Installation Guide (Windows)

NEC Express Server
Express5800 Series

Express5800/R110i-1, T110i-S, T110i
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

Conventions Used in This Document

Signs and symbols for safety

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

⚠ WARNING   Indicates there is a risk of death or serious personal injury

⚠ CAUTION   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, **hardware failure, data loss, and other serious malfunctions could occur**.
Note	Indicates items that must be confirmed when handling hardware or operating software.
Tips	Indicates information that is helpful to keep in mind when using this server.

Optical disk drive

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

- **DVD-ROM drive**
- **DVD Super MULTI drive**
- **DVD Dual 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 2016	Windows Server 2016 Standard
	Windows Server 2016 Datacenter
	Windows Server 2016 Essentials
Windows Server 2012 R2	Windows Server 2012 R2 Standard
	Windows Server 2012 R2 Datacenter
	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).

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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.

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NEC Express5800 Series
Express5800/R110i-1, T110i-S, T110i

Installing Windows

This manual explains the setup procedure for a physical environment.

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 an optional graphics accelerator card is installed into the server, please check the 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 2016

Describes how to set up Windows Server 2016.

4. Setting Up Windows Server 2012 R2

Describes how to set up Windows Server 2012 R2.

5. Setting Up Windows Server 2012

Describes how to set up Windows Server 2012.

6. Setting Up Windows Server 2008 R2

Describes how to set up Windows Server 2008 R2.

7. 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.
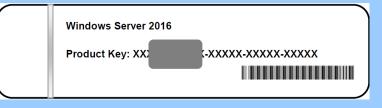
8. Windows OS Parameter File

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.

Important

The product key on the Certificate of Authenticity (COA) label is necessary information when authenticate the license. Scrape off with a coin or the like lightly the scratch that covers a part of the product key. When you scrape, be careful not to break the part that the product key is printed on.

Windows Server 2016

Product Key: XXX████X-XXXXX-XXXXX-XXXXX

The label cannot be reissued if it is lost or stained. It is recommended to write down the product key and keep it with other accessories.

Refer to the following for the installation of virtual OS.

If your virtualization infrastructure is Hyper-V:

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

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

If your virtualization infrastructure is not Hyper-V:

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

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

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

1.1 Starting EXPRESSBUILDER

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

For details, see *Chapter 2* (*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**

You can install the following editions of Windows operating system.

EB   : Setup with EXPRESSBUILDER

OS   : Setup with Windows Standard Installer

Windows OS		Boot mode		Installation option	
		UEFI	Legacy	EB	OS
Windows Server 2016	Standard	✓	N/A	✓	✓
	Datacenter	✓	N/A	✓	✓
	Essentials *1	✓	N/A	✓	✓
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	✓	N/A	✓ *3
	Enterprise	N/A	✓	N/A	✓ *3

✓ : Supported

*1   Only Express5800/T110i-S, T110i

*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 2016	✓	N/A
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	N/A	✓

✓ : 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 2016	Windows Server 2012 R2	Windows Server 2012	Windows Server 2008 R2
RAID Controllers supporting OS installation by EXPRESSBUILDER				
Onboard RAID Controller (LSI Embedded MegaRAID)	✓	✓	✓	N/A
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)	✓	✓	✓	✓
N8103-205 RAID Controller (RAID 0/1)	✓	✓	✓	N/A
N8103-206 RAID Controller (2GB, RAID 0/1)	✓	✓	✓	N/A
N8103-207 RAID Controller (2GB, RAID 0/1/5/6)	✓	✓	✓	N/A
N8103-208 RAID Controller (4GB, RAID 0/1/5/6)	✓	✓	✓	N/A
N8103-210 RAID Controller (2GB, RAID 0/1)	✓	✓	✓	N/A
N8103-211 RAID Controller (2GB, RAID 0/1/5/6)	✓	✓	✓	N/A
Other options				
N8103-142 SAS Controller	✓	✓	✓	✓
N8103-184 SAS Controller	✓	✓	✓	N/A
N8103-179 RAID Controller (2GB, RAID 0/1/5/6) *	✓	✓	✓	✓
N8190-159 Fibre Channel Controller(1ch) *	✓	✓	✓	✓
N8190-160 Fibre Channel Controller(2ch) *	✓	✓	✓	✓
N8190-161 Fibre Channel Controller(1ch) *	✓	✓	✓	N/A
N8190-162 Fibre Channel Controller(2ch) *	✓	✓	✓	N/A

✓:   Supported

* Only Express5800/R110i-1

1.5   LAN Boards Supported by EXPRESSBUILDER

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

	Windows Server 2016	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	N/A
Other options				
N8104-149 10GBASE Adapter (SFP+/2ch)	✓	✓	✓	✓
N8104-150 1000BASE-T Adapter	✓	✓	✓	✓
N8104-151 Dual Port 1000BASE-T Adapter	✓	✓	✓	✓
N8104-152 Quad Port 1000BASE-T Adapter	✓	✓	✓	✓
N8104-157 Dual Port 10GBASE-T Adapter	✓	✓	✓	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.

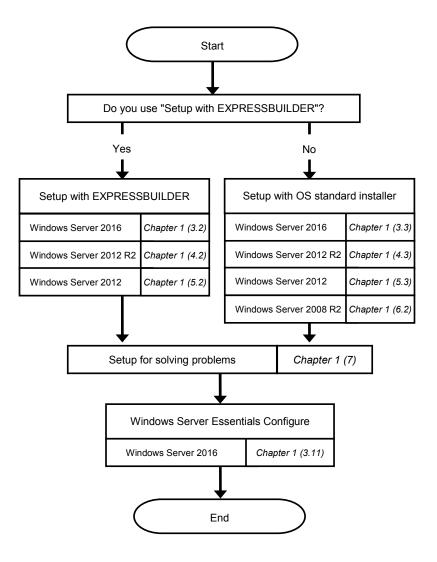1.   Have the instructions for the mass storage controller ready.

> **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.

```
                        ┌─────────────────────────┐
                        │          Start          │
                        └─────────────────────────┘
                                    │
                                    ▼
             ┌───────────────────────────────────────────┐
             │  Do you use "Setup with EXPRESSBUILDER"?   │
             └───────────────────────────────────────────┘
                    │                           │
                   Yes                          No
                    │                           │
                    ▼                           ▼
```

Setup with EXPRESSBUILDER	
Windows Server 2016	*Chapter 1 (3.2)*
Windows Server 2012 R2	*Chapter 1 (4.2)*
Windows Server 2012	*Chapter 1 (5.2)*

Setup with OS standard installer	
Windows Server 2016	*Chapter 1 (3.3)*
Windows Server 2012 R2	*Chapter 1 (4.3)*
Windows Server 2012	*Chapter 1 (5.3)*
Windows Server 2008 R2	*Chapter 1 (6.2)*

Setup for solving problems	*Chapter 1 (7)*

Windows Server Essentials Configure	
Windows Server 2016	*Chapter 1 (3.11)*

```
                        ┌─────────────────────────┐
                        │           End           │
                        └─────────────────────────┘
```

3. Setting Up Windows Server 2016

Set up Windows Server 2016.

3.1 Before Starting Setup

Read through the cautions explained here before starting setup.

EB : Setup with EXPRESSBUILDER

OS : Setup with Windows standard installer

BIOS settings		
EB **OS**		Change **Boot Mode** to **UEFI Mode**. See *Chapter 2 (1. System BIOS)* in *Maintenance Guide* for details. **Boot → Boot Mode → UEFI**
EB **OS**		Select **Enabled** for X2APIC feature of processor. See *Chapter 2 (1. System BIOS)* in *Maintenance Guide* for details. **Advanced → Processor Configuration → X2APIC→ Enabled**
EB **OS**		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. **Example of correct setting** **[Boot]–[Boot Option Priorities]** – **Boot Option #1 [UEFI: Optical Disk Drive]** – **Boot Option #2 [Windows Boot Manager]** → The system can boot from OS installation disc. **Example of incorrect setting** **[Boot]–[Boot Option Priorities]** – **Boot Option #1 [Windows Boot Manager]** – **Boot Option #2 [UEFI: Optical Disk Drive]** → The system cannot boot from OS installation disc. **Note** • Before opening BIOS SETUP, be sure to insert OS installation disc into optical disk drive. • If **Windows Boot Manager** is not displayed in **Boot Option Priorities**, you need not to confirm the boot priority.
EB **OS**		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.

Hardware configuration		
The following hardware configurations require special procedures.		
EB	OS	**Reinstalling to a mirrored volume** When you install Windows Server 2016 in an environment with a mirrored volume created using Windows, disable mirroring before installing the operating system and enable it again after the installation. Use [Computer Management] – [Disk Management] to create, disable, or remove the mirrored volume.
EB	OS	**Peripheral devices such as RDX/MO** 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.
EB	OS	**DAT, LTO, and similar media** Do not set media that is unnecessary to installation during setup.
EB	OS	**Installing in internal or external multiple hard disk drives (logical drives)** 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, see *Chapter 1* (*3.10 Installation When Multiple Logical Drives Exist)*. * Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit.
EB	OS	**Reinstalling to hard disk drives that have been upgraded to dynamic disks** If the hard disk drive has been upgraded to a dynamic disk, the operating system cannot be reinstalled to it with the existing partitions. Set up the operating system with the Windows standard installer.

`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 (7. 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

Desktop Experience

Size required to install the OS	= 15,200MB
Paging file size (recommended)	= installed memory size $\times$ 1.5
Dump file size	= installed memory size + 400MB
Application size	= as required by the application

Server Core

Size required to install the OS	= 10,300MB
Paging file size (recommended)	= installed memory size $\times$ 1.5
Dump file size	= installed memory size + 400MB
Application size	= as required by the application

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

15,200MB $+$ (2,048MB $\times$ 1.5) $+$ 2,048MB $+$ 400MB $+$ 100MB

$=$ 20,820 MB

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

The following partition sizes are recommended.

Desktop Experience

−   **Standard, Datacenter   :   32,768MB (32GB) or more**

−   **Essentials   :   61,440MB (60GB) or more**

Server Core   :   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   : 450MB
- EFI System Partition (ESP)   : 100MB *[1]
- Microsoft Reserved Partition (MSR)   : 16MB *[2]

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

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

Recovery Partition
(450MB)

Microsoft Reserved Partition (MSR) *[2]
(16MB)

System Partition

Free area

EFI System Partition (ESP) *[1]
(300MB)

*[1]   May be 100MB in size depending on hard disk drive type.
300MB partition will be created in case of setup with EXPRESSBUILDER.

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

Windows Server 2016 Hyper-V support

| EB | OS |

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

Using BitLocker

| EB | OS |

If using BitLocker, note the following.
- Be sure to keep the recovery password secure. Do not keep it near a server running BitLocker.

Important

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

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

*** Depending on your system, it may not be supported.
Refer to the 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 2016	
EB OS	The NIC teaming feature, which used to be provided by network interface card (NIC) vendors, is built into Windows Server 2016. In Windows Server 2016, this feature is also called "load balancing and failover (LBFO)". See *3.8 Setup of Windows Server 2016 NIC Teaming (LBFO)* and specify any required settings.
Device Guard feature and Credential Guard feature	
EB OS	Device Guard feature and Credential Guard feature are not available for Express Server.

3.2   Setup with EXPRESSBUILDER

This section describes how to install Windows with EXPRESSBUILDER.

This feature automatically finds 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
	Backing 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	• Device Guard: virtualization-based security is disabled by using this setup. Do not enable Device Guard feature because this feature is not available for this server. • 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.

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, see *Chapter 1 (8. Windows OS Parameter File).*

3.2.1   Setup flow

	Process that requires input or selection
	Process that proceeds automatically

3.2.2   Requirements for Setup

Prepare the following media and instruction manuals before starting setup.

➢ Either of the following OS installation disc

- **NEC operating system installation disc** (hereafter referred to as *Backup DVD-ROM*)

- **Microsoft operating system installation disc** (hereafter referred to as *Windows Server 2016 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 disc be detected 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 2016**, 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. See *Chapter 2 (5. RAID System Configuration)* in *"Maintenance Guide"* when creating RAID10.

When creating new logical drives

(1)   With the **Skip Configuring RAID Array** check box cleared, click **Next**.
Set up the logical drives according to the wizard.

Important	**When a new logical drive is created, the existing RAID system is destructed and the contents of hard disk drive will be erased.**

(2)   Setting the disk array configuration and the RAID level.

(3)   Specify the size of the logical drive by the GB unit as needed.

Note   The RAID level and the logical drive size varies depending on hardware configuration.

When skipping the creation of new logical drives

(1)   Select the **Skip Configuring RAID Array** 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. See** *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 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 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. • If you select the Windows Server 2016 Essentials, select **Standard Settings**.

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 workgroup settings.
If you want to use the domain, change the settings after installing Windows.
Check the settings, modify them as needed, and then click **Next**.

Tips	Windows Server 2016 Essentials installs OS with workgroup setting. Configure the domain after OS is installed.

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

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

Desktop Experience	Server Core

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.

If you want 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 2016 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. Set according to operating system selected in step 12-(1) or 13-(2).

