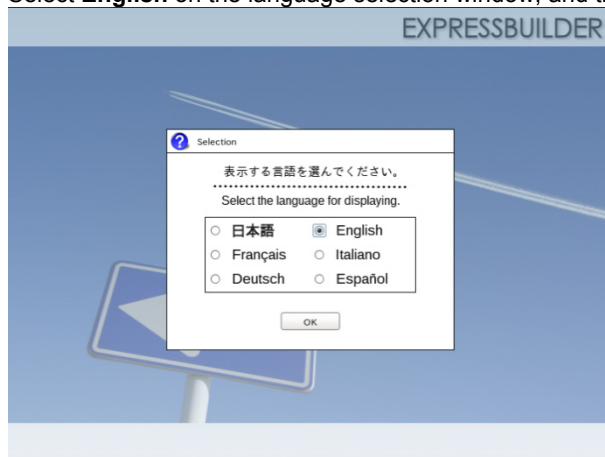
The following window appears.



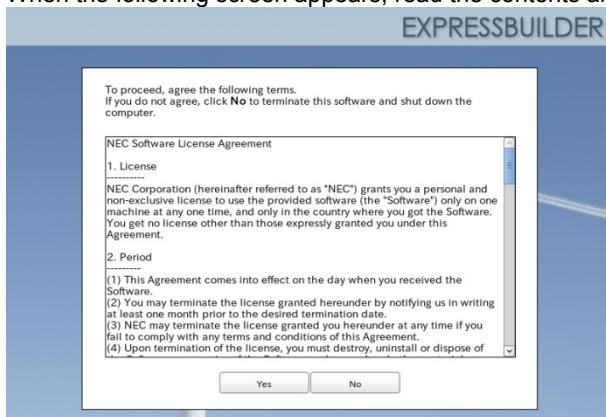
The server starts from EXPRESSBUILDER.



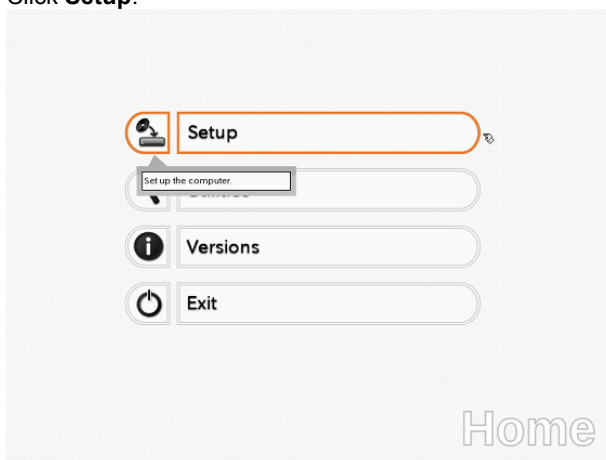
4. Select **English** on the language selection window, and then click **OK**.



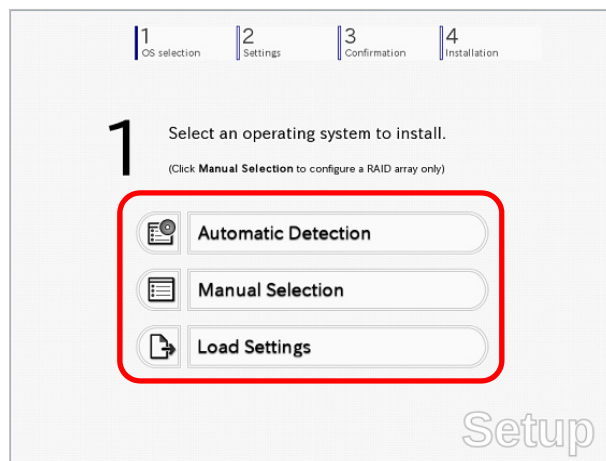
5. When the following screen appears, read the contents and click **Yes**.



6. Click **Setup**.



7. On the **OS selection** menu, select the OS to install or specify the parameter file.



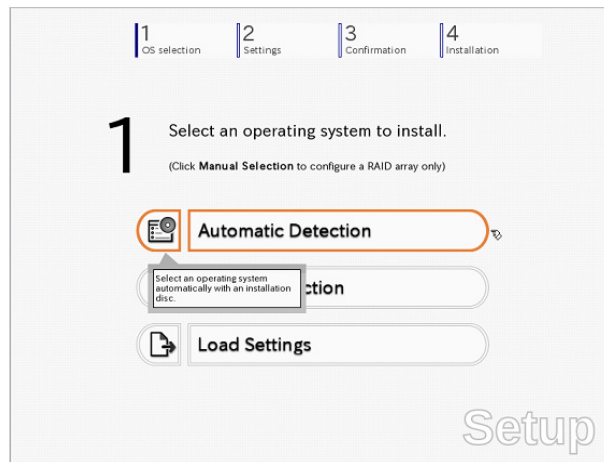
- ☐ When *not using* a parameter file : Select **Automatic Detection**, and then go to Step 8.
: Select **Manual Selection**, and then go to Step 9.
- ☐ When *using* a parameter file : Select **Load Settings**, and then go to Step 10.

Note

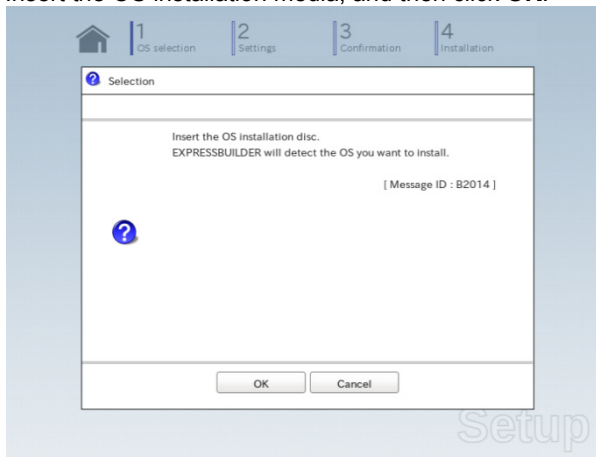
When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.


8. When *not using* a parameter file, let the OS on the installation media be recognized by using the following procedure.

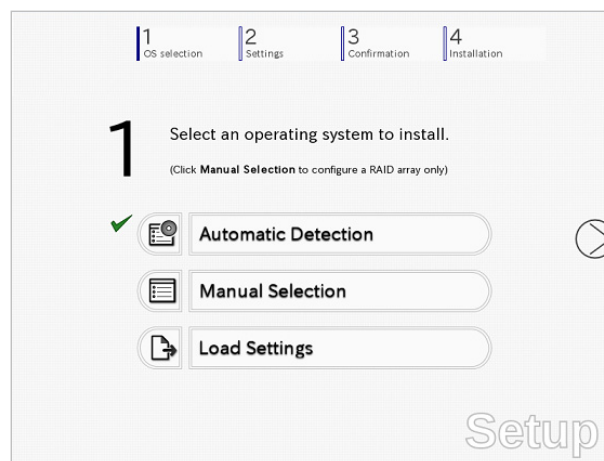
8-(1) Click **Automatic Detection**.



8-(2) Insert the OS installation media, and then click **OK**.

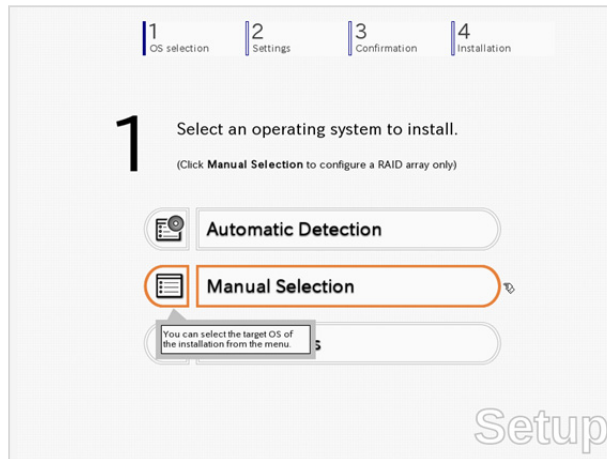


8-(3) Click  on the right side of the screen. → Go to step 11.

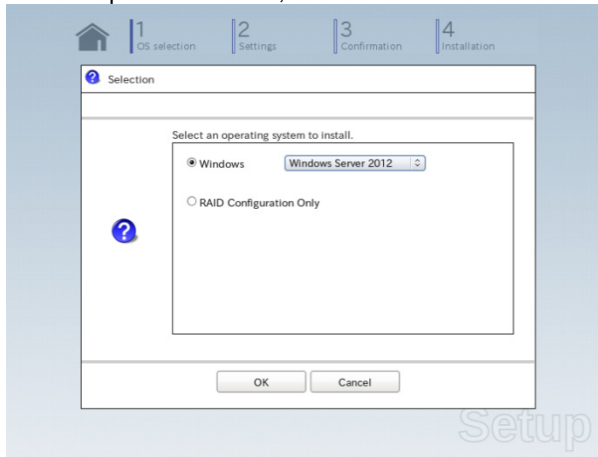



9. When *not using* a parameter file, select an OS by using the following procedure.

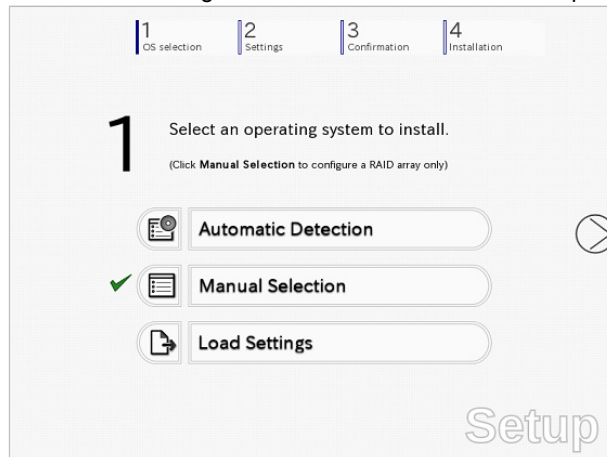
9-(1) Click **Manual Selection**.



9-(2) From the pull-down menu, select **Windows Server 2012**, and then click **OK**.

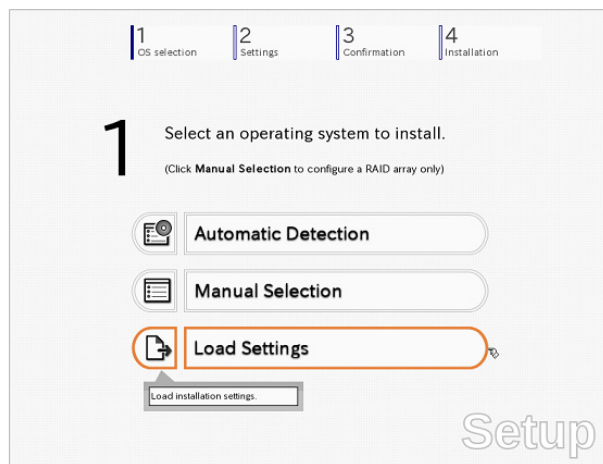


9-(3) Click  on the right side of the screen. → Go to step 11.

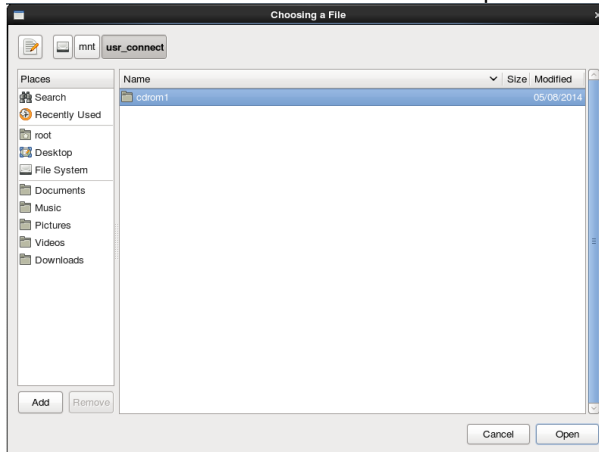


10. When *using* the parameter file, load the parameter file by using the following procedure.

10-(1) Click **Load Settings**.




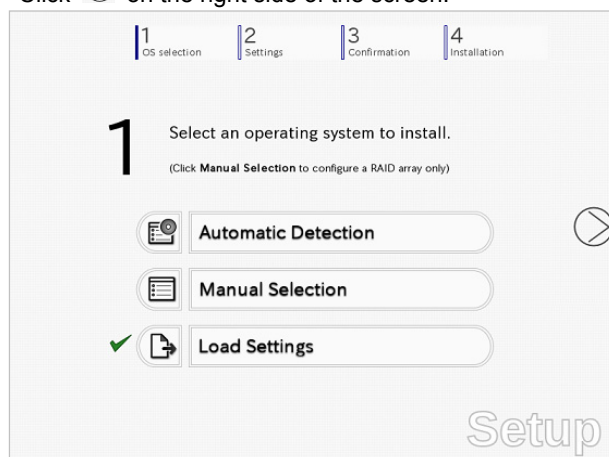
10-(2) Follow the on-screen instruction to load the parameter file (*.tre).




Tips

For the removable media in which the parameter file is saved, see `"/mnt/usr_connect/usb*" (* indicates a number)`.

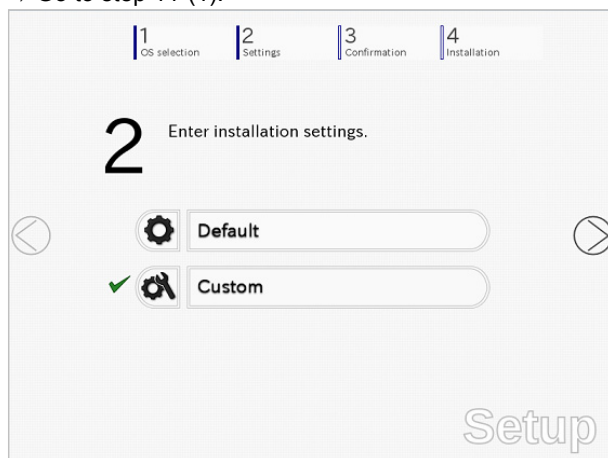
10-(3) Click  on the right side of the screen.



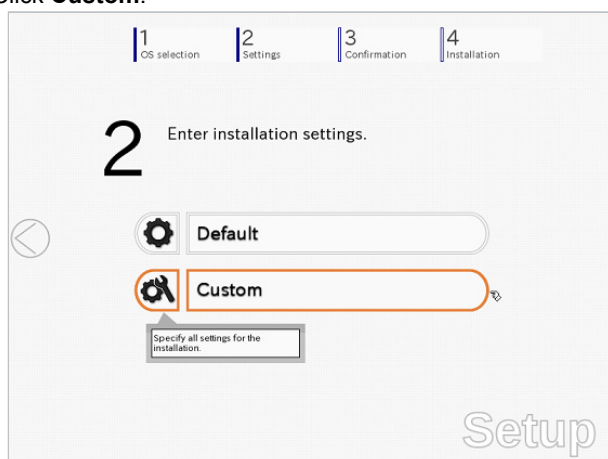
- 10-(4) When the parameter file is correctly loaded, click  on the right side of the screen.
→ Go to step 12.

Click **Custom** to check and modify the setting in the wizard.

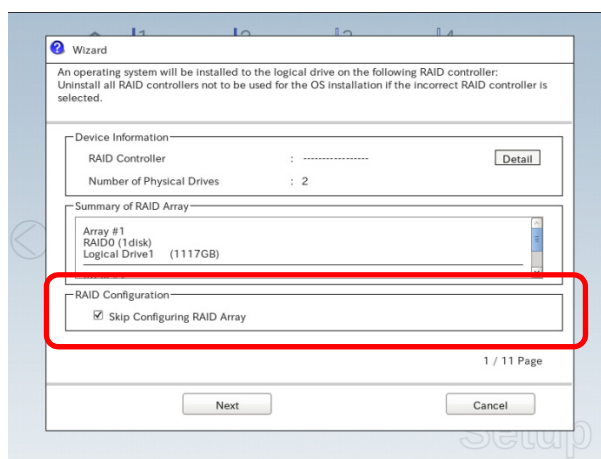
→ Go to step 11-(1).



11. Click **Custom**.



- 11-(1) Use this menu to configure the RAID system with the RAID controller detected automatically.



Note

When using an onboard RAID controller (LSI Embedded MegaRAID):
Do not support the creation of RAID10 by using the onboard RAID controller.
Refer to Chapter 2 (5. RAID System Configuration) in "Maintenance Guide" when creating RAID10.

When creating new logical drives

With the **Skip a RAID Configuration** check box cleared, click **Next**. Set up the logical drives according to the wizard.

Important

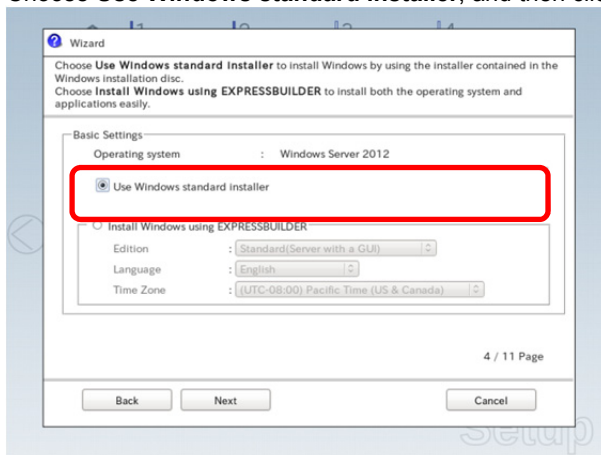
If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

When skipping the creation of new logical drives

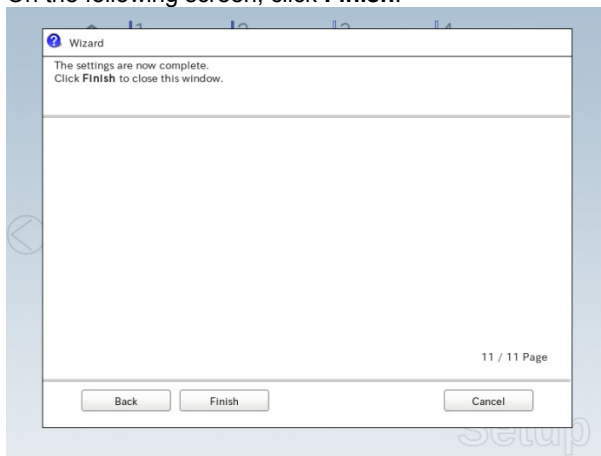
Select the **Skip a RAID Configuration** check box, and then click **Next**.

11-(2) Check the settings specified for **Basic Settings**.

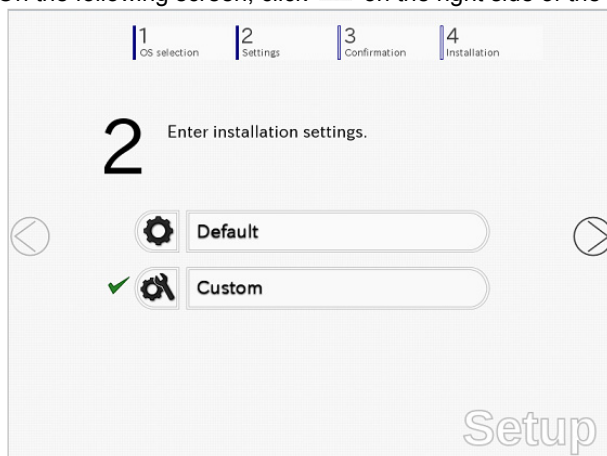
Choose **Use Windows standard installer**, and then click **Next**.




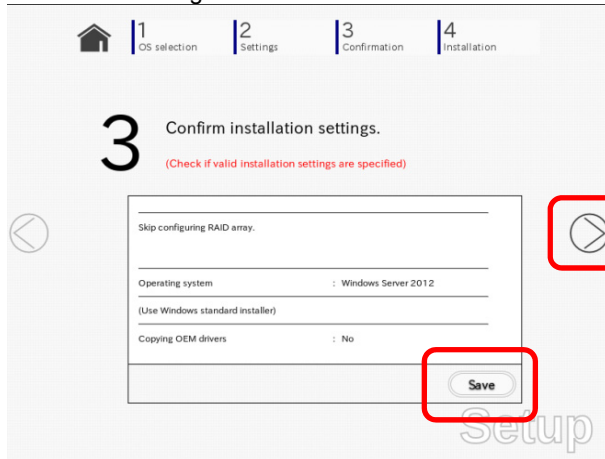
On the following screen, click **Finish**.



11-(3) On the following screen, click  on the right side of the screen.



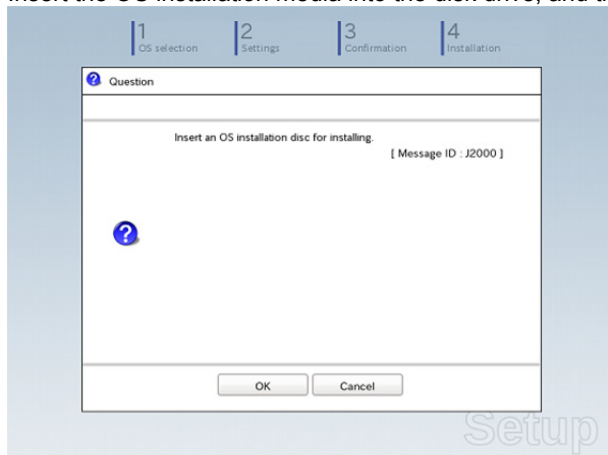
12. Check the parameter settings. To save the settings, click **Save**.
Click  on the right side of the screen.



13. The setup process starts.
Click **Start** to continue setup.



14. Insert the OS installation media into the disk drive, and then click **OK**.



15. The server reboots automatically. Press the <F3> key when the following message appears during POST.
Press <F2> Setup, <F3> Internal Flash Memory, <F4> ROM Utility, <F12> Network

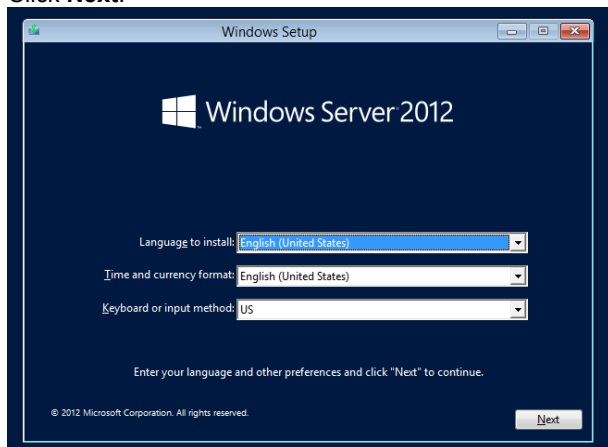
16. The system starts from the OS installation media.
The message “Press any key to boot from CD or DVD...” is displayed on the top of the screen. Press <Enter> key to start the system from the installation media.

The boot sequence proceeds and the message “Windows is loading files...” appears.

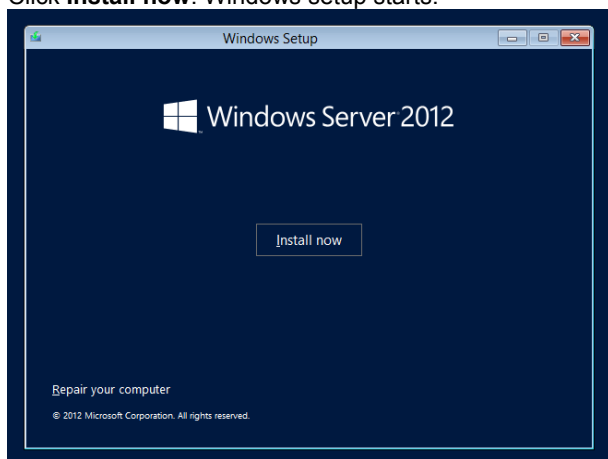
Note

If “Windows is loading files...” message does not appear, <Enter> key was not pressed correctly. Reboot and retry.

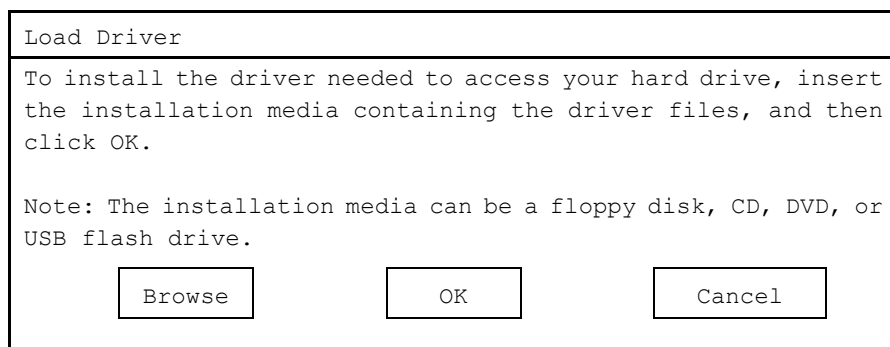
17. Click **Next**.



18. Click **Install now**. Windows setup starts.



- If the following message appears, go to step 19.
- If not, go to step 21.



19. Select the destination, and then click **OK**.
Specify the displayed drive as **INTER-FLASH**.
\\011\\win\\winnt\\drivers\\01_storage\\1_al_06

Tips

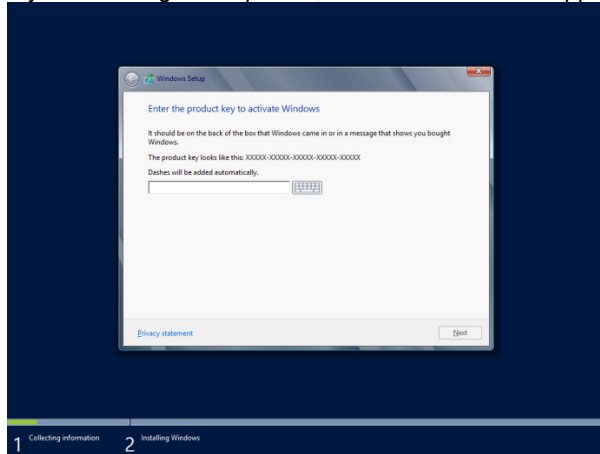
- The volume label of Internal Flash Memory is INTER-FLASH.
- If INTER-FLASH label is not displayed, reboot the server, and then perform setup again from step 15.

20. Select the following driver from the driver list shown, and then click **Next**.

LSI Embedded MegaRAID

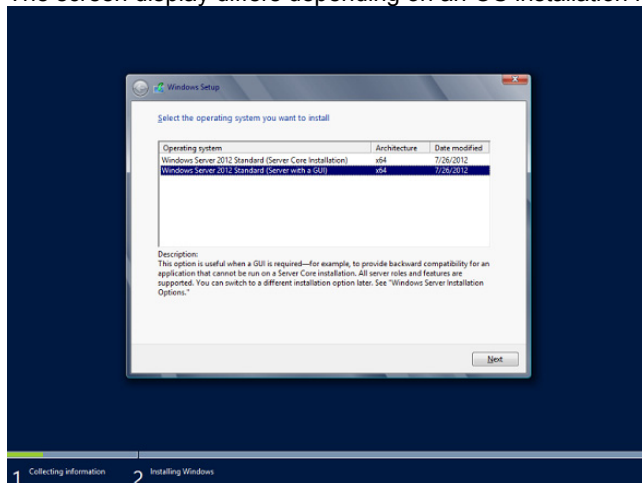
21. Type the product key, and then click **Next**.

If you are using Backup DVD, this screen does not appear. Go to the next step.



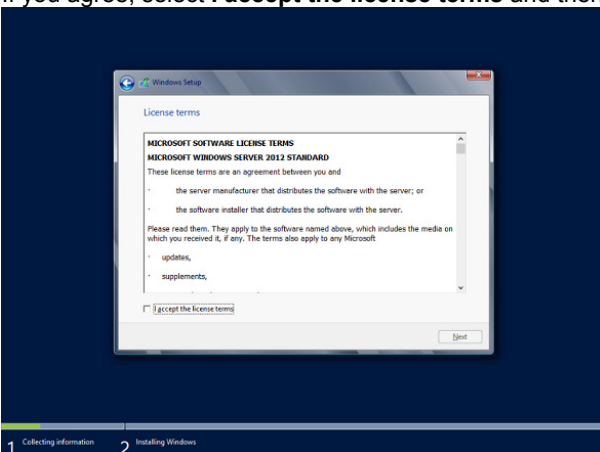
22. Select the operating system to install, and then click **Next**.

The screen display differs depending on an OS installation media you are using.



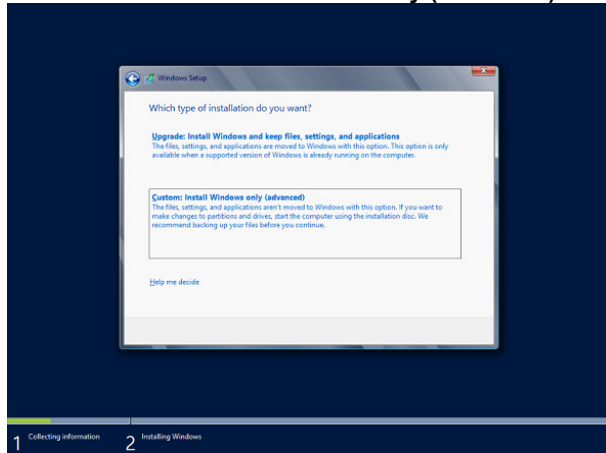
23. Confirm the content of the license agreement.

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



24. Select the installation type.

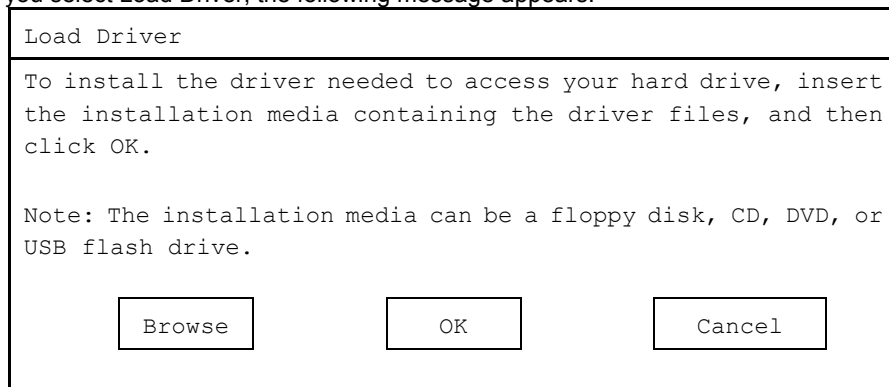
Select **Custom: Install Windows only (advanced)** in this case.



25. "Where do you want to install Windows?" window appears.

If the driver is loaded in step 19 to 20 or if a RAID controller is not used, go to step 29.

If you select Load Driver, the following message appears.



26. Select the destination, and then click OK.

Specify the displayed drive as **INTER-FLASH**.

Onboard RAID Controller (LSI Embedded MegaRAID) : \011\win\winnt\drivers\01_storage\1_al_06

RAID controller (N8103-188) : \011\win\winnt\drivers\01_storage\1_an_02

Tips

- When using an EXPRESSBUILDER DVD, replace the DVD media in step 25 and select the optical disk drive.
- When using an onboard RAID controller, the driver can be loaded from the EXPRESSBUILDER DVD by using USB optical disk drive.
- If INTER-FLASH label is not displayed, reboot the server, and then perform setup again from step 14.

27. Select the following driver from the driver list shown, and then click **Next**.

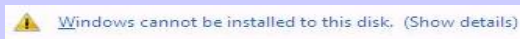
Onboard RAID Controller (LSI Embedded MegaRAID) : **LSI Embedded MegaRAID**

RAID controller (N8103-188) : **LSI MegaRAID SAS 9341-8i**

28. If you inserted the EXPRESSBUILDER DVD in Step 25, remove it, and then insert the OS installation media.

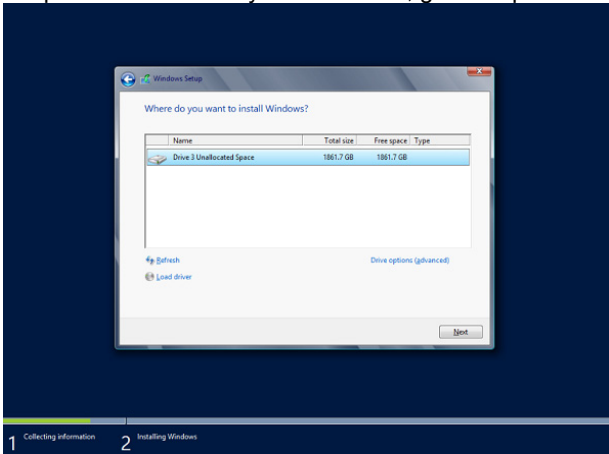
Tips

If you have not replaced the OS installation media after loading the driver, the following message may appear.

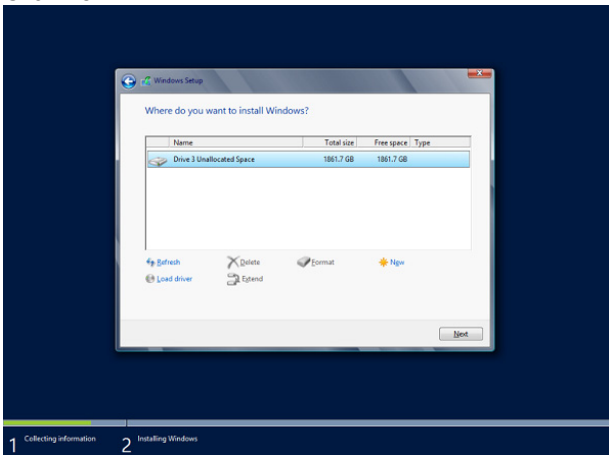


If it appears, replace the OS installation media, and then click **Refresh**.

