NEC

User's Guide

NEC Express Server
Express5800 Series

Express5800/A1040c, A2040c, A2020c, A2010c

Chapter 1 General Description

Chapter 2 Preparations

Chapter 3 Setup

Chapter 4 Appendix

80.108.01-101.01
July 2016, Rev.1.40
© NEC Corporation 2015

Documents Provided with This Product

Documents for this product are provided as accompanying booklets (📖) and as electronic manuals (📄) stored within the EXPRESSBUILDER DVD (💿).

Getting Started	Describes how to use this server, from unpacking to operations. Refer to this guide as you begin for an overview of this server.

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 ideal location for this server
Chapter 3: Setup	System BIOS configurations, summary of EXPRESSBUILDER, and remote management feature
Chapter 4: Appendix	Specifications and other information

Installation Guide (Windows)

Chapter 1: Installing Windows	Installation of Windows and drivers, and important information for installation
Chapter 2: Installing Bundled Software	Installation of bundled software, such as NEC ESMPRO and Universal RAID Utility

Installation Guide (Linux)

Chapter 1: Installing Linux	Installation of Linux, and important information for installation
Chapter 2: Installing the Bundled Software	Installation of bundled software, such as NEC ESMPRO and Universal RAID Utility

Maintenance Guide

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

Other documents

Provides the detail of NEC ESMPRO, Universal RAID Utility, and the other features.

Contents

Documents Provided with This Product 2

Contents 3

Notations Used in This Document 9
- Notations used in the text 9
- Optical disk drives 9
- Hard disk drives 9
- Removable media 9
- Abbreviations of Operating Systems (Windows) 10
- Abbreviations of Operating Systems (Linux) 10
- POST 10
- BMC 10
- Web Console 10

Trademarks 11

Regulatory Notices 18

Warnings and Additions to This Document 21
- Latest editions 21

Precautions for Use (Be Sure to Read) 22
- Safety precautions 22
- Symbols used in this document and on warning labels 24
- Safety notes 25
  - General 25
  - Rack installation 50
  - Power supply and power cord use 57
  - Installation, relocation, storage, and connection 71
  - Cleaning and working with internal devices 78
  - During operation 85
- Warning labels 92
  - External view 94
- Handling precautions (for proper operations) 95
- Handling precautions (for anti-static measures) 96

Chapter 1 General Description 118

1. Introduction 119

2. Accessories 120

3. Standard Features 121
- *3.1* Feature of Each Model 124
  - *3.1.1* A1040c Model, A2040c Model 124
  - *3.1.2* A2020c Model 125
  - *3.1.3* A2010c Model 126
  - *3.1.4* Checking Model Name 127

4. Introducing the Server 128
- *4.1* Important Points for System Configuration 128
  - *4.1.1* Operation Procedures 128
  - *4.1.2* Operation Status/Failure Monitoring and Maintenance 129
- *4.2* Notes on Configuring and Operating the System 130
  - *4.2.1* Check the Shipped Status 130
  - *4.2.2* Check the Setup Procedure 130
  - *4.2.3* Using Operation Management Features 132
- *4.3* Management Features 133

4.3.1 Storage Management 134
4.3.2 Power Management 136
4.3.3 Network Management 136
4.3.4 Remote Management 136
4.4 Firmware and Software Version Management 137

5. Names and Functions of Components 138
5.1 Front View (with Front Bezel Mounted) 138
5.2 Front View (with Front Bezel Removed) 139
5.3 Rear View 141
5.4 External View 142
5.5 Internal View 143
5.6 LED Indications 144
5.6.1 SYSTEM POWER LED ( ) 144
5.6.2 UID LED 144
5.6.3 SYSTEM STATUS LED ( ) 145
5.6.4 DISK ACCESS LED ( ) 145
5.6.5 FRU (CPU, MEM, PCI, PSU/FAN, NEXT, MISC) LED 146
5.6.6 CNFG LED 147
5.6.7 VLT/TMP LED 147
5.6.8 Location LED 148
5.6.9 LEDs on RCB (Rear Connector Board) 149
5.6.10 LED on hard disk drive 151
5.6.11 LED on optical disk drive 152
5.6.12 Power unit LED 152
5.6.13 Cooling Fan LED 153

Chapter 2 Preparations 154

1. Installing / Removing Internal Options 155
1.1 Safety Precautions 156
1.2 Anti-Static Measures 163
1.3 Parts Able to be Added/Replaced by Customers 170
1.4 Overview of Installation and Removal 172
1.5 Confirming Servers (UID Switch) 176
1.6 Removing Front Bezel 177
1.7 Optical Disk Drive 178
1.7.1 Installation 178
1.7.2 Removal 179
1.8 Hard Disk Drive 181
1.8.1 Installation 182
1.8.2 Removal 184
1.8.3 Use of Internal hard disk drives in the RAID System 185
1.8.4 Replacing a hard disk drive in the RAID System (Auto Rebuild) 186
1.9 Power Supply Unit 188
1.9.1 Installation 190
1.9.2 Removal 191
1.10 Cooling Fan 194
1.10.1 Replacement 194
1.11 Internal Flash Memory 201
1.11.1 Installation 201
1.12 Processor (CPU) 202
1.12.1 Installation 202
1.12.2 Setting Required after installation 202
1.13 Memory Riser (MR) 203
1.13.1 Installation 203
1.14 DIMM 204
1.14.1 Maximum supported memory size 204
1.14.2 Memory Clock 205
1.14.3 Memory RAS Feature 206
1.14.4 Installation 207
1.14.5 Setting Required after Installation 207
1.14.6 Using Memory RAS Feature 207
1.15 Flash Backup Unit for RAID Controller 222
1.15.1 Handling precautions 222

1.15.2 Installation 222
1.16 PCI Card 223
1.16.1 Notes 223
1.16.2 Installation 223
1.16.3 Installing RAID Controller 224
1.17 Installing the Front Bezel 225
1.18 SUV Cable 226
1.18.1 Installation 226
1.18.2 Removal 228
1.19 TPM Kit 229

2. Installation and Connection 230
2.1 Installation 230
2.1.1 Installing Rack 230
2.1.2 Installing the server to the rack or removing it from the rack 238
2.2 Connection 260
2.2.1 Connecting power cable 269
2.2.2 Connecting to Uninterruptible Power Supply (UPS) 271