Desktop Experience

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

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

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

Click **OK**.

Note

<Windows Server 2016 Essentials>

When the following screen appears, click **Cancel**.

Click **Yes**.

This screen will be displayed each time the OS is restarted. Cancel "Configure Windows Server Essentials" until setup is finished.

Server Core

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

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

Click **OK**.

20. See *Chapter 1 (3.5 Checking installation of EXPRESSBUILDER)* to confirm that EXPRESSBUILDER has been installed in Windows.

21. Follow the instructions described in *Chapter 1 (3.6 Setting Up Device Drivers)* to set up the device drivers.

22. Confirm if Windows is activated according to *Chapter 1 (3.7 License Authentication)*.

23. See *Chapter 1 (3.8 Setup of Windows Server 2016 NIC Teaming (LBFO))* to setup a team as needed.

24. Run the setup by following the instructions described in *Chapter 1 (7. Setup for Solving Problems)*.

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

26. If you select the Windows Server 2016 Essentials, set several settings according to *Chapter 1 (3.11 Configure Windows Server Essentials)*.

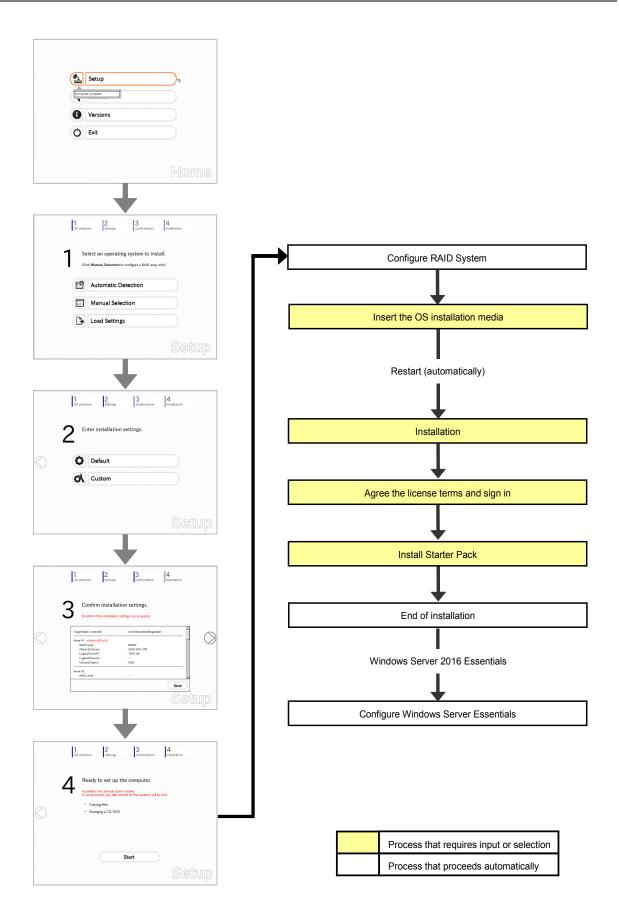Setup with EXPRESSBUILDER is now complete.

3.3   Setup with Windows Standard Installer

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

This feature automatically finds 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, as needed, 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. See *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, see *Chapter 1 (8. Windows OS Parameter File)*.

3.3.1   Setup flow

(yellow box)	Process that requires input or selection
(white box)	Process that proceeds automatically

3.3.2   **Requirements for Setup**

Prepare the following media and instruction manuals before starting setup.

➢ Either of the following OS installation disc

- **NEC operating system installation disc** (hereafter referred to as *Backup DVD-ROM*)

- **Microsoft operating system installation disc** (hereafter referred to as *Windows Server 2016 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 disc be detected 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 2016**, 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. See *Chapter 2 (5. RAID System Configuration)* in *"Maintenance Guide"* when creating RAID10.

When creating new logical drives

(1)   With the **Skip Configuring RAID Array** 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.**

(2)   Setting the disk array configuration and the RAID level.

(3)   Specify the size of the logical drive by the GB unit as needed.

Note	The RAID level and the logical drive size varies depending on hardware configuration.

When skipping the creation of new logical drives

(1)   Select the **Skip Configuring RAID Array** 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. If you want 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.

17. In case of using backup DVD, choose the OS language if the following screen appears.

18. Click **Next**.

19. Click **Install now**.

− If the following message appears, go to step 20.
− If not, go to step 22.

```
Load Driver

To install the driver needed to access your hard drive, insert
the installation media containing the driver files, and then
click OK.

Note: The installation media can be a floppy disk, CD, DVD, or
USB flash drive.


      Browse                OK                Cancel
```

20. Click **Browse** and select the destination, and then click **OK**.
    Specify the displayed drive as **INTER-FLASH**.

    `\016\win\winnt\drivers\01_storage\1_al_09`

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.

21. Select the following driver from the driver list shown, and then click **Next**.
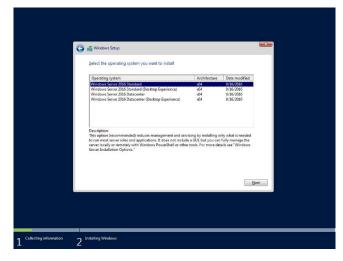
    LSI Embedded MegaRAID

22. Enter the product key and click **Next**.

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

23. Select the operating system you want to install and click **Next**.

The options listed on the screen vary depending on the installation media you are using.

| Tips	Read the message of the screen, and then choose an installation option.
	• Windows Server 2016 Standard or Windows Server 2016 Datacenter
	→ Described as "Server Core" by this manual
	• Windows Server 2016 Standard (Desktop Experience) or Windows Server 2016 Datacenter (Desktop Experience)
	→ Described as "Desktop Experience" by this manual
	• Windows Server 2016 Essentials
	→ This edition is not appeared on the screen. Go to Step 24.
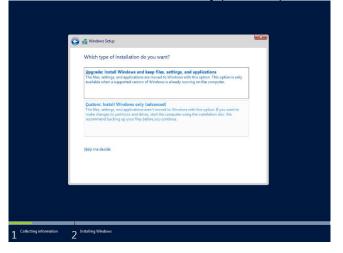
24. Read the license terms carefully.

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

25. Select the installation type.

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

26. "Where do you want to install Windows?" window appears.
    If the driver was loaded in step 20 and 21, or if a RAID controller is not used, go to step 30.

    If you select Load Driver, the following message appears.

```
Load Driver

To install the driver needed to access your hard drive, insert
the installation media containing the driver files, and then
click OK.

Note: The installation media can be a floppy disk, CD, DVD, or
USB flash drive.


        Browse                  OK                  Cancel
```

27. Click **Browse** and select the destination, and then click **OK**.
    Specify the displayed drive as **INTER-FLASH**.

    Onboard RAID Controller (LSI Embedded MegaRAID):
    `\016\win\winnt\drivers\01_storage\1_al_09`

    RAID Controller (N8103-205/206/207/208/210/211) :
    `\016\win\winnt\drivers\01_storage\1_ay_03`

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 15.

28. Select the following driver from the driver list shown, and then click **Next**.
    Onboard RAID Controller (LSI Embedded MegaRAID)   : **LSI Embedded MegaRAID**
    RAID Controller (N8103-205)   : **MegaRAID 944N-8i**
    RAID Controller (N8103-206/207)   : **MegaRAID 946N-8i 2G**
    RAID Controller (N8103-208)   : **MegaRAID 946N-8i 4G**
    RAID Controller (N8103-210/211)   : **MegaRAID 945N-8i**

29. If you inserted the EXPRESSBUILDER DVD in Step 26, 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.

⚠ Windows cannot be installed to this disk. (Show details)
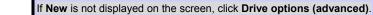
If it appears, replace the OS installation media, and then click **Refresh**.

30. Click **New**.
    If a partition has already been created, go to step 32.
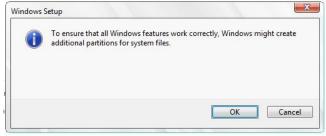

Tips	If **New** is not displayed on the screen, click **Drive options (advanced)**.

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

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

Tips	When creating a partition, the OS creates the following partitions at top of the hard disk drive.
	– Recovery Partition
	– EFI System Partition (ESP)
	– Microsoft Reserved Partition (MSR)

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

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

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

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

When the following message appears, Windows installation starts automatically.

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

34. Set according to operating system selected in Step 23.
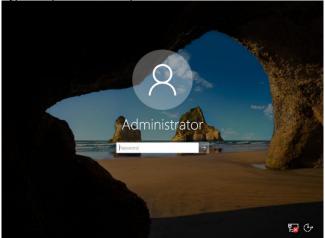
Desktop Experience

Type a password and click **Finish**.

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

Type the password and press <Enter>.

<Windows Server 2016 Standard or Windows Server 2016 Datacenter>

Windows Server 2016 starts.

<Windows Server 2016 Essentials>

When the following screen appears, click **Cancel**.
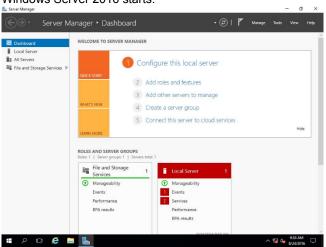
Click **Yes**.

Note	This screen will be displayed each time the OS is restarted. Cancel "Configure Windows Server Essentials" until setup is finished.

Server Core

It is necessary to change the password. Select **OK** and press the <Enter> key.

```
C:\Windows\system32\LogonUI.exe                          _  □  ×
Administrator
The user's password must be changed before signing in.
Ok
Cancel
```

Enter the new password and press the <Enter> key.

```
C:\Windows\system32\LogonUI.exe                          _  □  ×
Enter new credentials for Administrator or hit ESC to cancel
New password : _
Confirm password :
```

Select **OK** and press the <Enter> key after the password change message is displayed.

```
C:\Windows\system32\LogonUI.exe                          _  □  ×
Administrator
Your password has been changed.
Ok
```

Windows Server 2016 starts.

```
Administrator: C:\Windows\system32\cmd.exe

C:\Users\Administrator>
```

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

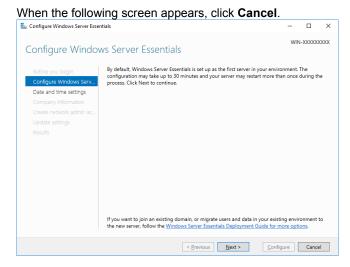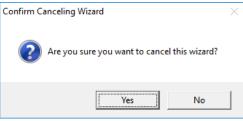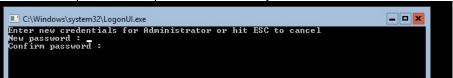35. Install Starter Pack by referring to *Chapter 1* (*3.4 Installing Starter Pack)*.

    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)*

36. See *Chapter 1 (3.5 Checking installation of EXPRESSBUILDER)* to confirm that EXPRESSBUILDER has

    been installed in Windows.

37. Install drivers and specify detailed settings by referring to *Chapter 1 (3.6 Setting Up Device Drivers)*.

38. Confirm if Windows is activated according to *Chapter 1 (3.7 License Authentication)*.

39. See *Chapter 1 (3.8 Setup of Windows Server 2016 NIC Teaming (LBFO))* to setup a team as needed.

40. Install the applications as needed by referring to *Chapter 1* (*3.9 Installing the Applications*).

41. Execute setup by following the instructions described in *Chapter 1 (7. Setup for Solving Problems)*.

42. If you select the Windows Server 2016 Essentials, set several settings according to Chapter 1 (3.11

    Configure Windows Server Essentials).

    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.
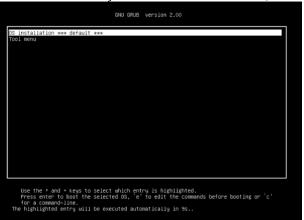
<table>
<tr><td>Important</td><td>● **Also install Starter Pack in the following cases.**

    – **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, see *Chapter 1(3.6 Setting Up Device Drivers)*.**</td></tr>
</table>

<table>
<tr><td>Note</td><td>"Device Guard: virtualization-based security" is disabled by using this setup. Do not enable Device Guard feature because this feature is not available for this server.</td></tr>
</table>

<table>
<tr><td>Tips</td><td>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.</td></tr>
</table>

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.

<table>
<tr><td>Note</td><td>At this time, be sure to remove the DVD from the optical disk drive.</td></tr>
</table>

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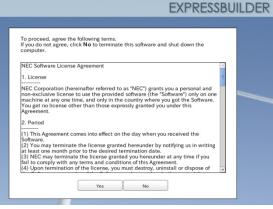
The following window appears.

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, install Starter Pack following steps as below.
On Desktop Experience, 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** ✕
>
> ❓ Setup is going to install Starter Pack.
> If you install it, click [OK],
> if you wish to cancel it, click [Cancel].
>
> (ID:C203g)
>
> OK   Cancel
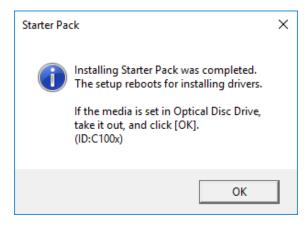
Wait until the installation of the Starter Pack is complete. (About 2 to 5 minutes)

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.