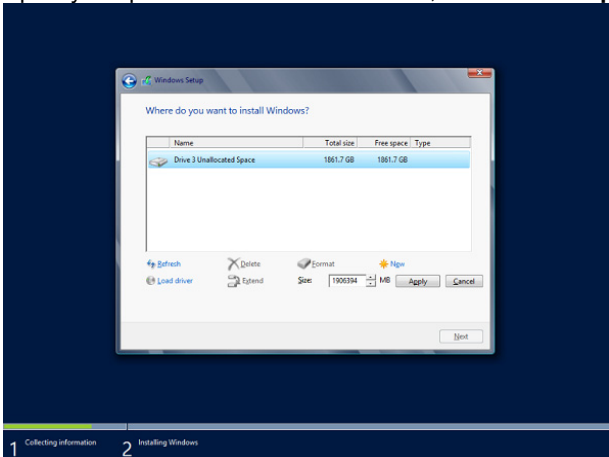
29. Create a partition in which the OS is to be installed.
When creating a partition, click **Drive Option (Advance)**.
If a partition has already been created, go to step 32.



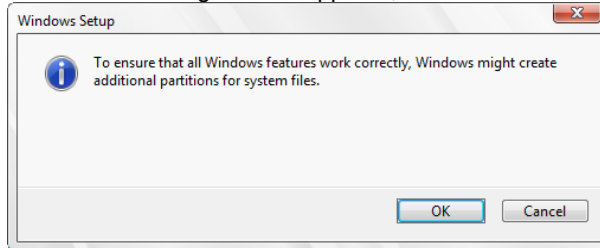
30. Click **New**.



31. Specify the partition size in the **Size** box, and the click **Apply**.



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



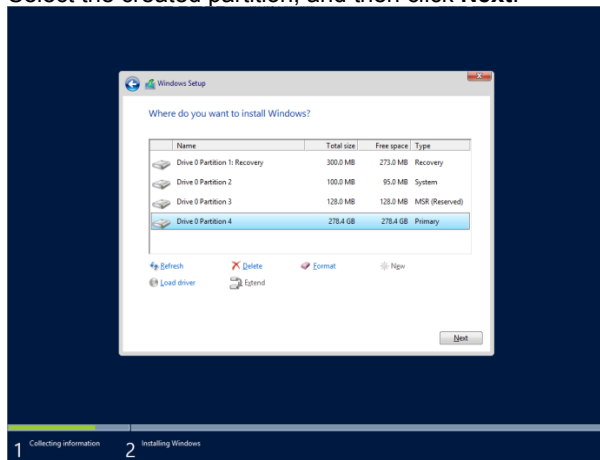
Tips

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

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

32. Select the partition created in step 31, and then click **Format**.

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



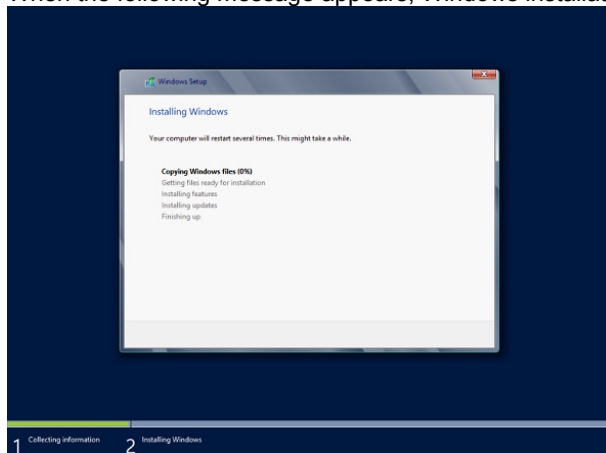
Important

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

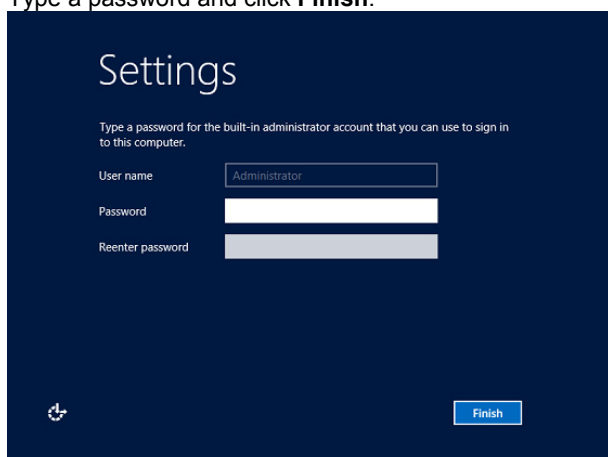
Tips

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

When the following message appears, Windows installation starts automatically.

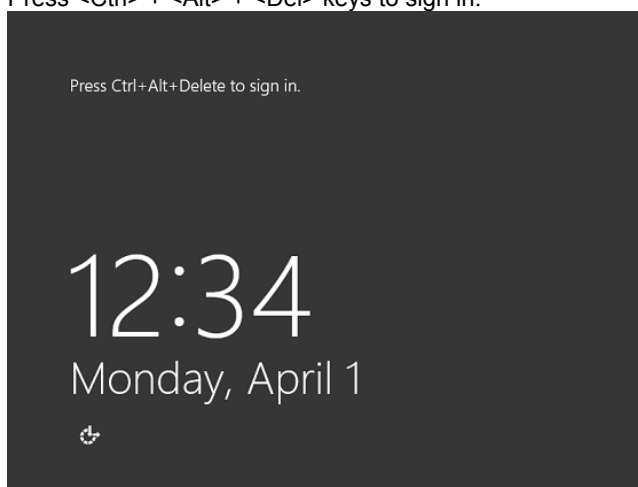


34. Type a password and click **Finish**.

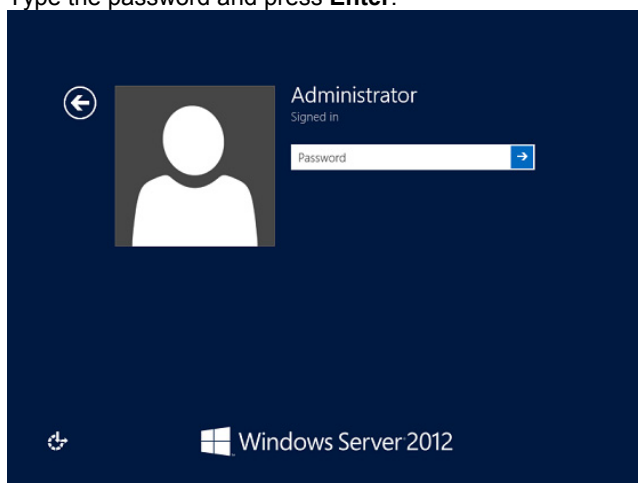


The screenshot shows the 'Settings' window in Windows Server 2012. The title 'Settings' is at the top. Below it, a message says: 'Type a password for the built-in administrator account that you can use to sign in to this computer.' There are three input fields: 'User name' with 'Administrator' entered, 'Password' (empty), and 'Reenter password' (empty). A 'Finish' button is at the bottom right. A small icon is at the bottom left.

35. Press <Ctrl> + <Alt> + keys to sign in.

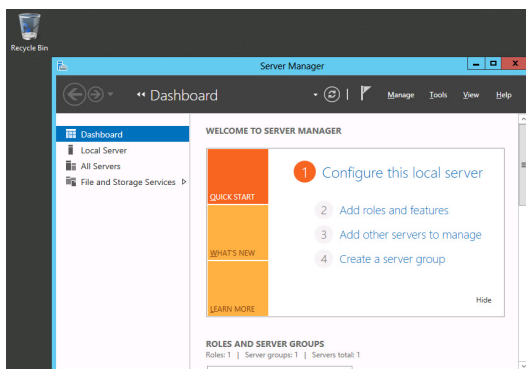


36. Type the password and press **Enter**.

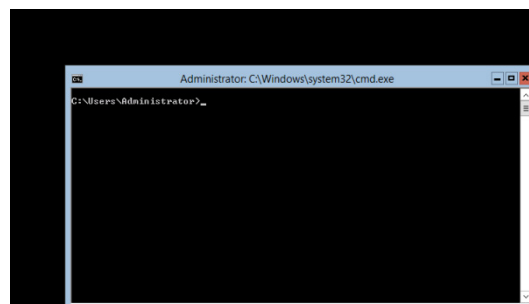


Windows Server 2012 starts.

37. The following screen appears according to the contents selected (or displayed) in Step 22.



Server with a GUI



Server Core Installation

Tips

Refer to Microsoft Website for more details.

Configure and Manage Server Core Installations

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

38. Install Starter Pack by referring to *Chapter 1 (4.4 Installing Starter Pack)*.

Start EXPRESSBUILDER by either of the following two ways:

- Internal Flash Memory : 4.4.1 *Installing Starter Pack after POST*
- EXPRESSBUILDER DVD : 4.4.3 *Using EXPRESSBUILDER installed in Windows*

39. See “Chapter 1 (4.5 Checking installation of EXPRESSBUILDER)” to confirm that EXPRESSBUILDER has been installed in Windows.

40. Install drivers and specify detailed settings by referring to *Chapter 1 (4.6 Setting Up Device Drivers)*.

41. Confirm if Windows is activated according to *Chapter 1 (4.7 License Authentication)*.

42. See *Chapter 1 (4.8 Setup of Windows Server 2012 NIC Teaming (LBFO))* to setup a team as needed.

43. Install the applications as needed by referring to *Chapter 1 (4.9 Installing the Applications)*.

44. Execute setup by following the instructions described in *Chapter 1 (6. Setup for Solving Problems)*.

Setup with Windows standard installer is now complete.

4.4 Installing Starter Pack

Starter Pack contains drivers customized for this server. Be sure to apply Starter Pack before running the system.

Important

- Also install Starter Pack in the following cases.
 - The motherboard of the server has been replaced (If a dialog box prompting system reboot is displayed, reboot the system according to the on-screen instructions, and then apply the Starter Pack.)
 - If the system was restored using a restore process
 - If a system has been restored using the backup tool
- After installing build-in options, you may need installing Starter Pack. For detail, refer to Chapter 1(4.6 Setting Up Device Drivers).

Note

The Scalable Networking Pack (SNP) function is disabled upon Starter Pack installation is complete.
The setting of SNP function may affect the system performance.

Tips

If the OS is installed by using EXPRESSBUILDER, Starter Pack is already applied.
If the configuration is not changed, you do not need to apply Starter Pack again.

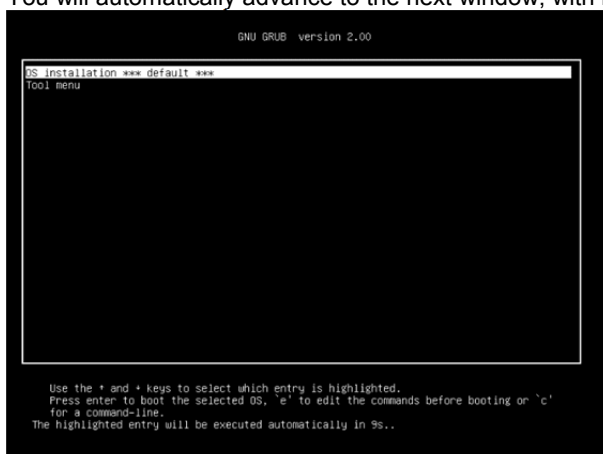
4.4.1 Installing Starter Pack after POST

1. After installing the operating system, restart the server.
2. When “Press <F2> Setup, <F3> Internal Flash Memory, <F4> ROM Utility, <F12> Network” appears during POST, press <F3> key.

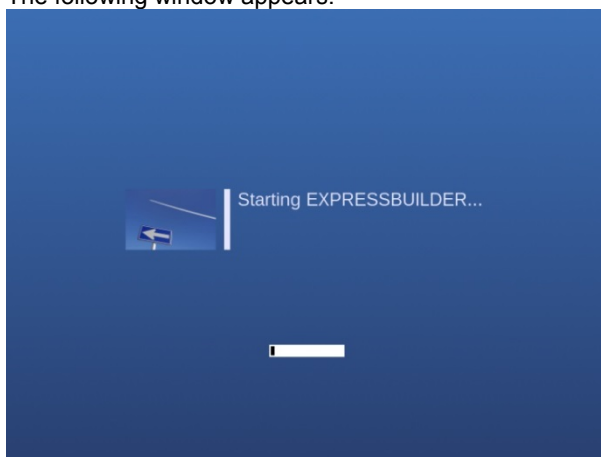
Note

Before pressing <F3> key, be sure to remove the DVD from the optical disk drive.

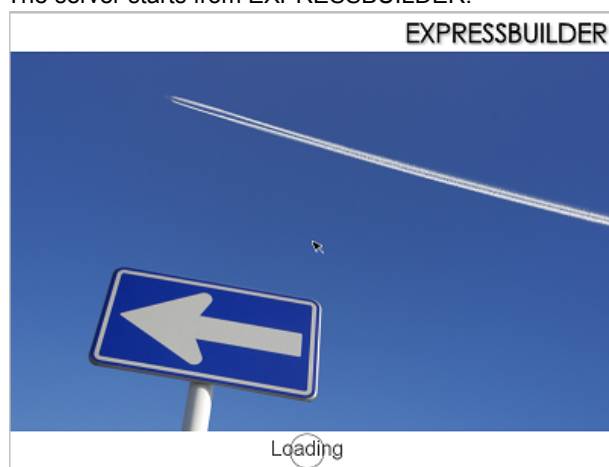
3. When the following message appears, select **OS installation *** default *****.
You will automatically advance to the next window, with no need for further input.



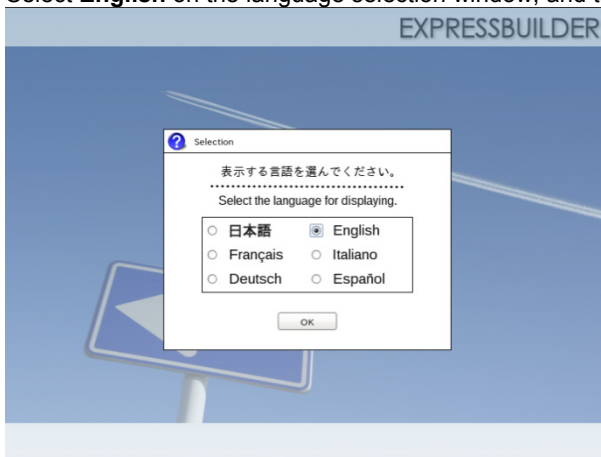
The following window appears.



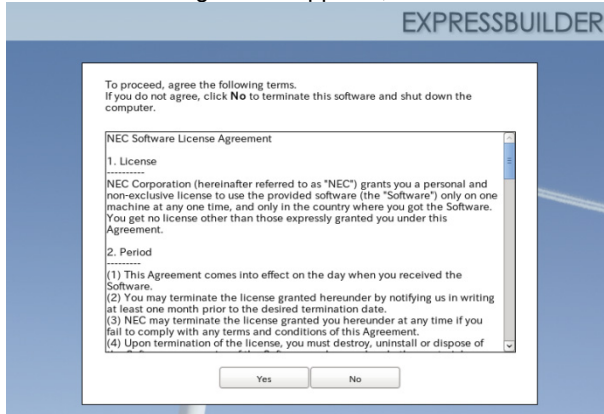
The server starts from EXPRESSBUILDER.



4. Select **English** on the language selection window, and then click **OK**.



5. When the following screen appears, read the contents and click **Yes**.



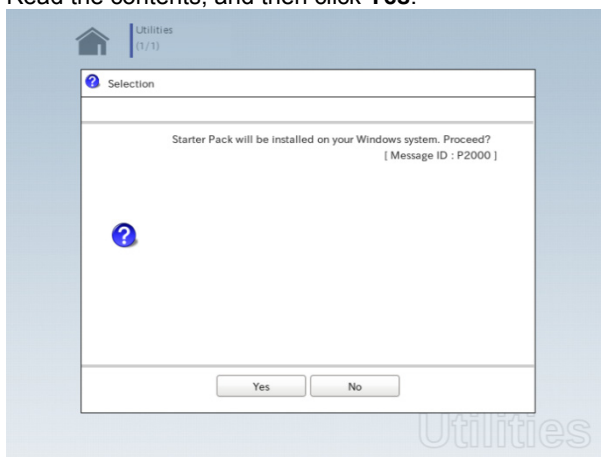
6. Click **Utilities**.



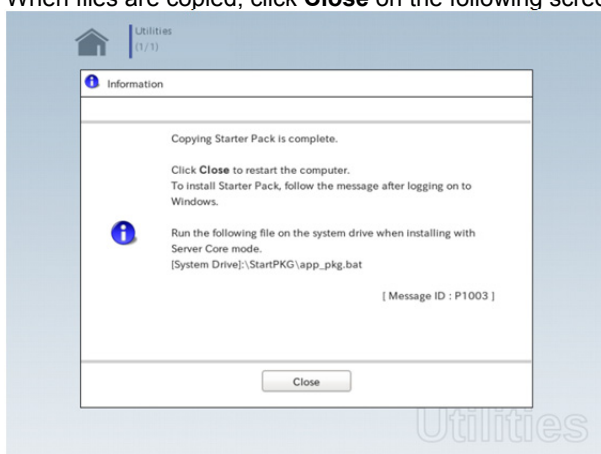
7. Click **Starter Pack Installation**.



8. Read the contents, and then click **Yes**.



9. When files are copied, click **Close** on the following screen.



The server then restarts. Do not press <F3> key and allow OS to start.

10. On Server Core installations, install Starter Pack following steps as below.
On the server with a GUI, go to step 12.

- (1) Enter the following command at the command prompt, and then open the folder under the system drive (drive C).

```
cd /d C:\StartPKG
```

```
C:\Users\administrator>cd /d C:\StartPKG
```

- (2) Enter the following, and then press <Enter> key.

```
app_pkg.bat
```

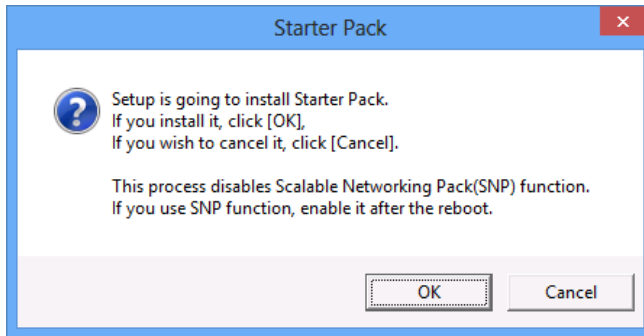
```
C:\StartPKG>app_pkg.bat
```

11. The following screen appears.

Starter Pack is in preparation for application. Wait for a while (about 1 to 3 minutes.)

```
Applying Starter Pack is in preparation. Please wait for a while.
```


12. Read the message, and then click **OK**.
Starter Pack installation starts.

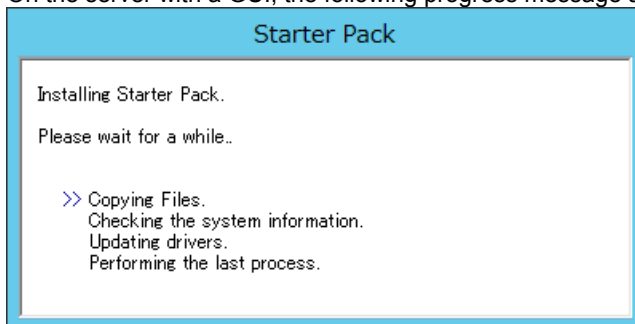


Wait until the installation of the Starter Pack is complete. (About 3 to 5 minutes)

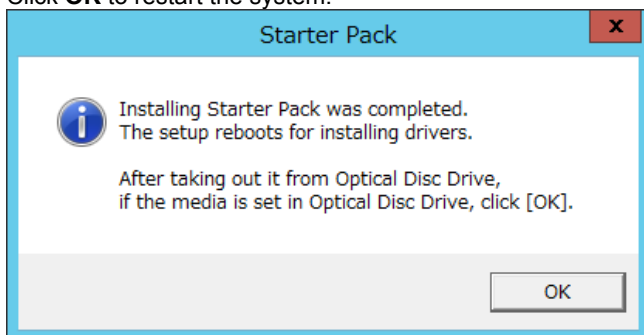
Note

The screen may black out instantaneously or resolution may change while Starter Pack is installed, but it is not a failure.

On the server with a GUI, the following progress message appears while the Starter Pack is installed.



13. Click **OK** to restart the system.

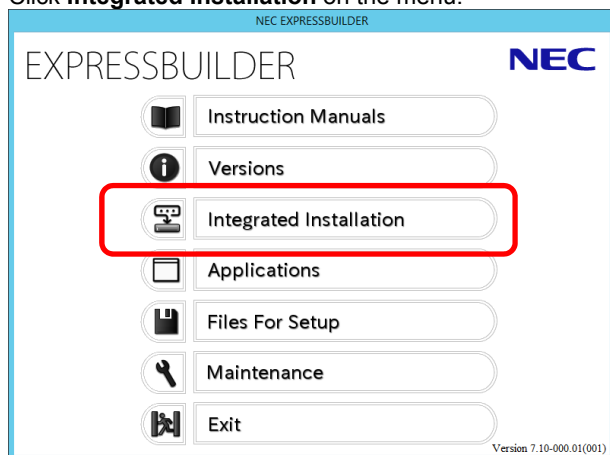


Installation of Starter Pack is now complete.

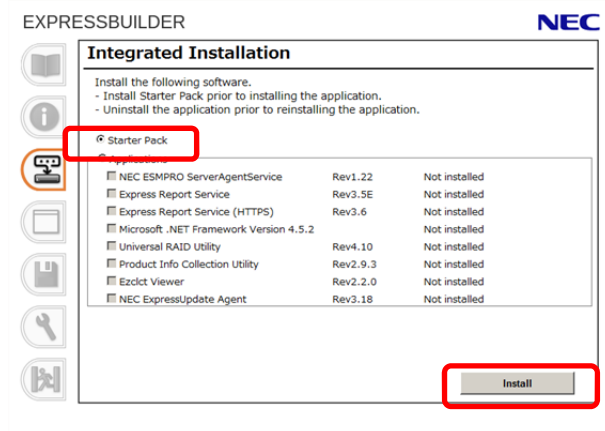
4.4.2 Installing Starter Pack using Windows Application

When EXPRESSBUILDER is installed on Windows, you can launch it as a Windows application. See Chapter 1 (4.5. Checking installation of EXPRESSBUILDER).

1. Sign-in to the system with the built-in administrator, which has administrative privileges.
2. Click the shortcut on your desktop screen or choose NEC EXPRESSBUILDER from the Start screen.
3. Click **Integrated Installation** on the menu.



4. Select **Starter Pack** on the following screen, and then click **Install**.



5. See Step 12 and the subsequent steps in Chapter 1 (4.4.1 Installing Starter Pack after POST) for further procedure.

4.4.3 Using EXPRESSBUILDER installed in Windows

When you use EXPRESSBUILDER DVD (option), follow the steps below.

Installation from Windows (Server with a GUI)

1. Sign-in to the system with the administrator account.
2. Insert EXPRESSBUILDER DVD into the optical disk drive.
3. See Step 3 and the subsequent steps in Chapter 1 (4.4.2 Installing Starter Pack using Windows Application) for further procedure.

Installation from Windows (Server Core Installations)

1. From the command prompt, type the following command.
In the example below, the optical disk drive is the D drive.

```
Cd /d D:\011\win\winnt\bin
```

```
C:\Users\administrator>cd /d D:\011\win\winnt\bin
```

2. Enter the following, and then press the <Enter> key.

```
Pkgsetup.vbs
```

```
D:\011\win\winnt\bin>pkgsetup.vbs
```

Wait until installation completes (about 1 to 3 minutes).

Installation of Starter Pack is now complete.

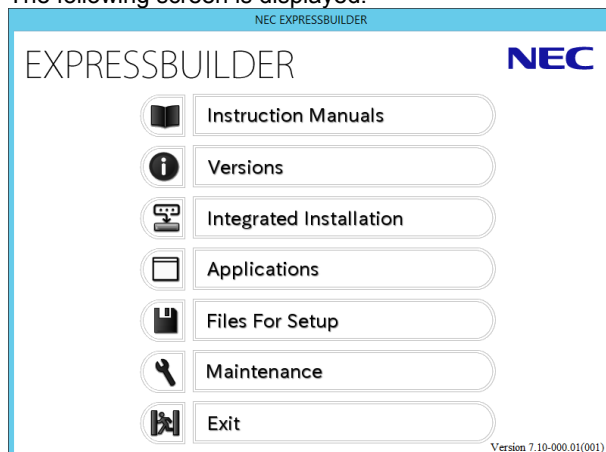
4.5 Checking installation of EXPRESSBUILDER

Confirm that EXPRESSBUILDER has been installed in Windows.

(1) Server using GUI

1. Click the shortcut on the desktop or select “NEC EXPRESSBUILDER” from the Windows start screen.

The following screen is displayed.



2. Click “Exit” to quit the menu.

Check is now complete.

(2) Server Core Installation

1. Enter the following at the command prompt and press the <Enter> key.

```
eb_cli.exe 'show /repository'
```

The following steps are not required when a folder path is displayed after „RepositoryPath=“.

Go to step 2 when the following message is displayed.

The repository has not been created. After creating the repository by "load /repository", please run again.

2. Enter the following at the command prompt and press the <Enter> key.

Wait for a while until the command is completed.

```
eb_cli.exe 'load /repository'
```

Check is now complete.

4.6 Setting Up Device Drivers

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

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

4.6.1 Installing the LAN drivers

(1) LAN drivers

For the system that network adapter is connected, if it is setup with EXPRESSBUILDER, the LAN driver will automatically be installed.

For the system that network adapter is connected, if it is setup with Windows standard installer, apply Starter Pack to install the LAN driver.

Important Wake On LAN (WOL) is supported by the standard network adapters only. Wake On LAN will be able to be used in the state after the installation of the LAN Driver. For BIOS settings, check the "User's 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.
- Be sure to select the **Internet Protocol (TCP/IP)** check box when specifying an IP address.

(2) Optional LAN board

This server supports the following optional LAN boards.

Optional LAN boards: N8104-149/150/151/152 /153

The drivers for LAN boards are automatically installed using the OS plug-and-play function.

The LAN driver is not installed if N8104-149 /153 is not installed at the time of installation of the OS by using EXPRESSBUILDER or at installation of Starter Pack.

Perform the steps below to install the N8104-149 /153 LAN driver manually.

N8104-149

Note When QLogic Driver Installer is shown to **Programs and Features**, this step is unnecessary.

1. Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

```
C:\Program Files(x86)\EXPRESSBUILDER\repository\011\win\winnt\drivers
\02_network\1_as_02\install_ws2012.bat
```

If using EXPRESSBUILDER DVD (option), run the following file on the DVD.

```
\011\win\winnt\drivers\02_network\1_as_02\install_ws2012.bat
```

2. When the following message appears, restart the system.

QLOGIC Driver Installation Completed!

3. When LAN board is new addition, setting each LAN board by referring to Chapter 1(4.6.2 Setting up LAN drivers).

Setup is now completed.

N8104-153

Note

When **Intel(R) Network Connections Drivers** is shown to **Programs and Features**, this step is unnecessary.

1. Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

```
C:\Program Files(x86)\EXPRESSBUILDER\repository\011\win\winnt\drivers
\02_network\1_ag_01\install_ws2012.bat
```

If using EXPRESSBUILDER, run the following file.

```
\011\win\winnt\drivers\02_network\1_ag_01\install_ws2012.bat
```

2. When the following message appears, restart the system.

Intel Driver Installation Completed!

3. When LAN board is new addition, setting each LAN board by referring to Chapter 1(4.6.2 Setting up LAN drivers).

Setup is now completed.

(3) Network adapter name

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

Network adapters for the standard configuration

Broadcom NetXtreme Gigabit Ethernet #xx (*1)

If connecting with an optional LAN board:

N8104-149 : QLogic BCM57810 10 Gigabit Ethernet (NDIS VBD Client) #xx (*1)

N8104-150/151/152 : Broadcom NetXtreme Gigabit Ethernet #xx (*1)

N8104-153 : Intel(R) Ethernet Controller X540-AT2 #xx (*1)

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

Tips

The ID for N8104-149 might be a number of two or more digits. This is due to the LAN driver specifications and not an error. This number cannot be changed.

4.6.2 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

When using N8104-149, you can specify "10 Gb Full" for network adapter and "Auto Negotiation" to switching hub.

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

The link speed setting is now complete.

(2) When using N8104-150/151/152

When using N8104-150/151/152 with the server, follow the procedure below to set it.

1. Run the following file on the system drive (drive C).
`C:\Program Files(x86)\EXPRESSBUILDER\repository\011\win\winnt\drivers\02_network\1_ah_02\pgdyavd_disable.vbs`

If using EXPRESSBUILDER DVD (option), run the following file on the DVD.
`\011\win\winnt\drivers\02_network\1_ah_02\pgdyavd_disable.vbs`
2. When the following message appears, click **OK**.

Configuration Completed
[Option:PopUp RLV Disabled(Action:Done)]
Reboot the system

Tips

The message "Action:Non" indicates that the LAN driver is already set.

3. Restart the system.

Setup is now completed.

4.6.3 Graphics accelerator driver

The graphics accelerator driver for standard configurations is installed when Starter Pack is installed from EXPRESSBUILDER.

The graphic accelerator driver is automatically installed on setup with EXPRESSBUILDER.

Tips

In Server Core environment, the graphics accelerator driver is not installed automatically. Install it by the procedures described below.

To install drivers separately, complete the following steps.

1. Double-click the `install.bat` icon in the following folder.
 - If Starter Pack was installed from Internal Flash Memory:
`C:\Program Files(x86)\EXPRESSBUILDER\repository\011\win\winnt\drivers\03_Graphic\1 aj_02\install.bat`
 - When using EXPRESSBUILDER DVD:
`\011\win\winnt\drivers\03_Graphic\1 aj_02\install.bat`
2. You will be prompted to confirm the End User License Agreement during this process. Click the **ACCEPT** button to continue.
3. Restart the system.

Graphic accelerator driver installation is now complete.

4.6.4 When using a SAS controller (N8103-142/184)

The driver for SAS controller N8103-142/184 is automatically installed by Windows Plug-and-Play.

4.6.5 When using a RAID Controller (N8103-176/177/178/179)

The driver for RAID Controller N8103-176/177/178/179 is automatically installed by Windows Plug-and-Play.

4.6.6 When using a Fibre Channel controller (N8190-157A/158A/159/160)

The driver for Fibre Channel controller N8190-157A/158A/159/160 is automatically installed by Windows Plug-and-Play.

If the Fibre Channel controller N8190-157A/158A/159/160 is installed after the OS has been installed, you need to install Starter Pack again.

4.7 License Authentication

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

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

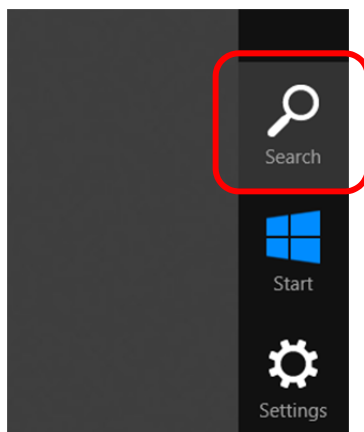
Connect to the Internet to perform the authentication procedure.

Or, use the telephone to perform the authentication procedure.

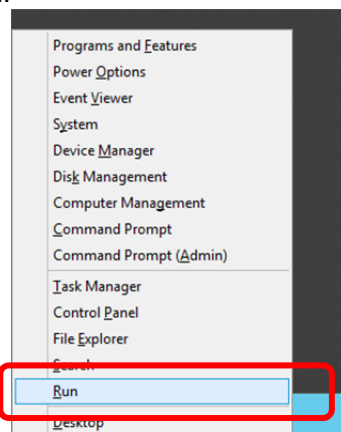
(1) Server with a GUI

1. Click **Search** on the Charms bar.
(Or, right-click the bottom left corner on the screen, and then click **Run**.)

Search

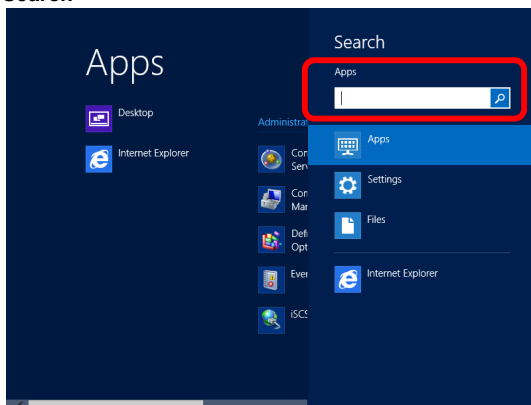


Run

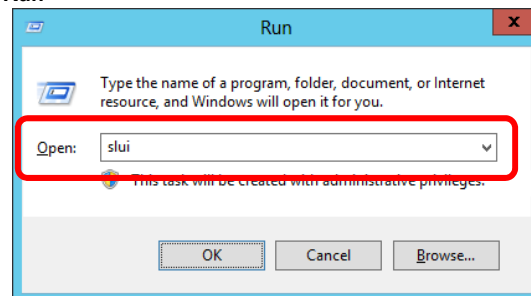


2. Enter "slui" in the **Search** box, and then press the <Enter> key.

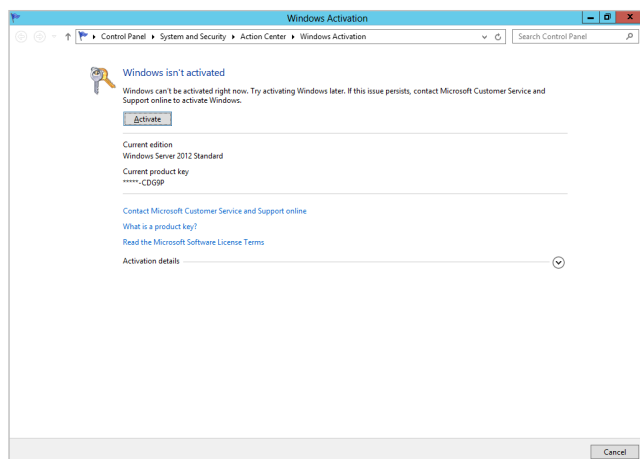
Search



Run



3. Read the contents, and then continue the license authentication procedure.



Tips

If your license is already authenticated, you do not need to perform this procedure.