Chapter 3 Setup 272

1. Before Starting Setup 273
1.1 Service Pack Support 273
1.2 Option Boards Supported by EXPRESSBUILDER 273

2. Setup 274
2.1 Setup of Management PC 274
2.2 Setup of Hardware 274
2.3 Setup of Operating System 276
2.3.1 Setting up Windows Server 2012 R2/ Windows Server 2012 276
2.3.2 Setting up RedHat Enterprise Linux version6 278
2.3.3 Setting up Other Type of OS 278
2.4 Setup for Solving Problems 279
2.4.1 Setup for Memory Dump (Debug Information) 279
2.4.2 Acquiring User-Mode Process Dump 279
2.4.3 Installing Network Monitor 279
2.4.4 Installing NEC CMC Provider 279
2.4.5 Setup for Alert Notification 279
2.5 Advanced Setup 280
2.5.1 Reinstallation When Multiple Logical Drives Exist 280

3. Turning On the Server 281
3.1 POST 282
3.1.1 POST flow 282
3.1.2 POST error messages 283

4. BIOS Setup Utility (SETUP) 284
4.1 Overview 284
4.2 Starting and Exiting SETUP Utility 284
4.2.1 Starting SETUP 284
4.2.2 Exiting SETUP 285
4.3 Description on On-Screen Items and Key Usage 286
4.4 Cases that Require Configuration 287
4.5 EFI Shell 289
4.5.1 EFI Shell Command 290

5. EXPRESSSCOPE Engine SP3 292
5.1 Overview 292
5.2 Default Network Settings 292
5.2.1 A1040c 292
5.2.2 A2040c/A2020c/A2010c 293
5.3 HTTP/HTTPS 293
5.4 Login using LDAP/Active Directory 293
5.5 EXPRESSSCOPE Engine SP3 Network Configuration 294
5.5.1 Configuring from Web Console or SMASH-CLP via Maintenance LAN 294

5.5.2 Configuring from Web Console or SMASH-CLP via Management LAN 294
5.5.3 Configuring using BMC Configuration in Off-line TOOL of BIOS 295
5.5.4 Settings on remote terminal 299
5.5.5 Port number 304
5.5.6 Notes 305
5.5.7 Troubleshooting 313

6. EXPRESSBUILDER 317
6.1 Features of EXPRESSBUILDER 317
6.2 Starting EXPRESSBUILDER 317

7. Using Remote Management 318
7.1 Login and Logout 318
7.1.1 Login 318
7.1.2 Logout 322
7.2 Header Menu 323
7.3 Server Panel 324
7.4 System 326
7.4.1 Overview 326
7.4.2 Component 327
7.4.3 IPMI Information 333
7.4.4 Access Information 338
7.5 Remote Access 341
7.5.1 Power Control 341
7.5.2 System Operation 344
7.5.3 Session Management 345
7.6 Remote KVM 346
7.7 Configuration 349
7.7.1 BMC 350
7.7.2 SystemBIOS 411
7.7.3 Backup/Restore 414
7.8 Update 416
7.8.1 BMC Firmware 416
7.8.2 System BIOS 419
7.9 Maintenance 422
7.9.1 Hardware Log 422
7.9.2 Component Status 425
7.9.3 Device Online/Offline 428
7.9.4 Diagnostics 431
7.9.5 BMC OFF 433
7.10 Capacity 434
7.11 Standby web console 438
7.11.1 Failover 438
7.12 BMC Web Console Access Level 439
7.13 BMC Web Console Language/Help 441
7.13.1 Languages 441
7.13.2 Environment 442
7.13.3 About EXPRESSSCOPE Engine SP3 443
7.13.4 HELP 444

8. SMASH-CLP 446
8.1 Overview 446
8.2 Connecting to BMC 446
8.3 Login and Logout 448
8.3.1 Login 448
8.3.2 Logout 448
8.4 Basic Commands 449
8.4.1 cd 450
8.4.2 exit 450
8.4.3 help 450
8.4.4 reset 450
8.4.5 set 451
8.4.6 show 451
8.4.7 start 451
8.4.8 stop 452
8.4.9 version 452

8.5 Remote Control 453
8.5.1 Power On 453
8.5.2 Forced Power Off 453
8.5.3 OS Shutdown 453
8.5.4 System Reset 453
8.6 Remote Console 454
8.7 UID Switch Control 456
8.8 System Event Log 457
8.8.1 Viewing System Event Log 457
8.8.2 Change setting of system event log 458
8.9 Access Log 459
8.9.1 Viewing Access Log 460
8.9.2 Clearing access log 461
8.9.3 Setting access log 462
8.10 User Settings 463
8.11 Network Settings 464
8.12 Power Consumption Control 469
8.13 Confirming System Information 470
8.14 Special Extended Command 474
8.14.1 State Acquisition 474
8.14.2 Set Online/Offline 476
8.14.3 Firmware Update 477
8.14.4 SOL Log Display 477
8.14.5 BMCOFF 478
8.14.6 Reset user's updated SSL certification 478
8.15 Viewing and Modifying Server Configuration Information 479
8.16 Command Line Interface of Standby BMC 483
8.16.1 Connecting to Standby BMC 483
8.16.2 Login and Logout 484
8.16.3 Basic Commands 485
8.16.4 cd 485
8.16.5 exit485
8.16.6 help 485
8.16.7 reset 485
8.16.8 set 486
8.16.9 show 486
8.16.10 version 487
8.16.11 oemnecfailover 487

9. WS-Management 488
9.1 Overview 488
9.2 Power Control 489
9.2.1 Power On 490
9.2.2 Power Off immediate 491
9.2.3 OS Shutdown 492
9.2.4 Hard Reset 493
9.2.5 Force Dump 494
9.2.6 Power Cycle 495
9.3 Sensor Information 496
9.3.1 Enumuration 496
9.3.2 Displaying Specified Sensor 497

10. Installing Software Components 498

11. Turning Off the Server 499

Chapter 4 Appendix 501

1. Specifications 502
1.1 EXPRESS5800/ A1040c (1/2) 502
1.2 EXPRESS5800/ A1040c (2/2) 504
1.3 EXPRESS5800/ A2040c (1/2) 506
1.4 EXPRESS5800/ A2040c (2/2) 508
1.5 EXPRESS5800/ A2020c (1/2) 510
1.6 EXPRESS5800/ A2020c (2/2) 512
1.7 EXPRESS5800/ A2010c (1/2) 514