> **Starter Pack** ✕
>
> ℹ️ Installing Starter Pack was completed.
> The setup reboots for installing drivers.
>
> If the media is set in Optical Disc Drive,
> take it out, and click [OK].
> (ID:C100x)
>
> OK
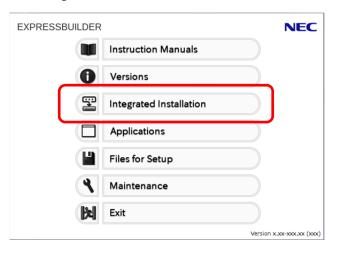
Installation of Starter Pack is now complete.

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 (Desktop Experience)

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)

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

   `cd /d D:\016\win\winnt\bin`

   ```
   C:\Users\administrator>cd /d D:\016\win\winnt\bin
   ```

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

   `pkgsetup.vbs`

   ```
   D:\016\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)   Desktop Experience

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

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.

> N8104-149/150/151/152/157

The LAN drivers of N8104-149/150/151/152/157 are installed automatically by Windows Plug-and-Play.
As for N8104-149/157, however, if the LAN board is not equipped with the server at the time when the Starter Pack is being applied or setup with EXPRESSBUILDER, appropriate drivers will not be installed automatically if you additionally equip the LAN board.
In that case, install the LAN drivers by the following steps.

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
   \016\win\winnt\drivers\02_network\1_as_04\install_ws2016.bat
   ```

   If using EXPRESSBUILDER, run the following file.

   ```
   \016\win\winnt\drivers\02_network\1_as_04\install_ws2016.bat
   ```

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

   > QLOGIC Driver Installation Completed!

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

   Setup is now completed.

N8104-157

Note	When **Intel(R) Network Connections xx.xx.xx.xx** 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
   \016\win\winnt\drivers\02_network\1_ag_04\install_ws2016.bat
   ```

   If using EXPRESSBUILDER, run the following file.

   ```
   \016\win\winnt\drivers\02_network\1_ag_04\install_ws2016.bat
   ```

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

   Intel Driver Installation Completed!

3. When LAN board is new addition, configure 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)

[N8104-157]   : Intel(R) Ethernet Controller X550 #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.

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)   Configuring Flow Control

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

Tips	The settings of Transmit/Receive of the network adapter should match those of the destination device. For example, if Flow Control in the destination device is set as Receive only, that in the server should be set as Transmit only.

1.   Open the **Device Manager**.

2.   Expand **Network Adapters**, and then double-click the name of the network adapter you want to configure. The properties of the network adapter will be displayed.

3.   Open **Advanced** tab and click **Flow Control** to show **Value**.

4.   The **Value** can be changed by the down-arrow button.

5.   Click **OK**.

6.   Restart the system.

The Flow Control setting is now complete.

(3)   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*
> *\016\win\winnt\drivers*\02_network\1_ah_03\pgdyavd_disable.vbs

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

> \016\win\winnt\drivers\02_network\1_ah_03\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
        \016\win\winnt\drivers\03_graphics\1_aj_03\install.bat

    -   When using EXPRESSBUILDER DVD:
        \016\win\winnt\drivers\03_graphics\1_aj_03\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 **Using Optional Graphics Accelerator Card**

If an optional graphics accelerator card is installed, see the Startup Guide/User's Guide of the graphics accelerator card.

3.6.5 **Using SAS controller (N8103-142)**

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

3.6.6 **Using SAS controller (N8103-184)**

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

Drivers customized for this server is installed by applying the Starter Pack.

3.6.7 **Using RAID Controller (N8103-176/177/178/179/188/205/206/207/208/210/211)**

The driver for RAID Controller N8103-176/177/178/179/188/205/206/207/208/210/211 is automatically installed by Windows Plug-and-Play.

Drivers customized for this server is installed by applying the Starter Pack.

3.6.8   **Using Fibre Channel controller (N8190-159/160)**

The driver for Fibre Channel controller N8190-159/160 is automatically installed by Windows Plug-and-Play. Drivers customized for this server is installed by applying the Starter Pack.
However, if you additionally equip a Fibre Channel controller (N8190-159/160), right click on following file, and select Run as Administrator.

```
C:\Program Files(x86)\EXPRESSBUILDER\repository
\016\win\winnt\drivers\01_storage\1_ao_04\utl\cli_inst.bat
```

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

```
\016\win\winnt\drivers\01_storage\1_ao_04\utl\cli_inst.bat
```

3.6.9   **Using Fibre Channel controller (N8190-161/162)**

The driver for Fibre Channel controller N8190-161/162 is automatically installed by Windows Plug-and-Play. Drivers customized for this server is installed by applying the Starter Pack.
However, if you additionally equip a Fibre Channel controller (N8190-161/162), right click on following file, and select Run as Administrator.

```
C:\Program Files(x86)\EXPRESSBUILDER\repository
\016\win\winnt\drivers\01_storage\1_au_01\utl\cli_inst.bat
```

If using EXPRESSBUILDER DVD (option), run the following file on the DVD.
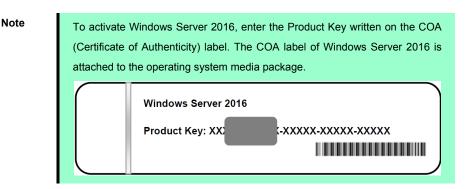
```
\016\win\winnt\drivers\01_storage\1_au_01\utl\cli_inst.bat
```

3.7   License Authentication

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

Be sure to perform the license authentication procedure.

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

Note

> To activate Windows Server 2016, enter the Product Key written on the COA (Certificate of Authenticity) label. The COA label of Windows Server 2016 is attached to the operating system media package.
>
> **Windows Server 2016**
>
> **Product Key: XXX████████X-XXXXX-XXXXX-XXXXX**

3.7.1   Desktop Experience

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

2. Check Windows license authentication.

    ☐ If "Windows is activated." is displayed:
    You do not need to perform this procedure.

    ☐ If "Connect to the internet to activate Windows." is displayed:
    Go to Step 3.

3.   Click **Activate Windows**.

4.   Perform license authentication.
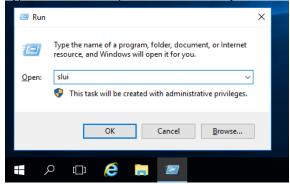

☐ When connected to Internet:
       Click **Change product key**.
       Complete license authentication process according to the message.

☐ When not connected to the Internet:
       Go to Step 5.

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

☐   Backup DVD-ROM   : Go to the next step.

☐   Windows Server 2016 DVD-ROM
       - Product key is <u>already entered</u>: Go to Step 9.
       - Product key is <u>not entered</u>: Go to the next step.

6.   Right-click the left bottom of screen, and click **Run** from the menu displayed.
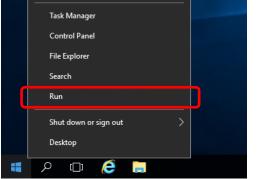
7.　Type "slui", and then press the <Enter> key.

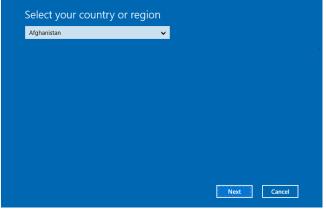8.　Change the product key. On the next screen, enter the product key.

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

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

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

Select your country or region

Afghanistan

Next   Cancel

Acquire the installation ID required for license activation.

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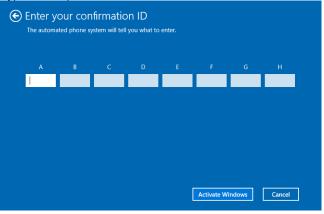
Call one of these numbers. The automated phone system will ask for your installation ID (IID). Some charges may be applied by local operators for toll-free numbers in certain countries or regions.

Toll free:
not available

Toll:
(971) (4) 391 7000

Installation ID:

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

Read our privacy statement

Enter confirmation ID   Cancel

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

← Enter your confirmation ID

The automated phone system will tell you what to enter.

A	B	C	D	E	F	G	H

Activate Windows   Cancel

This completes authentication.

3.7.2   **Server Core**

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 2016 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 2016 NIC Teaming (LBFO)

Set up the network adapter teaming feature as shown below.

(1)   Launching the NIC teaming setup tool

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

   The NIC teaming setup tool will launch.

Tips	The NIC teaming setup tool can also be launched by opening the **Run** dialog box, typing `lbfoadmin /server .` , and then pressing 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	● Distributes the load based on IP addresses and port numbers in sending. ● Distributes the load same to "Hyper-V Port" in receiving.

Standby adapter

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

Setting all adapters to active mode is also possible.

Primary team interface

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

(3)   Notes and restrictions

- NIC teaming on a guest OS is not supported.

- Teaming of virtual NICs on the host OS is not supported in the Hyper-V environment.

- When STP (Spanning Tree Protocol) is enabled on network switch ports to which network adapters of the team are connected, network communications may be disrupted. Disable STP, or configure "PortFast" or "EdgePort" to the ports.
  * About setting the network switch of the connection destination, see the manual of the network switch.

- All NICs in the team must be connected to the same subnet.

- Teaming of different speed NICs is not supported.

- Teaming of different vendor's NICs is not supported.

- When teaming is configured in a Network Load Balancing (NLB) environment, you should select multicast mode on the NLB cluster.

Refer to the following website for the latest information.

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

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

3.9   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

See *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. See *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 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. See *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.
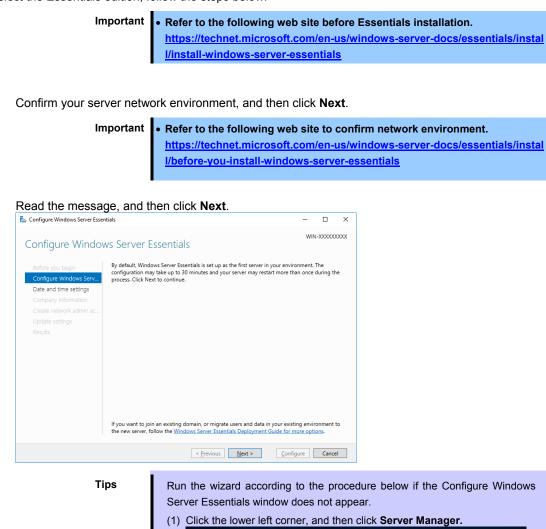
1. Right-click the left bottom of screen, and click **Computer Management**.

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 paths**.

4. Click **Change** and **Assign the following drive letter**, and then select the drive letter you want to assign.

5. Click **OK**.

6. Close the **Server Manager**.

3.11 Configure Windows Server Essentials

If you select the Essentials edition, follow the steps below.

Important	• **Refer to the following web site before Essentials installation.** **https://technet.microsoft.com/en-us/windows-server-docs/essentials/instal** **l/install-windows-server-essentials**

1. Confirm your server network environment, and then click **Next**.

Important	• **Refer to the following web site to confirm network environment.** **https://technet.microsoft.com/en-us/windows-server-docs/essentials/instal** **l/before-you-install-windows-server-essentials**

2. Read the message, and then click **Next**.

Tips	Run the wizard according to the procedure below if the Configure Windows Server Essentials window does not appear. (1) Click the lower left corner, and then click **Server Manager.**

(2) Click ⚠ on the upper menu of screen, and then click **Configure**
Windows Server Essentials.

3. Confirm the time settings, and then click **Next**.

4. Set the Company information, and then click **Next**.

5. Create a network administrator account, and then click **Next**.

6. Select **Use recommended settings**, and then click **Configure**.
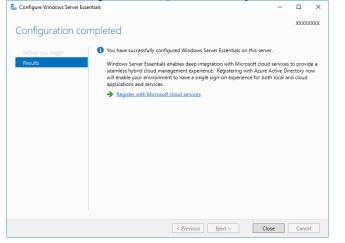
The setup will start. Wait until the setup is complete.

Tips	Do not perform any operations even if the server is restarted.

7. Sign in to the Windows with the account which created at Step 5.

8.   Confirm the configuration completion correctly, and then click **Close**.
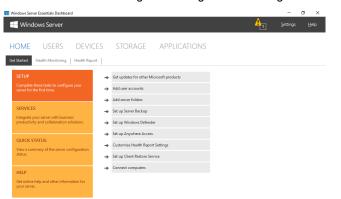
9.   Click the shortcut of the Windows Server Essentials dashboard.

| Tips | Click **Yes** when the User Account Control window appears. |

10. The following window will appear.
     Continue to set the settings according to the message of window.

Windows Server 2016 Essentials installation is now completed.

4.   Setting Up Windows Server 2012 R2

Set up Windows Server 2012 R2.

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		
EB	OS	Change **Boot Mode** to **UEFI Mode**. See *Chapter 2 (1. System BIOS)* in *Maintenance Guide* for details. **Boot → Boot Mode → UEFI**
EB	OS	Select **Enabled** for X2APIC feature of processor. See *Chapter 2 (1. System BIOS)* in *Maintenance Guide* for details. **Advanced → Processor Configuration → X2APIC→ Enabled**
EB	OS	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. **Example of correct setting** **[Boot]–[Boot Option Priorities]** **– Boot Option #1 [UEFI: Optical Disk Drive]** **– Boot Option #2 [Windows Boot Manager]** → The system can boot from OS installation media. **Example of incorrect setting** **[Boot]–[Boot Option Priorities]** **– Boot Option #1 [Windows Boot Manager]** **– Boot Option #2 [UEFI: Optical Disk Drive]** → The system cannot boot from OS installation media. **Note** • 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.
EB	OS	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.

Hardware configuration		
The following hardware configurations require special procedures.		
EB	OS	**Reinstalling to a mirrored volume** When you install Windows Server 2012 R2 in an environment with a mirrored volume created using Windows, disable mirroring before installing the operating system and enable it again after the installation. Use [Computer Management] – [Disk Management] to create, disable, or remove the mirrored volume.
EB	OS	**Peripheral devices such as RDX/MO** 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.
EB	OS	**DAT, LTO, and similar media** Do not set media that is unnecessary to installation during setup.
EB	OS	**Installing in internal or external multiple hard disk drives (logical drives)** 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 *Chapter 1* (*4.10 Installation When Multiple Logical Drives Exist).* * Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit.
EB	OS	**Reinstalling to hard disk drives that have been upgraded to dynamic disks** If the hard disk drive has been upgraded to a dynamic disk, the operating system cannot be reinstalled to it with the existing partitions. Set up the operating system with the Windows standard installer.

| EB | OS | **Setup when mass memory is installed** |

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 (7. 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 $\times$ 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 $\times$ 1.5
Dump file size	= installed memory size + 400MB
Application size	= as required by the application

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

9,200MB + (1,024MB $\times$ 1.5) + 1,024MB + 400MB + 100MB

= 12,260MB

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

The following partition sizes are recommended.

Server with a GUI	**:**	**32,768MB (32GB) or more**
Server Core installations	**:**	**32,768MB (32GB) or more**
*1 GB = 1,024 MB		

Note

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

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

| 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:

$$61,440MB - (300MB + 260MB + 128MB) = 60,752MB$$

Free area

Recovery Partition
(300MB)

System Partition

Microsoft Reserved Partition (MSR) *2
(128MB)

EFI System Partition (ESP) *1
(260MB)

*1   May be 100MB in size depending on hard disk drive type.
260MB partition will be created in case of setup with EXPRESSBUILDER.

*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. |

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

Support for NIC teaming in Windows Server 2012 R2

| EB | OS | The NIC teaming feature, which used to be provided by network interface card (NIC) vendors, is built into Windows Server 2012 R2. In Windows Server 2012 R2, this feature is also called "load balancing and failover (LBFO)".
Refer to *4.8 Setup of Windows Server 2012 R2 NIC Teaming (LBFO)* and specify any required settings. |
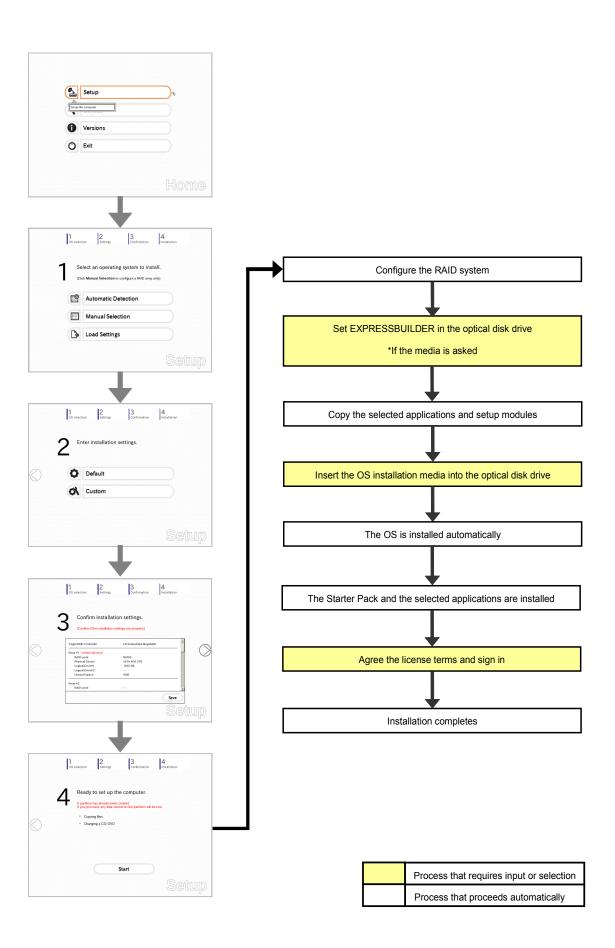
4.2   Setup with EXPRESSBUILDER

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 Settings**
	Backing 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 (8. Windows OS Parameter File)*.

4.2.1   Setup flow