Windows activation is now complete.

(2) Server Core installations

1. At the command prompt, enter the following, and then press <Enter> key.

```
slmgr -dli
```

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

If license authentication is required, go to the next step.

If your license is already authenticated, you can skip the next and the subsequent steps.

2. Change the product key.

When using Backup DVD:

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

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

When using Windows Server 2012 DVD-ROM:

You do not need to change the product key.

Go to the next step.

3. Perform license authentication.

When connected to the Internet:

License authentication is performed via the Internet.

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

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

This completes authentication.

When not connected to the Internet:

Use telephone for license authentication.

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

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

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, and then press the <Enter> key.

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

This completes authentication.

4.8 Setup of Windows Server 2012 NIC Teaming (LBFO)

Set up the network adapter teaming feature as shown below.

(1) Launching the NIC teaming setup tool

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

The NIC teaming setup tool will launch.

Tips

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

(2) Creating a team

Create a team by using the NIC teaming setup tool.

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

Teaming mode

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

Load balancing mode

Address Hash	Distributes the load based on IP addresses and port numbers.
Hyper-V Port	Distributes the load to each of the virtual switch ports used by the virtual machines.

Standby adapter

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

Setting all adapters to active mode is also possible.

Primary team interface

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

(3) Notes and restrictions

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

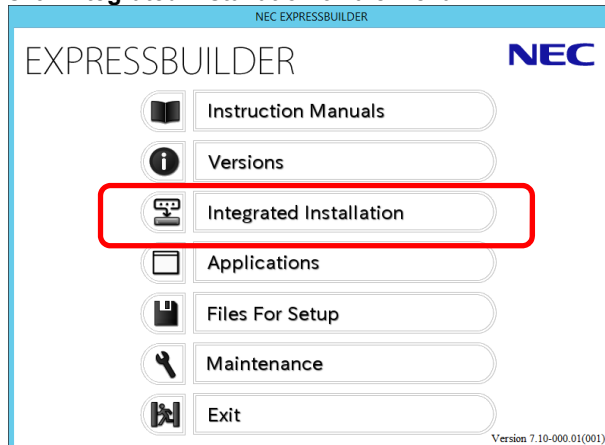
Refer to the following website for the latest information.

<http://www.58support.nec.co.jp/global/download/w2012/index.html>

4.9 Installing the Applications

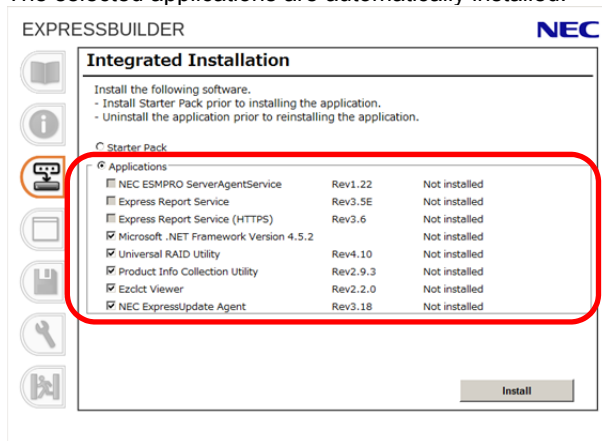
Some applications stored in EXPRESSBUILDER can be installed collectively by performing the procedures described below. When installing these applications individually, see *Chapter 2 (Installing Bundled Software)*. This feature is *only available on the server with a GUI*.

1. Sign-in to the system with the built-in administrator, which has administrative privileges.
2. Click the shortcut on your desktop screen or choose NEC EXPRESSBUILDER from the Start screen.
Or, Insert the EXPRESSBUILDER DVD (option) into the optical disk drive.
Or, if EXPRESSBUILDER has been installed in Windows, you can use it as a Windows application.
Select **NEC** from Windows Start menu to launch **NEC EXPRESSBUILDER**.
3. Click **Integrated Installation** on the menu.



4. Select **Applications**, and select the check boxes corresponding to the applications to want to install, and then click **Install**.

The selected applications are automatically installed.



Note

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

5. When a message appears, click **OK**, and then remove the EXPRESSBUILDER disk from the optical disk drive.
6. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.

Now installation of applications is completed.

4.10 Installation When Multiple Logical Drives Exist

Before starting installation, backup data for future use in case of data loss.

(1) Installation process

- Setup with EXPRESSBUILDER

Important

- Before starting setup, be sure to disconnect hard disk drives from the RAID Controller that is not used for setup, if the server has two or more RAID Controllers installed.
- Disconnect an external disk (*) from the server by turning the power of it off or disconnecting cables. Install those hard disk drives and cables after setup has completed. Conducting setup with those being connected with the server may cause existing data to be erased unintentionally.

* Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit

Refer to *Chapter 1 (4.2 Setup with EXPRESSBUILDER)*, and proceed with setup.

In this case, EXPRESSBUILDER installs the Windows on the first detected hard disk drive or logical drive.

- Setup with Windows standard installer

1. Refer to *Chapter 1 (4.3 Setup with Windows Standard Installer)*, and start setup.
2. When the following message appears, select the partition to which you want to install the operating system.

Select the location to which Windows will be installed

The order and numbers of the disks displayed on the screen *might not match the server's slot* of the hard disk drives. *Distinguish between the hard disk drives by viewing the hard disk drive capacity and partition size* displayed on the screen, and then select a drive to install the Windows system. Selecting an improper drive might cause an unintentional corruption of the existing data. Be careful when selecting a hard disk drive on which to install the system.

Important

- For details, refer to the following Microsoft website:
<http://support.microsoft.com/kb/937251/en-us>
- You cannot edit the drive letters for the system volume or boot volume after setup is complete. Make sure that the drive letters assigned in this window are correct, and then proceed with setup.

3. Refer to *Chapter 1 (4.3 Setup with Windows Standard Installer)*, and proceed to setup Windows with Windows standard installer and the instructions.

Tips

The drive letter might change after installation. If you want to change the drive letter, use the procedure shown in *Changing drive letter assignments* below.

(2) Changing drive letter assignments

To change the drive letter, follow the steps below. But these steps cannot change drive letter assignments for the system volume or boot volume.

1. On the **Start** menu, right-click **Computer**, and then select **Management**. Next, launch **Server Manager**.
2. From the window on the left, select **Storage**, and then **Disk Management**.
3. Right-click the volume whose drive letter you want to change, and then select **Change drive letter and path**.
4. Click **Assign next drive letter**, and then select the drive letter you want to assign.
5. Click **OK**.
6. Close the **Server Manager**.

5. Setting Up Windows Server 2008 R2

Set up Windows Server 2008 R2.

5.1 Before Starting Setup

Read through the cautions explained here before starting setup.

EB : Confirm during Setup with EXPRESSBUILDER

OS : Confirm during Setup with Windows standard installer

BIOS setting		
EB	OS	<p>Change Boot Mode to Legacy Mode. See <i>Chapter 2 (1. System BIOS)</i> in <i>Maintenance Guide</i> for details.</p> <p>Boot → Boot Mode → Legacy</p>
EB	OS	<p>Select Disabled for X2APIC feature of processor. See <i>Chapter 2 (1. System BIOS)</i> in <i>Maintenance Guide</i> for details.</p> <p>Advanced → Processor Configuration → X2APIC → Disabled</p>
-	OS	<p>Select Disabled for XHCI Hand-off. See <i>Chapter 2 (1. System BIOS)</i> in <i>Maintenance Guide</i> for details.</p> <p>Advanced → USB Configuration → XHCI Hand-off → Disabled</p> <p>Select Enabled for XHCI Hand-off after Starter Pack installed.</p>
Hardware configuration		
The following hardware configurations require special procedures.		
EB	-	<p>When using an onboard RAID controller (LSI Embedded MegaRAID), you cannot use system recovery options.</p>
EB	OS	<p>Reinstalling to a mirrored volume</p> <p>When you install Windows Server 2008 R2 in an environment with a mirrored volume created using Windows, disable mirroring before installing the operating system and enable it again after the installation. Use Computer Management – Disk Management to create, disable, or remove the mirrored volume.</p>
EB	OS	<p>Peripheral devices such as RDX/MO</p> <p>Remove an MO device before installing an OS. Some peripheral devices need to be halted before installation. Refer to the manual provided with the peripheral devices for how to set a device appropriate to installation.</p>
EB	OS	<p>DAT, LTO, or similar media</p> <p>Do not set any media such as DAT or LTO while installing an OS.</p>

<div>EB</div> <div>OS</div>	<p>Installing in internal or external multiple (logical drives)</p> <p>For details on installing operating systems to a system in which two or more RAID Controller exist, or to an external disk drive* that is not subject to setup, refer to <i>Chapter 1 (5.10 Installation When Multiple Logical Drives Exist)</i>.</p> <p>* Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit.</p>
<div>EB</div> <div>OS</div>	<p>Reinstalling to hard disk drives that have been upgraded to dynamic disks</p> <p>If the hard disk drive has been upgraded to a dynamic disk, the operating system cannot be reinstalled to it with the existing partitions.</p> <p>Set up the operating system with the Windows standard installer.</p>
<div>EB</div> <div>OS</div>	<p>Setup when mass memory is installed</p> <p>If mass memory is installed in your system, the large size of paging file is required at installation. Thus, the partition size for storing debug information (dump file) may not be secured.</p> <p>If you fail to secure the dump file size, allocate the required file space to multiple disks by performing the following steps.</p> <ol style="list-style-type: none"> 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 store the debug information (required dump file size) by referring to <i>Chapter 1 (6. Setup for Solving Problems)</i>. <p>If the hard disk drive does not have enough space 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.</p> <p>Note</p> <div style="background-color: #e0ffe0; padding: 5px;"> <p>If the partition size for installing Windows is smaller than the recommended size, expand the partition size or add another hard disk drive.</p> </div> <p>If sufficient space cannot be secured for the paging file, perform either of the following after installing Windows.</p> <ul style="list-style-type: none"> – Specify a hard disk drive other than the system drive as the location to store the paging file for collecting memory dump <p>Create a paging file of the installed memory size + 300 MB or more in a drive other than the system drive.</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p>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, the size of the paging file must be "installed memory size + 300 MB" or more. Paging files in dynamic volumes are not used for dumping memory. The setting is applied after restarting the system.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;"> <p>Example of correct setting</p> <p>C: No paging file exists</p> <p>D: Paging file whose size is "installed memory size + 300 MB" or more</p> <p>→ The paging file in drive D can be used for collecting memory dump because its size satisfies the requirement.</p> </div> </div>

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 + 300 MB" or more

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

Example of incorrect setting 2

C: Paging file whose size is "installed memory size × 0.5"
D: Paging file whose size is "installed memory size × 0.5"
E: Paging file whose size is 300 MB

→ The total paging file size in all drives is "installed memory size + 300 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 + 300 MB" or more (in dynamic volume)

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

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

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

<When specifying the file named "dedicateddumpfile.sys" in drive D>

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

Note the following when specifying Dedicated Dump File:

- Pay strict attention to edit the registry.
- The setting is applied after restarting the system.
- Specify a drive that has free space of "installed memory size + 300 MB" or more.
- Dedicated Dump File cannot be placed in dynamic volumes.
- To collect memory dump by using Dedicated Dump File, a paging file is required in any drive.
- Dedicated Dump File is only used for collecting memory dump, and is not used as virtual memory. Specify the paging file size so that sufficient virtual memory can be allocated in the entire system.

System partition size

EB

OS

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

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

Full installations

Size required to install the OS	= 15,600 MB (Windows Server 2008 R2 + Service Pack 1)
	= 8,400 MB (Windows Server 2008 R2 with Service Pack 1)
	= 8,000 MB (Windows Server 2008 R2)
Paging file size (recommended)	= installed memory size × 1.5
Dump file size	= installed memory size + 300MB
Application size	= as required by the application

Server Core installations

Size required to install the OS	= 11,100 MB (Windows Server 2008 R2 + Service Pack 1)
	= 3,700 MB (Windows Server 2008 R2 with Service Pack 1)
	= 3,500 MB (Windows Server 2008 R2)
Paging file size (recommended)	= installed memory size × 1.5
Dump file size	= installed memory size + 300MB
Application size	= as required by the application

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

$$8,000 \text{ MB} + (1,024 \text{ MB} \times 1.5) + 1,024 \text{ MB} + 300 \text{ MB} + 100 \text{ MB} \\ = 10,960 \text{ MB}$$

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.

Full installations	:	32,768MB (32GB) or more
Server Core installations	:	10,240MB (10GB) or more

*1 GB = 1,024 MB

Note

- The above paging file sizes are recommended for collecting debug information (dump file). The initial size of the Windows partition paging file must be large enough to store dump files. Make sure you set a sufficient paging file size. If the paging file is insufficient, there will be a virtual memory shortage that may result in an inability to collect correct debug information.
- Regardless of the sizes of internal memory and write debug information, the maximum size of the dump file is "size of internal memory + 300 MB".
- When installing other applications or other items, add the amount of space needed by the application to the partition.

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

<p>Tips</p>	<p>When creating a new partition, Windows OS assigns an initial boot partition of 100 MB.</p> <p>For example, when making a partition of 40,960 MB (40 GB), usable space will be 40,960 MB – 100 MB = 40,860 MB.</p> <div data-bbox="545 322 1217 665"> </div>
--------------------	--

Hyper-V 2.0 support

<p>EB</p>	<p>OS</p>	<p>Refer to the following web site for information related to Hyper-V 2.0.</p> <p>http://www.58support.nec.co.jp/global/download/w2k8r2/hyper-v/hyper-v-v2.html</p>
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Using BitLocker

		<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>	<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.</p> <p>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 document about hardware.</p>
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<p>EB</p>	<p>OS</p>	<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. ● Microsoft releases software updates for BitLocker encryption. If using BitLocker, it is important that you read through the information provided by Microsoft. Also read through the checklist published by Microsoft. <p>For details, visit http://support.microsoft.com/kb/975496/en-us.</p>
-----------	-----------	---

Installing Service Pack	
<div>EBOS</div>	<ul style="list-style-type: none">● If the OS installation media contains Service Pack 1, you do not need to apply the service pack again.● You can install the Service Pack on the server. When the Service Pack is not attached to your system, prepare it by yourself.
License authentication	
<div>EBOS</div>	<p>License authentication is required depending on the installation of Windows. For details, refer to <i>5.7 License Authentication</i>.</p> <div>Note<ul style="list-style-type: none">● Activate within 30 days following installation.● A virtual product key is used when installing in a virtual environment. It is not used when directly installing an operating system to a physical server.</div>

5.2 Setup with EXPRESSBUILDER

During Setup with EXPRESSBUILDER, parameters are specified through the wizard. You can also save the parameters as one file (a parameter file) to removable media.

This feature automatically recognizes the RAID controller connected to the server and configures the RAID system. Therefore the hardware installation of the server needs to be finished by following "User's Guide".

Important

- Setup with EXPRESSBUILDER may delete all data of the hard disk drive depending on the settings. Pay attention to input parameters. You must be especially careful when configuring the following:

- RAID settings
- Partition Settings

When re-installing windows, backing up user data is recommended.

- Before starting setup, be sure to disconnect hard disk drives from the RAID Controller that is not to be setup. Install those hard disk drives after setup has completed. Conducting setup with hard disk drives being connected with RAID Controller may cause existing data to be erased unintentionally. It is recommended to make backup copy of user data before starting setup.
- Precautions for installation are as follows:
 - Use EXPRESSBUILDER DVD (optional or on web site). Cannot use EXPRESSBUILDER on Internal Flash memory (F3 key function).
 - Use an internal optical disk drive on the server when installing. Cannot use a USB interface drive and remote media feature of EXPRESSSCOPE Engine 3.
 - Use a display, mouse, keyboard, and other devices connected directly to the server. Cannot use the remote KVM feature of EXPRESSSCOPE Engine 3.

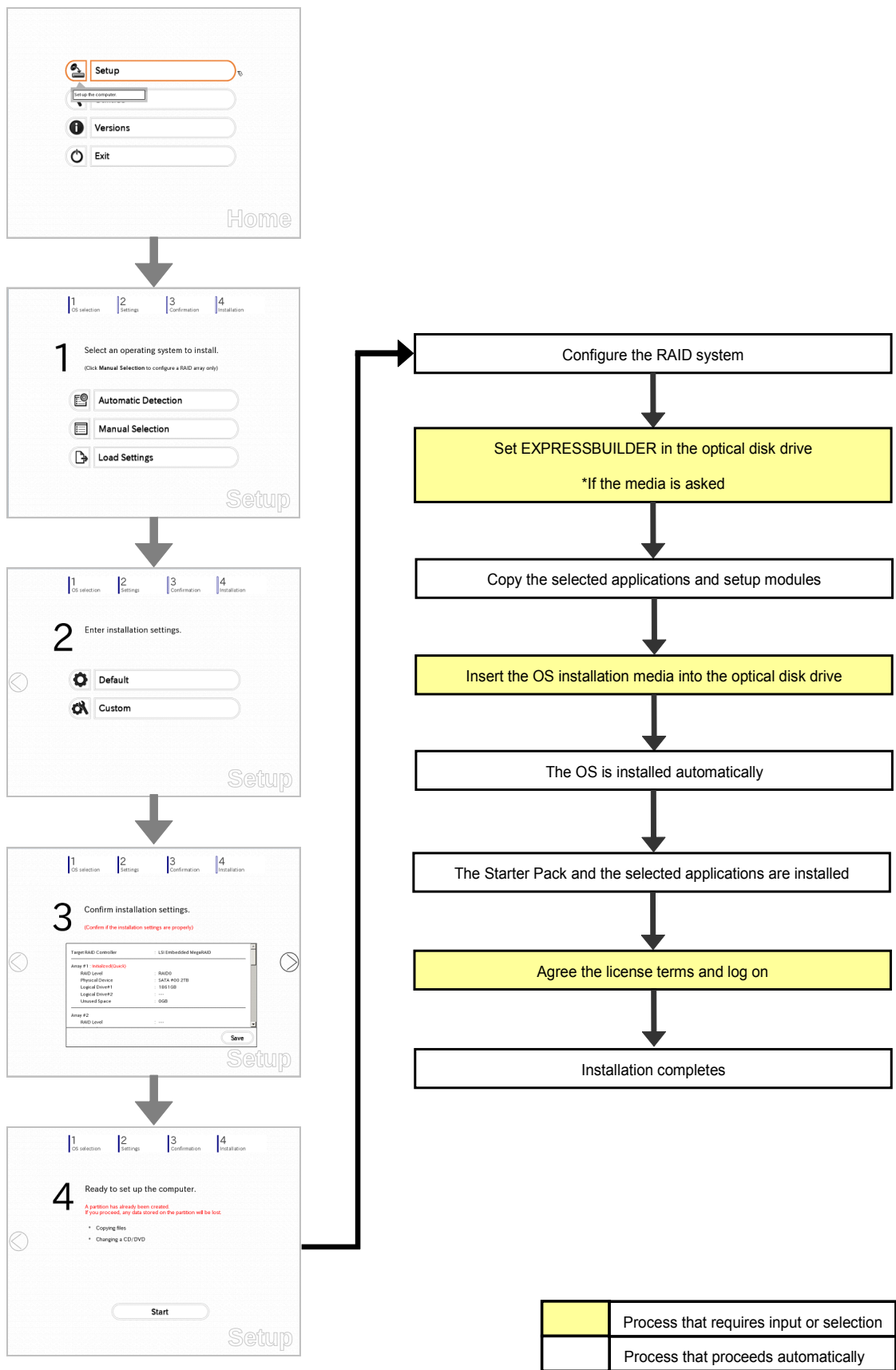
Note

- The Scalable Networking Pack (SNP) function is disabled on systems that have been installed by using EXPRESSBUILDER. The setting of SNP function may affect the system performance. Contact your sales representative for details.
- The creation of RAID10 by using the onboard RAID controller (LSI Embedded MegaRAID) is not supported. See *Chapter 2 (5. RAID System Configuration)* in Maintenance Guide when creating RAID10.

Tips

- Microsoft .NET Framework Version 3.5.1 is enabled when Starter Pack is applied in full-installation environment.
- Setup with EXPRESSBUILDER allows you to use a pre-specified parameter file or save the parameters specified in setup as a parameter file on removable media or Internal Flash Memory.
- For details on creating a parameter file, refer to *Chapter 1 (7. Windows OS Parameter File)*.

5.2.1 Setup flow



5.2.2 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 2008 R2 DVD-ROM*)
- The following EXPRESSBUILDER
 - **EXPRESSBUILDER DVD (Option)**
- Prepare if needed:
 - **First Steps Guide**
 - **Removable media for Windows OS parameter file**
 - **Service Pack**
(If the OS installation media contains Service Pack 1, you do not need to apply the service pack again.)

Important | Check that internal optical disk drive is connected before installation.

5.2.3 Setup procedure

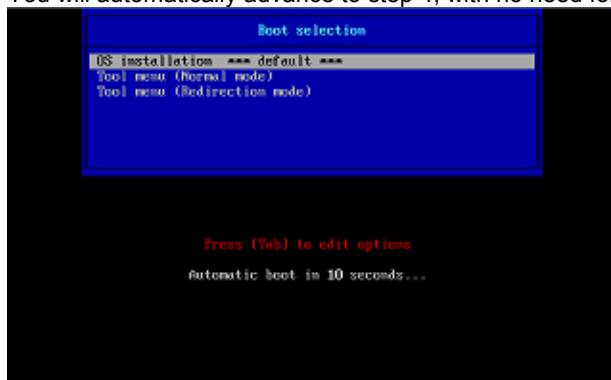
Setup with EXPRESSBUILDER uses wizard to configure parameters and allows you to save the parameters specified in setup on removable media as a parameter file.

Note

Read through the items in *Chapter 1 (5.1 Before Starting Setup)* prior to installing Windows.

1. Turn peripheral device (such as a display) power on, and then turn the server power on.
2. Start EXPRESSBUILDER according to Chapter 1 (1.1 Starting EXPRESSBUILDER).
3. Select **OS installation *** default *****.

You will automatically advance to step 4, with no need for further input.



The following window appears.



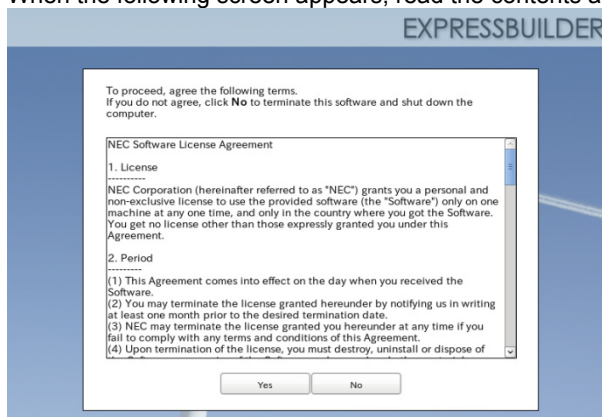
The server starts from EXPRESSBUILDER.



4. Select **English** on the language selection window, and then click **OK**.



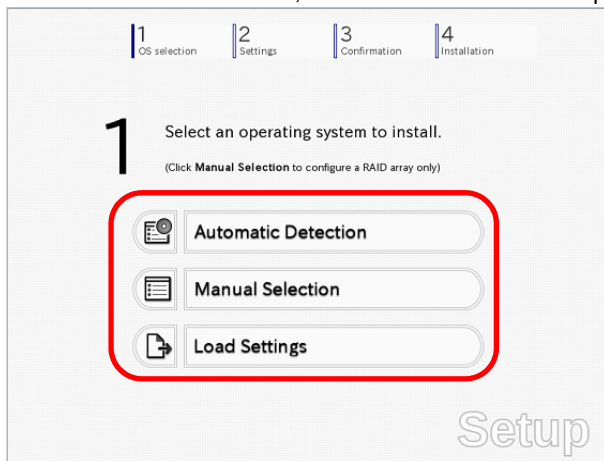
5. When the following screen appears, read the contents and click **Yes**.



6. Click **Setup**.



7. On the **OS selection** menu, select the OS to install or specify the parameter file.



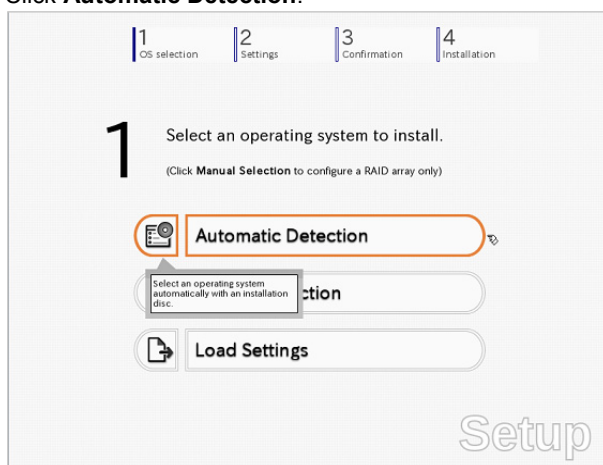
- ☐ When *not using* a parameter file : Select **Automatic Detection**, and then go to Step 8.
: Select **Manual Selection**, and then go to Step 9.
- ☐ When *using* a parameter file : Select **Load Settings**, and then go to Step 10.

Note

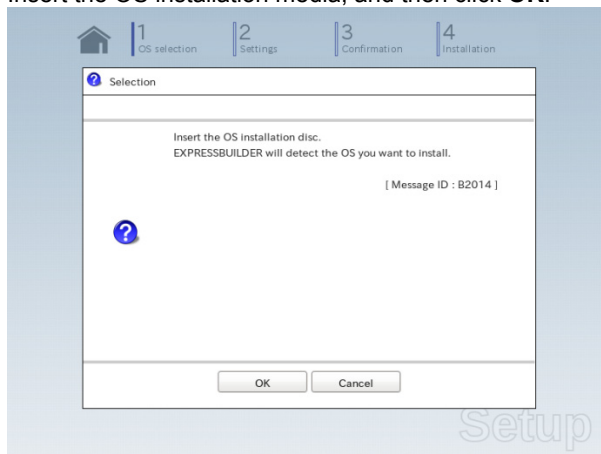
When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.

8. When *not using* a parameter file, let the OS on the installation media be recognized by using the following procedure.

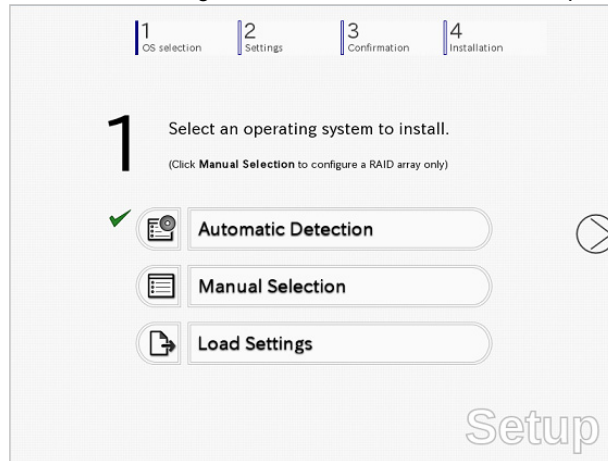
- 8-(1) Click **Automatic Detection**.



- 8-(2) Insert the OS installation media, and then click **OK**.

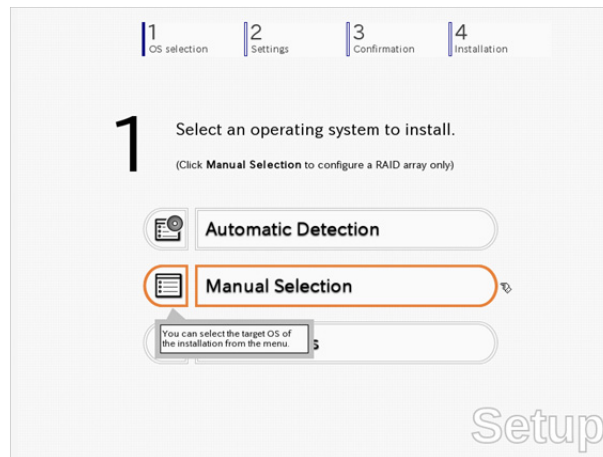


- 8-(3) Click  on the right side of the screen. → Go to step 11.

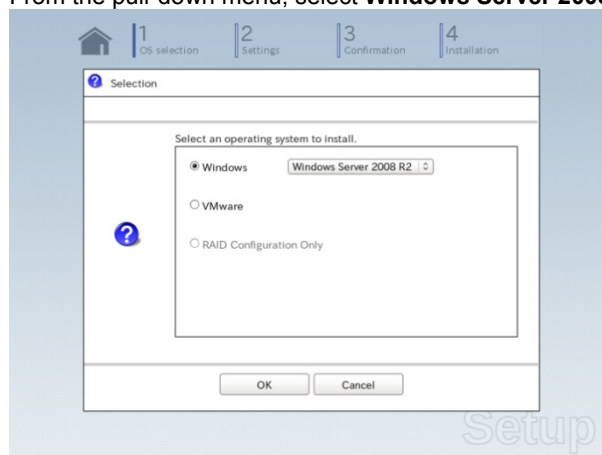



9. When *not using* a parameter file, select an OS by using the following procedure.

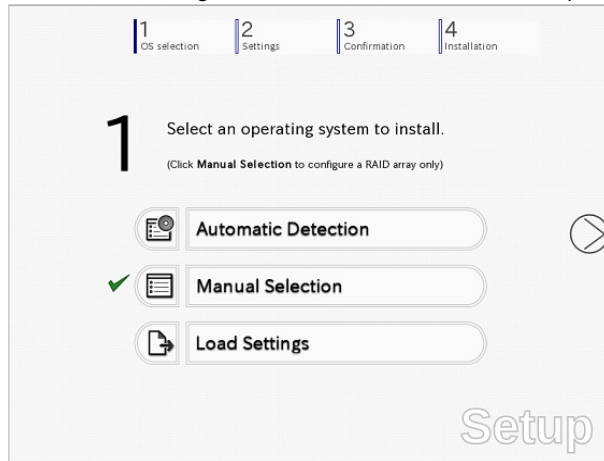
- 9-(1) Click **Manual Selection**.



- 9-(2) From the pull-down menu, select **Windows Server 2008 R2**, and then click **OK**.

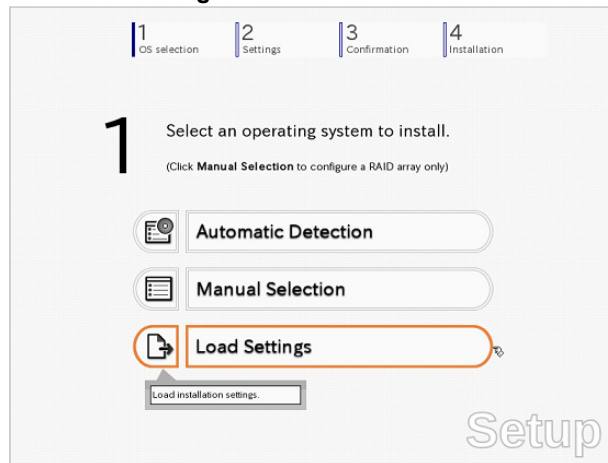


9-(3) Click  on the right side of the screen. → Go to step 11.

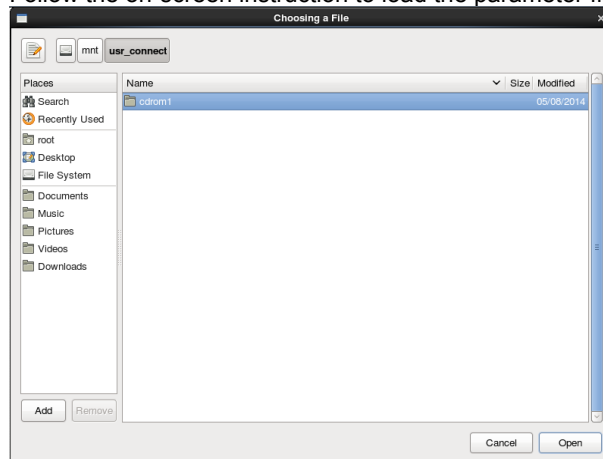


10. When using the parameter file, load the parameter file by using the following procedure.

10-(1) Click **Load Settings**.