1.8 EXPRESS5800/ A2010c (2/2) 516

2. Operation Mode 518

3. Settings for Each OS and Each SMS 531

4. BMC Failover Setup Procedure 533
4.1. OSs and Versions Subject to Failover Setup 533
4.2. BMC Failover Setup Procedure for Windows Server 2012R2/ Windows Server 2012 534
4.3. Procedure for Starting the OS in Safe Mode and Executing a BMC Failover 540
4.4. Reconfiguring the System Settings After the Master BMC Is Switched 543

License Notification 565

Notations Used in This Document

Notations used in the text

In addition to safety-related symbols urging caution, 3 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 the 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 the hardware or operating software.
Tips	Indicates information that is helpful to keep in mind when using this hardware.

Optical disk drives

This server is equipped with one of the following drives, depending on the order at the time of purchase. These drives are referred to as *optical disk drives* in this document.

- DVD-ROM drive
- DVD Super MULTI drive

Hard disk drives

Unless otherwise stated, hard disk drives (HDD) described in this document refer to both of the following.

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

Removable media

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

- USB memory

Abbreviations of Operating Systems (Windows)

Windows Operating Systems are referred to as follows.

Refer to the *Installation Guide (Windows)* for detailed information.

Notations in this document	Supported Windows OS
Windows Server 2012 R2	Windows Server 2012 R2 Standard
	Windows Server 2012 R2 Datacenter
Windows Server 2012	Windows Server 2012 Standard
	Windows Server 2012 Datacenter

Abbreviations of Operating Systems (Linux)

Linux Operating Systems are referred to as follows.

Refer to *Installation Guide (Linux)* for details of Linux OS supported by this server.

Notations in this document	Supported Linux OS
Red Hat Enterprise Linux 6 Server	Red Hat Enterprise Linux 6 or later (x86_64)
Oracle Linux 6	Oracle Linux 6.6/UEK R2 or later (x86_64)

POST

POST described in this document refer to the following.

- Power On Self-Test

BMC

BMC described in this document refer to the following.

- Baseboard Management Controller

Web Console

WEB Console described in this document refer to the following.

- Web browser to use remote management feature via HTTP/HTTPS protocol using EXPRESSSCOPE Engine SP3 (BMC), and contents used for remote management control.

Trademarks

EXPRESSSCOPE is a registered trademark of NEC Corporation. Microsoft, Windows, and Windows Server are registered trademarks or trademarks of Microsoft Corporation in the United States and other countries. Intel and Xeon are registered trademarks of Intel Corporation of the United States. AT is a registered trademark of International Business Machines Corporation of the United States and other countries. Adaptec, Adaptec logo design, and SCSISelect are registered trademarks or trademarks of Adaptec, Inc. of the United States. Avago, LSI, and the LSI & Design logo are trademarks or registered trademarks of Avago Technologies in the United States and/or other countries. Adobe, the Adobe logo, and Acrobat are trademarks of Adobe Systems Incorporated. DLT and DLTtape are trademarks of Quantum Corporation of the United States. LTO is a trademark of International Business MachinesCorporation, Hewlett-Packard Company, and Seagate Technology in the United States. PCI Express is a trademark of Peripheral Component Interconnect Special Interest Group. Linux is a trademark or registered trademark of Linus Torvalds in Japan and other countries. Red Hat® and Red Hat Enterprise Linux are trademarks or registered trademarks of Red Hat, Inc. in the United States and other countries. Oracle and Java are registered trademarks of Oracle Corporation or its subsidiaries, and/or its affiliates in the United States and other countries.

All other product, brand, or trade names used in this publication are the trademarks or registered trademarks of their respective trademark owners.

Marques commerciales

EXPRESSSCOPE est une marque déposée de NEC Corporation.
Microsoft, Windows, Windows Server, et MS-DOS sont des marques déposées ou des marques commerciales de Microsoft Corporation aux États-Unis et dans d'autres pays. Intel et Xeon sont des marques déposées de Intel Corporation aux États-Unis. AT est une marque déposée de International Business Machines Corporation aux États-Unis et dans d'autres pays. Adaptec, le dessin du logo Adaptec, et SCSISelect sont des marques déposées ou des marques commerciales de Adaptec, Inc. aux États-Unis. LSI et le dessin du logo LSI sont des marques déposées ou des marques commerciales de LSI Corporation. Adobe, le logo Adobe logo, et Acrobat sont des marques commerciales de Adobe Systems Incorporated. DLT et DLTtape sont des marques commerciales de Quantum Corporation aux États-Unis. LTO est une marque commerciale de International Business MachinesCorporation, Hewlett-Packard Company, et Seagate Technology aux États-Unis. PCI Express est une marque commerciale de Peripheral Component Interconnect Special Interest Group. Linux est une marque commerciale ou une marque déposée de Linus Torvalds au Japon et dans d'autres pays. Red Hat® et Red Hat Enterprise Linux sont des marques déposées ou des marques commerciales de Red Hat, Inc. aux États-Unis et dans d'autres pays. Oracle et Java sont des marques déposées de Oracle Corporation ou de ses filiales, et/ou de ses sociétés affiliées aux États-Unis et dans d'autres pays.

Tous les autres noms de produit, de marque ou de société cités dans cette publication sont les marques commerciales ou déposées de leurs détenteurs respectifs.