```
Configure the RAID system
        ↓
Set EXPRESSBUILDER in the optical disk drive

*If the media is asked
        ↓
Copy the selected applications and setup modules
        ↓
Insert the OS installation media into the optical disk drive
        ↓
The OS is installed automatically
        ↓
The Starter Pack and the selected applications are installed
        ↓
Agree the license terms and sign in
        ↓
Installation completes
```

(yellow)	Process that requires input or selection
(white)	Process that proceeds automatically

4.2.2   **Requirements for Setup**

Prepare the following media and instruction manuals before starting setup.

➢ Either of the following OS installation media

- **NEC operating system installation media** (hereafter referred to as *Backup DVD-ROM*)

- **Microsoft operating system installation media** (hereafter referred to as *Windows Server 2012 R2 DVD-ROM*)

➢ Either of the following EXPRESSBUILDER

- **Internal Flash Memory**

- **EXPRESSBUILDER DVD** (Option)

➢ Prepare if needed:

- **Removable media for Windows OS parameter file**

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 **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

(1) With the **Skip Configuring RAID Array** check box cleared, click **Next**.
Set up the logical drives according to the wizard.

Important	When a new logical drive is created, the existing RAID system is destructed and the contents of hard disk drive will be erased.

(2) Setting the disk array configuration and the RAID level.

(3)   Specify the size of the logical drive by the GB unit as needed.

| Note | The RAID level and the logical drive size varies depending on hardware configuration. |

When skipping the creation of new logical drives

(1)   Select the **Skip Configuring RAID Array** 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 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**.

The setup is completed

The Setup with EXPRESSBUILDER has been successfully completed.

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 (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 R2 NIC Teaming (LBFO))* to setup a team as needed.

26. Execute setup by following the instructions described in *Chapter 1 (7. 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*".
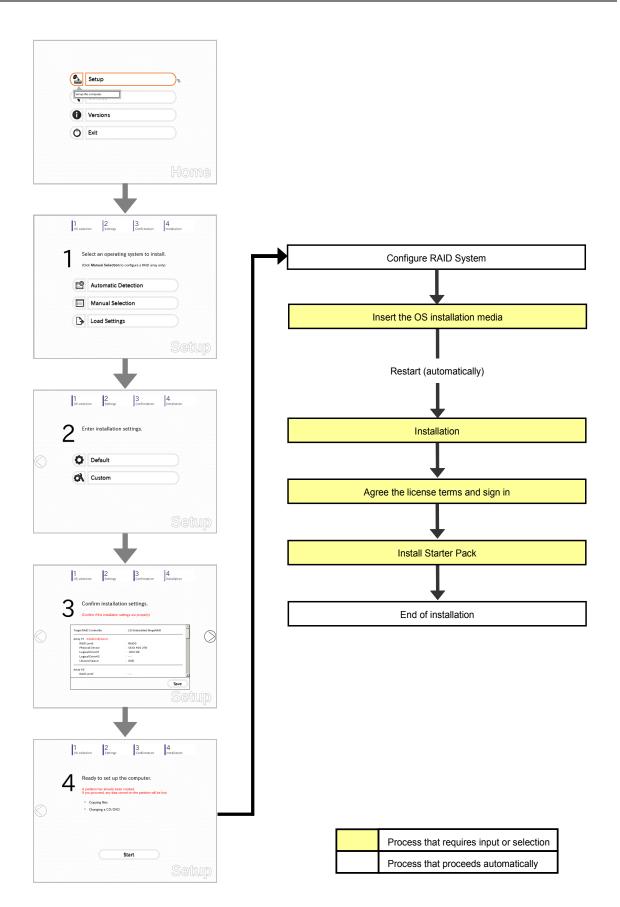
Important	**Setup with Windows standard Installer may delete all data of the hard disk drive depending on the settings. Pay attention to input parameters.** **You must be especially careful when configuring the following:** **– RAID settings** **When re-installing an OS, backing up user data, as needed, 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 (8. Windows OS Parameter File)*.

4.3.1   Setup flow

Setup screen:
- Setup — Setup the computer
- Versions
- Exit
- *Home*

Step 1 — Setup screen:
1 OS selection   2 Settings   3 Confirmation   4 Installation

1 Select an operating system to install.
(Click **Manual Selection** to configure a RAID array only.)
- Automatic Detection
- Manual Selection
- Load Settings

Setup

Step 2 — Setup screen:
1 OS selection   2 Settings   3 Confirmation   4 Installation

2 Enter installation settings.
- Default
- Custom

Setup

Step 3 — Setup screen:
1 OS selection   2 Settings   3 Confirmation   4 Installation

3 Confirm installation settings.
(Confirm if the installation settings are properly.)

Target RAID Controller	: LSI Embedded MegaRAID
Array #1 Initialized(Quick)	
RAID Level	: RAID0
Physical Device	: SATA #00 2TB
Logical Drive#1	: 100 1GB
Logical Drive#2	: ···
Unused Space	: 0GB
Array #2	
RAID Level	: ···

Save

Setup

Step 4 — Setup screen:
1 OS selection   2 Settings   3 Confirmation   4 Installation

4 Ready to set up the computer.
A partition has already been created.
If you proceed, any data stored on the partition will be lost.
- Copying files
- Changing a CD/DVD

Start

Setup

Flowchart (right side):

Configure RAID System
↓
Insert the OS installation media
↓
Restart (automatically)
↓
Installation
↓
Agree the license terms and sign in
↓
Install Starter Pack
↓
End of installation

| (yellow) | Process that requires input or selection |
| (white) | Process that proceeds automatically |

4.3.2   **Requirements for Setup**

Prepare the following media and instruction manuals before starting setup.

➢ Either of the following OS installation media

- **NEC operating system installation media** (hereafter referred to as *Backup DVD-ROM*)

- **Microsoft operating system installation media** (hereafter referred to as *Windows Server 2012 R2 DVD-ROM*)

➢ 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 **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 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

(1)   With the **Skip Configuring RAID Array** check box cleared, click **Next**.
Set up the logical drives according to the wizard.

Important	**When a new logical drive is created, the existing RAID system is destructed and the contents of hard disk drive will be erased.**

(2)   Setting the disk array configuration and the RAID level.

(3)   Specify the size of the logical drive by the GB unit as needed.

> **Note**   The RAID level and the logical drive size varies depending on hardware configuration.

When skipping the creation of new logical drives
(1)   Select the **Skip Configuring RAID Array** 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**.

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

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

Load Driver
To install the driver needed to access your hard drive, insert the installation media containing the driver files, and then click OK. Note: The installation media can be a floppy disk, CD, DVD, or USB flash drive.
Browse   OK   Cancel

19. Click **Browse** and select the destination, and then click **OK**.
Specify the displayed drive as **INTER-FLASH**.

    `\016\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 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 the click **Next**.
    The screen display differs depending on an OS installation media you are using.

23. 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**.

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 was loaded in step 19 and 20, or if a RAID controller is not used, go to step 29.

    If you select Load Driver, the following message appears.

```
Load Driver

To install the driver needed to access your hard drive, insert
the installation media containing the driver files, and then
click OK.

Note: The installation media can be a floppy disk, CD, DVD, or
USB flash drive.


      Browse              OK              Cancel
```

26. Click **Browse** and select the destination, and then click **OK**.
    Specify the displayed drive as **INTER-FLASH**.

    Onboard RAID Controller (LSI Embedded MegaRAID):
    \016\win\winnt\drivers\01_storage\1_al_07

    RAID Controller (N8103-205/206/207/208/210/211) :
    \016\win\winnt\drivers\01_storage\1_ay_02

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 15.

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 (N8103-205)   : **MegaRAID 944N-8i**

    RAID Controller (N8103-206/207)   : **MegaRAID 946N-8i 2G**

    RAID Controller (N8103-208)   : **MegaRAID 946N-8i 4G**

    RAID Controller (N8103-210/211)   : **MegaRAID 945N-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.
	⚠ <u>W</u>indows cannot be installed to this disk. (Show details)
	If it appears, replace the OS installation media, and then click **Refresh**.

29. Click **New**.
    If a partition has already been created, go to step 32.

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

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.
  – Recovery Partition
  – 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 22.

| Server with a GUI |
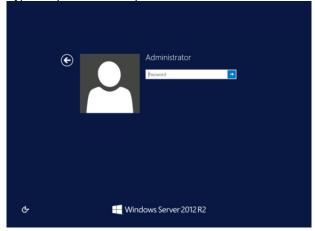
Type a password and click **Finish**.

Press <Ctrl>+<Alt>+<Del> 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* (*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 DVD (Option)*

35. See *Chapter 1 (4.5 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 (4.6 Setting Up Device Drivers)*.

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

38. See *Chapter 1 (4.8 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* (*4.9 Installing the Applications*).

40. Execute setup by following the instructions described in *Chapter 1 (7. 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.

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 (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	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.

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 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* (*4.4.1 Installing Starter Pack after POST*) for further procedure.

4.4.3   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 (4.4.2 Installing Starter Pack using Windows Application)* for further procedure.

Installation from Windows (Server Core Installation)
1.   From the command prompt, type the following command.
     In the example below, the optical disk drive is the D drive.