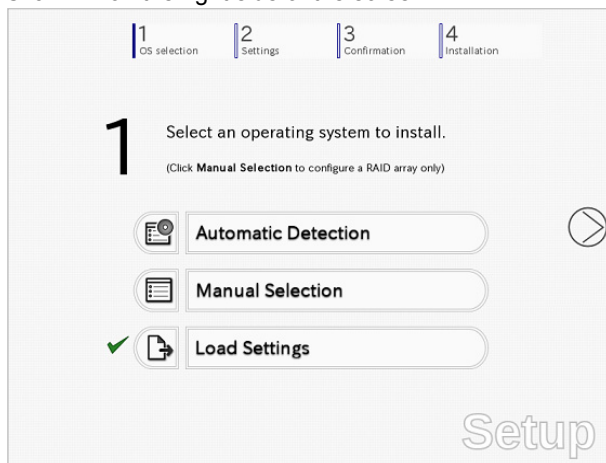
10-(2) Follow the on-screen instruction to load the parameter file (*.tre).




Tips

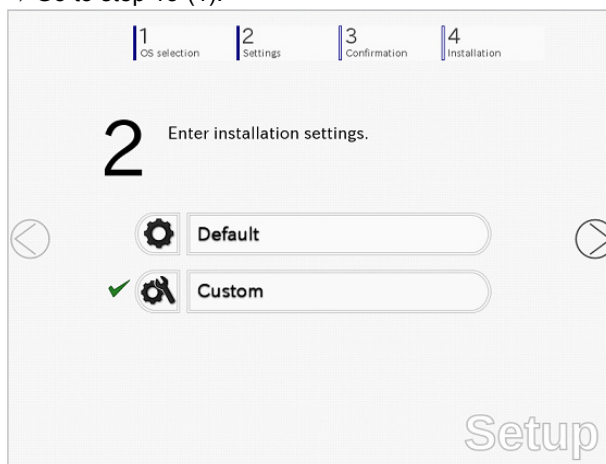
For the removable media in which the parameter file is saved, see
 "/mnt/usr_connect/usb*" (* indicates a number).

10-(3) Click  on the right side of the screen.



10-(4) When the parameter file is correctly loaded, click  on the right side of the screen.
→ Go to step 14.

Click **Custom** to check and modify the setting in the wizard.
→ Go to step 13-(1).

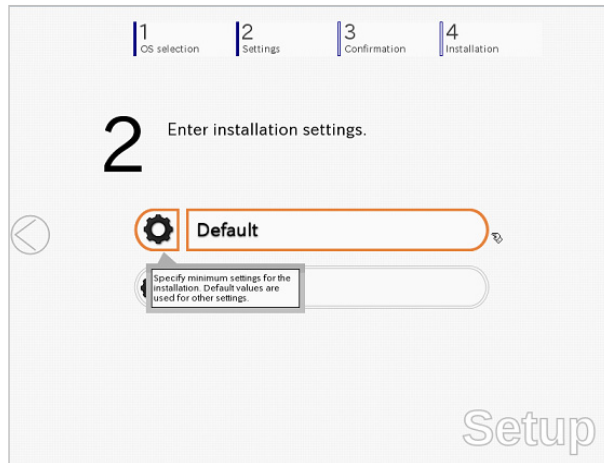


11. Specify the setup parameters by using either of the following methods:

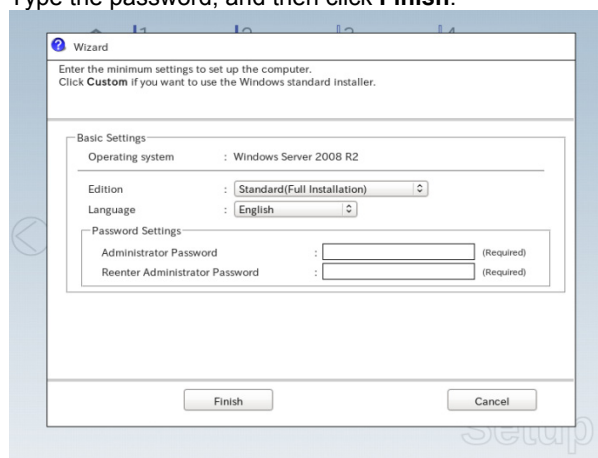
- ☐ When selecting **Default** : Go to Step 12.
- ☐ When selecting **Custom** : Go to Step 13.



12. Click **Default**.



12-(1) Select the edition of the OS to install from the pull-down menu. Type the password, and then click **Finish**.




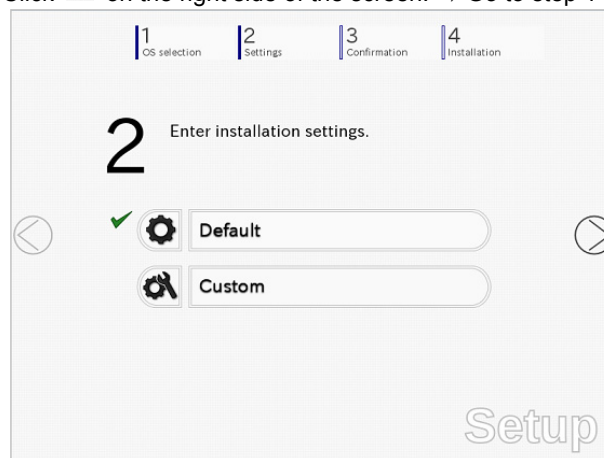
Note

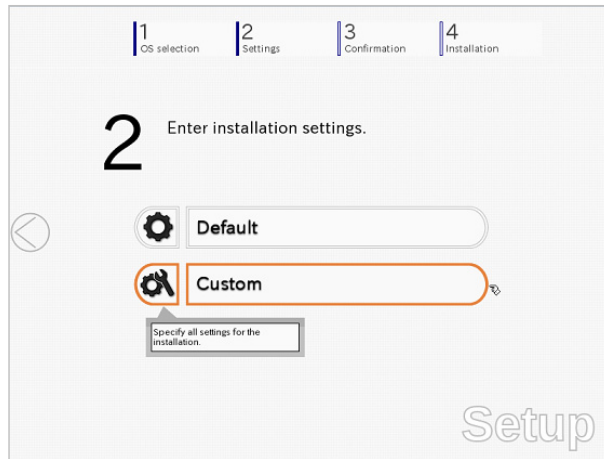
Computer name and Administrator Password are required parameters.

Enter Administrator Password that satisfies the following conditions:

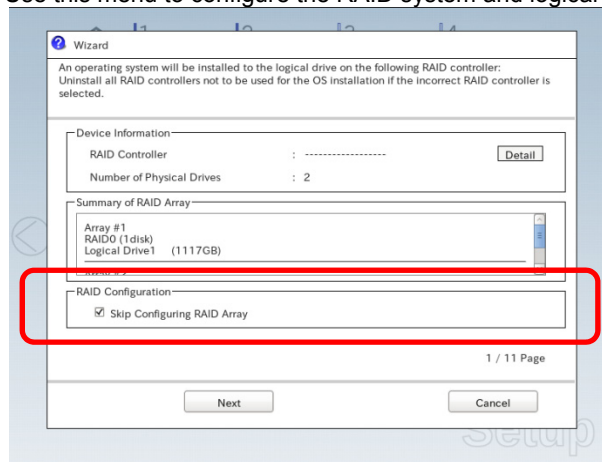
- Contains 6 or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), and symbols.

12-(2) Click  on the right side of the screen. → Go to step 14.



13. Click **Custom**.

13-(1) Use this menu to configure the RAID system and logical drives as needed.

**Note**

When using an onboard RAID controller (LSI Embedded MegaRAID):
Do not support the creation of RAID10 by using the onboard RAID controller.
Refer to *Chapter 2 (5. RAID System Configuration)* in "Maintenance Guide" when creating RAID10.

When creating new logical drives

With the **Skip a RAID Configuration** check box cleared, click **Next**.
Set up the logical drives according to the wizard.

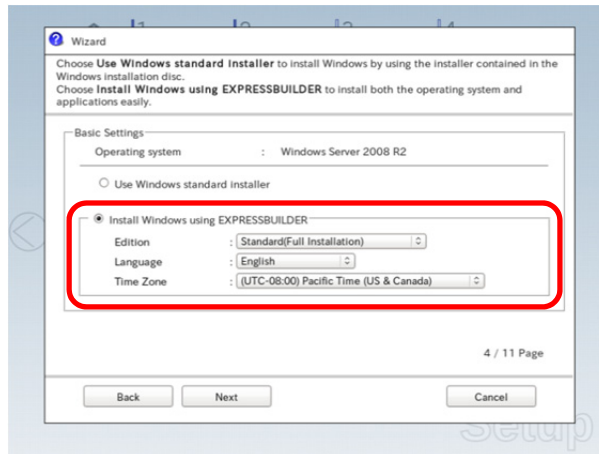
Important

If you proceed with wizard, the existing RAID system is destructed and the contents of hard disk drive will be erased.

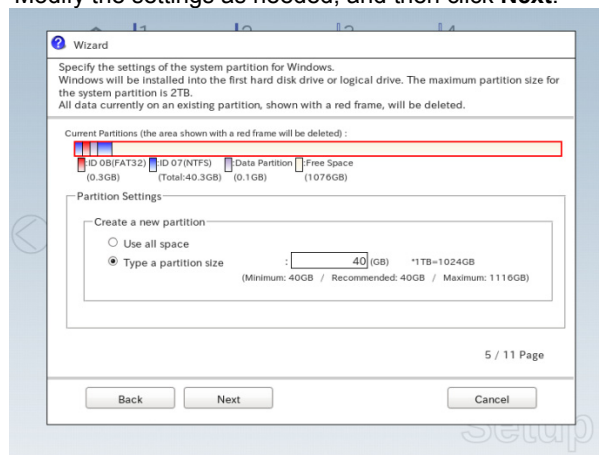
When skipping the creation of new logical drives

Select the **Skip a RAID Configuration** check box, and then click **Next**.

- 13-(2) Check the settings specified for **Basic Settings**.
Choose **Install Windows using EXPRESSBUILDER**, and then click **Next**.



- 13-(3) Check the settings specified for **Partition Settings**.
Modify the settings as needed, and then click **Next**.

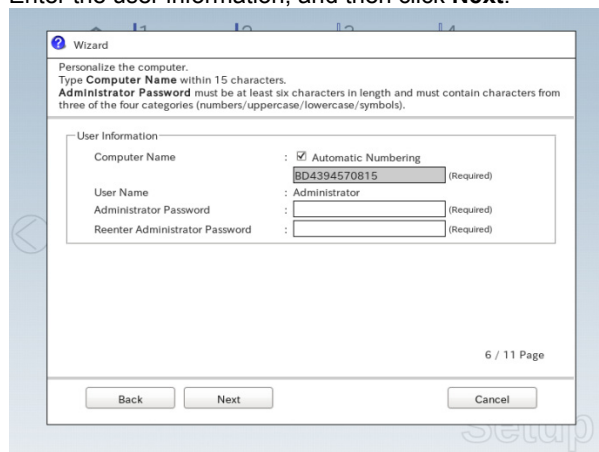


Important

• Partition size

- Specify a partition size larger than the minimum required for installing the operating system. (Refer to *Chapter 1 (5.1 Before Starting Setup)*.)
- The maximum partition size is 2,097,152 MB.
- If you select “Create a new partition” under “Partition Settings”, the entire contents of the hard disk drive will be deleted.

- 13-(4) Enter the user information, and then click **Next**.



Note

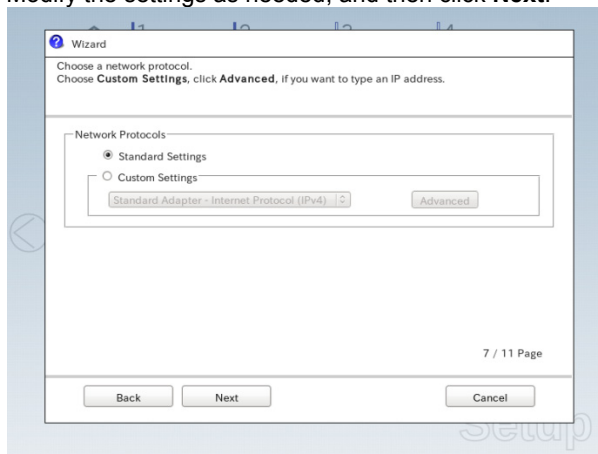
Computer name and Administrator Password are required parameters.
Enter Administrator Password that satisfies the following conditions:

- Contains 6 or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), and symbols.

Tips

- The Computer name has been assigned by automatic assignment function. If you need to assign another computer name, remove the checkmark from "Auto", and enter the desired computer name.
- If a parameter file is used for setup or if you return to a previous screen, is displayed in the Administrator password and Reenter Administrator password text boxes.

- 13-(5) Check the settings specified for **Network Protocols**.
Modify the settings as needed, and then click **Next**.

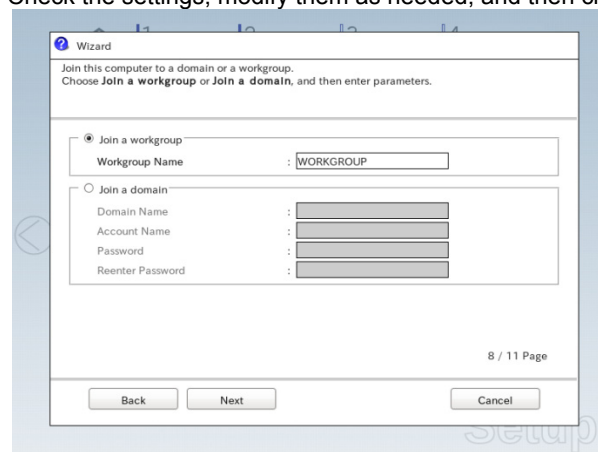
**Note**

Even when an optional network board is connected, **Custom settings** only shows standard network boards.
After finishing Setup with EXPRESSBUILDER, specify the optional network settings again.

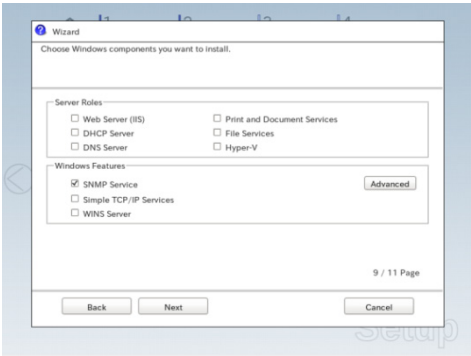
Tips

The order of entry in **Custom settings** may differ from the numbering of LAN ports.

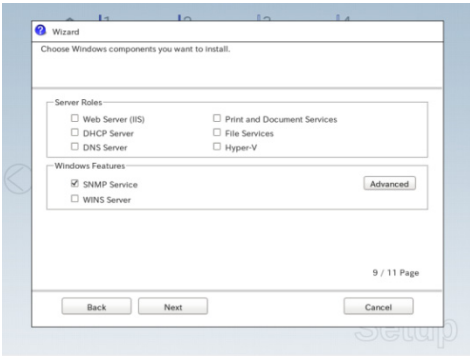
- 13-(6) Specify the domain or workgroup.
Check the settings, modify them as needed, and then click **Next**.



13-(7) Check the settings of Windows components.
Modify the settings as needed, and then click **Next**.

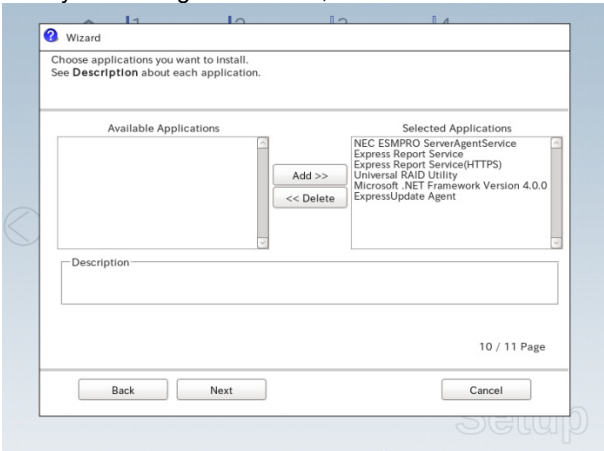


Full installations



Server Core installations

13-(8) Check the settings of applications.
Modify the settings as needed, and then click **Next**.

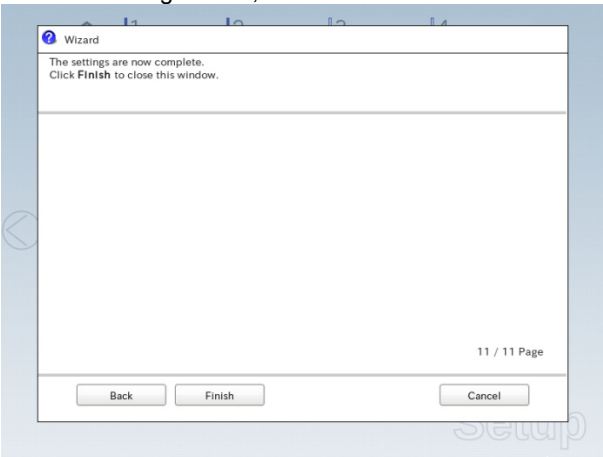


Tips

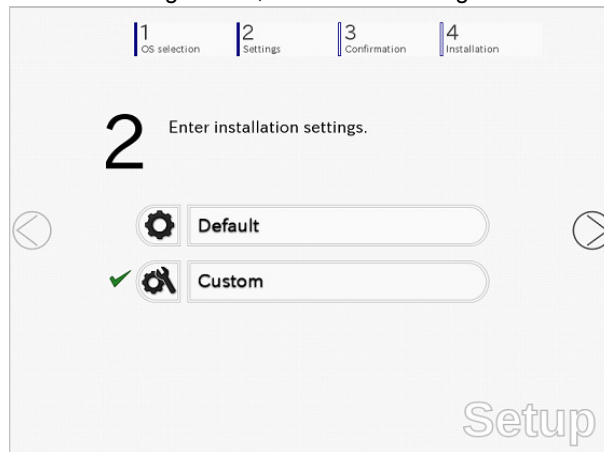
The following applications support only full installation.

- NEC ESM PRO ServerAgentService
- Express Report Service
- Express Report Service (HTTPS)
- Microsoft .NET Framework Version 4.0.0

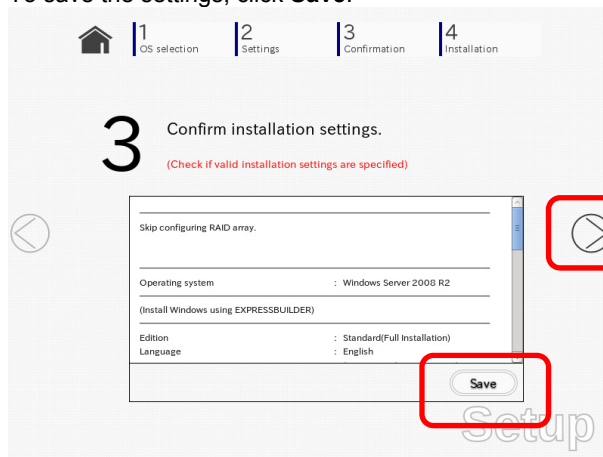
On the following screen, click **Finish**.



On the following screen, click  on the right side of the screen.

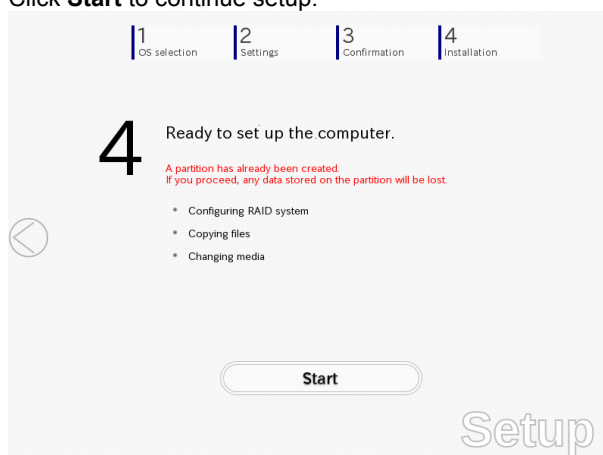


14. Check the parameter settings.
To save the settings, click **Save**.



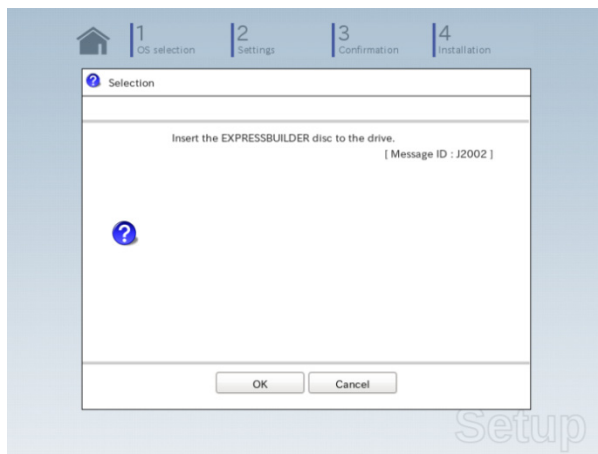
Click  on the right side of the screen.

15. The setup process starts.
Click **Start** to continue setup.

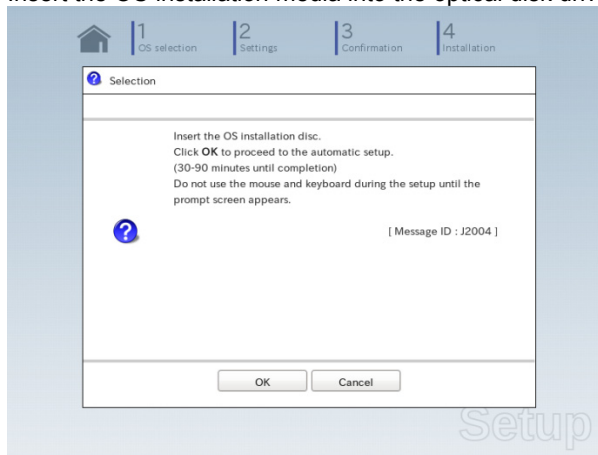


16. If the server has started from the EXPRESSBUILDER DVD, insert the EXPRESSBUILDER disk into the optical disk drive, and then click **OK**.

If EXPRESSBUILDER DVD is already set, this message will not appear.



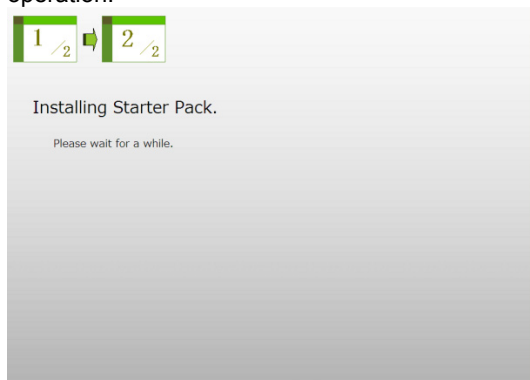
17. Insert the OS installation media into the optical disk drive, and then click **OK**.

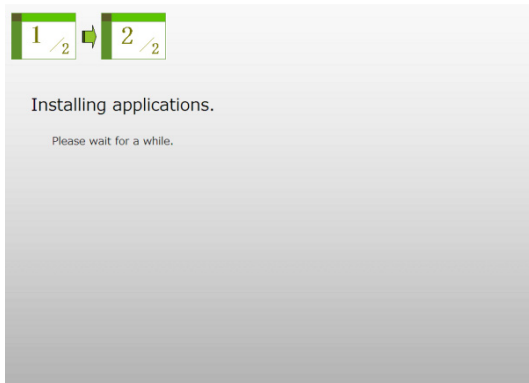


Windows Server 2008 R2 is installed automatically.

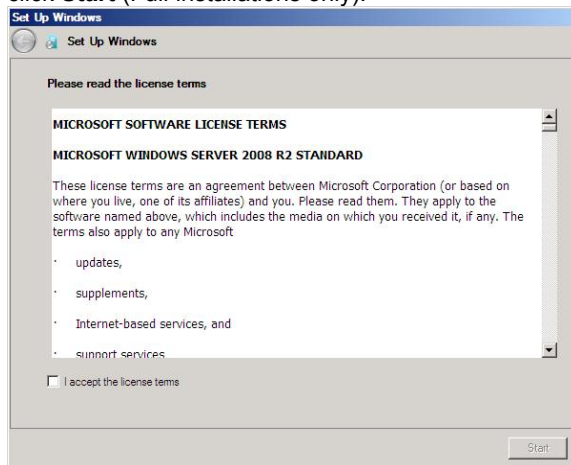
Wait for completion (about 40 minutes) without performing any operation.

18. The Starter Pack and the selected applications are automatically installed. Some Dialog boxes or other messages may appear, but wait for completion without performing any operation.






19. When the software license agreement window appears, select **I accept the license terms**, and then click **Start** (Full installations only).

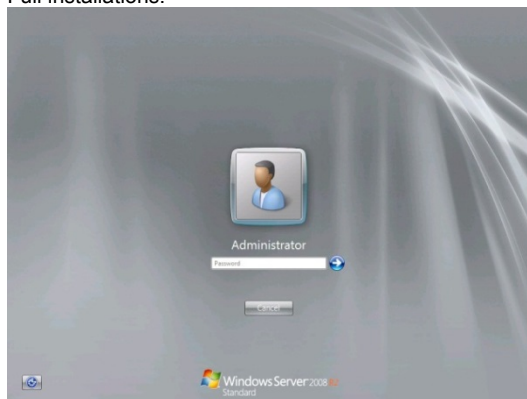


20. When the following message appears, press <Ctrl> + <Alt> + keys to log on.

Press CTRL + ALT + DELETE to log on

21. Enter your password you have set in step 12-(1) or 13-(4), and then click .

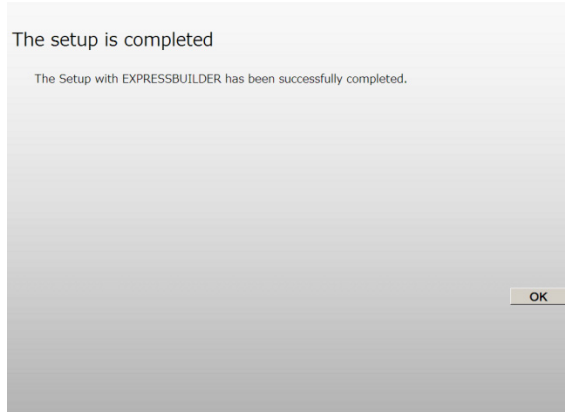
Full installations:



Server Core installations:



22. Click **OK**.



23. See "Chapter 1 (5.5 Checking installation of EXPRESSBUILDER)" to confirm that EXPRESSBUILDER has been installed in Windows.
24. Follow the instructions described in *Chapter 1 (5.6 Setting Up Device Drivers)* to set up the device drivers.
25. Confirm if Windows is activated according to Chapter 1 (5.7 *License Authentication*).
26. Apply Service Pack as needed according to *Chapter 1 (5.8 Applying Service Pack)*.
27. Execute setup by following the instructions described in *Chapter 1 (6. Setup for Solving Problems)*.
28. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.

Setup with EXPRESSBUILDER is now complete.

5.3 Setup with Windows Standard Installer

This section describes how to install Windows with Windows Standard Installer.

This feature automatically recognizes the RAID controller connected to the server and configures the RAID system. Therefore the hardware installation of the server needs to be finished by following "*User's Guide*".

Important

- When using an onboard RAID controller (LSI Embedded MegaRAID), set up the operating system by referring to Chapter 1 (5.2 Setup with EXPRESSBUILDER). You cannot use Setup with Windows Standard Installer.
- Setup with OS standard Installer may delete all data of the hard disk drive depending on the settings. Pay attention to input parameters. You must be especially careful when configuring the following:
 - RAID settingsWhen re-installing windows, backing up user data, is recommended.
- Precautions for installation are as follows:
 - Use EXPRESSBUILDER DVD (optional or on web site). Cannot use EXPRESSBUILDER on Internal Flash memory (F3 key function).
 - Use an internal optical disk drive on the server when installing. Cannot use a USB interface drive and remote media feature of EXPRESSSCOPE Engine 3.
 - Use a display, mouse, keyboard, and other devices connected directly to the server. Cannot use the remote KVM feature of EXPRESSSCOPE Engine 3
- Change BIOS setting before starting setup, while referring to Chapter 1 (5.1 Before Starting Setup).

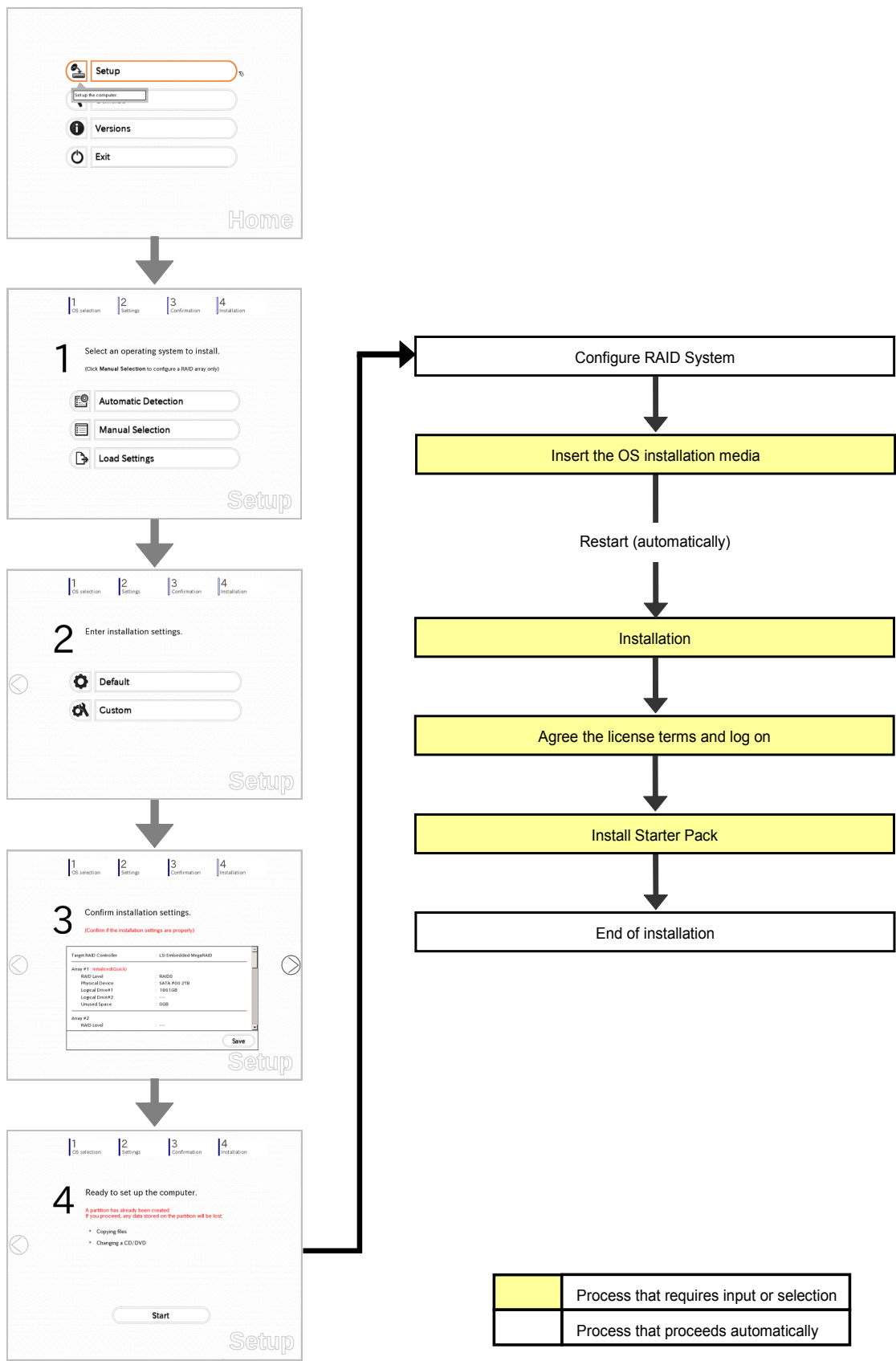
Note

The creation of RAID10 by using the onboard RAID controller (LSI Embedded MegaRAID) is not supported. See *Chapter 2 (5. RAID System Configuration)* in Maintenance Guide when creating RAID10.

Tips

- Setup with OS Standard Installer allows you to use a pre-specified parameter file or save the parameters specified in setup as a parameter file on removable media or Internal Flash Memory.
- For details on creating a parameter file, refer to *Chapter 1 (7. Windows OS Parameter File)*.

5.3.1 Setup flow



5.3.2 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 2008 R2 DVD-ROM*)
- The following EXPRESSBUILDER
 - **EXPRESSBUILDER DVD** (option)
- Prepare if needed:
 - **First Steps Guide**
 - **Removable media for Windows OS parameter file**
 - **Service Pack**
(If the OS installation media contains Service Pack 1, you do not need to apply the service pack again.)

Important | Check that internal optical disk drive is connected before installation.