Marchi commerciali

EXPRESSSCOPE è un marchio commerciale registrato di NEC Corporation.
Microsoft, Windows, Windows Server e MS-DOS sono marchi commerciali registrati o marchi commerciali di Microsoft Corporation negli Stati Uniti e in altri Paesi. Intel e Xeon sono marchi commerciali registrati di Intel Corporation degli Stati Uniti. AT è un marchio commerciale registrato di International Business Machines Corporation degli Stati Uniti e altri Paesi. Adaptec, il disegno del logo Adaptec e SCSISelect sono marchi commerciali registrati o marchi commerciali di Adaptec, Inc. degli Stati Uniti. LSI e il disegno del logo LSI sono marchi commerciali o marchi commerciali registrati di LSI Corporation. Adobe, il logo Adobe e Acrobat sono marchi commerciali di Adobe Systems Incorporated. DLT e DLTtape sono marchi commerciali di Quantum Corporation degli Stati Uniti. LTO è un marchio commerciale di International Business MachinesCorporation, Hewlett-Packard Company e Seagate Technology negli Stati Uniti. PCI Express è un marchio commerciale di Peripheral Component Interconnect Special Interest Group. Linux è un marchio commerciale o marchio commerciale registrato di Linus Torvalds in Giappone e in altri Paesi. Red Hat® e Red Hat Enterprise Linux sono marchi commerciali o marchi commerciali registrati di Red Hat, Inc. negli Stati Uniti e in altri Paesi. Oracle e Java sono marchi commerciali registrati di Oracle Corporation o delle sue società controllate, e/o sue affiliate negli Stati Uniti e in altri Paesi.

Tutti gli altri prodotti, marchi o nomi commerciali utilizzati nella presente pubblicazione sono marchi commerciali o marchi commerciali registrati dei rispettivi proprietari di marchi commerciali.

Handelsmarken

EXPRESSSCOPE ist eine registrierte Handelsmarke der NEC Corporation.
Microsoft, Windows, Windows Server und MS-DOS sind registrierte Handelsmarken oder Handelsmarken der Microsoft Corporation in den vereinigten Staaten und anderen Ländern. Intel und Xeon sind registrierte Handelsmarken der Intel Corporation der Vereinigten Staaten. AT ist eine registrierte Handelsmarke der international Business Machines Corporation der vereinigten Staaten und anderen Ländern. Adaptec, Adaptec Logo Design und SCSISelect sind eingetragene Handelsmarken oder Handelsmarken der Adaptec, Inc. der Vereinigten Staaten. LSI und das LSI Logo Design sind eingetragene Handelsmarken oder Handelsmarken der LSI Corporation. Adobe, das Adobe Logo und Acrobat sind Handelsmarken der Adobe Systems Incorporated. DLT und DLTtape sind Handelsmarken der Quantum Corporation der Vereinigten Staaten. LTO ist eine Handelsmarke der International Business MachinesCorporation, Hewlett-Packard Company und Seagate Technology in den Vereinigten Staaten. PCI Express ist eine Handelsmarke der Peripheral Component Interconnect Special Interest Group. Linux ist eine Handelsmarke oder registrierte Handelsmarke von Linus Torvalds in Japan und anderen Ländern. Red Hat® und Red Hat Enterprise Linux sind Handelsmarken oder registrierte Handelsmarken der Red Hat, Inc. in den Vereinigten Staaten und anderen Ländern. Oracle und Java sind eingetragene Handelsmarken der Oracle Corporation oder ihrer Tochterfirmen und/oder ihrer Filialen in den Vereinigten Staaten und anderen Ländern.

Alle anderen Produkte, Marken oder Handelsnamen, die in dieser Publikation verwendet werden, sind Handelsmarken oder eingetragene Handelsmarken ihrer jeweiligen Handelsmarken-Eigentümer.

Marcas comerciales

EXPRESSSCOPE es una marca comercial registrada de NEC Corporation.
Microsoft, Windows, Windows Server y MS-DOS son marcas comerciales registradas o marcas comerciales de Microsoft Corporation en los Estados Unidos y otros países. Intel y Xeon son marcas comerciales registradas de Intel Corporation en los Estados Unidos. AT es una marca comercial registrada de International Business Machines Corporation en los Estados Unidos y otros países. Adaptec, el diseño del logotipo Adaptec y SCSISelect son marcas comerciales registradas o marcas comerciales de Adaptec, Inc. en los Estados Unidos. LSI y el diseño del logotipo de LSI son marcas comerciales o marcas comerciales registradas de LSI Corporation. Adobe, el logotipo de Adobe y Acrobat son marcas comerciales de Adobe Systems Incorporated. DLT y DLTtape son marcas comerciales registradas de Quantum Corporation en los Estados Unidos. LTO es una marca comercial de International Business MachinesCorporation, Hewlett-Packard Company y Seagate Technology en los Estados Unidos. PCI Express es una marca comercial de Peripheral Component Interconnect Special Interest Group. Linux es una marca comercial o una marca comercial registrada de Linus Torvalds en Japón y otros países. Red Hat® y Red Hat Enterprise Linux son marcas comerciales o marcas comerciales registradas de Red Hat, Inc. en los Estados Unidos y otros países. Oracle y Java son marcas comerciales registradas de Oracle Corporation o sus subsidiarias y/o filiales en los Estados Unidos y otros países.

El resto de productos, marcas o nombres comerciales utilizados en este documento son marcas comerciales o marcas comerciales registradas de los propietarios de las marcas comerciales respectivas.

商标

EXPRESSSCOPE® 为NEC公司的注册商标。Microsoft、Windows、Windows Server及MS-DOS为Microsoft Corporation在美国以及其他国家的注册商标或商标。Intel®及Xeon®为美国Intel Corporation的注册商标。AT为美国International Business Machines Corporation在美国及其他国家的注册商标。Adaptec及其标识和SCSISelect为美国Adaptec, Inc.的注册商标或商标。LSI以及LSI标识设计为LSI公司的商标或注册商标。Adobe®、Adobe标识以及Acrobat为Adobe Systems Incorporated（Adobe系统公司）的商标。DLT和DLTtape为美国Quantum Corporation的商标。LTO为International Business MachinesCorporation、Hewlett-Packard Company以及Seagate Technology在美国的商标。PCI EXPRESS为Peripheral Component Interconnect Special Interest Group的商标。 Linux®为Linus Torvalds在日本以及其他国家的商标或注册商标。Red Hat®以及Red Hat Enterprise Linux为美国Red Hat, Inc.在美国以及其他国家的商标或注册商标。Oracle以及Java为Oracle Corporation及其子公司、关联公司在美国以及其他国家的注册商标。