```
cd /d D:\016\win\winnt\bin
```
```
C:\Users\administrator>cd /d D:\016\win\winnt\bin
```

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

```
pkgsetup.vbs
```
```
D:\016\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 with a 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.

> N8104-149/150/151/152/157

The LAN drivers of N8104-149/150/151/152/157 are installed automatically by Windows Plug-and-Play.
As for N8104-149/157, however, if the LAN board is not equipped with the server at the time when the Starter Pack is being applied or setup with EXPRESSBUILDER, appropriate drivers will not be installed automatically if you additionally equip the LAN board.
In that case, install the LAN drivers by the following steps.

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
   \016\win\winnt\drivers\02_network\1_as_02\install_ws2012r2.bat
   ```

   If using EXPRESSBUILDER, run the following file.

   ```
   \016\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, configure each LAN board by referring to *Chapter 1 (4.6.2 Setting up LAN drivers)*.

   Setup is now completed.

N8104-157

Note

When **Intel(R) Network Connections xx.xx.xx.xx** 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
    \016\win\winnt\drivers\02_network\1_ag_02\install_ws2012r2.bat
    ```

    If using EXPRESSBUILDER, run the following file.

    ```
    \016\win\winnt\drivers\02_network\1_ag_02\install_ws2012r2.bat
    ```

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

    Intel Driver Installation Completed!

3. When LAN board is new addition, configure 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 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)

[N8104-157]   : Intel(R) Ethernet Controller X550 #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 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)   Configuring Flow Control

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

Tips	The settings of Transmit/Receive of the network adapter should match those of the destination device. For example, if Flow Control in the destination device is set as Receive only, that in the server should be set as Transmit only.

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 and click **Flow Control** to show **Value**.

4.   The **Value** can be changed by the down-arrow button.

5.   Click **OK**.

6.   Restart the system.

The Flow Control setting is now complete.

(3)   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
\016\win\winnt\drivers\02_network\1_ah_02\pgdyavd_disable.vbs
```

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

```
\016\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, 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`
        `\016\win\winnt\drivers\03_graphics\1_aj_05\install.bat`

    -   When using EXPRESSBUILDER DVD:
        `\016\win\winnt\drivers\03_graphics\1_aj_05\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 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.

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

The driver for SAS controller N8103-142/184 is automatically installed by Windows Plug-and-Play.
Drivers customized for this server is installed by applying the Starter Pack.

4.6.6   **When using a RAID Controller (N8103-176/177/178/179/188/205/206/207/208/210/211)**

The driver for RAID Controller N8103-176/177/178/179/188/205/206/207/208/210/211 is automatically installed by Windows Plug-and-Play. Drivers customized for this server is installed by applying the Starter Pack.

4.6.7   **When using a Fibre Channel controller (N8190-159/160)**

The driver for Fibre Channel controller N8190-159/160 is automatically installed by Windows Plug-and-Play.
Drivers customized for this server is installed by applying the Starter Pack.
However, if you additionally equip a Fibre Channel controller (N8190-159/160), right click on following file, and select Run as Administrator.

```
C:\Program Files(x86)\EXPRESSBUILDER\repository
\016\win\winnt\drivers\01_storage\1_ao_03\utl\cli_inst.bat
```

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

```
\016\win\winnt\drivers\01_storage\1_ao_03\utl\cli_inst.bat
```

4.6.8   **When using a Fibre Channel controller (N8190-161/162)**

The driver for Fibre Channel controller N8190-161/162 is installed by applying the Starter Pack.
However, if you additionally equip a Fibre Channel controller (N8190-161/162), right click on following file,
and select Run as Administrator.

```
C:\Program Files(x86)\EXPRESSBUILDER\repository
\016\win\winnt\drivers\01_storage\1_au_03\utl\cli_inst.bat
```

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

```
\016\win\winnt\drivers\01_storage\1_au_03\utl\cli_inst.bat
```

4.7   License Authentication

To use Windows Server 2012 R2, you need finish the license authentication procedure.
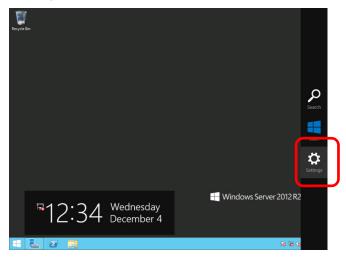
Confirm if your license is authenticated. If not, perform the following procedures to have your license authenticated.

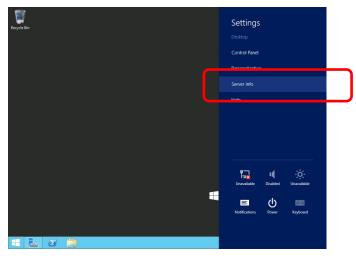Connect to the Internet to perform the authentication procedure.

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.
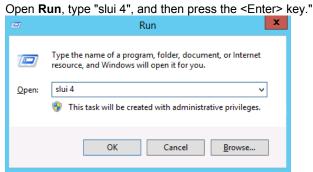
    License is activated after entering the product key.

    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.

4.8   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	● Distributes the load based on IP addresses and port numbers in sending. ● Distributes the load same to "Hyper-V Port" in receiving.

Standby adapter

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

Setting all adapters to active mode is also possible.

Primary team interface

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

(3)   Notes and restrictions

- NIC teaming on a guest OS is not supported.

- Teaming of virtual NICs on the host OS is not supported in the Hyper-V environment.

- When STP (Spanning Tree Protocol) is enabled on network switch ports to which network adapters of the team are connected, network communications may be disrupted. Disable STP, or configure "PortFast" or "EdgePort" to the ports.
  * About setting the network switch of the connection destination, see the manual of the network switch.

- All NICs in the team must be connected to the same subnet.

- Teaming of different speed NICs is not supported.

- Teaming of different vendor's NICs is not supported.

Refer to the following website for the latest information.

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

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

4.9   **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.

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

1. Right-click the left bottom of screen, and click **Computer Management**.

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 paths**.

4. Click **Change** and **Assign the following 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 2012

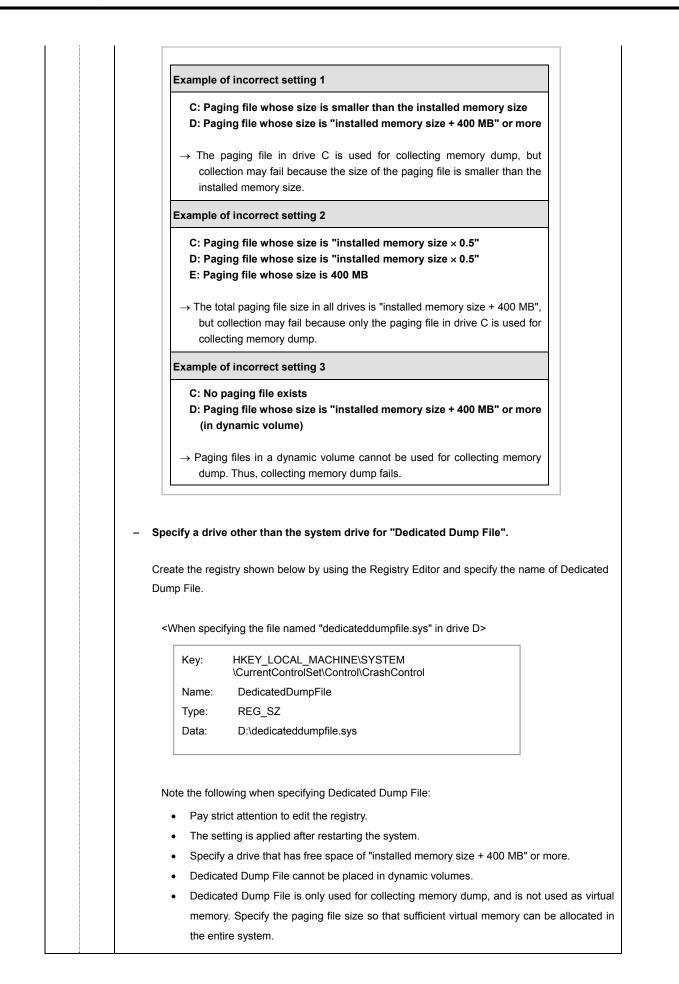Set up Windows Server 2012.

5.1 Before Starting Setup

Read through the cautions explained here before starting setup.

EB : Confirm during Setup with EXPRESSBUILDER

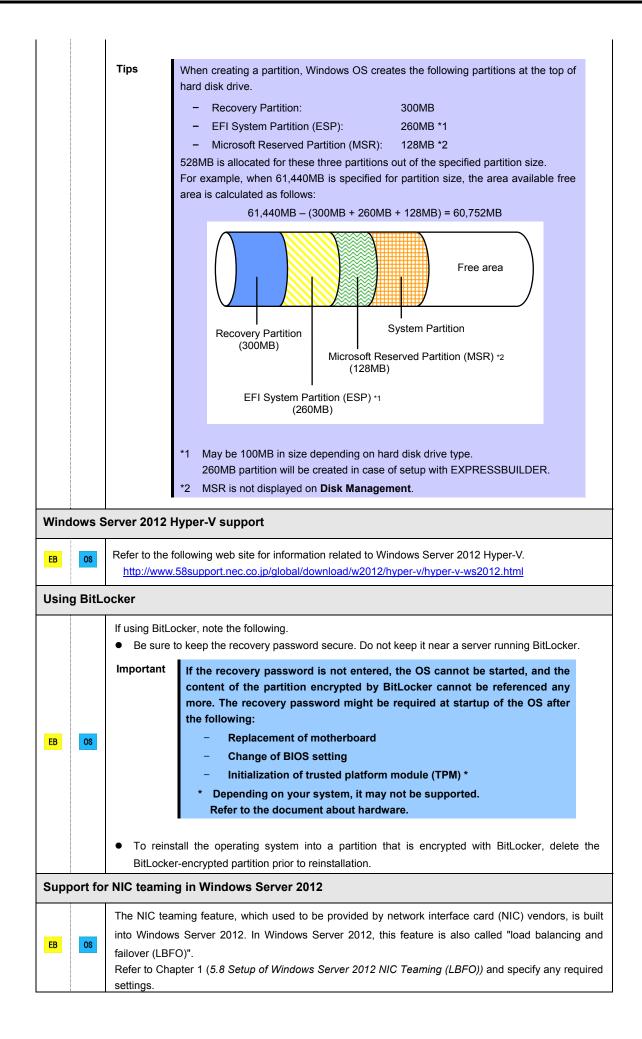**OS** : Confirm during Setup with Windows standard installer

BIOS setting	
EB **OS**	Change **Boot Mode** to **UEFI Mode**. See *Chapter 2 (1. System BIOS)* in *Maintenance Guide* for details. **Boot → Boot Mode → UEFI**
EB **OS**	Select **Enabled** for X2APIC feature of processor. See *Chapter 2 (1. System BIOS)* in *Maintenance Guide* for details. **Advanced → Processor Configuration → X2APIC→ Enabled**
EB **OS**	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. <table><tr><td>Example of correct setting</td></tr><tr><td>[Boot]–[Boot Option Priorities] – Boot Option #1 [UEFI: Optical Disk Drive] – Boot Option #2 [Windows Boot Manager] → The system can boot from OS installation media.</td></tr><tr><td>Example of incorrect setting</td></tr><tr><td>[Boot]–[Boot Option Priorities] – Boot Option #1 [Windows Boot Manager] – Boot Option #2 [UEFI: Optical Disk Drive] → The system cannot boot from OS installation media.</td></tr></table> **Note** • 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.

Hardware configuration		
The following hardware configurations require special procedures.		
EB	OS	**Reinstalling to a mirrored volume** 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.
EB	OS	**Peripheral devices such as RDX/MO** 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.
EB	OS	**DAT, LTO, or similar media** Do not set any media such as DAT or LTO during setup.
EB	OS	**Installing in internal or external multiple logical drives** 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 *Chapter 1* (*5.10 Installation When Multiple Logical Drives Exist*). * Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit.
EB	OS	**Reinstalling to hard disk drives that have been upgraded to dynamic disks** If the hard disk drive has been upgraded to a dynamic disk, the operating system cannot be reinstalled to it with the existing partitions. Set up the operating system with the Windows standard installer.

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 (7. 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.

<table>
<tr><td>Example of incorrect setting 1</td></tr>
</table>

    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.