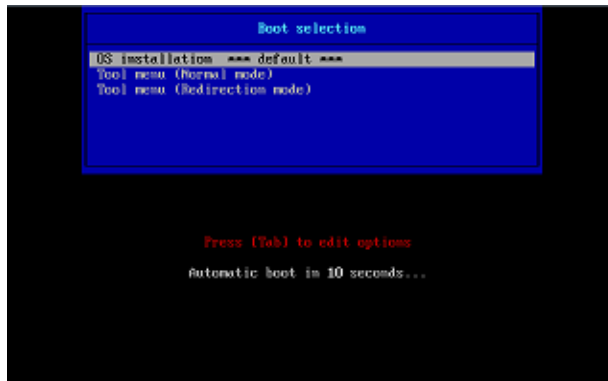
5.3.3 Setup procedure

Note

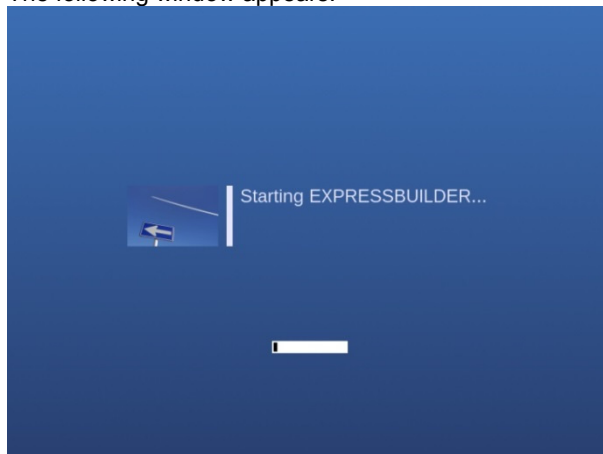
Read through the items in *Chapter 1 (5.1 Before Starting Setup)* prior to installing Windows.

1. Turn peripheral device (such as a display) power on, and then turn the server power on.
2. Start EXPRESSBUILDER according to *Chapter 1 (1.1 Starting EXPRESSBUILDER)*.
3. Select **OS installation *** default *****.

You will automatically advance to step 4, with no need for further input.



The following window appears.



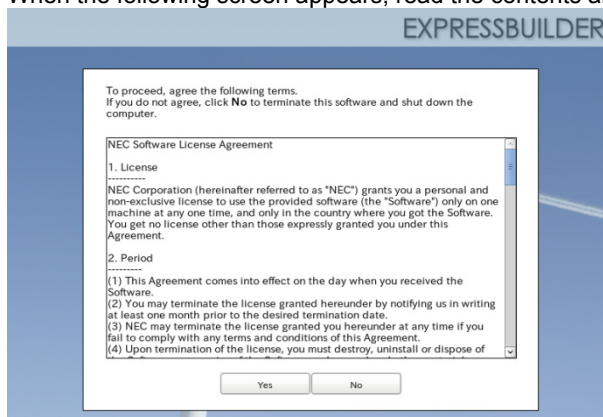
The server starts from EXPRESSBUILDER.



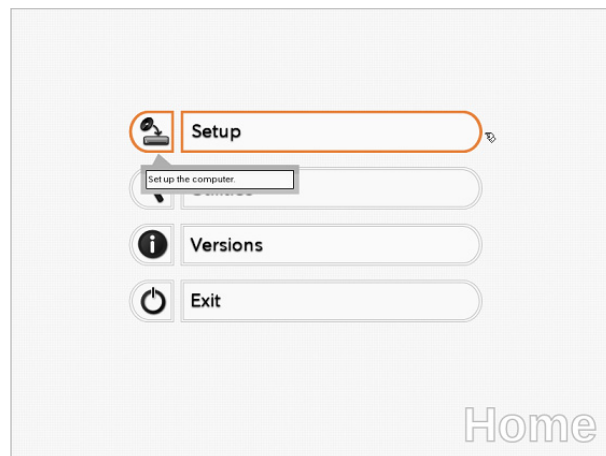
4. Select **English** on the language selection window, and then click **OK**.



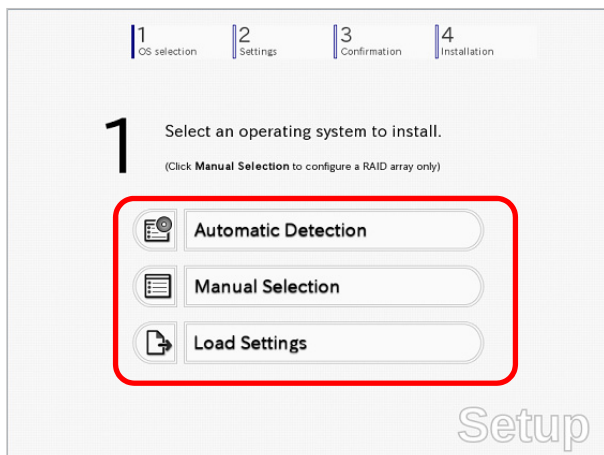
5. When the following screen appears, read the contents and click **Yes**.



6. Click **Setup**.



7. On the **OS selection** menu, select the OS to install or specify the parameter file.



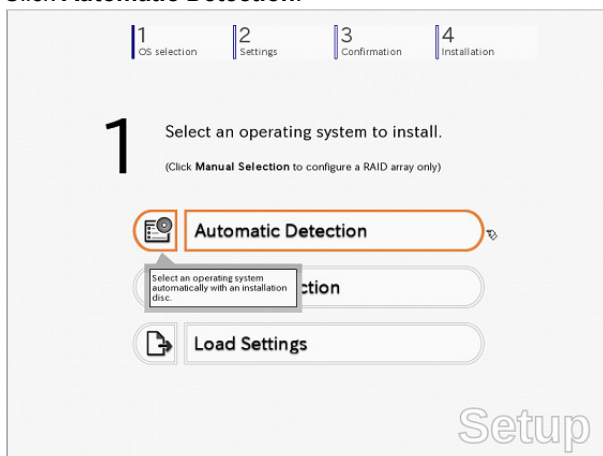
- ☐ When *not using* a parameter file : Select **Automatic Detection**, and then go to Step 8.
- ☐ When *not using* a parameter file : Select **Manual Selection**, and then go to Step 9.
- ☐ When *using* a parameter file : Select **Load Settings**, and then go to Step 10.

Note

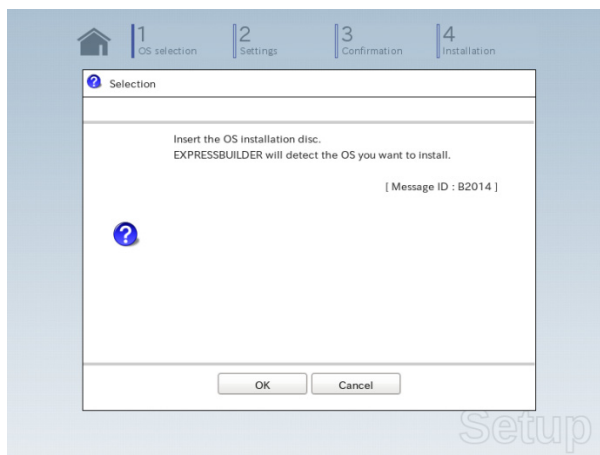
When setting up again, parameter input via the wizard can be omitted by loading the saved parameter file.


8. When *not using* a parameter file, let the OS on the installation media be recognized by using the following procedure.

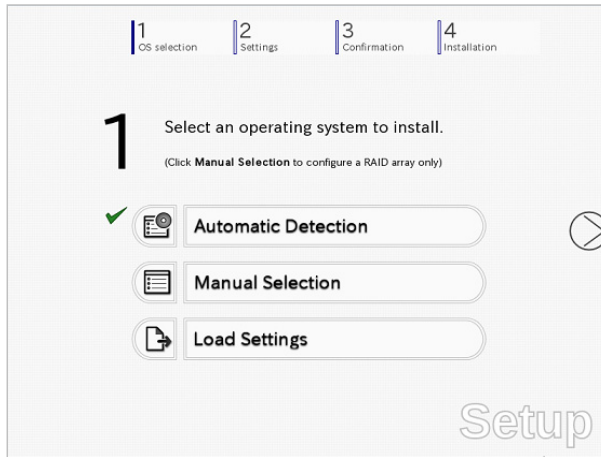
- 8-(1) Click **Automatic Detection**.



- 8-(2) Insert the OS installation media, and then click **OK**.

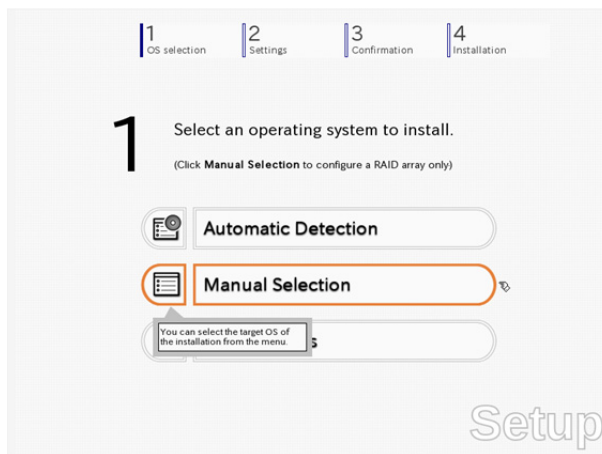


8-(3) Click  on the right side of the screen. → Go to step 11.

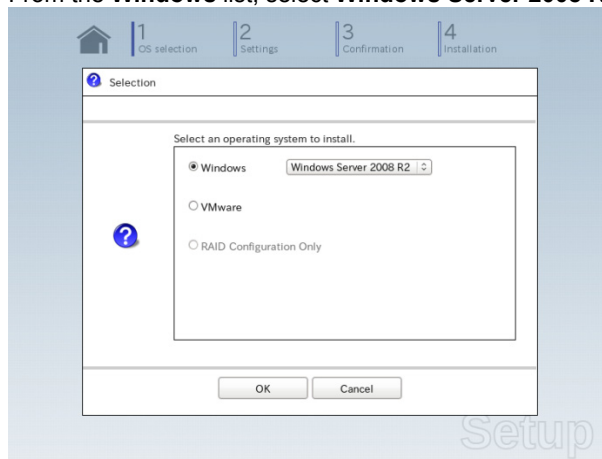



9. When *not using* a parameter file, select an OS by using the following procedure.

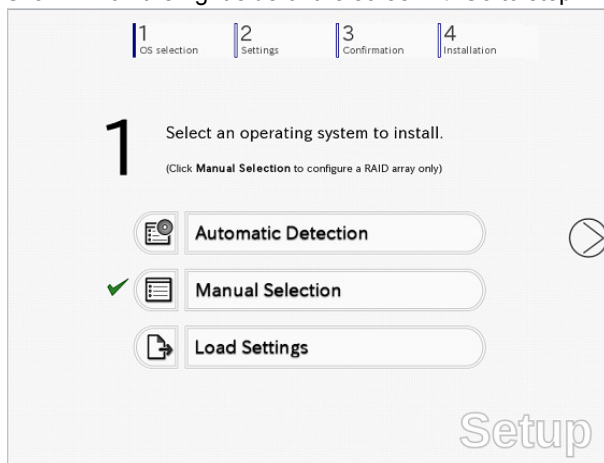
9-(1) Click **Manual Selection**.



9-(2) From the **Windows** list, select **Windows Server 2008 R2**, and then click **OK**.

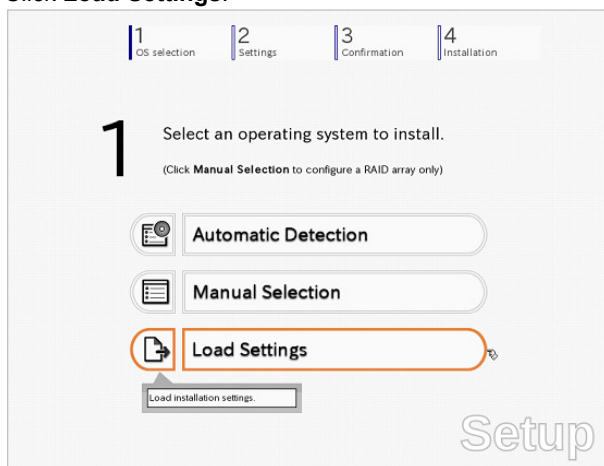


9-(3) Click  on the right side of the screen.→ Go to step 11.

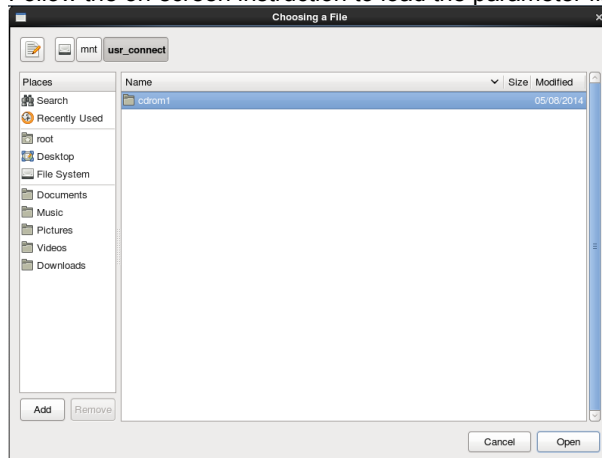


10. When *using* the parameter file, load the parameter file by using the following procedure.

10-(1) Click **Load Settings**.




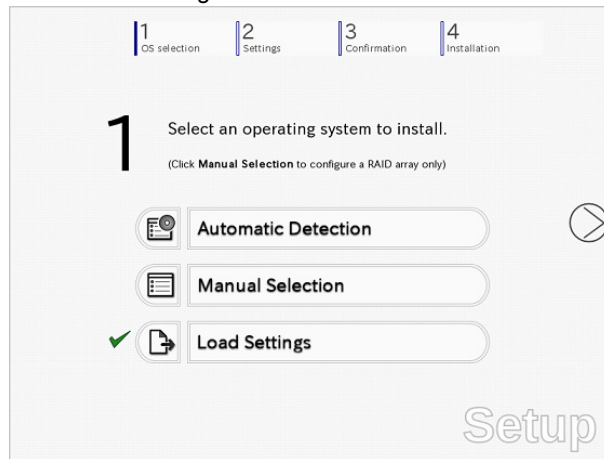
10-(2) Follow the on-screen instruction to load the parameter file (*.tre)




Tips

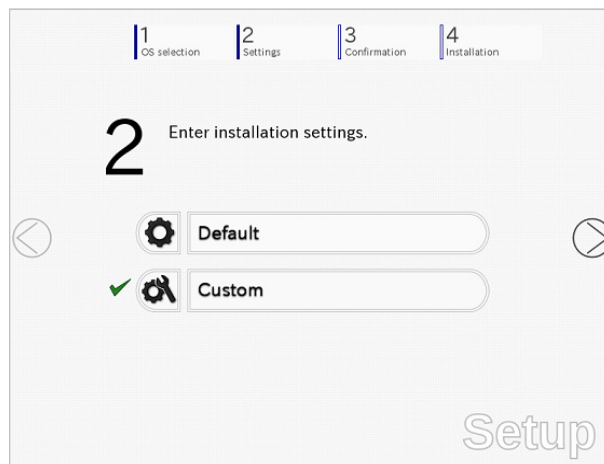
For the removable media in which the parameter file is saved, see
`"/mnt/usr_connect/usb*" (* indicates a number).`

10-(3) Click  on the right side of the screen.



10-(4) When the parameter file is correctly loaded, click  on the right side of the screen.
→ Go to step 12.

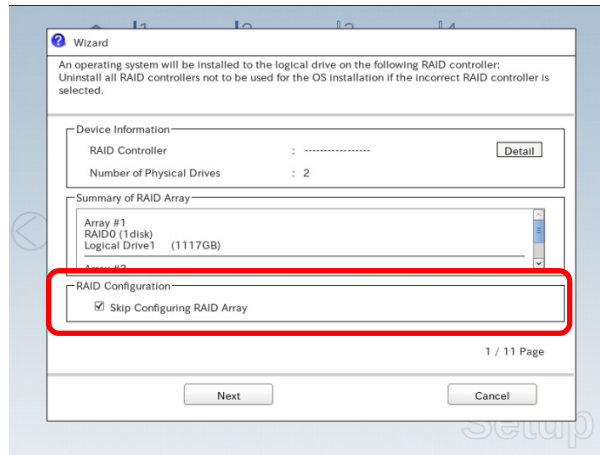
Click **Custom** to check and modify the setting in the wizard.
→ Go to step 11-(1).



11. Click **Custom**.



11-(1) Use this menu to configure the RAID system with the RAID controller detected automatically.



Note

When using an onboard RAID controller (LSI Embedded MegaRAID):
Do not support the creation of RAID10 by using the onboard RAID controller.
Refer to *Chapter 2 (5. RAID System Configuration)* in "Maintenance Guide" when creating RAID10.

When creating new logical drives

With the **Skip a RAID Configuration** check box cleared, click **Next**. Set up the logical drives according to the wizard.

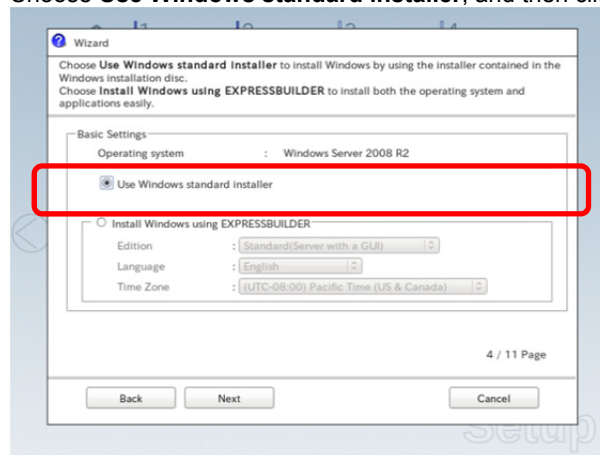
Important

If you proceed with wizard, the existing RAID system is destructured and the contents of hard disk drive will be erased.

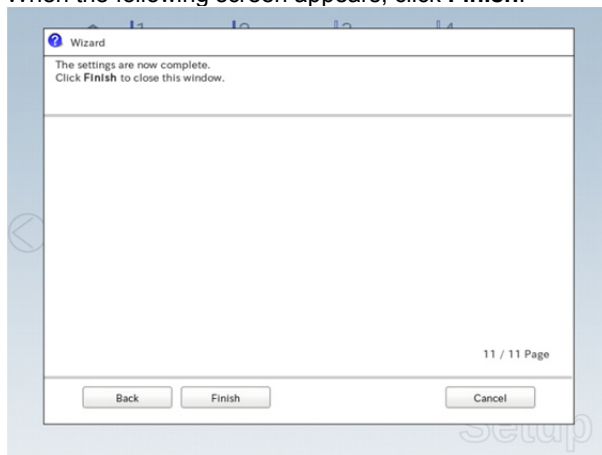
When skipping the creation of new logical drives


Select the **Skip a RAID Configuration** check box, and then click **Next**.

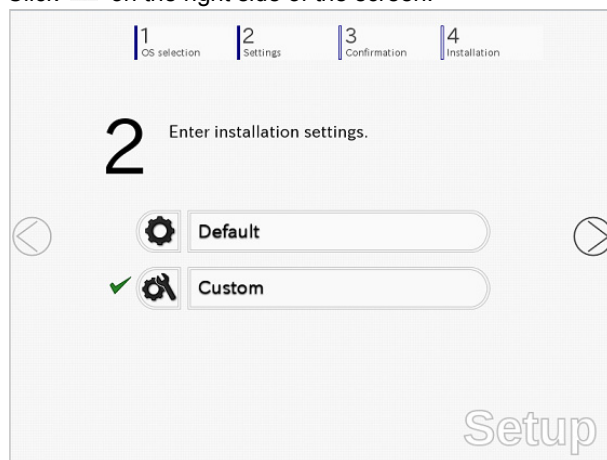
11-(2) Check the settings specified for **Basic Settings**.
Choose **Use Windows standard installer**, and then click **Next**.



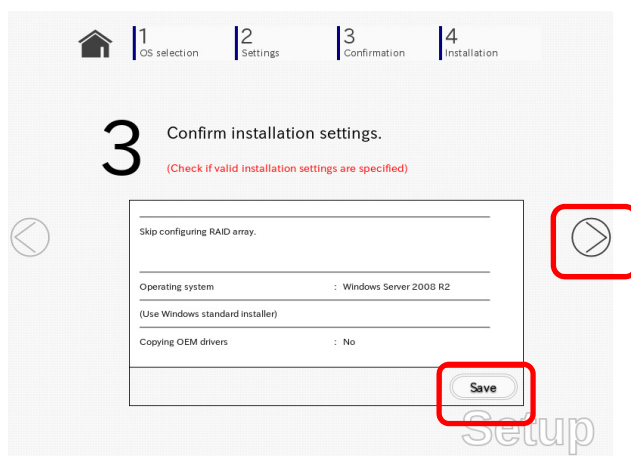
When the following screen appears, click **Finish**.



11-(3) Click  on the right side of the screen.

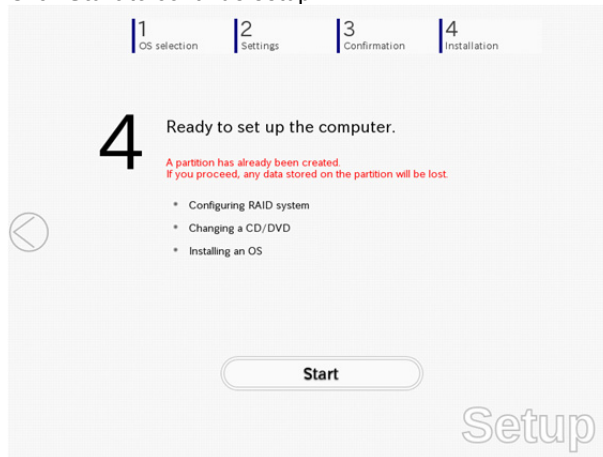


12. Check the parameter settings.
To save the settings, click **Save**.

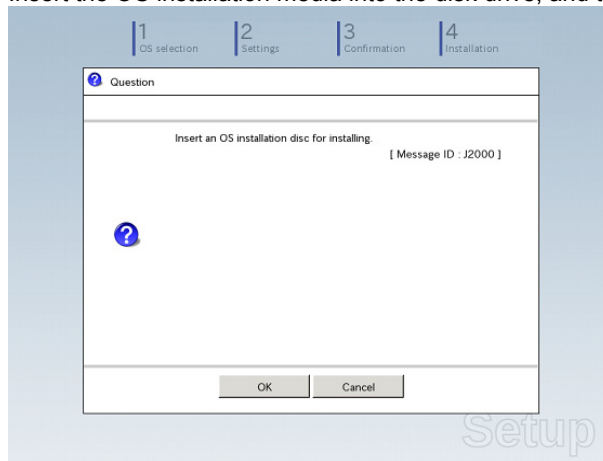


Click  on the right side of the screen.

13. The setup process starts.
Click **Start** to continue setup.



14. Insert the OS installation media into the disk drive, and then click **OK**.



15. The server reboots automatically.

16. Run from the OS installation media.

If OS has already been installed, the message “Press any key to boot from CD or DVD...” is displayed on the top of the screen. Press <Enter> key to boot the system from media.

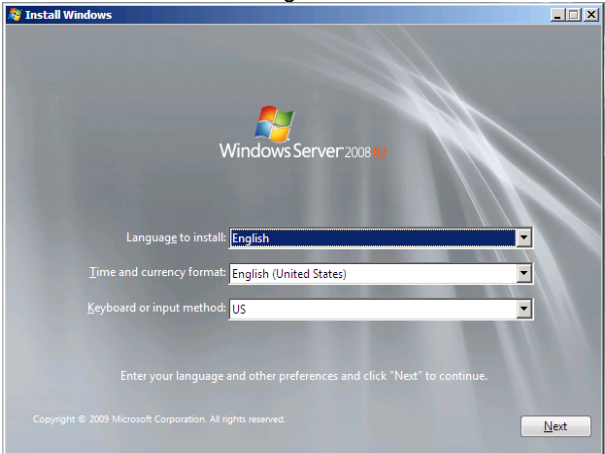
The boot sequence proceeds and the message “Windows is loading files...” appears.

Note

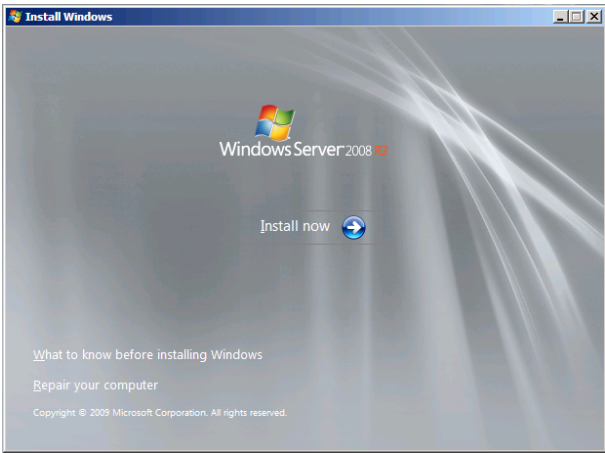
If “Windows is loading files...” message does not appear, <Enter> key was not pressed correctly. Reboot and retry.

This step is unnecessary if no operating system is installed.

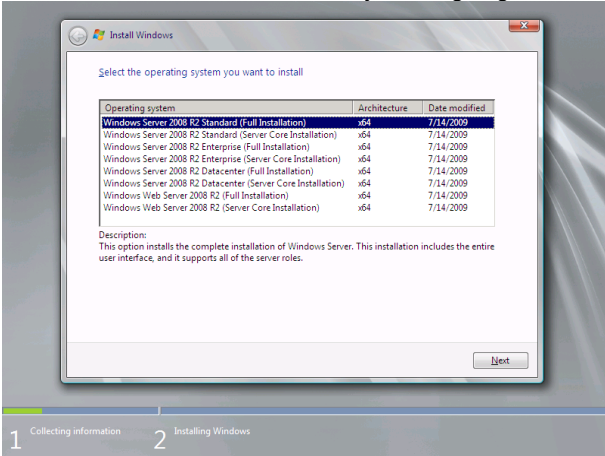
17. Click **Next** at default settings.



18. Click **Install Now** . Windows Server 2008 R2 installation starts.



19. Select the edition of the Windows you are going to install and the installation method.

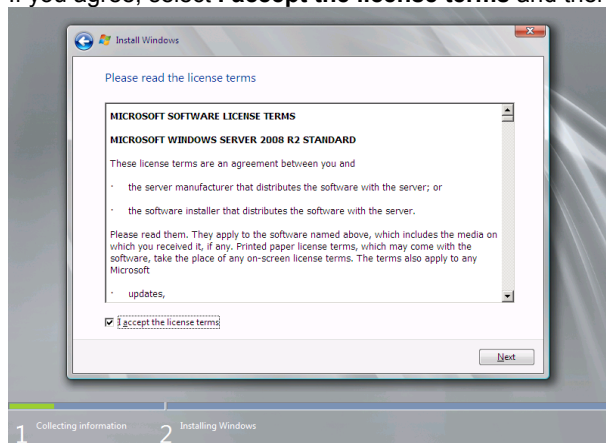


Tips

The screen display differs depending on an OS installation media you are using.

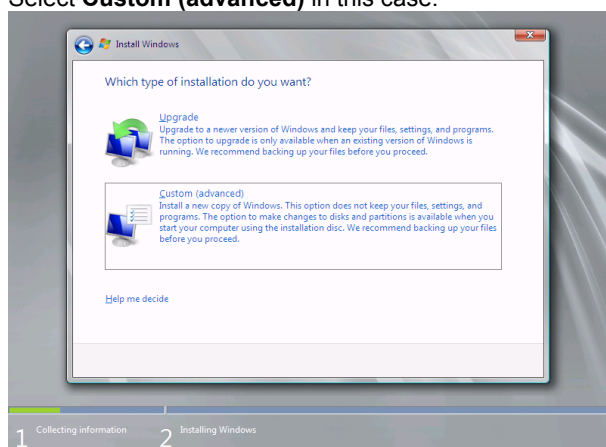
20. Read the content of the license agreement.

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



21. Select the installation type.

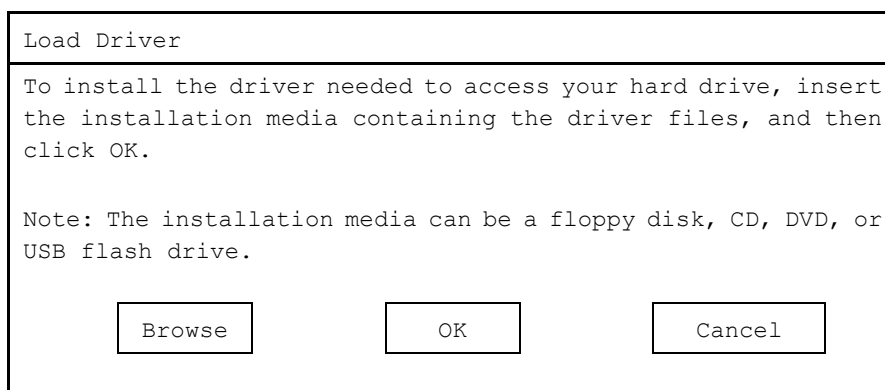
Select **Custom (advanced)** in this case.



22. "Where do you want to install Windows?" window appears.

If you are not using RAID Controller, go to Step 26.

When you select **Load Driver**, the following message appears.



Replace the OS installation media with EXPRESSBUILDER DVD in the optical disk drive.

23. Specify the following locations, and then click **OK**.

N8103-176/177/178 RAID Controller : \\011\\win\\winnt\\drivers\\01_storage\\1_an_01

N8103-188 RAID Controller : \\011\\win\\winnt\\drivers\\01_storage\\1_an_01

24. Select the necessary driver from the driver list, and then click **Next**.

N8103-176/177/178 RAID Controller : **LSI MegaRAID SAS 9362-8i**

N8103-188 RAID Controller : **LSI MegaRAID SAS 9341-8i**

25. If you used EXPRESSBUILDER DVD, remove it and then insert the OS installation media.

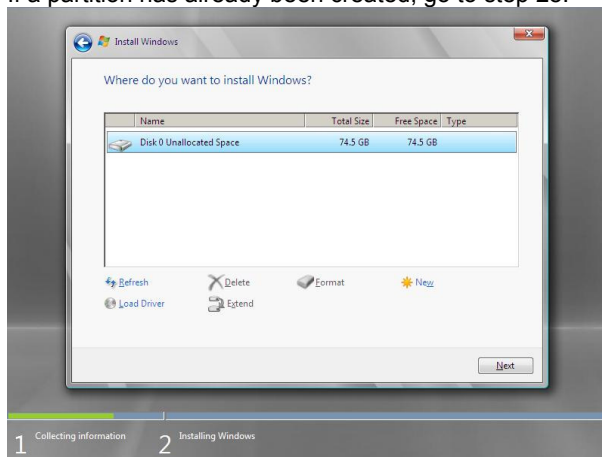
Tips

If you have not replaced the OS installation media after loading the driver, the following message may appear.



If it appears, replace the OS installation media, and then click **Refresh**.

26. Select the disk in which the partition will be created, and then click **Drive options (advanced)**.
If a partition has already been created, go to step 28.



27. Click **New**.

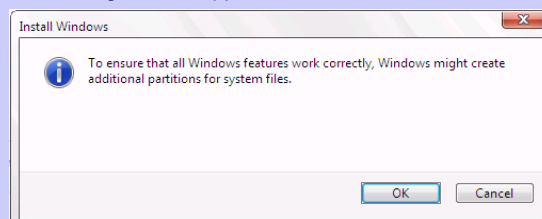
Enter the partition size into the size text box, and then click **Apply**.

Note

The partition size can only be set to 2TB (2,097,152 MB) or less.

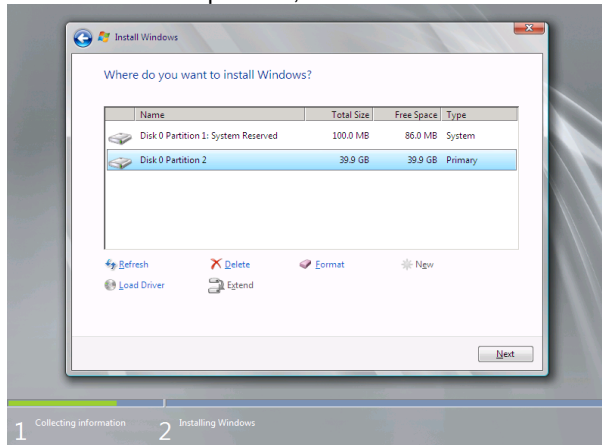
Tips

When creating a new partition and installing the OS, a 100 MB boot partition is created. When the following window appears, click **OK**.



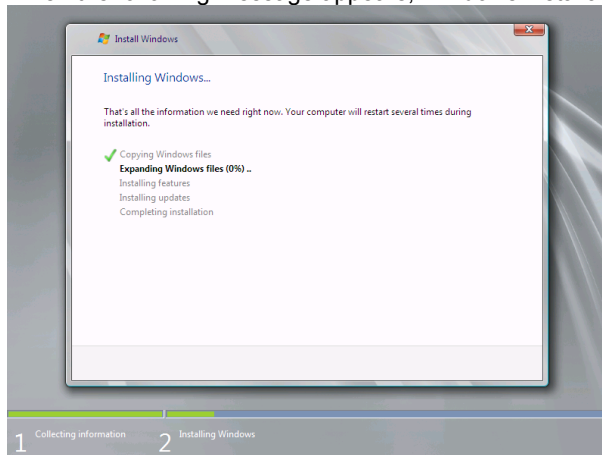
28. Select the partition created in step 27, and then click **Format**.