本书中使用的其他公司名称以及产品名称均为相关商标所有人的商标或注册商标。

商標

EXPRESSBUILDER、ESMPRO及EXPRESSSCOPE® 為NEC公司之註冊商標。Microsoft、Windows、Windows Server及MS-DOS為Microsoft Corporation於美國及其他國家之註冊商標或商標。Intel®及Xeon®為美國Intel Corporation之註冊商標。AT為美國International Business Machines Corporation於美國及其他國家之註冊商標。Adaptec及其標識和SCSISelect為美國Adaptec, Inc.之註冊商標或商標。LSI以及LSI標識設計為LSI公司之商標或註冊商標。Adobe®、Adobe標識以及Acrobat為Adobe Systems Incorporated（Adobe系統公司）之商標。DLT和DLTtape為美國Quantum Corporation之商標。LTO為International Business MachinesCorporation、Hewlett-Packard Company以及Seagate Technology於美國之商標。PCI EXPRESS為Peripheral Component Interconnect Special Interest Group之商標。 Linux®為Linus Torvalds在日本以及其他國家之商標或註冊商標。Red Hat®以及Red Hat Enterprise Linux為美國Red Hat, Inc.於美國以及其他國家之商標或註冊商標。Oracle以及Java為Oracle Corporation及其子公司及、關聯公司於美國以及其他國家之註冊商標。

本書中使用之其他公司名稱以及產品名稱均為相關商標所有人之商標或註冊商標。

Regulatory Notices

FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Industry Canada Class A Emission Compliance Statement/ Avis de conformité à la réglementation d'Industrie Canada:

CAN ICES-3(A)/NMB-3(A)

CE / Australia and New Zealand Statement

This is a Class A product. In domestic environment this product may cause radio interference in which case the user may be required to take adequate measures (EN55022).

BSMI Statement

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Disposing of your used product

In the European Union

EU-wide legislation as implemented in each Member State requires that used electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes Information and Communication Technology (ICT) equipment or electrical accessories, such as cables or DVDs.

When disposing of used products, you should comply with applicable legislation or agreements you may have. The mark on the electrical and electronic products only applies to the current European Union Member States.

Outside the European Union

If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority and ask for the correct method of disposal.

This product is RoHS compliant

Turkish RoHS information relevant for Turkish market

EEE Yönetmeliğine Uygundur

CCC声明

声　明

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷线路板	×	○	○	○	○	○
HDD、DVD等	×	○	○	○	○	○
机箱、支架	○	○	○	○	○	○
电源	×	○	○	○	○	○
键盘	×	○	○	○	○	○
其他（电缆、鼠标等）	×	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006标准规定的限量要求以下。

×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006标准规定的限量要求。

部件名稱	有毒有害物質或元素					
	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六價鉻 (Cr (VI))	多溴聯苯 (PBB)	多溴二苯醚 (PBDE)
印刷線路板	×	○	○	○	○	○
HDD、DVD 等	×	○	○	○	○	○
機箱、支架	○	○	○	○	○	○
電源	×	○	○	○	○	○
鍵盤	×	○	○	○	○	○
其他（電纜、鼠標等）	×	○	○	○	○	○

○：表示該有毒有害物質於該部件所有均質材料中之含量均於 SJ/T11363-2006 標準規定之限量要求以下。

×：表示該有毒有害物質至少於該部件之某一均質材料中的含量超出 SJ/T11363-2006 標準規定之限量要求。

Vietnam RoHS information relevant for Vietnam market

Complying with "CIRCULAR, No.30/2011/TT-BCT (Hanoi, August 10 2011), Temporary regulations on content limit for certain hazardous substances in electrical products"

警告:
如果更換錯誤池會產生爆炸請以相同或同型電池更換使用

Declaration of Conformity
with the requirements of Technical Regulation on the Restriction Of the use of certain Hazardous Substances in Electrical and Electronic Equipment
(adopted by Order №1057 of Cabinet of Ministers of Ukraine)

The Product is in conformity with the requirements of Technical Regulation on the Restriction Of the use of certain Hazardous Substances in electrical and electronic equipment (TR on RoHS).

The content of hazardous substance with the exemption of the applications listed in the Annex №2 of TR on RoHS:

1. Lead (Pb) – not over 0,1wt % or 1000wt ppm;
2. Cadmium (Cd) – not over 0,01wt % or 100wt ppm;
3. Mercury (Hg) – not over 0,1wt % or 1000wt ppm;
4. Hexavalent chromium (Cr6+) – not over 0,1wt % or 1000wt ppm;
5. Polybrominated biphenyls (PBBs) – not over 0,1wt % or 1000wt ppm;
6. Polybrominated diphenyl ethers (PBDEs) – not over 0,1wt % or 1000wt ppm.

Декларація про Відповідність
Вимогам Технічного Регламенту Обмеження Використання деяких Небезпечних Речовин в електричному та електронному обладнанні
(затвердженого Постановою №1057 Кабінету Міністрів України)

Виріб відповідає вимогам Технічного Регламенту Обмеження Використання деяких Небезпечних Речовин в електричному та електронному обладнанні *(ТР ОВНР)*.

Вміст небезпечних речовин у випадках, не обумовлених в Додатку №2 ТР ОВНР, :

1. свинець(Pb) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон;
2. кадмій (Cd) – не перевищує 0,01 % ваги речовини або в концентрації до 100 частин на мільйон;
3. ртуть(Hg) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон;
4. шестивалентний хром (Cr6+) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон;
5. полібромбіфеноли (PBB) – не перевищує 0,1% ваги речовини або в концентрації до 1000 частин на мільйон;
6. полібромдефенілові ефіри (PBDE) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон.

Декларация о Соответствии
Требованиям Технического Регламента об Ограничении Использования некоторых Вредных Веществ в электрическом и электронном оборудовании
(утверждённого Постановлением №1057 Кабинета Министров Украины)

*Изделие соответствует требованиям Технического Регламента об Ограничении Использования некоторых Вредных Веществ в электрическом и электронном оборудовании (*ТР ОИВВ).

Содержание вредных веществ в *случаях*, *не предусмотренных Дополнением №2 ТР ОИВВ:*

1. свинец (Pb) – не превышает 0,1 % веса вещества или в концентрации до 1000 миллионных частей;
2. кадмий (Cd) – не превышает 0,01 % веса вещества или в концентрации до 100 миллионных частей;
3. ртуть (Hg) – не превышает 0,1 % веса вещества или в концентрации до 1000 миллионных частей;
4. шестивалентный хром (Cr6+)– не превышает 0,1 % веса вещества или в концентрации до 1000 миллионных частей;
5. полибромбифенолы (PBB) – не превышает 0,1 % веса вещества или в концентрации до 1000 миллионных частей;
6. полибромдифеноловые эфиры (PBDE) – не превышает 0,1 % веса вещества или в концентрации до 1000 миллионных частей.