<table>
<tr><td>Example of incorrect setting 2</td></tr>
</table>

    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.

<table>
<tr><td>Example of incorrect setting 3</td></tr>
</table>

    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

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	= 9,400MB
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	= 6,300MB
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:

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

= 12,460MB

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:

$$61,440MB - (300MB + 260MB + 128MB) = 60,752MB$$

Free area

Recovery Partition
(300MB)

System Partition

Microsoft Reserved Partition (MSR) *2
(128MB)

EFI System Partition (ESP) *1
(260MB)

*1   May be 100MB in size depending on hard disk drive type.
       260MB partition will be created in case of setup with EXPRESSBUILDER.

*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

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 (*5.8 Setup of Windows Server 2012 NIC Teaming (LBFO))* and specify any required settings.

5.2   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 Settings**
	  When 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 (8. Windows OS Parameter File)*.

5.2.1   Setup flow

(yellow)	Process that requires input or selection
(white)	Process that proceeds automatically

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 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.

5.2.3   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* (*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 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:

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

(1)   With the **Skip Configuring RAID Array** check box cleared, click **Next**.
Set up the logical drives according to the wizard.

Important	**When a new logical drive is created, the existing RAID system is destructed and the contents of hard disk drive will be erased.**

(2)   Setting the disk array configuration and the RAID level.

(3)   Specify the size of the logical drive by the GB unit as needed.

Note	The RAID level and the logical drive size varies depending on hardware configuration.

When skipping the creation of new logical drives
   (1)   Select the **Skip Configuring RAID Array** 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 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.

    Wait for completion without performing any operation.

    Installing Starter Pack.

    Please wait for a while.

    Installing applications.

    Please wait for a while.

19. Read the terms of License Agreement.
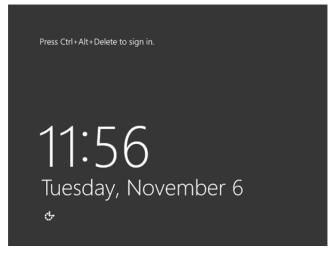
    If you agree, select the **I accept the license terms for using Windows**. check box,

    and then click **Accept** (only in the server with a GUI).

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

Press Ctrl+Alt+Delete to sign in.

11:56
Tuesday, November 6
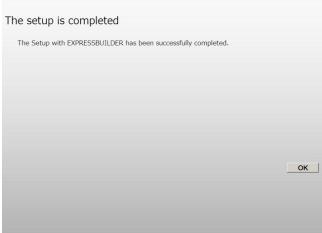
On the following screen, type the password you have set in Step 11-(1) or 12-(4).

Administrator

Password

Windows Server 2012

21. Click **OK**.

The setup is completed

The Setup with EXPRESSBUILDER has been successfully completed.

OK

22. See *Chapter 1 (5.5 Checking installation of EXPRESSBUILDER)* to confirm that EXPRESSBUILDER has been installed in Windows.

23. Follow the instructions described in *Chapter 1 (5.6 Setting Up Device Drivers)* to set up the device drivers.

24. Confirm if Windows is activated according to *Chapter 1 (5.7 License Authentication)*.

25. See *Chapter 1 (5.8 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 (7. 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.

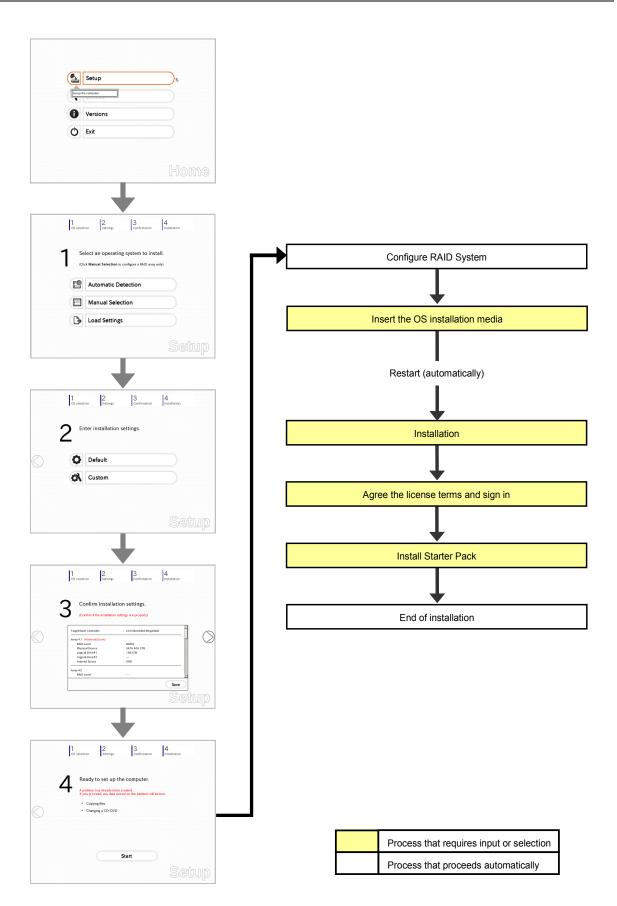Setup with EXPRESSBUILDER is now complete.

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	**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 (8. Windows OS Parameter File)*.

5.3.1   Setup flow

| Screen 1 (Home) — Setup / Versions / Exit |

| Screen 1 (Setup): | Select an operating system to install. (Click **Manual Selection** to configure a RAID array only) — Automatic Detection / Manual Selection / Load Settings |

| Screen 2 (Setup): | Enter installation settings. — Default / Custom |

| Screen 3 (Setup): | Confirm installation settings. (Confirm if the installation settings are properly) — Target RAID Controller : LSI Embedded MegaRAID; Array #1 : Initialize(Quick); RAID Level : RAID0; Physical Device : SATA #00 2TB; Logical Drive#1 : 1861GB; Logical Drive#2 : ---; Unused Space : 0GB; Array #2; RAID Level : ---; Save |

| Screen 4 (Setup): | Ready to set up the computer. A partition has already been created. If you proceed, any data stored on the partition will be lost. * Copying files * Changing a CD/DVD; Start |

Flow (right column):

- Configure RAID System
- Insert the OS installation media
- Restart (automatically)
- Installation
- Agree the license terms and sign in
- Install Starter Pack
- End of installation

	Process that requires input or selection
	Process that proceeds automatically

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 2012 DVD-ROM*)

➢ Either of the following EXPRESSBUILDER

- **Internal Flash Memory**

- **EXPRESSBUILDER DVD** (option)

➢ Prepare if needed:

- **Removable media for Windows OS parameter file**

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.

```
                        GNU GRUB  version 2.00

 OS installation *** default ***
 Tool menu












     Use the ↑ and ↓ keys to select which entry is highlighted.
     Press enter to boot the selected OS, `e' to edit the commands before booting or `c'
     for a command-line.
     The highlighted entry will be executed automatically in 9s..
```

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

(1)   With the **Skip Configuring RAID Array** check box cleared, click **Next**.
Set up the logical drives according to the wizard.

Important	**When a new logical drive is created, the existing RAID system is destructed and the contents of hard disk drive will be erased.**

(2)   Setting the disk array configuration and the RAID level.

(3)   Specify the size of the logical drive by the GB unit as needed.

Note	The RAID level and the logical drive size varies depending on hardware configuration.

When skipping the creation of new logical drives
(1)   Select the **Skip Configuring RAID Array** 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.

```
Load Driver

To install the driver needed to access your hard drive, insert
the installation media containing the driver files, and then
click OK.

Note: The installation media can be a floppy disk, CD, DVD, or
USB flash drive.

        Browse              OK              Cancel
```

19. Click **Browse** and select the destination, and then click **OK**.
    Specify the displayed drive as **INTER-FLASH**.

    ```
    \016\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**.
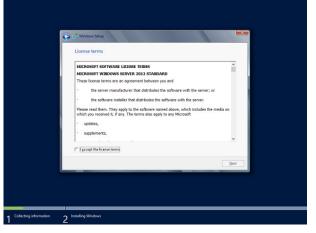
    LSI Embedded MegaRAID

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 the 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.

```
Load Driver

To install the driver needed to access your hard drive, insert
the installation media containing the driver files, and then
click OK.

Note: The installation media can be a floppy disk, CD, DVD, or
USB flash drive.


     Browse              OK              Cancel
```

26. Click **Browse** and select the destination, and then click OK.
    Specify the displayed drive as **INTER-FLASH**.

    Onboard RAID Controller (LSI Embedded MegaRAID) :

    `\016\win\winnt\drivers\01_storage\1_al_06`

    RAID Controller (N8103-188) : `\016\win\winnt\drivers\01_storage\1_an_02`

    RAID Controller (N8103-205/206/207/208/210/211) :

    `\016\win\winnt\drivers\01_storage\1_ay_01`

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 15.

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**

    RAID Controller (N8103-205)   : **MegaRAID 944N-8i**

    RAID Controller (N8103-206/207)   : **MegaRAID 946N-8i 2G**

    RAID Controller (N8103-208)   : **MegaRAID 946N-8i 4G**

    RAID Controller (N8103-210/211)   : **MegaRAID 945N-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.
	⚠ <u>W</u>indows cannot be installed to this disk. (Show details)
	If it appears, replace the OS installation media, and then click **Refresh**.

29. Click **New**.
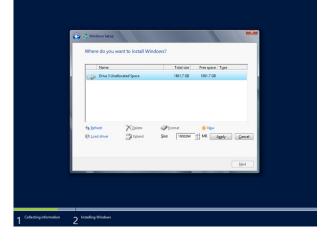   If a partition has already been created, go to step 32.

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

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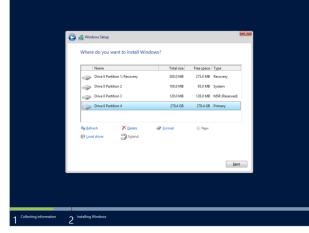

When the following window appears, click **OK**.

Tips	When creating a partition, the OS creates the following partitions at top of the hard disk drive. – Recovery Partition – EFI System Partition (ESP) – Microsoft Reserved Partition (MSR)

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

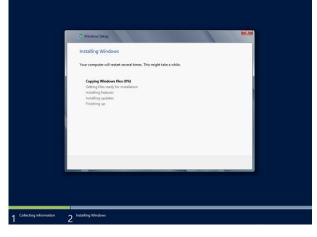32. Select the created partition, and then click **Next**.

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.

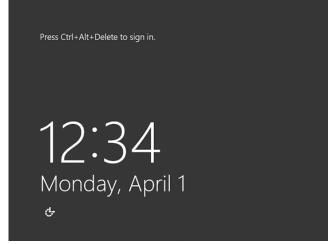| Tips	The number of partitions displayed differs depending on the hardware configuration.

When the following message appears, Windows installation starts automatically.

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

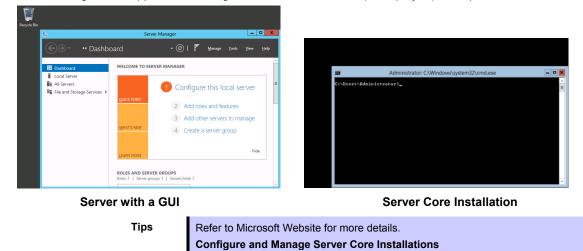34. Press <Ctrl> + <Alt> + <Del> keys to sign in.

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

Windows Server 2012 starts.

36. 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

37. Install Starter Pack by referring to *Chapter 1* (*5.4 Installing Starter Pack)*.

Start EXPRESSBUILDER by either of the following two ways:

-   Internal Flash Memory   : *5.4.1 Installing Starter Pack after POST*
-   EXPRESSBUILDER DVD : *5.4.3 Using EXPRESSBUILDER installed in Windows*

38. See *Chapter 1 (5.5 Checking installation of EXPRESSBUILDER)* to confirm that EXPRESSBUILDER has been installed in Windows.

39. Install drivers and specify detailed settings by referring to *Chapter 1 (5.6 Setting Up Device Drivers)*.

40. Confirm if Windows is activated according to *Chapter 1 (5.7 License Authentication)*.

41. See *Chapter 1 (5.8 Setup of Windows Server 2012 NIC Teaming (LBFO))* to setup a team as needed.

42. Install the applications as needed by referring to *Chapter 1* (*5.9 Installing the Applications*).

43. Execute setup by following the instructions described in *Chapter 1 (7. 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).

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.

5.4.1 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.

```
                         GNU GRUB  version 2.00

 ┌────────────────────────────────────────────────────────────────────┐
 │ OS installation *** default ***                                    │
 │ Tool menu                                                          │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 └────────────────────────────────────────────────────────────────────┘

      Use the ↑ and ↓ keys to select which entry is highlighted.
      Press enter to boot the selected OS, `e' to edit the commands before booting or `c'
      for a command-line.
   The highlighted entry will be executed automatically in 9s..
```

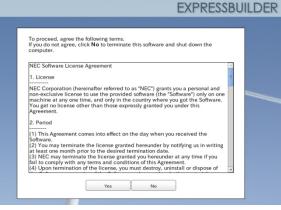The following window appears.