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

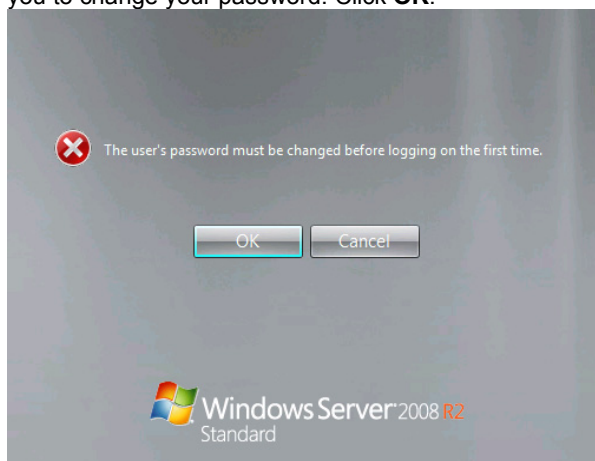
**Tips**


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

When the following message appears, Windows installation starts automatically.

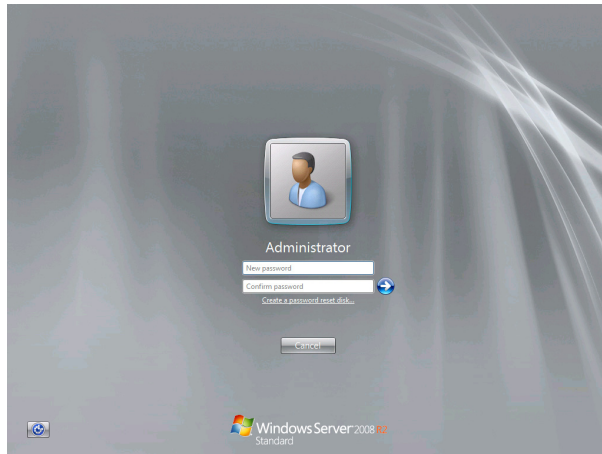


30. After the installation of Windows Server 2008 R2 is completed, the following window appears, prompting you to change your password. Click **OK**.

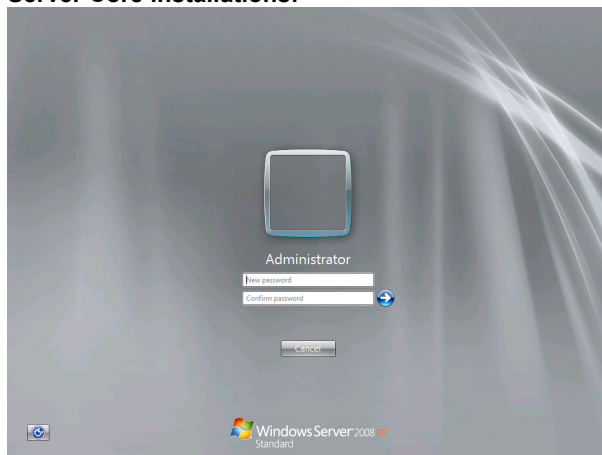


31. Change your password, and then click the  button.

Full installations:



Server Core installations:

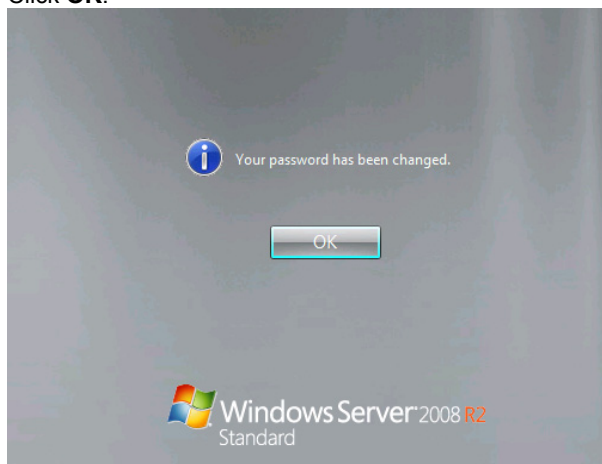


Tips

Passwords must fulfill the following requirements in Windows Server 2008 R2.

- Contains 6 or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), and symbols.

32. Click **OK**.



33. Confirm the following according to the settings selected (displayed) in Step 18.

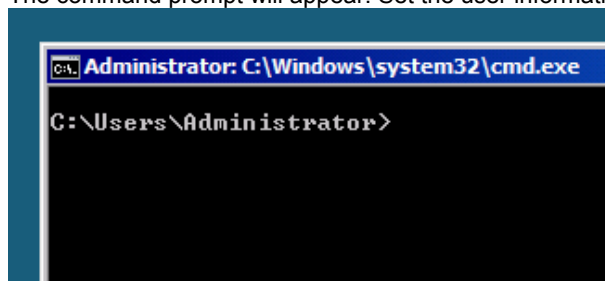
Full installations:

When the **Initial Configuration Tasks** window appears after you log on, enter the user information.



Server Core installations:

The command prompt will appear. Set the user information.



Tips

For detailed setup procedures, refer to the Microsoft “*Step by Step Guide*”.

34. Install Starter Pack by referring to *Chapter 1 (5.4 Installing Starter Pack)*.
35. See “Chapter 1 (5.5 Checking installation of EXPRESSBUILDER)” to confirm that EXPRESSBUILDER has been installed in Windows.
36. Install drivers and specify detailed settings by referring to *Chapter 1 (5.6 Setting Up Device Drivers)*.
37. Confirm if Windows is activated according to *Chapter 1 (5.7 License Authentication)*.
38. Apply Service Pack as needed according to *Chapter 1 (5.8 Applying Service Pack)*.
39. Install the applications as needed by referring to *Chapter 1 (5.9 Installing the Applications)*.
40. Execute setup by following the instructions described in *Chapter 1 (6. Setup for Solving Problems)*.

Setup with Windows standard installer is now complete.

5.4 Installing Starter Pack

Starter Pack contains drivers customized for this server. Be sure to apply Starter Pack before running the system.

Important

- Also install Starter Pack in the following cases.
 - The motherboard of the server has been replaced (If a dialog box prompting system reboot is displayed, reboot the system according to the on-screen instructions, and then apply the Starter Pack.)
 - If the system was restored using a restore process
 - If a system has been restored using the backup tool
- After installing build-in options, you may need installing Starter Pack. For detail, refer to *Chapter 1(5.6 Setting Up Device Drivers)*.
- Select **Enabled** for XHCI Hand-off after Starter Pack is installed. See *Chapter 2 (1. System BIOS)* in Maintenance Guide for details. **Advanced → USB Configuration → XHCI Hand-off → Disabled**

Note

- The Scalable Networking Pack (SNP) function is disabled upon Starter Pack installation is complete. The setting of SNP function may affect the system performance.
- If you install Starter Pack for the first time after you set up Windows using Standard Installer, see *Chapter 5.4.1 Using EXPRESSBUILDER DVD (Option)* to install Starter Pack.

Tips

- Microsoft .NET Framework Version 3.5.1 is enabled when Starter Pack is applied in full-installation environment.
- If the OS is installed by using EXPRESSBUILDER, Starter Pack is already applied. If the configuration is not changed, you do not need to apply Starter Pack again.

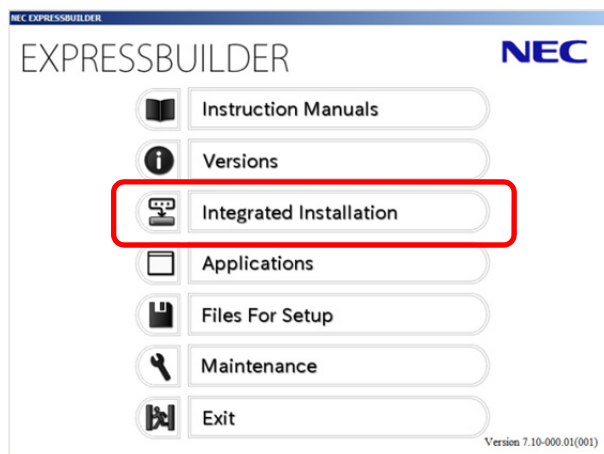
5.4.1 Using EXPRESSBUILDER DVD(Option)

When you use EXPRESSBUILDER DVD (option), follow the steps below.

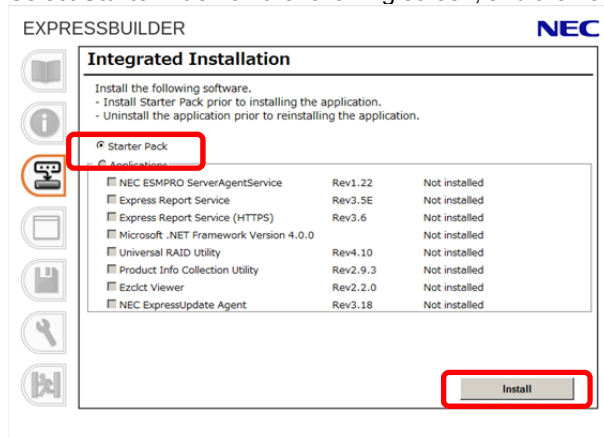
Installation from Windows (Full installations)

1. Sign-in to the system with the administrator account.
2. Insert EXPRESSBUILDER DVD into the optical disk drive.

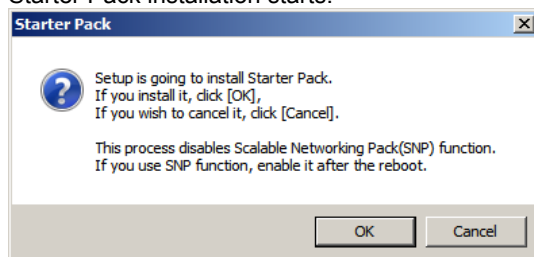
3. Click **Integrated Installation** on the menu.



4. Select **Starter Pack** on the following screen, and then click **Install**.

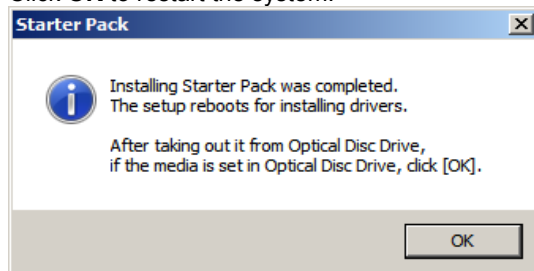


5. Read the message, and then click **OK**.
Starter Pack installation starts.



Wait until the installation of the Starter Pack is complete. (About 3 to 5 minutes)

6. Click **OK** to restart the system.



Installation of Starter Pack is now complete.

Installation from Windows (Server Core Installations)

1. From the command prompt, type the following command.
In the example below, the optical disk drive is the D drive.

```
Cd /d D:\011\win\winnt\bin
```

```
C:\Users\administrator>cd /d D:\011\win\winnt\bin
```

2. Enter the following, and then press the <Enter> key.

```
Pkgsetup.vbs
```

```
D:\011\win\winnt\bin>pkgsetup.vbs
```

Wait until installation completes (about 1 to 3 minutes).

Installation of Starter Pack is now complete.

5.4.2 Installing Starter Pack using Windows Application

When EXPRESSBUILDER is installed on Windows, you can launch it as a Windows application.
See *Chapter 2 (6. Details of EXPRESSBUILDER) in Maintenance Guide*.

Note

If you install Starter Pack for the first time after you set up Windows using Standard Installer, see *Chapter 5.4.1 Using EXPRESSBUILDER DVD (Option) to install Starter Pack*.

1. Log on to the system with the built-in administrator, which has administrative privileges.
2. Click the shortcut on your desktop screen or choose NEC EXPRESSBUILDER from the Start screen.
3. See Step 3 and the subsequent steps in *Chapter 1 (5.4.1 Using EXPRESSBUILDER DVD (Option))* for further procedure.

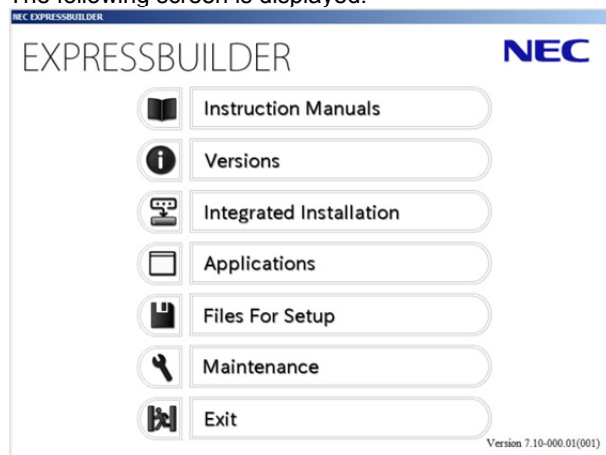
5.5 Checking installation of EXPRESSBUILDER

Confirm that EXPRESSBUILDER has been installed in Windows.

(1) Full installation

1. Click the shortcut on the desktop or select “NEC EXPRESSBUILDER” from the Windows start screen.

The following screen is displayed.



2. Click “Exit” to quit the menu.

Check is now complete.

(2) Server Core Installation

1. Enter the following at the command prompt and press the <Enter> key.

```
eb_cli.exe 'show /repository'
```

The following steps are not required when a folder path is displayed after „RepositoryPath=“.

Go to step 2 when the following message is displayed.

The repository has not been created. After creating the repository by "load /repository", please run again.

2. Enter the following at the command prompt and press the <Enter> key.

Wait for a while until the command is completed.

```
eb_cli.exe 'load /repository'
```

Check is now complete.

5.6 Setting Up Device Drivers

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

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

5.6.1 Installing the LAN drivers and teaming utility (PROSet / BACS / QCS)

(1) LAN drivers and teaming utility

For the system that network adapter is connected, if it is setup with EXPRESSBUILDER, the LAN driver and teaming utility will automatically be installed.

For the system that network adapter is connected, if it is setup with Windows standard installer, apply Starter Pack to install the LAN driver and teaming utility.

Important Wake On LAN (WOL) is supported by the standard network adapters only. Wake On LAN will be able to be used in the state after the installation of the LAN Driver. For BIOS settings, check the "User's Guide".

Note

- To change the LAN driver and teaming utility settings, log on 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.
- Be sure to select the **Internet Protocol (TCP/IP)** check box when specifying an IP address.

(2) Optional LAN board

This server supports the following optional LAN boards.

Optional LAN boards: N8104-145/149/150/151/152

The drivers for LAN boards are automatically installed using the OS plug-and-play function.

The LAN driver is not installed if N8104-145/149 is not connected to the server before setup with EXPRESSBUILDER or applying Starter Pack.

Perform the steps below to install the N8104-145/149 LAN driver manually.

N8104-145

Note

- When **Intel(R) Network Connections 19.1.51.0** is shown to **Programs and Features**, this step is unnecessary.
- If the LAN driver has been installed in N8104-145, PROSet is also installed.

1. Start command prompt and then open the folder under the system drive (drive C), and then enter the following file, and run the file.

```
C:\Program Files(x86)\EXPRESSBUILDER\repository\011\win\winnt\drivers
\02_network\1_ag_01\install_ws2008r2.bat
```

If using EXPRESSBUILDER DVD (option), run the following file on the DVD.

```
\011\win\winnt\drivers\02_network\1_ag_01\install_ws2008r2.bat
```

2. When the following message appears, restart the system.

Intel Driver Installation Completed!

3. When LAN board is new addition, setting each LAN board by referring to Chapter 1(5.6.2 Setting up LAN drivers).

Setup is now completed.

N8104-149

Note

- When **QLogic Driver Installer** is shown to **Programs and Features**, this step is unnecessary.
- If the LAN driver has been installed in N8104-149, QCS is also installed.

1. Start command prompt and then open the folder under the system drive (drive C), enter the following file, and run the file.

```
C:\Program Files(x86)\EXPRESSBUILDER\Repository\011\win\winnt\drivers
\02_network\1_as_02\install_ws2008r2.bat
```

If using EXPRESSBUILDER DVD (option), run the following file on the DVD.

```
\011\win\winnt\drivers\02_network\1_as_02\install_ws2008r2.bat
```

2. When the following message appears, restart the system.

QLOGIC Driver Installation Completed!

3. When LAN board is new addition, setting each LAN board by referring to Chapter 1(5.6.2 Setting up LAN drivers).

Setup is now completed.

(3) Network adapter name

After installing the LAN drivers, the following network adapter names will be displayed by the Device Manager or teaming utility.

Network adapters for the standard configuration:

Broadcom NetXtreme Gigabit Ethernet #xx (*1)

If connecting with an optional LAN board:

N8104-145 : Intel(R) Ethernet Server Adapter I340-T2 #xx (*1)

N8104-149 : QLogic BCM57810 10 Gigabit Ethernet (NDIS VBD Client) #xx (*1)

N8104-150/151/152 : Broadcom NetXtreme Gigabit Ethernet #xx (*1)

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

Tips

The ID for N8104-149 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.

5.6.2 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

When using N8104-149, you can specify "10 Gb Full" for network adapter and "Auto Negotiation" to switching hub.

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

The link speed setting is now complete.

(2) When using N8104-150/151/152

When using N8104-150/151/152 with the server, follow the procedure below to set it.

1. Run the following file on the system drive (drive C).

```
C:\Program Files(x86)\EXPRESSBUILDER\repository\011\win\winnt\drivers  
\02_network\1_ah_02\pgdyavd_disable.vbs
```

If using EXPRESSBUILDER DVD (option), run the following file on the DVD.

```
\011\win\winnt\drivers\02_network\1_ah_02\pgdyavd_disable.vbs
```

2. When the following message appears, click **OK**.

Configuration Completed
[Option:PopUp RLV Disabled(Action:Done)]
Reboot the system

Tips

The message "Action:Non" indicates that the LAN driver is already set.

3. Restart the system.

Setup is now completed.

5.6.3 Setting up team (PROSet)

Described below are procedures to setup and remove the team composed of network adapters.

This feature is available for optional LAN card N8104-145.

(1) Team types

The following team types are supported.

- Adapter Fault Tolerance (AFT)

Adapter Fault Tolerance (AFT) is a feature that creates a group containing and automatically converts the process of the working adapter to the other adapter in the group when any trouble occurred on that adapter.

- Adaptive Load Balancing (ALB)

Adaptive Load Balancing (ALB) is a feature that creates a group containing more than one adapter and enhances the throughput by operating packet transmission from the server by all the adapters. This feature includes AFT feature.

- Static Link Aggregation (SLA)

Static Link Aggregation (SLA) accounts for the GEC and 802.3ad static protocols.

SLA is a switch-assisted teaming mode and requires configuring ports at both ends of the link: server interfaces and switch ports.

- Switch Fault Tolerance (SFT)

Switch Fault Tolerance (SFT) is a feature that provides a failover relationship between two ports when each port is connected to a separate switch.

SFT supports two ports per team.

Note

- For how to delete an adapter team, refer to Chapter 1 (5.6.3 Setting up team (PROSet) - (3) Procedure for deleting team).
Check the following points when deleting an adapter team.
 - When replacing the motherboard or optional LAN boards after an adapter team is configured, delete the adapter team first.
 - If a team exists, delete the team first. If the team is bound to a Hyper-V virtual adapter, unbind the Hyper-V adapter before deleting the team.
- Do not configure a team with network adapter that is using iSCSI feature.
- Be sure to set up LiveLink when creating a team in the following cases.
 - Smart Load Balancing and Failover (without Standby Member)
 - Smart Load Balancing (Auto-Fallback Disable) (with Standby Member) using more than two network adapters
- When using Smart Load Balancing (Auto-Fallback Disable) (with Standby Member) using two network adapters, setup for LiveLink is not essential.
- When configuring Created AFT or ALB by using two network adapters, disable probes by referring to the following procedure.
 1. Open the **Device Manager**.
 2. Expand **Network adapters** and double-click the team adapter.
The properties of network adapter is displayed.
 3. Select the **Advanced** tab.
 4. Select **Probes**, and then click **Properties**.
The Probe is displayed.
 5. Clear **Send probes**, and then click **OK**.
 6. Click **OK**, and then restart the system.

(2) Setting up team

1. Open the Device Manager.
2. Expand **Network adapters** and double-click the network adapter to setup a team. The properties of network adapter is displayed.
3. On the Teaming tab, select the Team this adapter with other adapters check box. Click New Team.
4. Type the name of the team in **Specify a name for the team** and click **Next**.
5. Include the adapter to the team, and then click **Next**.
6. Select a team type, and then click **Next**.
7. Click **Finish**.

The property of team is displayed.

8. On the Property window, click **[Settings]** tab and click **[Modify Team]**.
9. Perform the following procedure to set the team member adapter priority status.
 - Set Primary
Select the adapter and click **[Set Primary]**.
 - Set Secondary
Select the adapter and click **[Set Secondary]**.

When primary and secondary adapters are specified, click **OK** to close the window.

Tips

Adapter priority can be confirmed by the following procedure:

- 1) Click **Settings** tab in team adapter properties.
- 2) Confirm Primary/Secondary specified for each adapter in team list.

10. On the **Settings** tab, click **Test Switch**. Click **Run test** on the **Test Switch** screen.

Test completes when a message indicating successful operation is displayed.

If you are using SFT (Switch Fault Tolerance), go to Step 11 because **Test Switch** is not supported.

Note

Before running the test, confirm whether the adapter status is "Active" or "Standby" on the **Settings** tab. If any error is displayed, read the message and change the setting of the switching hub.

Also make sure that all adapters in team are linked up.

Important

Even if the test result is correct, the message below may appear.

Check the setting of the switching hub (L2) port. If no problem is found, ignore the message.

The switch is configured with aggregated ports, but the team type does not support port aggregation. The switch is configured with VLAN tagging, but the team has no VLANs.

Change team type to SLA, reconfigure the switch for link aggregation, or disable VLAN tagging on the switch.

11. Restart the system.

Setup Teaming is now complete.

(3) Procedure for deleting team

1. Open the Device Manager.
2. Expand **Network adapters** and double-click the team adapter.
The properties of network adapter is displayed.
3. Click the **Setting** tab, then click **Remove Team**.
4. Click **Yes** to the popup message.
5. Confirm that the **TEAM: "Team name"** adapter does not exist in the **Network adapters** tree of **Device Manager**.
6. Restart the system

Removing team is now complete.

5.6.4 Setting up team/LiveLink (BACS/QSC)

This section describes procedures for creating and deleting team, and for configuring LiveLink.

The supported network adapters are as follows:

- BACS teaming : Standard network adapters
N8104-150/151/152
- QCS teaming : N8104-149

Note

- For how to delete an adapter team, refer to *Chapter 1 (5.6.4 Setting up team/LiveLink (BACS/QSC) - (4) Procedure for deleting team)*.
Check the following points when deleting an adapter team.
 - When replacing the motherboard or optional LAN boards after an adapter team is configured, delete the adapter team first.
 - If a team exists, delete the team first. If the team is bound to a Hyper-V virtual adapter, unbind the Hyper-V adapter before deleting the team.
- Be sure to specify the same Jumbo Mtu (Jumbo Packet) setting to all the adapters that compose a team.
- Do not configure the teams with adapters that use the iSCSI function.

(1) Team types

- **Smart Load Balancing and Failover (without Standby Member)**

All adapters that compose the team perform communication.

If a communication failure occurs on an adapter, other adapters that compose the team continue the communication.

When the adapter on which the communication failure occurred recovers, it joins the team again and resumes the communication.

- **Smart Load Balancing (Auto-Fallback Disable) (with Standby Member)**

Among the adapters that compose the team, primary adapters except the standby member perform communication.

If a communication failure occurs, the standby member continues the communication.

When the adapter on which the communication failure occurred recovers, it joins the team again and the standby adapter returns to the standby state.

- **FEC/GEC Generic Trunking**

The combining of multiple adapters into a single channel to provide greater bandwidth.

Connect the server with several physical links to make them look like a single logical link.

This can improve transmission throughput and can provide redundancy.

Important

FEC and GEC modes require switch support.

(2) LiveLink

LiveLink is a function that detects communication route failures of adapters.

It periodically investigates the communication status of specified destinations (IP address).

Link packets are sent from each adapter within a team.

If a response to the transmission of a link packet within the specified range is not detected, it is identified as a communication route failure and adapter communication is stopped.

When a response to the submission of a link packet is detected, communication LiveLink identifies communication as having been recovered, and communication using that adapter automatically resumes.

Note

- When using Smart Load Balancing and Failover (without Standby Member), be sure to set up LiveLink at creation of a team.
- When using Smart Load Balancing (Auto-Fallback Disable) (with Standby Member) by three or more network adapters be sure to set up LiveLink at creation of a team.

Tips

- When using Smart Load Balancing (Auto-Fallback Disable) (with Standby Member), setup for LiveLink is not essential.
- LiveLink is not supported with FEC/GEC mode.

(3) Setting up team/LiveLink**Tips**

To edit a team, right-click on the BACS team, and then select **Edit Team**. Then refer to step 3 and the subsequent steps to edit the team.

1. Start the teaming utility on the Control Panel window.

In case of **BACS, Broadcom Control Suite** is double-clicked.

In case of **QCS, QLogic Control Suite** is double-clicked.

Tips

Use icon view on Control Panel.

2. Set **Filter** to **TEAM VIEW**, right-click the adapter to be used for the team, and then select **Create Team** from the short-cut menu.
The Broadcom Teaming wizard appears.
3. Click **Next**.

Note

Do not use **Expert Mode**. It is not supported.

4. Enter any name into the team name entry column, and then click **Next**.
5. Under **Team Type**, select the type of team you want to create, and then click **Next**.

Note

- 802.3ad Link Aggregation using Link Aggregation Control Protocol (LACP) is not supported.
- When **FEC/GEC Generic Trunking** is selected, the following message will appear. Confirm the settings on switching hub, and click **OK**.
“Verify that the network switch connected to the team members is configured correctly for the team type.”
- When using Hyper-V, select **Enable HyperV Mode**.

6. Select the adapters that compose the team, click **Add** to add them to the **Team Members** area, and then click **Next**.

Note

If **FEC/GEC Generic Trunking** is selected, go to step 15.

7. Proceed according to your desired team type.

- **Smart Load Balancing and Failover (without Standby Member)**

- (1) Select **Do not configure a standby member**.
- (2) Click **Next**.

- **Smart Load Balancing (Auto-Fallback Disable) (with Standby Member)**

- (1) Select **Use the following member as a standby member**.
- (2) Select the adapter that is to be a standby member from the drop-down list.
- (3) Select **Enable Auto-Fallback Disable mode**.

Important

The operation when Auto-Fallback Disable mode is unchecked is not supported.

- (4) Click **Next**.

Note

Enable Auto-Fallback Disable mode is cleared while editing the team. Select it again.

8. When configuring LiveLink, select **Yes**, click **Next**, and then go to step 9.
When configuring LiveLink is unnecessary, select **No**, click **Next**, and then go to step 15.

9. You can use the default setting for **Probe interval** and **Probe maximum retries**.
If you change these values, select a value from each drop-down list, click the target probe (**Probe Target xx**), and then click **Edit Target IP Address**.

Tips

- The setting range of Probe interval (link packet transmission interval) is 1 to 60 (units: seconds).
- The setting range of Probe maximum retries (link packet retry count) is 1 to 10 (times).
- Switching a path upon detection of a communication path error by LiveLink takes (Probe maximum retries + 1) x Probe interval (seconds) at maximum.
If a link down is detected, failover occurs immediately after the link goes down. It takes the time specified for Probe interval (seconds) to recover from the link going down.
- When using Tagged VLAN, input the VLAN ID for **Probe VLAN ID**.

10. In the **Target xx** text box, enter the IP address of the alive monitoring server, and then click **OK**.

Note

- **Target xx** must be the same broadcast domain as that specified for the data communication IP and LiveLink communication IP (described in step 13).
Specify an IP address that exists on the network and with which communication is possible.
- If communication with the IP address specified in **Target xx** is not possible, the team will also be unable to communicate. It is therefore recommended that you specify multiple IP addresses using **Probe Target**. Up to four IP addresses can be specified.

11. Click **Next**.

12. Select an adapter from the **Team Members** area, and then click **Edit Member IP Address**.

13. Enter the IP address used for LiveLink communication, and then click **OK**.

Note

- Be sure to specify an IP address for LiveLink communication for all the adapters that compose the team. The address specified here is the IP address for LiveLink communication. Specify a different IP address for data communication.
- For *Target xx*, specify an IP address that is unique on the network and with which communication is possible.

14. Click **Next**.

15. Make sure that **Skip manage VLAN** is selected under **Manage VLAN**, and then click **Next**.
Below is an example when you do not want to use the VLAN.

16. Make sure that **Commit changes to system and Exit the wizard** is selected under **Commit changes**, and then click **Finish**.

Note

When the message below appears, select **Yes**.

"Applying the changes will temporarily interrupt the network connection. The process may take several minutes and the connection will resume afterwards. Do you want to continue?"

Tips

After creating a team, if the teaming adapter displays like the following image, perform steps 8 to 14 again and correct the LiveLink settings.

When all network adapters that configure the team are in the link down status, this is indicated as shown in the window below. Check the LiveLink settings while all adapters are linked up.

17. Restart the system.

Team setup is now complete.

(4) Procedure for deleting team

Note

You must delete teams from **BACS** or **QCS**.
You cannot delete the team from the team adapter displayed in the **Device Manager**.

1. Start the teaming utility on the Control Panel window.

In case of **BACS**, **Broadcom Control Suite** is double-clicked.

In case of **QCS**, **QLogic Control Suite** is double-clicked.

Tips

Use icon view on Control Panel.

2. Set **Filter** to **TEAM VIEW**, right-click the adapter to be used for the team, and then select **Delete Team** from the short-cut menu.

Note

- When the message below appears, select **Yes**.
"The selected team will be deleted from system, do you want to proceed?"
NOTE: Applying the changes will temporarily interrupt the network connection. The process may take several minutes and the connection will resume afterwards."
- When deleting team from QCS, go to step 5.

3. Run the following file on the system drive (drive C).

```
C:\Program Files(x86)\EXPRESSBUILDER\repository\011\win\winnt\drivers
\02_network\1_ah_02\addlvlanstats.vbs
```

If using EXPRESSBUILDER DVD (option), run the following file on the DVD.

```
\011\win\winnt\drivers\02_network\1_ah_02\addlvlanstats.vbs
```

4. When the following message appears, click **OK**.

Registry Addition Completed, Reboot the system.

5. Restart the system.

Team deletion is now complete.

5.6.5 Graphics accelerator driver

The graphics accelerator driver for standard configurations is installed when an OS is installed using EXPRESSBUILDER, or Starter Pack is installed from EXPRESSBUILDER.

Tips

The graphics accelerator driver is only enabled in Full installations. Standard VGA is used in the case of Server Core installation.

To install drivers separately, complete the following steps.

1. Double-click the `install.bat` icon in the following folder.

- If Starter Pack was installed from Internal Flash Memory:

```
C:\Program Files(x86)\EXPRESSBUILDER\repository\011\win\winnt\drivers
\03_graphic\1_aj_01\install.bat
```

- When using EXPRESSBUILDER DVD (option):

```
\011\win\winnt\drivers\03_graphic\1_aj_01\install.bat
```

2. You will be prompted to confirm the End User License Agreement during this process. Click the **ACCEPT** button to continue.

Restart the system.

Graphic accelerator driver installation is now complete.

5.6.6 When using a SAS controller (N8103-142)

The driver for SAS controller N8103-142 is automatically installed by Windows Plug-and-Play.

5.6.7 When using a RAID Controller (N8103-179)

The driver for RAID Controller N8103-179 is automatically installed by Windows Plug-and-Play.

5.6.8 When using a Fibre Channel controller (N8190-157A/158A/159/160)

The driver for Fibre Channel controller N8190-157A/158A/159/160 is automatically installed by Windows Plug-and-Play.

If the Fibre Channel controller N8190-157A/158A/159/160 is installed after the OS has been installed, you need to install Starter Pack again.

5.7 License Authentication

License Authentication is required to use Windows Server 2008 R2. Confirm if your license is authenticated. If not, perform the following procedures to have your license authenticated.

(1) Full installation

1. On the **Start** menu, click the **Control Panel**, **System and Security**, and then select **System**.

If the following message appears, Windows has already been activated on your system. You do not need to complete this procedure.

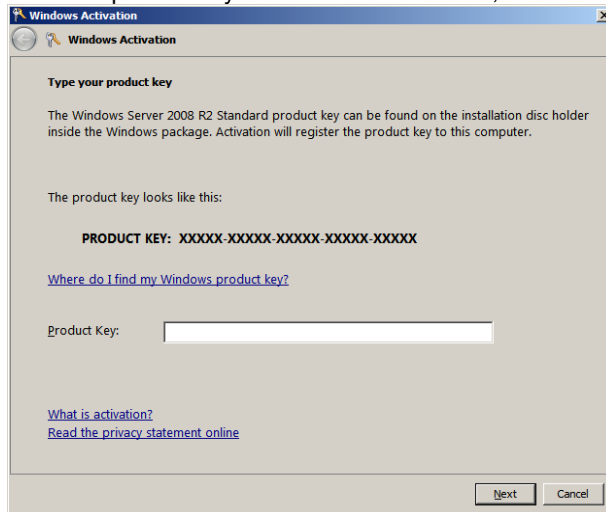


2. If Windows is installed from Backup DVD-ROM, replace the product key.

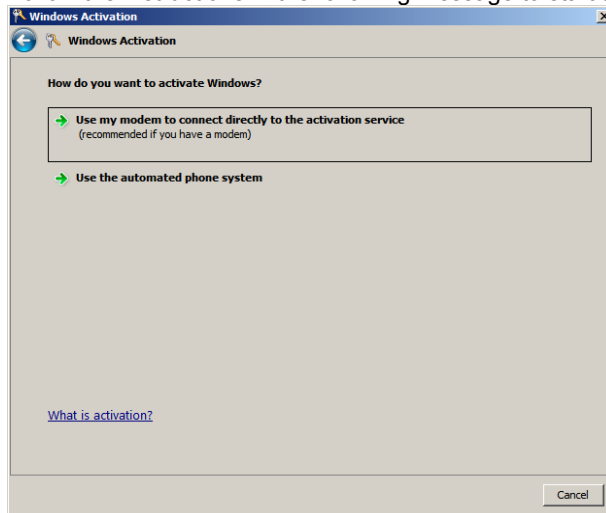
When the following window appears, click **Change product key**.