Warnings and Additions to This Document

1. No part of this document may be reproduced in any form without the prior written permission of NEC Corporation.
2. The contents of this document may be revised without prior notice.
3. The contents of this document shall not be copied or altered without the prior written permission of NEC Corporation.
4. All efforts have been made to ensure the accuracy of all information in this document. If you notice any part unclear, incorrect, or omitted in this document, contact your service representative where you purchased this product.
5. NEC assumes no liability arising from the use of this product, nor any liability for incidental or consequential damages arising from the use of this User's Guide regardless of Item 4.
6. The sample values used in this document are not the actual values.

Keep this document nearby so that you may refer to it as necessary.

Latest editions

This document was created based on the information available at the time of its creation. The screen images, messages and procedures **may differ from the actual screens, messages and procedures.** Substitute as appropriate when content has been modified.

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

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

Precautions for Use (Be Sure to Read)

The following provides information required to use your server safely and properly. For details of names in this section, refer to Chapter 1 (5. *Names and Functions of Parts)* in this document.

Safety precautions

Follow the instructions in this document for the safe use of NEC Express server.

This User's Guide describes hazardous parts of the server, possible hazards, and how to avoid them. Server components with possible danger are indicated with a warning label placed on or around them (or, in some cases, by printing the warnings on the server).

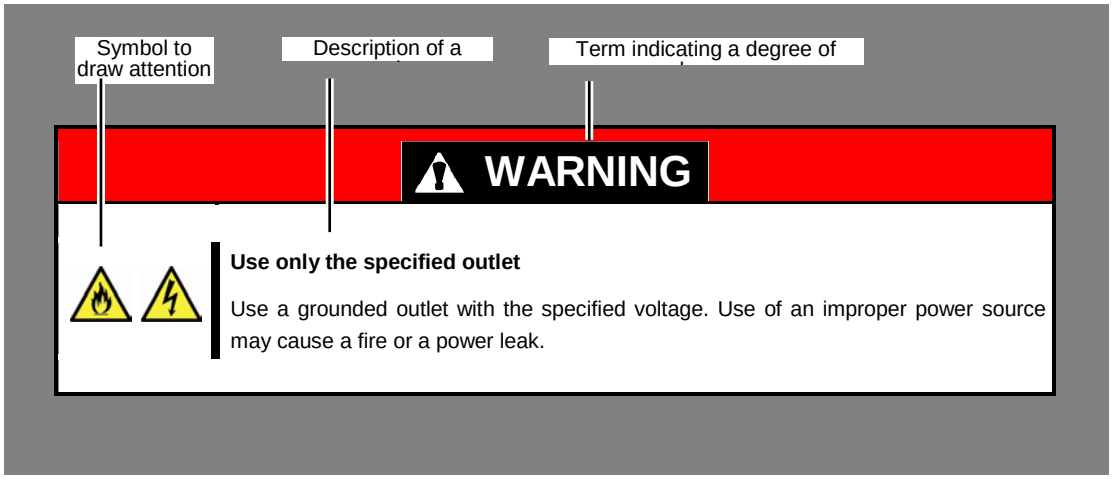
In User's Guide or on warning labels, **WARNING** or **CAUTION** is used to indicate a degree of danger. These terms are defined as follows:

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)

(A label example used in this User's Guide)



Symbols used in this document and on warning labels

Attentions

	Indicates the presence of electric shock hazards.		Indicates the presence of mechanical parts that can result in bodily injury.
	Indicates the presence of a hot surface or component. Touching this surface could result in bodily injury.		Indicates the presence of mechanical parts that can result in pinching or other bodily injury.
	Indicates there is a risk of explosion.		Indicates the presence of laser beam that cause blindness.
	Indicates there is a risk of fire or fumes.		Indicates a general notice or warning that cannot be specifically identified.

Prohibited Actions

	Do not disassemble, repair, or modify the server. Otherwise, an electric shock or fire may be caused.		Do not touch the server with wet hand. Otherwise, an electric shock may be caused.
	Do not touch the component specified by this symbol. Otherwise, an electric shock or burn may be caused.		Do not use the server in the place where water or liquid may pour. Otherwise, an electric shock or fire may be caused.
	Do not place the server near the fire. Otherwise, a fire may be caused.		Indicates a general prohibited action that cannot be specifically identified.

Mandatory Actions

	Unplug the power cord of the server. Otherwise, an electric shock or fire may be caused.		Indicates a mandatory action that cannot be specifically identified. Make sure to follow the instruction.
	Make sure equipment is properly grounded. Otherwise, an electric shock or fire may be caused.		

Safety notes

This section provides notes on using the server safely. Read this section carefully to ensure proper and safe use of the server. For symbols, refer to *Safety precautions*.

General

WARNING

Do not use the server for services where human life may be at stake or high reliability is required.

This server is not intended for use in medical, nuclear, aerospace, mass transit or other applications where human life may be at stake or high reliability is required, nor is it intended for use in controlling such applications. We disclaim liability for any personal injury and property damages caused by such use of this server.

Do not use the server if any smoke, odor, or noise is present.

If smoke, odor, or noise is present, immediately turn off the server and disconnect the power plug from the outlet, then contact the store where you purchased the product or your maintenance service company. Using the server in such conditions may cause a fire.

Do not insert needles or metal objects.

Do not insert needles or metal objects into ventilation holes in the server or openings in the optical disk drive. Doing so may cause an electric shock.

Use a rack that conforms to the designated standard

This server can be mounted onto a 19-inch rack that conforms to EIA standards. Do not mount the server onto any rack that does not conform to EIA standards. Doing so may cause a server malfunction, personal injury, or damage to peripheral devices. For more information about racks that can be used with the server, consult with your maintenance service company.

Use the server only under the specified environment

Do not install the server rack in any environment that is not suitable for installation.

Installation in an unsuitable environment is harmful for the server and other systems installed in the rack and may cause fire or personal injury due to the rack falling. For a detailed explanation on installation environments or seismic reinforcement, consult with the instruction manual supplied with the rack or your maintenance service company.