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.

```
Starter Pack                              x

 (?)   Setup is going to install Starter Pack.
       If you install it, click [OK],
       if you wish to cancel it, click [Cancel].

       This process disables following function.
       If you use the function, enable it after the reboot.

       + RSS(Receive-Side Scaling)
       + TCP Chimney Offload
       (ID:C202g)

                      OK          Cancel
```

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.

```
Starter Pack                              x

 (i)   Installing Starter Pack was completed.
       The setup reboots for installing drivers.

       If the media is set in Optical Disc Drive,
       take it out, and click [OK].
       (ID:C100x)

                                    OK
```

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 1 (5.5. 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* (*5.4.1 Installing Starter Pack after POST*) for further procedure.

5.4.3   **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 (5.4.2 Installing Starter Pack using Windows Application)* for further procedure.

Installation from Windows (Server Core Installation)
1.   From the command prompt, type the following command.
     In the example below, the optical disk drive is the D drive.

     Cd /d D:\016\win\winnt\bin
```
C:\Users\administrator>cd /d D:\016\win\winnt\bin
```

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

     Pkgsetup.vbs
```
D:\016\win\winnt\bin>pkgsetup.vbs
```

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

Installation of Starter Pack is now complete.

5.5   Checking installation of EXPRESSBUILDER

Confirm that EXPRESSBUILDER has been installed in Windows.

(1)   Server with a 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.

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

(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.

   N8104-149/150/151/152/157

The LAN drivers of N8104-149/150/151/152/157 are installed automatically by Windows Plug-and-Play.

As for N8104-149/157, however, if the LAN board is not equipped with the server at the time when the Starter Pack is being applied or setup with EXPRESSBUILDER, appropriate drivers will not be installed automatically if you additionally equip the LAN board.

In that case, install the LAN drivers by the following steps.

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\016\win\winnt\drivers`
    `\02_network\1_as_02\install_ws2012.bat`

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

    `\016\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, configure each LAN board by referring to *Chapter 1 (5.6.2 Setting up LAN drivers)*.

   Setup is now completed.

N8104-157

Note When **Intel(R) Network Connections xx.xx.xx.xx** 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\016\win\winnt\drivers
    \02_network\1_ag_02\install_ws2012.bat
    ```

    If using EXPRESSBUILDER, run the following file.

    ```
    \016\win\winnt\drivers\02_network\1_ag_02\install_ws2012.bat
    ```

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

    Intel Driver Installation Completed!

3. When LAN board is new addition, configure 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.

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)

[N8104-157]   : Intel(R) Ethernet Controller X550 #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.

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.   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)   Configuring Flow Control

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

Tips	The settings of Transmit/Receive of the network adapter should match those of the destination device. For example, if Flow Control in the destination device is set as Receive only, that in the server should be set as Transmit only.

1.   Open the **Device Manager**.

2.   Expand **Network Adapters**, and then double-click the name of the network adapter you want to configure. The properties of the network adapter will be displayed.

3.   Open **Advanced** tab and click **Flow Control** to show **Value**.

4.   The **Value** can be changed by the down-arrow button.

5.   Click **OK**.

6.   Restart the system.

The Flow Control setting is now complete.

(3)   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\016\win\winnt
    \drivers\02_network\1_ah_02\pgdyavd_disable.vbs
    ```

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

    ```
    \016\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:<u>Done</u>)]
    > Reboot the system

Tips	The message "Action:<u>Non</u>" indicates that the LAN driver is already set.

3. Restart the system.

Setup is now completed.

5.6.3   **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.

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\016\win\winnt\drivers
        \03_graphics\1_aj_05\install.bat
        ```

    –   When using EXPRESSBUILDER DVD:
        ```
        \016\win\winnt\drivers\03_graphics\1_aj_05\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.

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

The driver for SAS controller N8103-142/184 is automatically installed by Windows Plug-and-Play.
Drivers customized for this server is installed by applying the Starter Pack.

5.6.5   When using a RAID Controller (N8103-176/177/178/179/205/206/207/208/210/211)

The driver for RAID Controller N8103-176/177/178/179/205/206/207/208/210/211 is automatically installed by Windows Plug-and-Play.
Drivers customized for this server is installed by applying the Starter Pack.

5.6.6   When using a Fibre Channel controller (N8190-159/160)

The driver for Fibre Channel controller N8190-159/160 is automatically installed by Windows Plug-and-Play.
Drivers customized for this server is installed by applying the Starter Pack.

However, if you additionally equip a Fibre Channel controller (N8190-159/160), right click on following file, and select Run as Administrator.
  C:\Program Files(x86)\EXPRESSBUILDER\repository\016\win\winnt\drivers\01_storage\1_ao_02\utl\cli_inst.bat

If using EXPRESSBUILDER DVD (option), run the following file on the DVD.
  \016\win\winnt\drivers\01_storage\1_ao_02\utl\cli_inst.bat

5.6.7   When using a Fibre Channel controller (N8190-161/162)

The driver for Fibre Channel controller N8190-161/162 is installed by applying the Starter Pack.

However, if you additionally equip a Fibre Channel controller (N8190-161/162), right click on following file, and select Run as Administrator.
  C:\Program Files(x86)\EXPRESSBUILDER\repository\016\win\winnt\drivers\01_storage\1_au_02\utl\cli_inst.bat

If using EXPRESSBUILDER DVD (option), run the following file on the DVD.
  \016\win\winnt\drivers\01_storage\1_au_02\utl\cli_inst.bat

5.7 License Authentication

To use Windows Server 2012, you need finish the license authentication procedure.
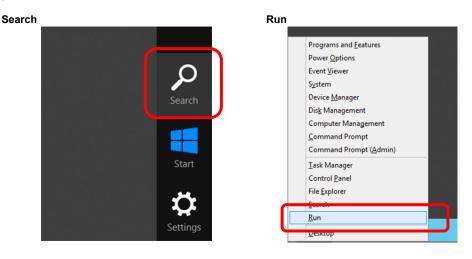
Confirm if your license is authenticated. If not, perform the following procedures to have your license authenticated.

Connect to the Internet to perform the authentication procedure.

Or, use the telephone to perform the authentication procedure.

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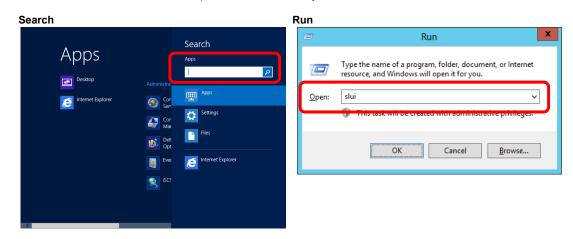
1. Click **Search** on the Charms bar.
    (Or, right-click the bottom left corner on the screen, and then click **Run**.)

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 installation

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.

5.8   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

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 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.

5.10 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 (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 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.   Right-click the left bottom of screen, and click **Computer Management**.

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 paths**.

4.   Click **Change** and **Assign the following drive letter**, and then select the drive letter you want to assign.

5.   Click **OK**.

6.   Close the **Server Manager**.

6.   Setting Up Windows Server 2008 R2

Set up Windows Server 2008 R2.

6.1   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		
-	**OS**	Change **Boot Mode** to **Legacy Mode**. See *Chapter 2 (1. System BIOS)* in *Maintenance Guide* for details. **Boot** → **Boot Mode** → **Legacy**
-	**OS**	Select **Disabled** for X2APIC feature of processor. See *Chapter 2 (1. System BIOS)* in *Maintenance Guide* for details. **Advanced** → **Processor Configuration** → **X2APIC**→ **Disabled**
-	**OS**	Select **Disabled** for XHCI Hand-off. See *Chapter 2 (1. System BIOS)* in Maintenance Guide for details. **Advanced** → **USB Configuration** → **XHCI Hand-off** → **Disabled** Select **Enabled** for XHCI Hand-off after Starter Pack installed.
Hardware configuration		
The following hardware configurations require special procedures.		
-	**OS**	**Reinstalling to a mirrored volume** 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.
-	**OS**	**Peripheral devices such as RDX/MO** 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.
-	**OS**	**DAT, LTO, or similar media** Do not set any media such as DAT or LTO while installing an OS.

-	OS	**Installing in internal or external multiple (logical drives)** 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 *Chapter 1* (*6.9 Installation When Multiple Logical Drives Exist)*. * Disk array unit (such as iStorage) or hard disk drive in Disk Expansion Unit.
-	OS	**Reinstalling to hard disk drives that have been upgraded to dynamic disks** If the hard disk drive has been upgraded to a dynamic disk, the operating system cannot be reinstalled to it with the existing partitions. Set up the operating system with the Windows standard installer.

- 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 (7. 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 + 300 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 + 300 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 + 300 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 + 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

- 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)
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)
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 installation**s** is selected, the partition size is calculated as follows:

8,000 MB + (1,024MB × 1.5) + 1,024MB+ 300MB+ 100MB

= 10,960MB

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.

	Tips	When creating a new partition, Windows OS assigns an initial boot partition of 100 MB. For example, when making a partition of 40,960 MB (40 GB), usable space will be 40,960 MB – 100 MB = 40,860 MB. Free space System Partition (40,860 MB) Boot Partition (100 MB) The boot partition is not recognized from the operating system.

Hyper-V 2.0 support

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

Using BitLocker

-	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. ● 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. For details, visit **http://support.microsoft.com/kb/975496/en-us.**

Installing Service Pack		
-	OS	- Install the Service Pack before you apply the Starter Pack. - 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		
-	OS	License authentication is required depending on the installation of Windows. For details, refer to *6.7 License Authentication*. **Note** - 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.
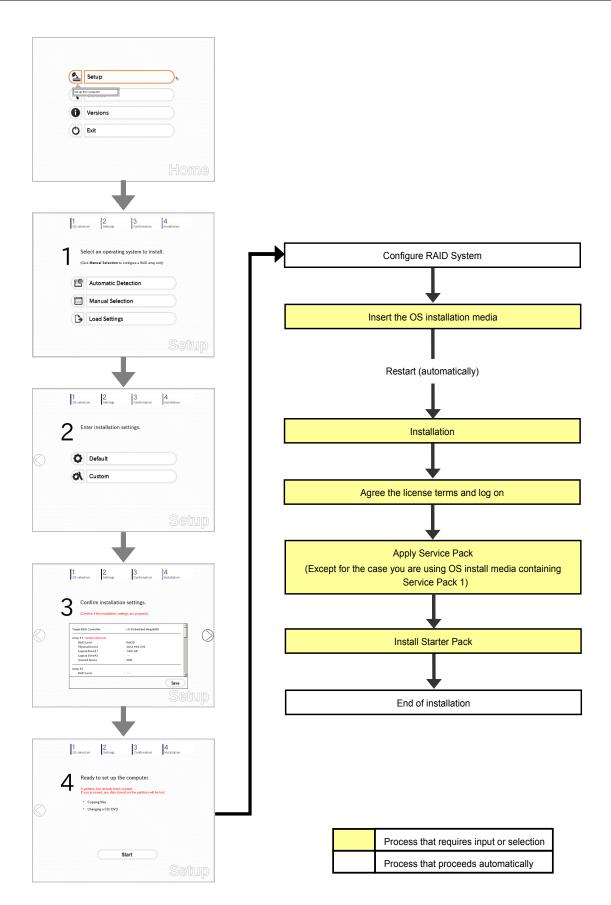
6.2   Setup with Windows Standard Installer

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 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 settings
	When 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 (6.1 Before Starting Setup)*.**

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* (*8. Windows OS Parameter File)*.

6.2.1   Setup flow

   	Process that requires input or selection
	Process that proceeds automatically

6.2.2   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*)

- **Service Pack**
  (If the OS installation media contains Service Pack 1, you do not need to apply the service pack again. 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)

➤ The following EXPRESSBUILDER

- **EXPRESSBUILDER DVD** (option)

➤ Prepare if needed:

- **First Steps Guide**

- **Removable media for Windows OS parameter file**

  Important | **Check that internal optical disk drive is connected before installation.**
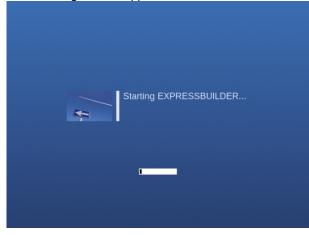
6.2.3   **Setup procedure**

Note	Read through the items in *Chapter 1* (*6.1 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 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.

When creating new logical drives

(1)   With the **Skip Configuring RAID Array** check box cleared, click **Next**.
Set up the logical drives according to the wizard.

> **Important** **When a new logical drive is created, the existing RAID system is destructed and the contents of hard disk drive will be erased.**

(2)   Setting the disk array configuration and the RAID level.

(3)   Specify the size of the logical drive by the GB unit as needed.

> **Note**   The RAID level and the logical drive size varies depending on hardware configuration.

When skipping the creation of new logical drives

(1)   Select the **Skip Configuring RAID Array** 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.
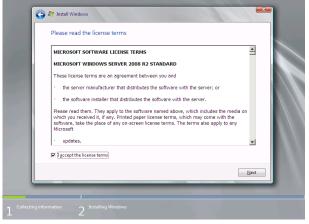
19. Select the edition of the Windows you are going to install and the installation method.