3. Enter the product key found on the COA label, and then click **Next**.



4. Follow the instructions in the following message to start the license authentication process.

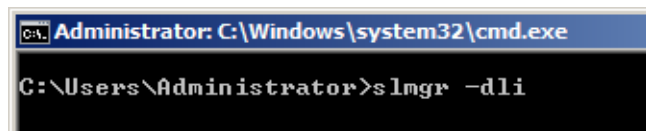


Windows activation is now complete.

(2) Server Core installation

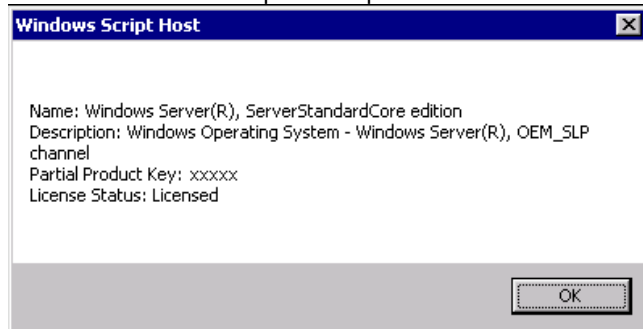
1. At the command prompt, enter the following, and then press <Enter> key.

```
slmgr -dli
```



If the following message appears, Windows has already been activated on your system.

You do not need to complete this procedure. Click **OK** to finish.

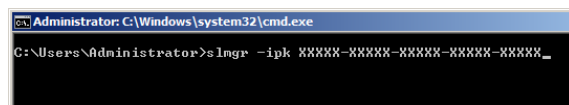


2. If Windows is installed from Backup DVD-ROM, replace the product key.

At the command prompt, enter the following, and then press <Enter> key.

Specify the product key found on the COA label in *PID*.

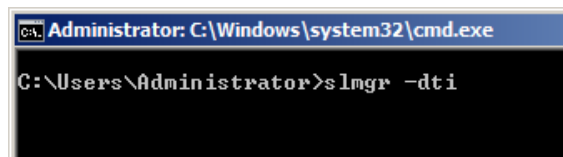
```
slmgr -ipk PID
```



3. Obtain an installation ID for Windows activation.

At the command prompt, enter the following, and then press <Enter> key.

```
slmgr -dti
```

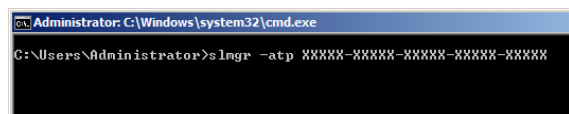


4. View the following file to confirm the telephone number of the license authentication customer service.
C:\Windows\system32\sppui\phone.inf (where C: is system drive.)
5. Call the above number, inform the representative of the installation ID which you obtained in step 3, and receive a confirmation ID.
6. Type the confirmation ID you received in step 5.

At the command prompt, enter the following, and then press <Enter> key.

CID is the confirmation ID that you received from customer service.

```
slmgr -atp CID
```



Windows activation is now complete.

5.8 Applying Service Pack

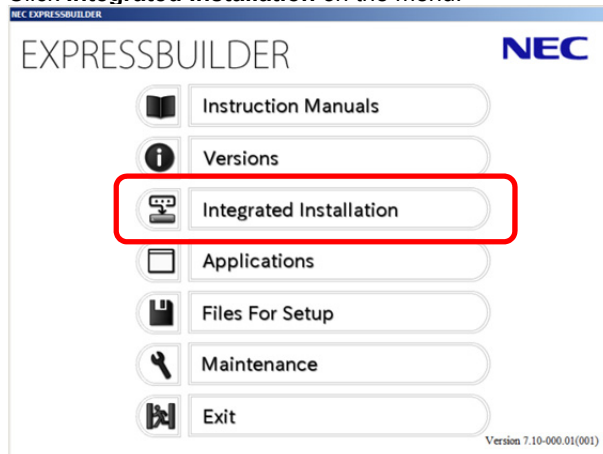
When applying Service Pack 1, refer to *"About Windows Server 2008 R2 and Windows 7 Service Pack 1"*.

<http://www.58support.nec.co.jp/global/download/w2008r2/sp1.html>

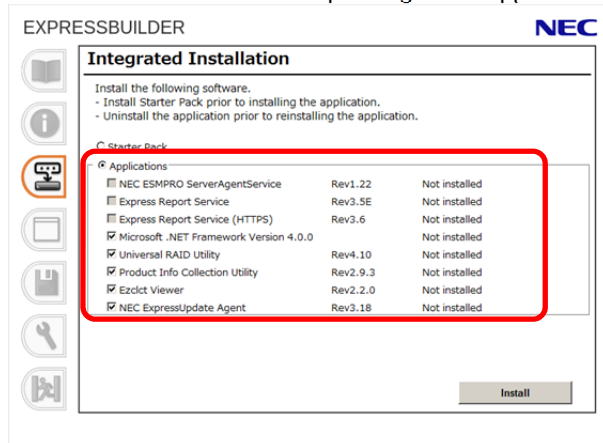
5.9 Installing the Applications

Some applications stored in EXPRESSBUILDER can be installed collectively by performing the procedures described below. When installing these applications individually, see *Chapter 2 (Installing Bundled Software)*. This feature is only available for Full installations.

1. Log on to the system with the built-in administrator, which has administrative privileges.
2. Click the shortcut on your desktop screen or choose NEC EXPRESSBUILDER from the Start screen.
Or, Insert the EXPRESSBUILDER DVD (option) into the optical disk drive.
3. Click **Integrated Installation** on the menu.



4. On the following screen, select **Applications** option.
Select the check boxes corresponding to the applications you want to install, and then click **Install**.



Note

- Applications available for installation are selected by default.
- If your system environment does not satisfy the prerequisite for an application, you cannot install it. (For details, refer to the on-screen information and the relevant page of each application.)

The selected applications are automatically installed.

5. When a message appears, click **OK**, and then remove the EXPRESSBUILDER disk from the optical disk drive.
6. See *Chapter 2 Installing Bundled Software* to install the bundled software or confirm that the software is appropriate to your operating environment.

Now installation of applications is completed.

5.10 Installation When Multiple Logical Drives Exist

Before starting installation, backup data for future use in case of data loss.

(1) Setup procedure

- Setup with EXPRESSBUILDER

Important

- Before starting setup, be sure to disconnect hard disk drives from the RAID Controller that is not used for setup, if the server has two or more RAID Controllers installed.
- Disconnect an external disk (*) from the server by turning the power of it off or disconnecting cables. Install those hard disk drives and cables after setup has completed. Conducting setup with those being connected with the server may cause existing data to be erased unintentionally.

* Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit

Refer to *Chapter 1 (5.2 Setup with EXPRESSBUILDER)*, and proceed with setup.

In this case, EXPRESSBUILDER installs the Windows on the first detected hard disk drive or logical drive.

- Setup with Windows standard installer

1. Refer to *Chapter 1 (5.3 Setup with Windows Standard Installer)*, and start setup.
2. When the following message appears, select the partition to which you want to install the operating system.

Select the location to which Windows will be installed

The order and numbers of the disks displayed on the screen **might not match the server's slot** of the hard disk drives. **Distinguish between the hard disk drives by viewing the hard disk drive capacity and partition size** displayed on the screen, and then select a drive to install the Windows system.

Selecting an improper drive might cause an unintentional corruption of the existing data. Be careful when selecting a hard disk drive on which to install the system.

Important

- For details, refer to the following Microsoft website:
<http://support.microsoft.com/kb/937251/en-us>
- You cannot edit the drive letters for the system volume or boot volume after setup is complete. Make sure that the drive letters assigned in this window are correct, and then proceed with setup.

3. Refer to *Chapter 1 (5.3 Setup with Windows Standard Installer)*, and proceed to setup Windows with OS standard installer and the instructions.

Tips

The drive letter might change after installation. If you want to change the drive letter, use the procedure shown in *Changing drive letter assignments* below.

(2) Changing drive letter assignments

To change the drive letter, follow the steps below. But these steps cannot change drive letter assignments for the system volume or boot volume.

1. On the **Start** menu, right-click **Computer** and then select **Management**. Next, launch the **Server Manager**.
2. From the window on the left, select **Storage**, and then **Disk Management**.
3. Right-click the volume whose drive letter you want to change, and then select **Change drive letter and path**.
4. Click **Change**.
5. Click **Assign next drive letter**, and then select the drive letter you want to assign.
6. Click **OK**.
7. When the following message appears, read the contents and then click **Yes**.

Some programs are dependent on drive letters, and may not run properly. Continue?

8. Close the Server Manager.

Now changing drive letter is completed.

6. Setup for Solving Problems

We recommend installing the following features for solving the server failure quickly.

6.1 Specifying Memory Dump Settings (Debug Information)

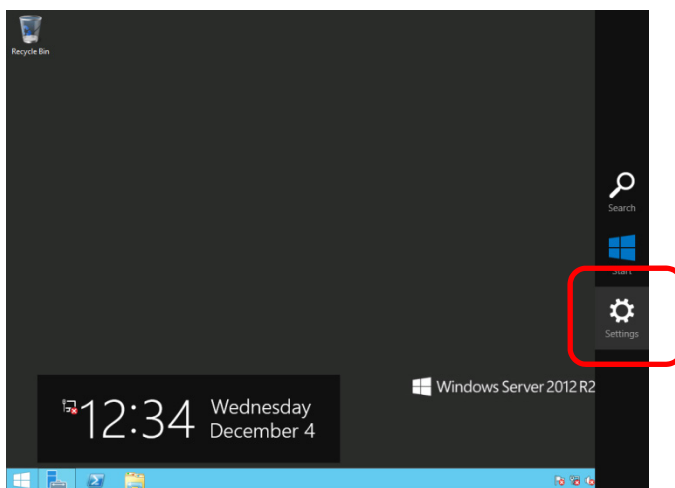
This section explains the procedures for collecting a memory dump (debug information) in the server.

Important

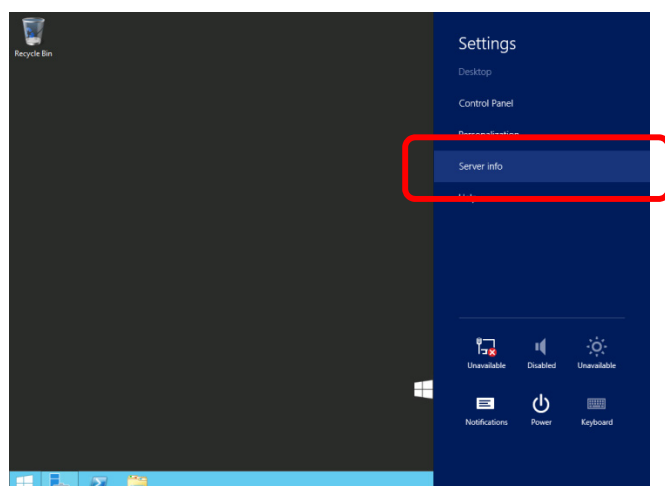
Do not reset during dumping memory or restarting the server even if the message of virtual memory shortage appears.

6.1.1 For Windows Server 2012 R2 / Windows Server 2012

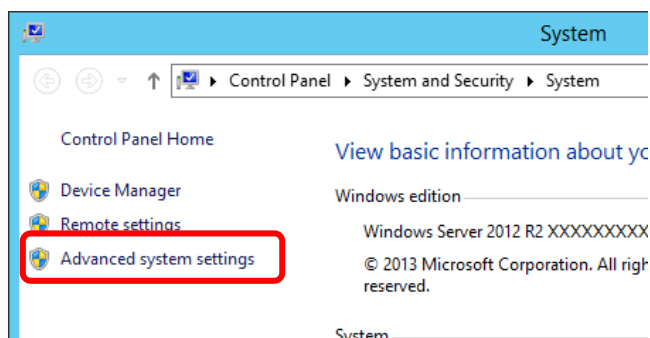
1. On Charms Bar, click **Settings**.



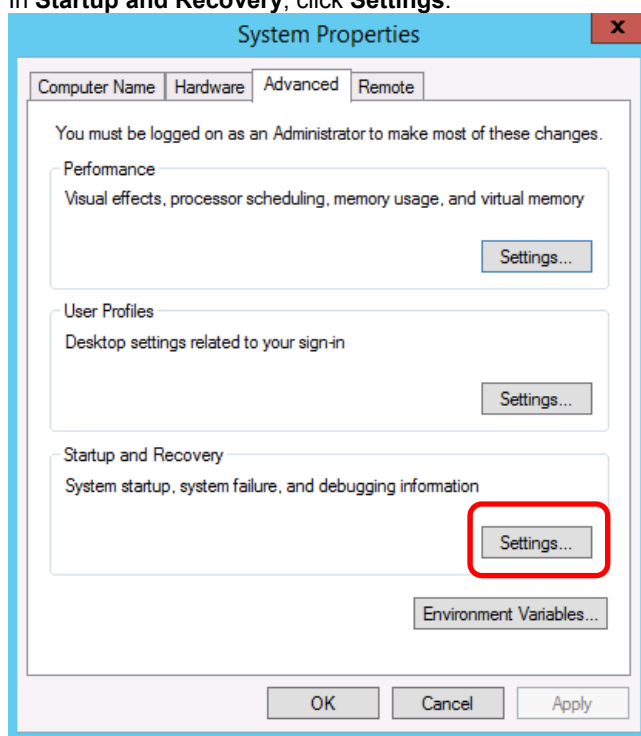
2. Click **Server info**.



3. Click **Advanced system settings**.

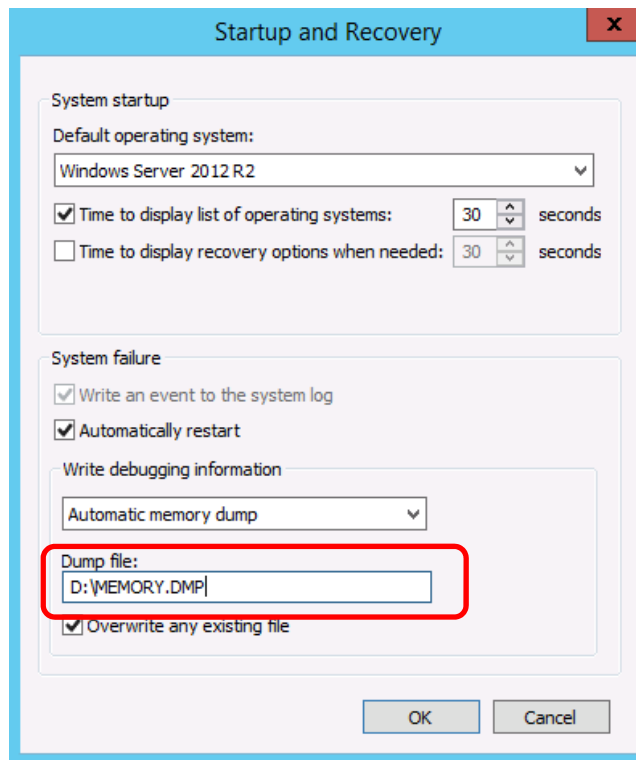


4. In **Startup and Recovery**, click **Settings**.



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

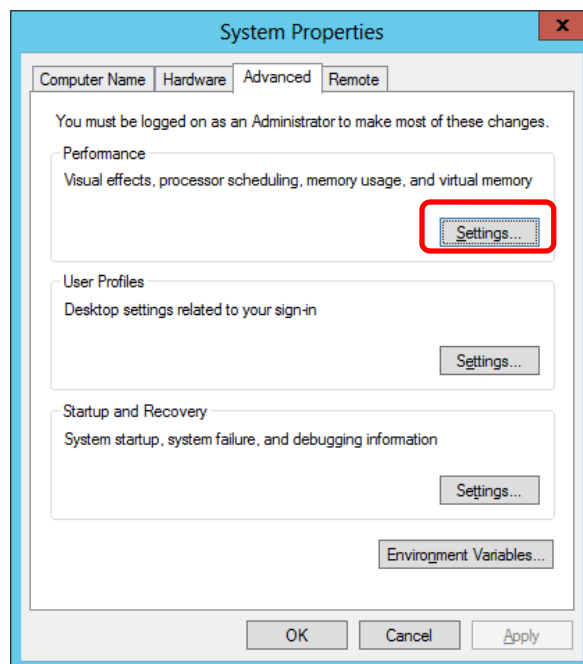
<Example for specifying "MEMORY.DMP" on drive D>



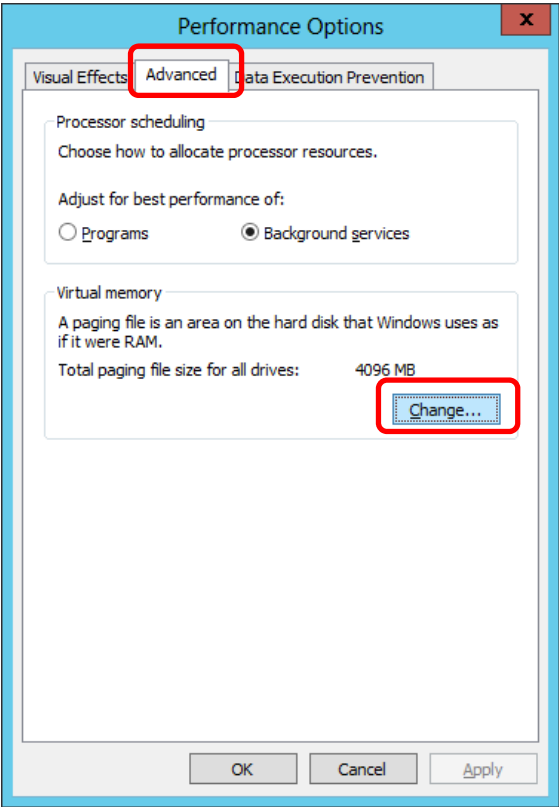
Note the following when specifying a dump file:

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

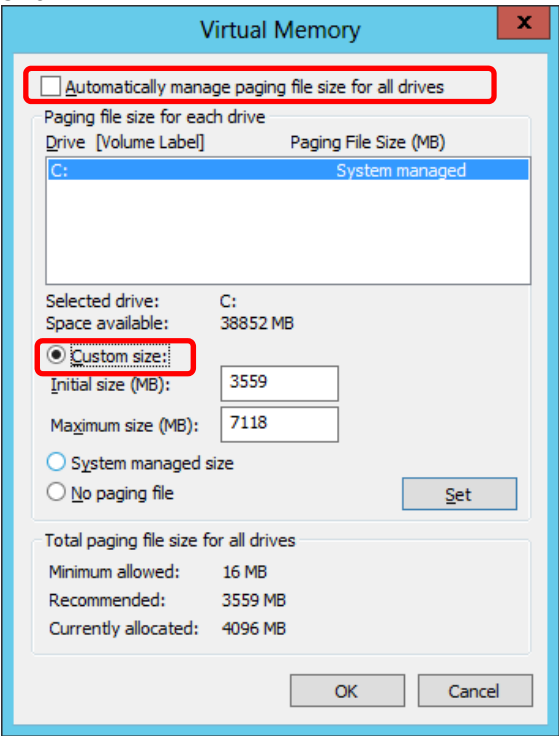
6. In **Performance**, click **Settings**.
The **Performance Options** window will appear.



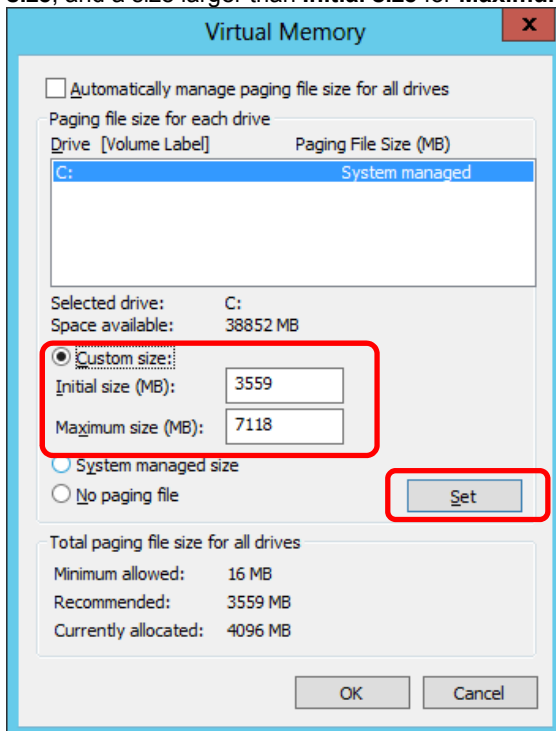
7. Click the **Advanced** tab on the **Performance Options** window. In **Virtual memory**, click **Change**.



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



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



Note the following when specifying a paging file size:

- The paging file is used to collect debug information (dump file). The boot volume must have a paging file of its initial size “(total size of physical memory) + 400MB or more” is enough to save the dump file.
- Make sure to specify a sufficient paging file size “recommended size: (total size of physical memory) x 1.5 or more”.
- See "System Partition" in *Chapter 1 (Before Starting Setup)* 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 server according to on-screen message.

Specification of the memory dump settings is now complete.

6.1.2 For Windows Server 2008 R2

1. On the **Start** menu, click **Control Panel**.
2. On the **Control Panel** window, click **System and Security**.

Tips

If **View by** is not **Category**, select **System** from **Control Panel** directly.

3. Click **System**.
4. Click **Advanced system settings**.
The System Properties dialog box will appear.
5. Click the **Advanced** tab, and then click **Settings** in **Startup and Recovery**.
6. Type the path to a dump file in **Dump file**.

Note the following when specifying a dump file.

- We recommend specifying **Complete memory dump** for **Write debugging information**. If the mounted memory size is greater than 2 GB, **Complete memory dump** cannot be specified because it is not displayed on the menu. In this case, specify **Kernel memory dump** instead.
- Specify a drive that has a free space of at least "(total size of physical memory) + 300 MB".
- The size of the debug information (memory dump) changes when a DIMM is added. Make sure that the free space of the drive to store the debug information is sufficient. If the mounted memory exceeds 2GB, specify **Kernel memory dump**.

7. In **Performance**, click **Settings**.
8. Click the **Advanced** tab in the Performance Options dialog box, and click **Change** in **Virtual memory**.
9. Clear the **Automatically manage paging file size for all drives** check box, and then click **Custom size**.
10. In **Paging file size for each drive**, specify as follows:

For the **Initial size** text box, type a size equal to or greater than the **Recommended** value shown in **Total paging file size for all drives**.

For the **Maximum size** text box, type a size equal to or greater than the value specified in **Initial size**.

After specifying the above values, click **Set**.

Note the following when specifying a paging file size.

- The initial size of the paging file in Windows partition (usually drive C) must be large enough to save dump files.
- Make sure to set a sufficient paging file size.
- For details about the Recommended size, see *System partition size* in *Chapter 1 (4.1 Before Starting Setup)*.
- When DIMM is added, re-specify the paging file according to the increased memory size.

11. Click **OK**.

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

Specification of the memory dump settings is now complete.

6.2 How to Create a User-mode Process Dump File

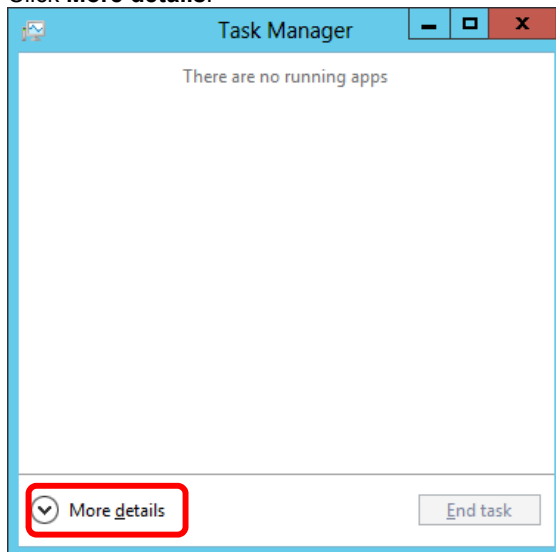
The user-mode process dump file records debugging information if an application error occurs.

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

6.2.1 For Windows Server 2012 R2 / Windows Server 2012

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

2. Click **More details**.

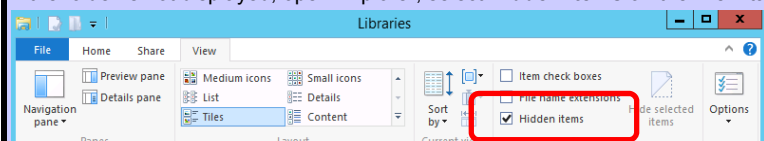


3. Click the **Processes** tab.
4. Right-click the name of the process that you want to get debugging information, and then click **Create Dump File**.
5. A dump file for the process is created in the following folder:

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

Tips

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



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

6.2.2 For Windows Server 2008 R2

1. Right-click an empty area of the taskbar and then click **Task Manager** or press <Ctrl> + <Shift> + <Esc> keys to start **Task Manager**.
2. Click the **Processes** tab.
3. Right-click the name of the process that you want to get debugging information, and then click **Create Dump File**.
4. 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, perform the following:
Open Explorer, click **Organize** and then **Folder and search options**. Click the **View** tab and then select **Show hidden files, folders, and drives**.

Get the user-mode process dump file from the folder shown in step 4.

User-mode process dump file creation is now complete.

6.3 Installing Network Monitor

Utilizing Network Monitor helps you investigate and manage network troubles.

This feature is not supported in Windows Server 2012 or later operating systems.

(1) Setting up Network Monitor

1. Download Network Monitor from the following web site:
<http://support.microsoft.com/kb/933741/en-us>
2. Run the downloaded file to start the installer.
Follow the onscreen instructions to install Network Monitor.

Tips

- If the Security Alert message appears, click **Run**.
- In the setup format selection window, select **Complete**.

Network Monitor installation is now complete.

Tips

To uninstall Network Monitor, use **Programs and Features**.

(2) Capturing network traces

1. On the **Start** menu, click **Microsoft Network Monitor** to start Network Monitor.
2. Click **Create a new capture tab** on the **Start Page** tab or click **New** on the **File** menu, and then click **Capture**.
A new tab for capturing network traces is created.
3. In **Select Networks**, select the network whose traces are to be captured.
4. On the **Capture** menu, click **Start** to start capturing the network traces.
5. On the **Capture** menu, click **Stop** to stop capturing the network traces.
6. On the **File** menu, click **Save As**.
The **Save As** dialog box appears. In **Frame selection**, click **All captured frames**, and then type a folder and file names.

Tips

The default folder is as follows:
`C:\Users\<User name>\Documents\Network Monitor 3\Captures`

7. Click **Save**.
The network trace file is created in the folder specified in step 6.

The setup for capturing network traces is now complete.

7. Windows OS Parameter File

Create a parameter file by configuring setup information required for OS installation.

If a parameter file is used when performing Setup with EXPRESSBUILDER, you can re-install an OS with settings used at the previous installation. It is therefore recommended to use a parameter file to set up the server.

7.1 Creating Windows OS Parameter File

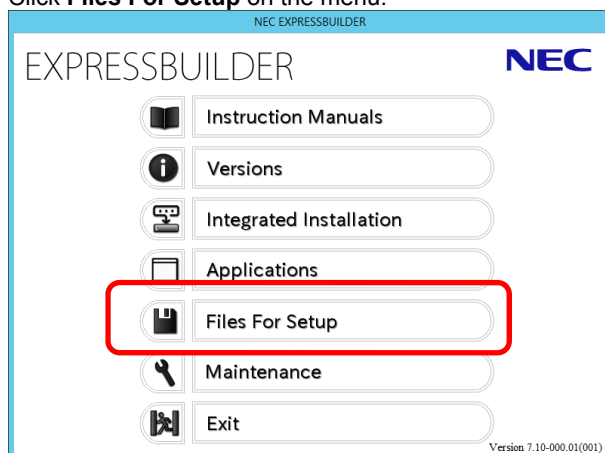
Note

Do not remove EXPRESSBUILDER DVD from the drive while creating a parameter file.

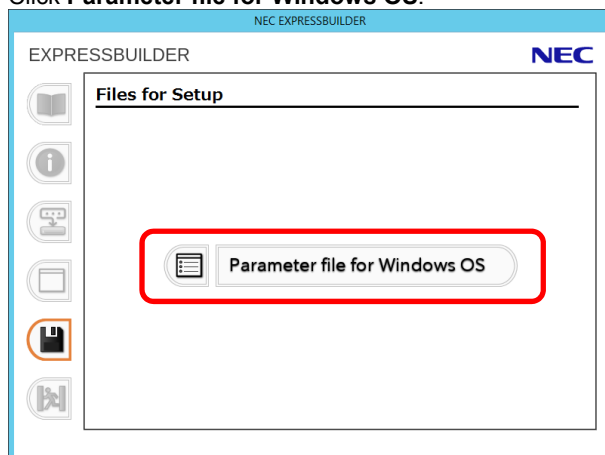
Tips

Create a parameter file on Internet Explorer 7 or later.

1. Start Windows on the server or another computer.
2. For the server, run NEC EXPRESSBUILDER from the shortcut or the Start screen. For another computer, insert the EXPRESSBUILDER DVD into the optical disk drive. Use Windows Autorun feature to launch program.
3. Click **Files For Setup** on the menu.



4. Click **Parameter file for Windows OS**.



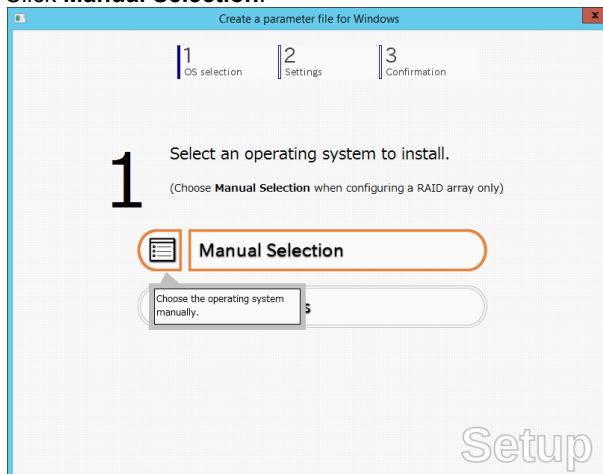
5. On the **OS selection** menu, select the OS to install or specify the parameter file.

☐ Not using a parameter file : Go to Step 6.

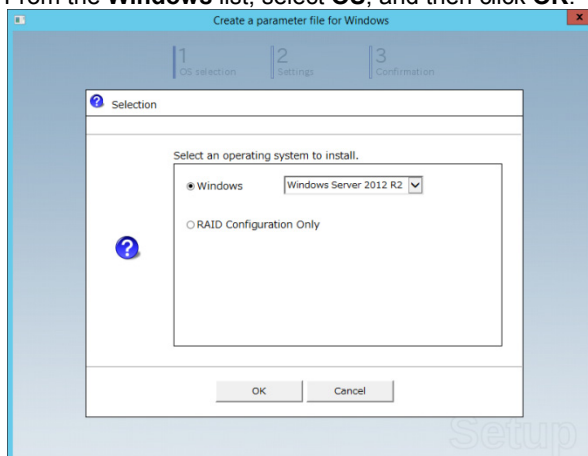
☐ Using a parameter file : Go to Step 7.

6. To create a parameter file, select an OS from the menu by using the following procedure.

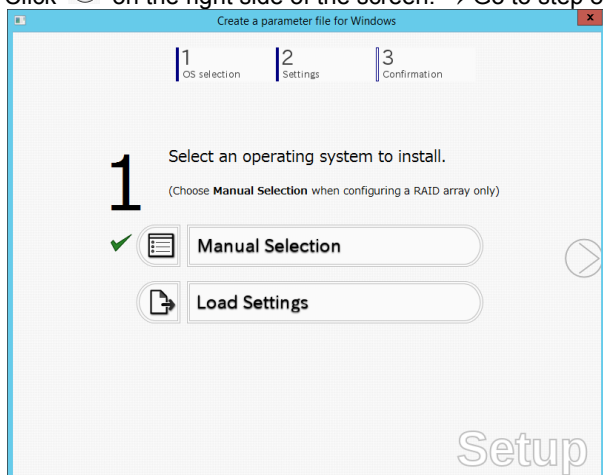
6-(1) Click **Manual Selection**.



6-(2) From the **Windows** list, select **OS**, and then click **OK**.