CAUTION

Keep water or foreign matter away from the server.

Do not let any liquid such as water or foreign materials including pins or paper clips enter the server. Failure to follow this warning may cause an electric shock, a fire, or failure of the server. When such things accidentally enter the server, immediately turn off the power and disconnect the power plug from the outlet. Do not disassemble the server, and contact the store where you purchased the product or your maintenance service company.

Précautions d'utilisation (Lecture indispensable)

Cette section contient des notes qui vous permettront d'utiliser le serveur en toute sécurité. Pour le détail des noms dans cette section, consultez le Chapitre1 (5. *Noms et Fonctions des pièces)* dans ce document.

Mesures de sécurité

Suivez les instructions dans ce document pour une utilisation en toute sécurité du serveur NEC Express.

Ce guide de l'utilisateur décrit les pièces dangereuses du serveur, les dangers possibles, et comment les éviter. Une étiquette d'avertissement est apposée sur ou près des composants potentiellement dangereux (ou dans certains cas, les avertissements sont imprimés sur le serveur).

Dans le Guide de l'utilisateur ou sur les étiquettes d'avertissement, les termes **AVERTISSEMENT** ou **ATTENTION** sont utilisés pour indiquer un certain degré de danger. Ces termes sont définis comme suit :

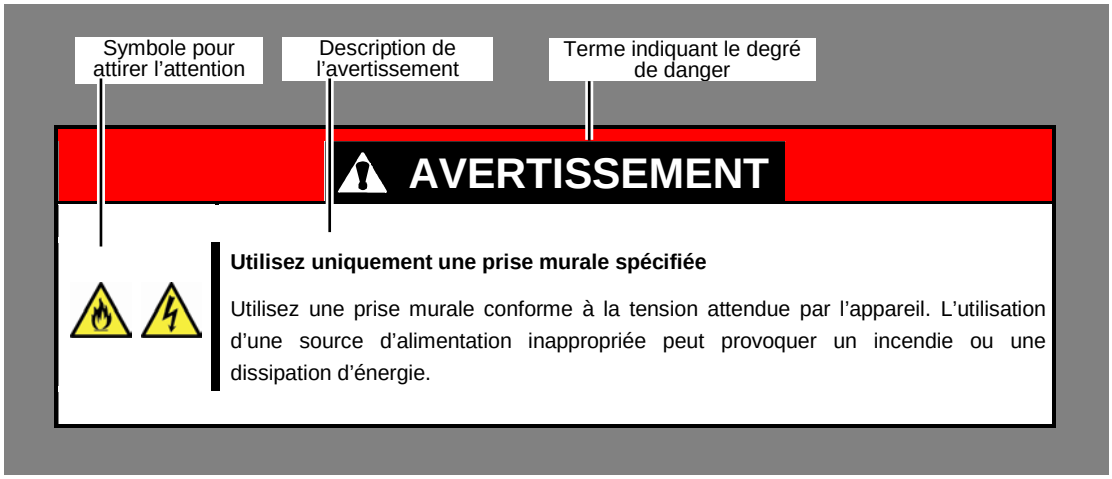
⚠ AVERTISSEMENT — Indique un danger pouvant présenter des risques de blessures physiques graves ou entraîner la mort

⚠ ATTENTION — Indique un danger pouvant présenter des risques de blessures physiques telles que des brûlures ou endommager le matériel

Les précautions et consignes fournies pour prévenir tout danger sont définies par l'un des trois symboles suivants. Ces symboles sont définis comme suit :

	Attention	Ce symbole indique que vous courrez un danger si l'instruction n'est pas respectée. Une image placée dans le symbole illustre le type de danger encouru.	(Exemple) (Risque de choc électrique)
	Action prohibée	Ce symbole indique des actions prohibées. Une image placée dans le symbole illustre une action interdite spécifique.	(Exemple) (Ne pas démonter)
	Action obligatoire	Ce symbole indique des actions obligatoires. Une image placée dans le symbole illustre une action que vous devez impérativement exécuter pour éviter un danger spécifique.	(Exemple) (Débrancher la fiche)

(Exemple d'étiquette utilisée dans ce guide de l'utilisateur)



Symboles utilisés dans ce document et sur les étiquettes d'avertissement

Attentions

	Indique la présence d'un risque d'électrocution.		Indique la présence de pièces mécaniques pouvant provoquer des blessures corporelles.
	Indique la présence d'une surface ou d'un composant chaud. Tout contact avec cette surface peut provoquer des blessures corporelles.		Indique la présence de pièces mécaniques pouvant provoquer des pincements ou d'autres blessures corporelles.
	Indique qu'il existe un risque d'explosion.		Indique la présence d'un rayon laser pouvant rendre aveugle.
	Indique qu'il existe un risque de fumée ou d'incendie.		Indique une consigne ou un avertissement d'ordre général ne pouvant être spécifiquement identifié.

Actions prohibées

	Ne démontez pas, ne réparez pas et ne modifiez pas le serveur. Dans le cas contraire, vous risquez de vous électrocuter ou de provoquer un incendie.		Ne touchez pas le serveur si vous avez les mains mouillées. Dans le cas contraire, vous risquez de vous électrocuter.
	Ne touchez pas le composant spécifié par ce symbole. Dans le cas contraire, vous risquez de vous électrocuter ou de vous bruler.		N'utilisez pas le serveur dans des endroits au sein desquels de l'eau ou des liquides peuvent être renversés. Dans le cas contraire, vous risquez de vous électrocuter ou de provoquer un incendie.
	Ne placez pas le serveur à proximité d'une flamme. Cela pourrait provoquer un incendie.		Indique une action prohibée d'ordre général ne pouvant être spécifiquement identifiée.

Actions obligatoires

	Débranchez le cordon d'alimentation du serveur. Dans le cas contraire, vous risquez de vous électrocuter ou de provoquer un incendie.		Indique une action obligatoire d'ordre général ne pouvant être spécifiquement identifiée. Veillez à bien respecter cette instruction.
	Assurez-vous que l'équipement est correctement mis à la terre. Dans le cas contraire, vous risquez de vous électrocuter ou de provoquer un incendie.		

Notes de sécurité

Cette section fournit des notes sur l'utilisation en toute sécurité du serveur. Lisez cette section attentivement pour vous assurer une utilisation et en toute sécurité du serveur. Pour connaître la signification des symboles, consultez la partie Mesures de sécurité.