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.

```
Load Driver

To install the driver needed to access your hard drive, insert
the installation media containing the driver files, and then
click OK.

Note: The installation media can be a floppy disk, CD, DVD, or
USB flash drive.


        Browse              OK              Cancel
```

    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 : `\016\win\winnt\drivers\01_storage\1_an_01`

    N8103-188 RAID Controller   : `\016\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. ⚠ Windows cannot be installed to this disk. (Show details) If it appears, replace the OS installation media, and then click **Refresh**.
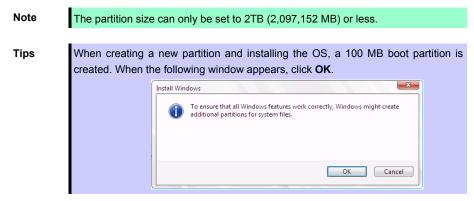
26. Select the disk in which the partition will be created, and then click **Drive options (advanced)**.
    If a partition has already been created, go to step 28.
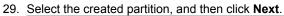
27. Click **New**.
    Enter the partition size into the size text box, and then click **Apply**.

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 19.

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. Apply Service Pack as needed according to *Chapter 1 (6.3 Applying Service Pack*).

35. Install Starter Pack by referring to *Chapter 1* (*6.4 Installing Starter Pack)*.

36. See *Chapter 1 (6.5 Checking installation of EXPRESSBUILDER)* to confirm that EXPRESSBUILDER has been installed in Windows.

37. Install drivers and specify detailed settings by referring to *Chapter 1 (6.6 Setting Up Device Drivers)*.

38. Confirm if Windows is activated according to Chapter 1 *(6.7 License Authentication)*.

39. Install the applications as needed by referring to *Chapter 1* (*6.8 Installing the Applications*).

40. Execute setup by following the instructions described in *Chapter 1 (7. Setup for Solving Problems)*.

Setup with Windows standard installer is now complete.

6.3   **Applying Service Pack**

It is necessary to apply Service Pack before you install the Starter 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

6.4   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(6.6 Setting Up Device Drivers)*.**
- **Select <u>Enabled</u> for XHCI Hand-off after Starter Pack is installed.
  See *Chapter 2 (1. System BIOS)* in Maintenance Guide for details.
  <u>Advanced → USB Configuration → XHCI Hand-off → Disabled</u>**

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 1 (6.4.1 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.

6.4.1   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.

```
Starter Pack                                         [X]

   (i)   Installing Starter Pack was completed.
         The setup reboots for installing drivers.

         If the media is set in Optical Disc Drive,
         take it out, and click [OK].
         (ID:C100x)


                                          [   OK   ]
```

Installation of Starter Pack is now complete.

<u>**Installation from Windows (Server Core Installations)**</u>
1. From the command prompt, type the following command.
    In the example below, the optical disk drive is the D drive.

    Cd /d D:\016\win\winnt\bin

    ```
    C:\Users\administrator>cd /d D:\016\win\winnt\bin
    ```

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

    Pkgsetup.vbs

    ```
    D:\016\win\winnt\bin>pkgsetup.vbs
    ```

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

Installation of Starter Pack is now complete.

6.4.2   **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 1 (6.4.1 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 (6.4.1 Using EXPRESSBUILDER DVD (Option))* for further procedure.

6.5   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.

6.6   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.

6.6.1   Installing the LAN drivers and teaming utility (BACS / QCS)

(1) LAN drivers and teaming utility

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.

     N8104-149/150/151/152

The LAN drivers of N8104-149/150/151/152 are installed automatically by Windows Plug-and-Play.

As for N8104-149, however, if the LAN board is not equipped with the server at the time when the Starter Pack is being applied, appropriate drivers will not be installed automatically if you additionally equip the LAN board.

In that case, install the LAN drivers by the following steps.

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\016\win\winnt\drivers
    \02_network\1_as_02\install_ws2008r2.bat
    ```

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

    ```
    \016\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, configure each LAN board by referring to *Chapter 1 (6.6.2 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:

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

[N8104-150/151/152]   : Broadcom NetXtreme Gigabit Ethernet #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.

6.6.2   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)   Configuring Flow Control

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

Configure the Flow Control following the procedure below.

Tips	The settings of Transmit/Receive of the network adapter should match those of the destination device. For example, if Flow Control in the destination device is set as Receive only, that in the server should be set as Transmit only.

1. Open the Device Manager.

2. Expand **Network Adapters**, and then double-click the name of the network adapter you want to configure. The properties of the network adapter will be displayed.

3. Open **Advanced** tab and click **Flow Control** to show **Value**.

4. The **Value** can be changed by the down-arrow button.

5. Click **OK**.

6. Restart the system.

The Flow Control setting is now complete.

(3)   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\016\win\winnt\drivers
    \02_network\1_ah_02\pgdyavd_disable.vbs

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

    \016\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.

6.6.3　**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 (6.6.3 Setting up team/LiveLink (BACS/QSC) - (4) Procedure for deleting team)*. Check the following points when deleting an adapter team.

- For how to delete an adapter team, refer to *Chapter 1 (6.6.3 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 joints 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 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.
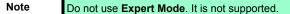
2. Set **Filter** to **TEAM VIEW**, right-click the adapter to be used for the team, and then select **Create Team** from the short-cut menu.
   The Broadcom Teaming wizard appears.

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-Failback 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\016\win\winnt\drivers
    \02_network\1_ah_02\addlvlanstats.vbs
    ```

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

    ```
    \016\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.

6.6.4   **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\016\win\winnt\drivers \03_graphic\1_aj_04\install.bat

    −   When using EXPRESSBUILDER DVD (option):
        \016\win\winnt\drivers\03_graphic\1_aj_04\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.

6.6.5   **When using a SAS controller (N8103-142)**

The driver for SAS controller N8103-142 is automatically installed by Windows Plug-and-Play.
Drivers customized for this server is installed by applying the Starter Pack.

6.6.6   **When using a RAID Controller (N8103-179)**

The driver for RAID Controller N8103-179 is installed by applying the Starter Pack.

6.6.7   **When using a Fibre Channel controller (N8190-159/160)**

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

Drivers customized for this server is installed by applying the Starter Pack. However, if you additionally equip a Fibre Channel controller (N8190-159/160), right click on following file, and select Run as Administrator.

    C:\Program Files(x86)\EXPRESSBUILDER\repository\016\win\winnt\drivers \01_storage\1_ao_01\utl\cli_inst.bat

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

    \016\win\winnt\drivers\01_storage\1_ao_01\utl\cli_inst.bat

6.7 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**.
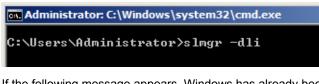
4. Follow the instructions in the following message to start the license authentication process.

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.
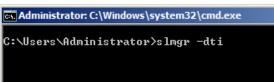
2. If Windows is installed from Backup DVD-ROM, replace the product key.

   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.

6.8   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.

6.9   Installation When Multiple Logical Drives Exist

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

(1)   Setup procedure

– Setup with Windows standard installer

1. Refer to *Chapter 1 (6.2 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 (6.2 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.

7.   Setup for Solving Problems

We recommend installing the following features for solving the server failure quickly.
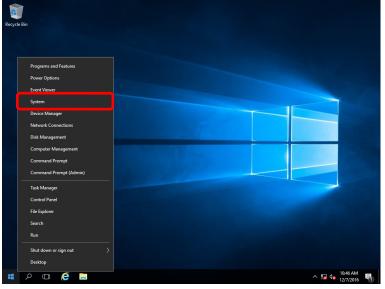
7.1   Specifying Memory Dump Settings (Debug Information)

This section explains the procedures for collecting a memory dump (debug information) in the server.
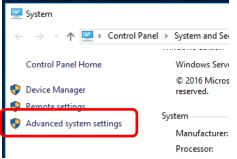
Important	Do not reset during dumping memory or restarting the server even if the message of virtual memory shortage appears.

7.1.1   For Windows Server 2016

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

2. Click **Advanced system settings**.

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

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

Note the following when specifying a dump file:

- We recommend specifying Kernel memory dump for Write debugging information.

- Specify a drive that has a free space of at least "the memory capacity mounted on the server 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 store the debug information (memory dump) is sufficient.

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

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

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

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

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

Note the following when specifying a paging file size:
- The paging file is used to collect debug information (dump file). The boot volume must have a paging file of its initial size (total capacity of physical memory mounted + 400MB or larger) is enough to store the dump file. Make sure to specify a sufficient paging file size (recommended size: (total capacity of physical memory mounted) x1.5 or more).
- See "System Partition" in *Chapter 1 (3.1 Before Starting Setup)* for recommended value.
- When DIMM is added, re-specify the paging file according to the increased memory size.
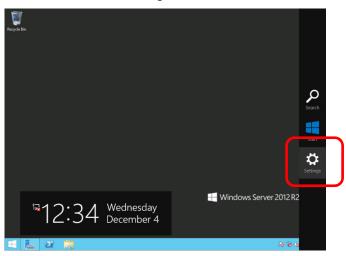
10. Click **OK**.
If a message to restart Windows appears, restart the system according to on-screen message.
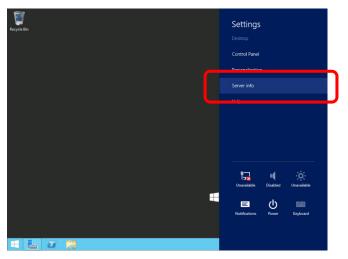
Specification of the memory dump settings is now complete.

7.1.2   For Windows Server 2012 R2 / Windows Server 2012
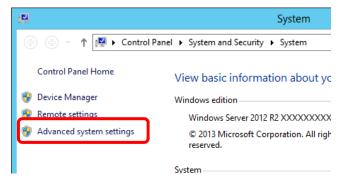
1. On Charms Bar, click **Settings**.

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.

7.1.3   **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.

7.2 How to Create a User-mode Process Dump File

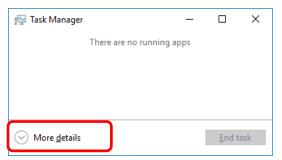The user-mode process dump file records debugging information if an application error occurs.

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

7.2.1 For Windows Server 2016

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

   keys to start **Task Manager**.

2. Click **More details**.

3. Click the **Processes** tab.

4. Right-click the name of the process that you want to get dump information for, and then click

   Create Dump File.

5. A dump file for the process is created in the following folder:

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

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

   Get the user-mode process dump file from the folder shown in step 5.
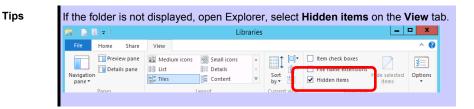
7.2.2   **For Windows Server 2012 R2 / Windows Server 2012**

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.

7.2.3   **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.

7.3   **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.

8. 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.

8.1 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**.
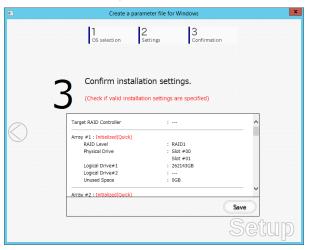
Note	Computer name and Administrator Password are required parameters.
	Enter Administrator Password that satisfies the following conditions:
	– Contains six or more characters
	– Contains characters from at least three of the following categories: numbers, uppercase letters (A - Z), lowercase letters (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

(1)　Clear the **Skip Configuring RAID Array** check box, and then click **Next**.
Set up the logical drives in accordance with the wizard.

Important	When a new logical drive is created, the existing RAID array and the data of hard disk drives will be deleted.

(2)　Setting the disk array configuration and the RAID level.

(3)   Specify the size of the logical drive by the GB unit as needed.

Note | The RAID level and the logical drive size varies depending on hardware configuration.

Skipping the creation of logical drives

(1)   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**.

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 (1. Before Starting Setup)*.)**
	• **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 2016　　　　　Windows Server 2012 R2/ Windows Server 2012

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.

2

NEC Express5800 Series
Express5800/R110i-1, T110i-S, T110i

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)
- N8103-205 RAID Controller (0GB, RAID 0/1)
- N8103-206 RAID Controller (2GB, RAID 0/1)
- N8103-207 RAID Controller (2GB, RAID 0/1/5/6)
- N8103-208 RAID Controller (4GB, RAID 0/1/5/6)
- N8103-210 RAID Controller (2GB, RAID 0/1)
- N8103-211 RAID Controller (2GB, RAID 0/1/5/6)

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, Windows Server 2012 R2, or Windows Server 2016.

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:\ezclct` folder.

Tips	• Log on to Windows with an account that has an administrator privilege.
	• The installation drive requires a free space of at least 2.5 GB.
	• When installing newly by Windows Server 2016, please restart a system. When a updated by Windows Server 2016, the restart of a system is unnecessary.

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 a number of 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
10.116.01-102.01	April 2017	Newly created
10.116.01-102.02	May 2018	Support new RAID controller

[MEMO]

NEC Express Server

Express5800/R110i-1, T110i-S, T110i
Installation Guide (Windows)

May 2018

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