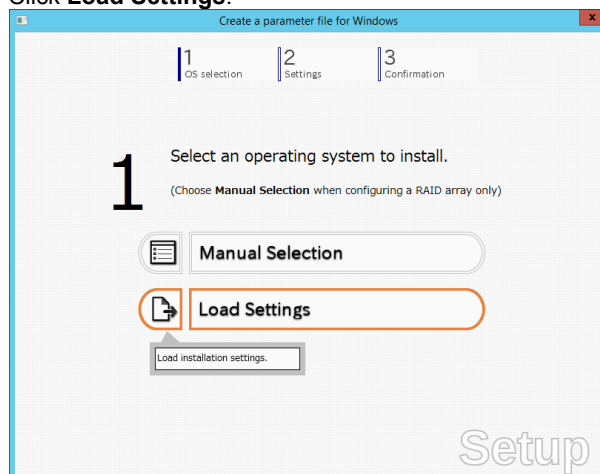


6-(3) Click  on the right side of the screen. → Go to step 8.

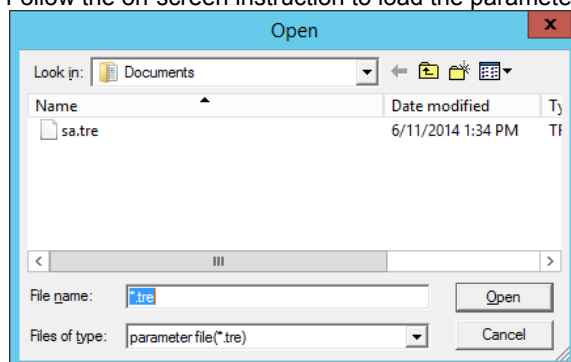



7. To modify a parameter file, load the parameter file by using the following procedure.

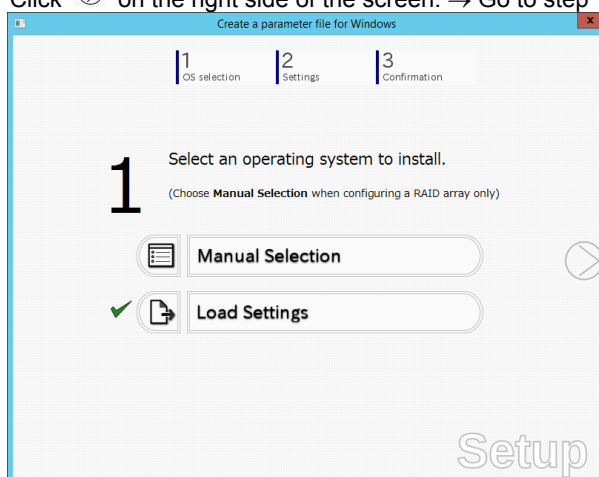
7-(1) Click **Load Settings**.



- 7-(2) Follow the on-screen instruction to load the parameter file (*.tre).



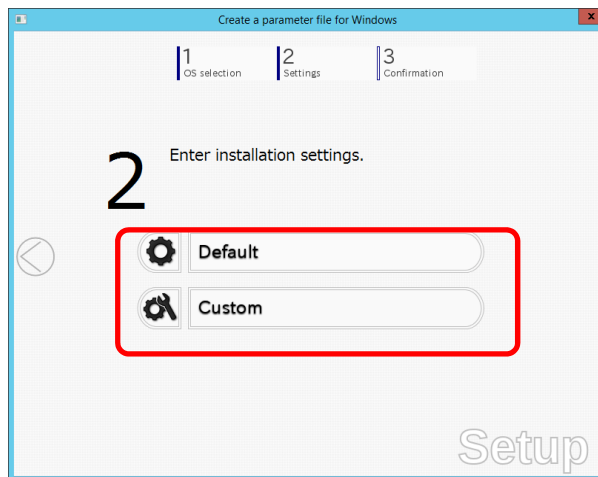
- 7-(3) Click  on the right side of the screen. → Go to step 11.



8. Specify the setup parameters by using either of the following methods:

□ **Default** :Go to step 9

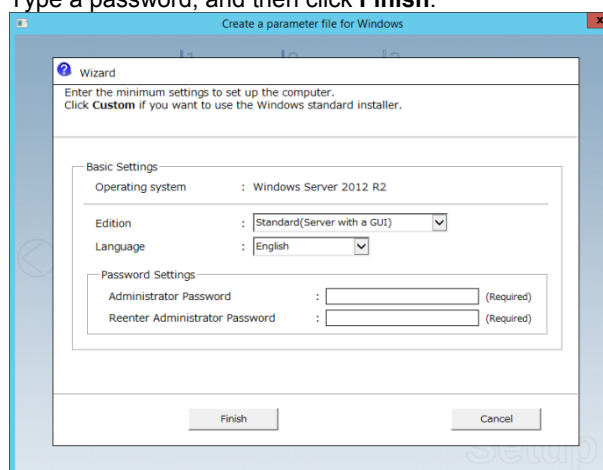
□ **Custom** :Go to step 10.



9. Click **Default**.



9-(1) Select an edition of the OS in the **Edition** list.
Type a password, and then click **Finish**.




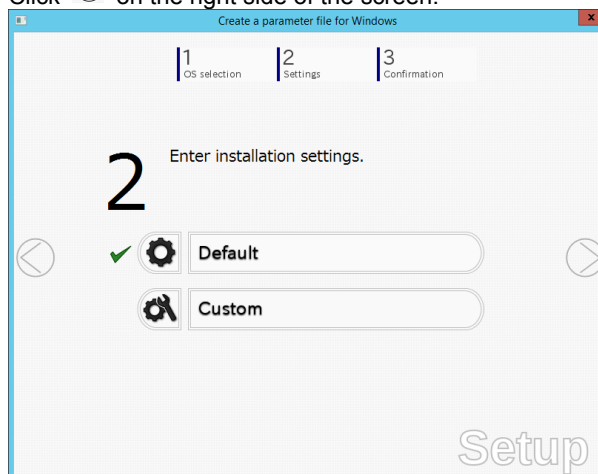
Note

Computer name and Administrator Password are required parameters.

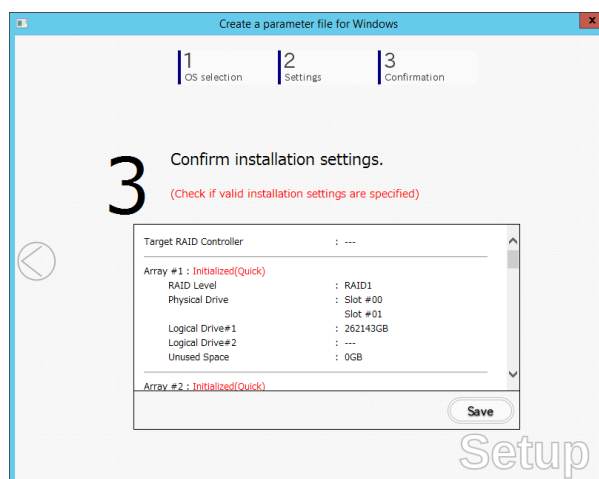
Enter Administrator Password that satisfies the following conditions:

- Contains six or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), and symbols.

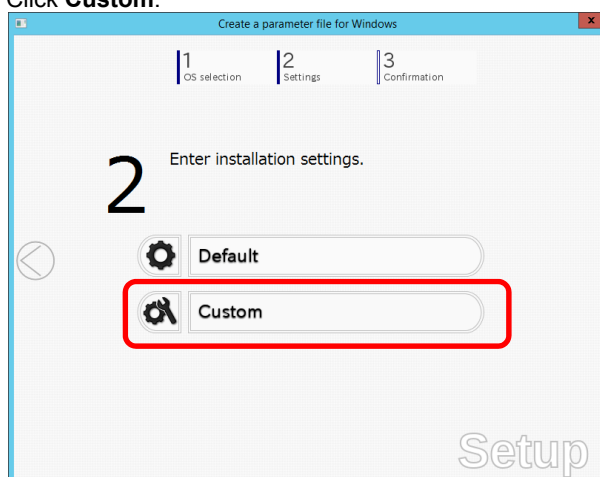
9-(2) Click  on the right side of the screen.



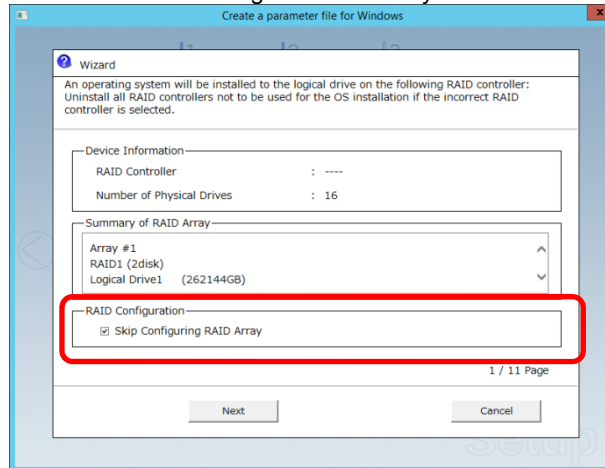
9-(3) Check the settings, and then click **Save**.
Save the file according to the on-screen instructions. → Go to step 12.



10. Click **Custom**.



10-(1) Use this menu to configure the RAID system as needed.



Note

When using an onboard RAID controller (LSI Embedded MegaRAID):
Do not support the creation of RAID10 by using the onboard RAID controller.
See Chapter 2 (5. RAID System Configuration) in "Maintenance Guide" when creating RAID10.

Creating new logical drives

Clear the **Skip a RAID Configuration** check box, and then click **Next**. Set up the logical drives in accordance with the wizard.

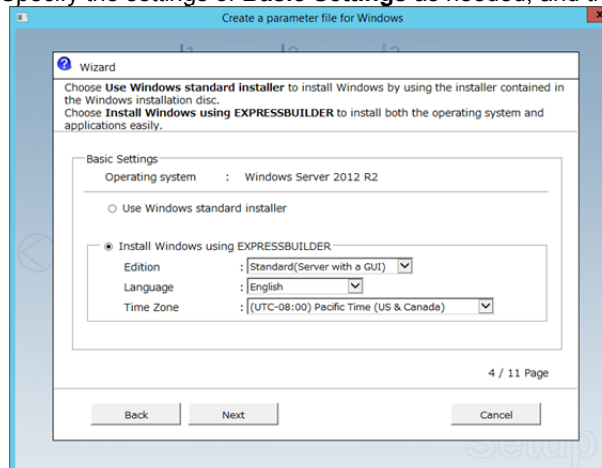
Important

If you proceed with the wizard, the existing RAID array and the data of hard disk drives will be deleted.

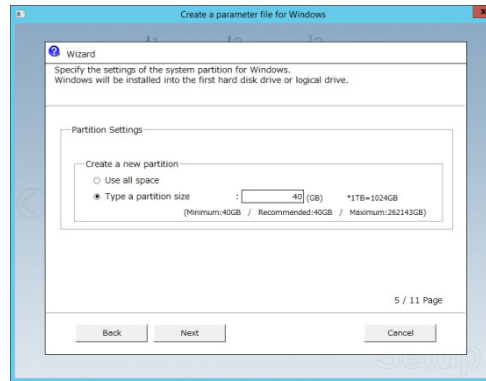
Skipping the creation of logical drives

Select **Skip Configuring RAID Array**, and then click **Next**.

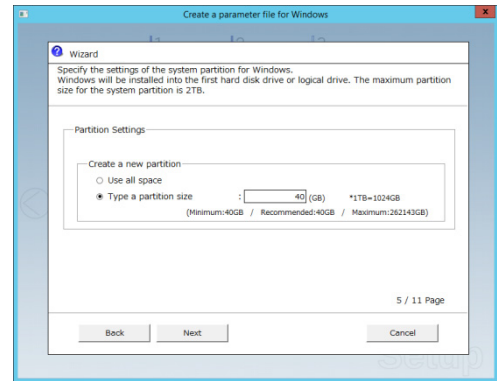
10-(2) Specify the settings of **Basic Settings** as needed, and then click **Next**.



10-(3) Specify the settings of **Partition Settings** as needed, and then click **Next**.



Windows Server 2012 R2/ Windows Server 2012

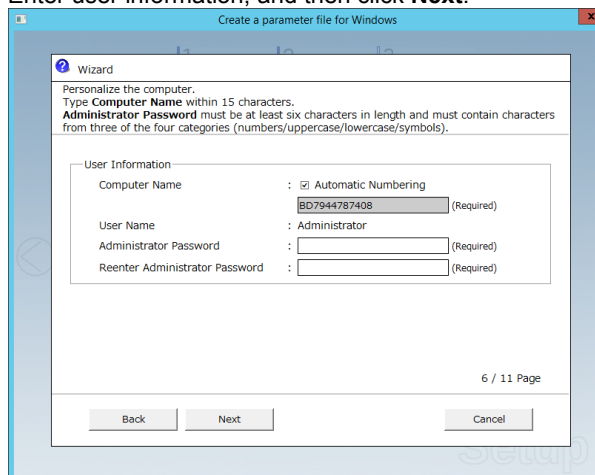


Windows Server 2008 R2

Important

- Backing up user data, as needed, is recommended.
- Partition size
 - Specify a partition size larger than the minimum required for installing the operating system. (See Chapter 1 (Before Starting Setup).)
 - The maximum partition size is 2,097,152 MB for Windows Server 2008 R2.
- If you select “Create a new partition” under “Partition Settings”, all data on the hard disk drive will be deleted.

10-(4) Enter user information, and then click **Next**.



Note

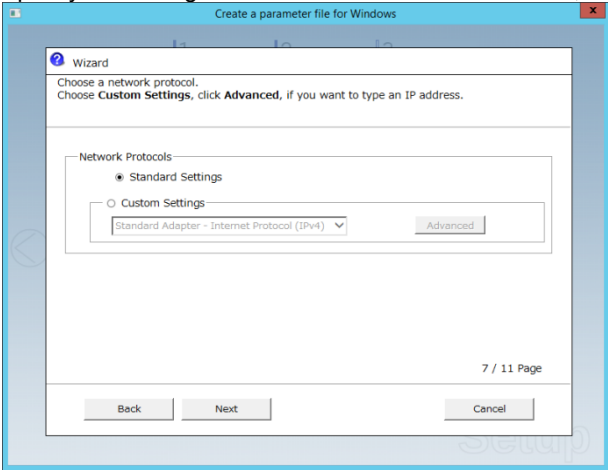
Computer Name and Administrator Password are required parameters. Enter Administrator Password that satisfies the following conditions:

- Contains six or more characters
- Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (a - z), and symbols.

Tips

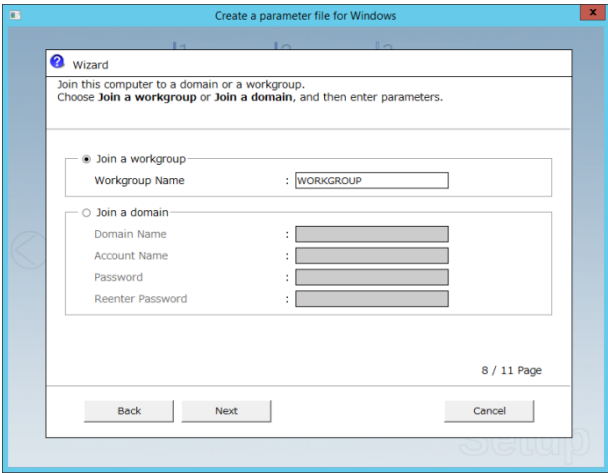
- The default setting of Computer Name is assigned by automatic numbering. If you want to assign another Computer Name, clear **Automatic Numbering**, and type your Computer Name.
- If a parameter file is used for setup or if you return to a previous screen, ••••• is displayed in the Administrator password and Reenter Administrator password text boxes.

10-(5) Specify the settings of **Network Protocols** as needed, and then click **Next**.

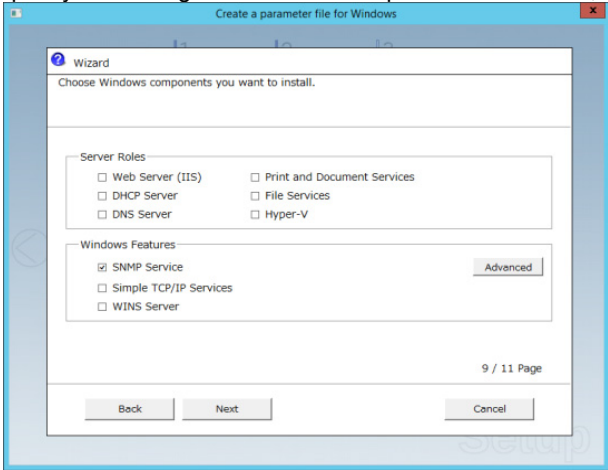


Tips | The order of entry in **Custom settings** may differ from the numbering of LAN ports.

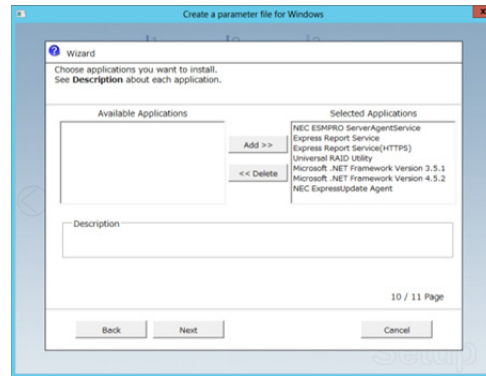
10-(6) Specify the domain or workgroup as needed, and then click **Next**.



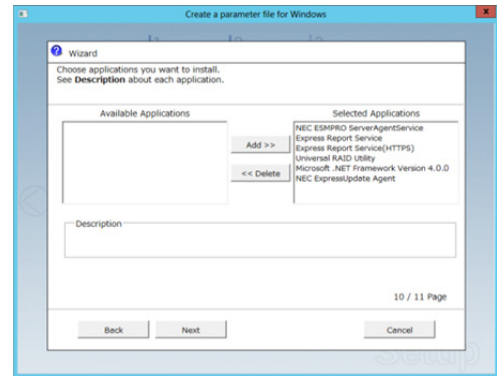
10-(7) Specify the settings of Windows components as needed, and then click **Next**.



10-(8) Specify the settings of applications as needed, and then click **Next**.



Windows Server 2012 R2/ Windows Server 2012



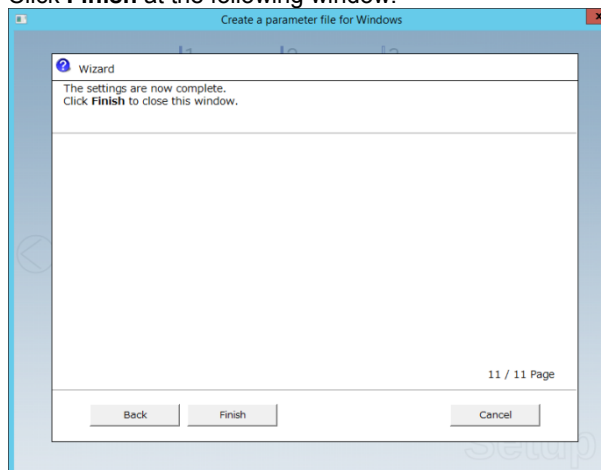
Windows Server 2008 R2

Tips

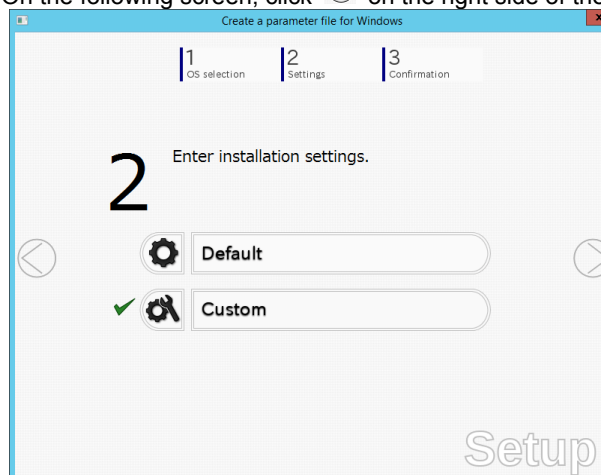
With Windows Server 2008 R2, the applications listed below are supported only in full installations.

- NEC ESMPRO ServerAgentService
- Express Report Service
- Express Report Service (HTTPS)
- Microsoft .NET Framework Version 4.0.0

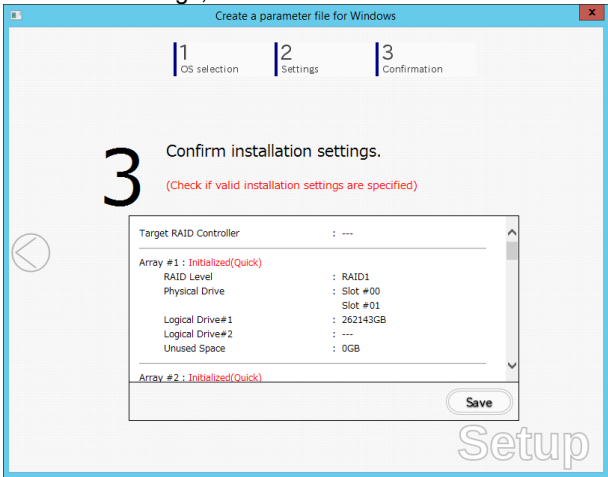
Click **Finish** at the following window.



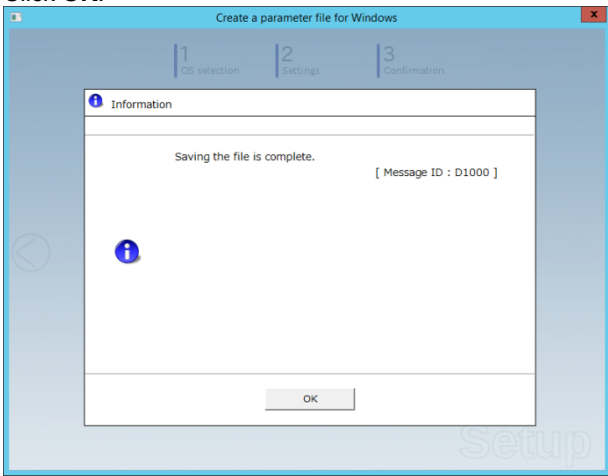
10-(9) On the following screen, click  on the right side of the screen.



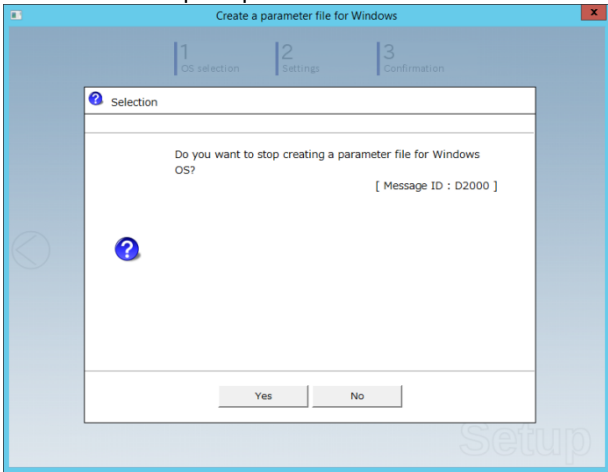
11. Check the settings, and then click **Save**.



12. Click **OK**.



13. Click **Yes** to complete parameter file creation.



Parameter file creation is now complete.

NEC Express5800 Series Express5800/R110h-1, T110h-S, T110h

2

Installing Bundled Software

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

1. Bundled Software for the Server

Describes the bundled software to be installed in the server.

2. Bundled Software for "PC for Management"

Describes the bundled software to be installed in "PC for Management" that is used to monitor and manage the server.

***1.* Bundled Software for the Server**

This section explains the software bundled in the server.

***1.1* NEC ESMPRO ServerAgentService (for Windows)**

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

You can install it automatically when Windows OS is installed with EXPRESSBUILDER.

When installing NEC ESMPRO ServerAgentService (for Windows) individually, see “*NEC ESMPRO ServerAgentService Installation Guide (Windows)*” in EXPRESSBUILDER.

1.2 NEC ESMPRO Agent Extension

You can manage the server remotely by using NEC ESMPRO Agent Extension with NEC ESMPRO Manager monitoring the server's BMC.

For details about NEC ESMPRO Agent Extension, see "*NEC ESMPRO Agent Extension Installation Guide*" in EXPRESSBUILDER.

1.3 Server Configuration Utility

You can specify configuration data to the BMC of the server by using this utility.

For details about this utility, see "*Server Configuration Utility User's Guide*" in EXPRESSBUILDER.

1.4 NEC ExpressUpdate Agent

You can easily download, manage and update the firmware or the software installed in this server by using NEC ExpressUpdate Agent.

For details about NEC ExpressUpdate Agent, see "*NEC ExpressUpdate Agent Installation Guide*" in EXPRESSBUILDER.

Tips

Updates are available for some firmware and software that do not support NEC ExpressUpdate. Refer to the following website to install these packages.

<http://www.nec.com/global/prod/express/index.html>

1.5 Universal RAID Utility

Universal RAID Utility is an application used to manage and monitor the following RAID controllers:

- Onboard RAID Controller (LSI Embedded MegaRAID)
- N8103-176 RAID Controller (1GB, RAID 0/1)
- N8103-177 RAID Controller (1GB, RAID 0/1/5/6)
- N8103-178 RAID Controller (2GB, RAID 0/1/5/6)
- N8103-179 RAID Controller (2GB, RAID 0/1/5/6)
- N8103-188 RAID Controller (0GB, RAID 0/1)

For details about how to install and operate Universal RAID Utility, see "*Universal RAID Utility User's Guide*" on the attached EXPRESSBUILDER DVD.

If the requirements, such as the operating system, for Universal RAID Utility described in "*Universal RAID Utility User's Guide*" differs from the one described in the user's guide of this product, follow the requirements in the user's guide of this product.

1.5.1 Installing and setting up Universal RAID Utility

(1) Setup for BTO (Built To Order) models

If you purchased a BTO model configured with a RAID system, Universal RAID Utility is already installed. You do not need to install Universal RAID Utility for such models.

(2) Setup with EXPRESSBUILDER

When you use EXPRESSBUILDER, Universal RAID Utility can be easily installed along with Windows. Choose **Setup** in EXPRESSBUILDER and follow the displayed instructions.

(3) Setup using Universal RAID Utility installer

The Universal RAID Utility installer can be launched from the autorun menu of EXPRESSBUILDER.

Choose **Integrated Installation** from the autorun menu and follow the displayed instructions.

Download **.NET Framework Versions 2.0 to 3.5** from the following web site and install it when you use Universal RAID Utility on Windows Server 2012 or Windows Server 2012 R2.

<http://msdn.microsoft.com/en-us/library/vstudio/hh506443.aspx>

1.5.2 Management by NEC ESMPRO Manager

NEC ESMPRO Manager Ver. 5.5 or later is used to remotely reference and monitor the RAID system that is managed by Universal RAID Utility.

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

1.6 Express Report Service / Express Report Service (HTTPS)

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

You can install it automatically when Windows OS is installed with EXPRESSBUILDER.

For details about Express Report Service / Express Report Service (HTTPS), see “*Express Report Service / Express Report Service (HTTPS) Installation Guide (Windows)*” in EXPRESSBUILDER.

1.7 NEC Product Info Collection Utility

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

1.7.1 Installation

Follow the steps below to install this utility.

1. Log on to Windows as an Administrator. Select **NEC EXPRESSBUILDER** on the Start screen or Start menu. If you have an EXPRESSBUILDER DVD, insert EXPRESSBUILDER DVD into the optical disk drive. Autorun Menu will appear automatically.
2. Click **Applications** from the menu and then click **Product Info Collection Utility**.
The installation will start. Follow the instructions in the dialog boxes until installation is complete.
This utility is usually installed to the `C:\ezc1ct` folder.

Tips

The installation drive requires a free space of at least 2.5 GB.

1.7.2 Uninstallation

Uninstall the utility depending on the Windows installation type:

- **Full installation (Server with GUI) :**

Choose **Add/Remove Programs** from **Control Panel** and then click **Product Info Collection Utility (Vx.x.x)**. Follow the instructions in the dialog boxes.

- **Server Core installation :**

Run the following command at the command prompt:

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

1.8 Ezclct Viewer

Ezclct Viewer can display the log files collected by NEC Product Info Collection Utility. This utility can be installed by using EXPRESSBUILDER as described below.

1.8.1 Installation

Follow the steps below to install this utility.

1. Log on to Windows as an Administrator. Select **NEC EXPRESSBUILDER** on the Start screen or Start menu. If you have an EXPRESSBUILDER DVD, insert EXPRESSBUILDER DVD into the optical disk drive. Autorun Menu will appear automatically.
2. Click **Applications** from the menu and then click **Ezclct Viewer** and **install**.
The installation will start. Follow the instructions in the dialog boxes until installation is complete.
This utility is installed to the C:\EzclctViewer folder.

1.8.2 Uninstallation

Choose **Programs and Features** from **Control Panel** and then click **Ezclct Viewer**. Follow the instructions in the dialog boxes.

2. Bundled Software for "PC for Management"

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

2.1 NEC ESMPRO Manager

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

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

2.2 Express Report Service (MG)

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

To use this feature, NEC ESMPRO ServerAgentService is required because Express Report Service usually works with it.

If NEC ESMPRO ServerAgentService cannot be installed to the server, you can install Express Report Service (MG) into NEC ESMPRO Manager instead of it.

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

Glossary

Term	Description
BIOS Setup Utility (SETUP)	Software for setting BIOS. You can run this software by pressing <F2> key during POST.
BMC	Baseboard Management Controller (BMC) is a built-in controller that supports the IPMI version 2.0 protocol. BMC can manage the server hardware.
BMC RESET Switch	A switch for resetting the BMC of the server. This resets the BMC without clearing the BMC settings. Use the switch if the problem on the BMC occurs.
DUMP Switch	A switch that is used for collecting the memory dump if an error occurs. You can specify the destination of the dump by using the Windows function.
EXPRESSBUILDER	Standard software for setting up the server easily. This also includes several useful applications and instruction manuals.
EXPRESSSCOPE ENGINE 3	A name of BMC for NEC Express5800 series.
EXPRESSSCOPE Profile Key	A removable flash memory that stored the settings of BIOS and BMC. If the motherboard of the server is replaced, you can use former settings when moving this flash memory from the former motherboard.
Express Report Service	Software that can report the server failure to the contact center by E-mail or modem. This software is installed with NEC ESMPRO ServerAgentService to the server.
Express Report Service (HTTPS)	Software that can report the server failure to the contact center by HTTPS. This software is installed with NEC ESMPRO ServerAgentService to the server.
Express Report Service (MG)	Software that can report the server failure to the contact center by E-mail, modem or HTTPS without NEC ESMPRO ServerAgentService. This software is installed with NEC ESMPRO Manager to "PC for Management".
ExpressUpdate	A feature for updating BIOS, firmware, driver, or software of the server. This feature is available when NEC ESMPRO Manager cooperates with EXPRESSSCOPE ENGINE 3 and ExpressUpdate Agent.
ExpressUpdate Agent	Software for performing ExpressUpdate. This is installed to the server.
Flash FDD	An optional USB device that can use as a floppy disk drive.
Internal Flash Memory	A built-in flash memory that stored EXPRESSBUILDER as standard. You can start EXPRESSBUILDER from it without DVD when pressing <F3> key during POST.
NEC ESMPRO	Standard software for the server management. This consists of several applications for managing or monitoring.
NEC ESMPRO Agent Extension	Software for performing the scheduled operations. This works with NEC ESMPRO Manager.
NEC ESMPRO Manager	Software for managing multiple servers on network.
NEC ESMPRO ServerAgentService	Software for monitoring the server. This works with NEC ESMPRO Manager. You can choose Service Mode or Non-Service Mode when installing this software. Service Mode resides as the OS service and Non-Service Mode does not use the OS service to reduce memory, CPU power, and other OS resources.
OEM driver	A Windows driver for the mass storage device.
OS standard installer	An installer that stored in Windows installation disc. Use this installer if you want to install the OS manually.
Offline tools	Software that can read or change SEL, SDR, FRU, and other IPMI data. You can start Offline tools when pressing <F4> key during POST.
PC for Management	A computer for managing the server on network. A general Windows/Linux computer can be used as "PC for Management".
Product Info Collection Utility	Software for collecting several hardware/software statuses or event logs. You can easily collect the data for the server maintenance by using this software.
RAID Configuration Utility	Software for configuring RAID arrays. You can run this software during POST.
Server Configuration Utility	Software for setting BIOS or BMC. You can use as Windows application or run this software when pressing <F4> key during POST. This software is the same as BMC Configuration of former models.
Starter Pack	Software package for the server. This software includes the customized drivers for Windows. This must be installed before using Windows on the server.
TPM Kit	An optional product of Trusted Platform Module for the server.
Universal RAID Utility	Software for setting RAID arrays on Windows/Linux. This software is operated on "PC for Management" with NEC ESMPRO Manager.
Windows OS parameter file	A file that saved settings for installing Windows. You can install with the settings in this file when setting Windows with EXPRESSBUILDER.

Revision Record

Document Number	Date Issued	Description
10.111.01-102.01	January 2016	Newly created
10.111.01-102.02	April 2016	Changed the pathname of driver files
10.111.01-102.03	October 2016	<ul style="list-style-type: none">• Windows Server 2008 R2 is now supported for the onboard RAID controller• Corrected the errors

[MEMO]

NEC Express Server

Express5800/R110h-1, T110h-S, T110h
Installation Guide (Windows)

October 2016

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