Consignes générales

AVERTISSEMENT

N'utilisez pas ce serveur pour des activités mettant en jeu des vies humaines ou bien des activités requérant une grande fiabilité.

Ce serveur n'est pas conçu pour être utilisé dans le cadre d'activités où des vies humaines sont mises en jeu, ou requérant une grande fiabilité, comme le nucléaire, l'aérospatial, le transport, le médical ou d'autres applications. Nous déclinons toute responsabilité quant à tout accident ou dommage matériel résultant de l'utilisation de ce serveur dans le cadre de telles activités.

Ne continuez pas à utiliser le serveur si vous détectez de la fumée une odeur ou un bruit suspect.

Si le serveur émet de la fumée, une odeur, ou un bruit suspect, mettez-le immédiatement hors tension, débranchez le cordon d'alimentation et contactez votre revendeur ou votre société de maintenance. Utiliser le serveur dans de telles conditions présente un risque d'incendie.

N'insérez pas d'aiguilles ou d'objet en métal dans le serveur.

N'insérez pas d'aiguilles ou d'objet en métal dans un conduit d'aération ou dans un lecteur de disque optique. Il existe un risque de choc électrique.

Utilisez un rack conforme à la norme indiquée

Ce serveur peut être installé dans un rack de 19 pouces conforme aux normes EIA. N'installez pas le serveur sur un rack non-conforme aux normes EIA. Faute de quoi, cela pourrait entrainer un dysfonctionnement du serveur, vous blesser ou endommager les périphériques. Pour plus d'informations sur les racks pouvant être utilisés avec le serveur, contactez votre société de maintenance.

N'utilisez pas le serveur dans un environnement interdit

N'installez pas le rack du serveur dans un endroit inadapté.

Une installation dans un environnement inapproprié est néfaste pour le serveur et les autres systèmes installés dans le rack et il risquerait de tomber et de provoquer un incendie ou des blessures. Pour une explication détaillée concernant les environnements d'installation ou le renfort parasismique, consultez le manuel d'instruction fourni avec le rack ou votre société de maintenance.

ATTENTION

Ne mettez pas l'appareil en contact avec de l'eau ou avec des objets non prévus à cet effet.

Évitez de laisser de l'eau ou des corps étrangers (par exemple trombones ou épingles) pénétrer dans le serveur. Il existe un risque d'incendie, de choc électrique et de panne. Si de tels objets devaient pénétrer accidentellement dans le serveur, mettez-le immédiatement hors tension et débranchez le câble d'alimentation. Contactez votre revendeur ou votre société de maintenance et n'essayez pas de le démonter vous-même.

Precauzioni per l'uso (accertarsi di leggere questa sezione)

La seguente sezione fornisce le informazioni necessarie per utilizzare il proprio server in modo sicuro e corretto. Per maggiori dettagli sui nomi nella presente sezione, consultare il Capitolo 1 (5. *Nomi e funzioni delle parti)* nel presente documento.

Precauzioni di sicurezza

Seguire le istruzioni nel presente documento per un uso sicuro del server Express NEC.

La Guida per l'utente descrive parti pericolose del server, possibili pericoli e in che modo evitarli. I componenti del server con possibile pericolo sono indicati con un'etichetta di avvertimento posta sopra di essi o nelle loro vicinanze (o, in alcuni casi, stampando gli avvertimenti sul server).

Nella Guida per l'utente o sulle etichette di avvertimento, **AVVERTIMENTO** o **ATTENZIONE** si utilizzano per indicare un grado di pericolo. Questi termini sono definiti come segue:

AVVERTIMENTO	Indica che vi è rischio di lesioni personali gravi o mortali
ATTENZIONE	Indica che vi è rischio di ustioni, altre lesioni personali o danni materiali

Le precauzioni e gli avvisi contro i pericoli vengono presentati con uno dei seguenti tre simboli. I singoli simboli sono definiti come segue:

	Attenzione	Questo simbolo indica la presenza di un pericolo se l'istruzione viene ignorata. Un'immagine nel simbolo illustra il tipo di pericolo.	(Esempio) (Rischio di shock elettrico)
	Azione vietata	Questo simbolo indica azioni vietate. Un'immagine nel simbolo illustra un'azione vietata specifica.	(Esempio) (Non smontare)
	Azione obbligatoria	Questo simbolo indica azioni obbligatorie. Un'immagine nel simbolo illustra un'azione obbligatoria per evitare un pericolo specifico.	(Esempio) (Scollegare una presa)

(Un esempio di etichetta utilizzata nella presente Guida per l'utente)

Simboli utilizzati nel presente documento e sulle etichette di avvertimento

Attenzione

	Indica la presenza di pericoli di shock elettrico.		Indica la presenza di parti meccaniche che possono provocare lesioni corporee.
	Indica la presenza di una superficie o componente caldo. Toccare questa superficie può comportare lesioni corporee.		Indica la presenza di parti meccaniche che possono provocare schiacciamento o altre lesioni corporee.
	Indica che vi è il rischio di esplosione.		Indica la presenza di un fascio laser che provoca cecità.
	Indica che vi è il rischio di incendio o esalazione di fumi.		Indica un avviso o avvertimento generale che non può essere specificamente identificato.

Azioni vietate

	Non smontare, riparare né modificare il server. In caso contrario, può verificarsi uno shock elettrico o un incendio.		Non toccare il server con le mani bagnate. In caso contrario, può verificarsi uno shock elettrico.
	Non toccare i componenti specificati da questo simbolo. In caso contrario, può verificarsi uno shock elettrico o un'ustione.		Non utilizzare il server in luoghi in cui possono entrare acqua o liquidi. In caso contrario, può verificarsi uno shock elettrico o un incendio.
	Non posizionare il server vicino al fuoco. In caso contrario, può verificarsi un incendio.		Indica un'azione vietata generale che non può essere specificamente identificata.

Azioni obbligatorie

	Scollegare il cavo dell'alimentazione del server. In caso contrario, può verificarsi uno shock elettrico o un incendio.		Indica un'azione obbligatoria che non può essere specificamente identificata. Accertarsi di seguire le istruzioni.
	Accertarsi che le apparecchiature siano correttamente collegate a terra. In caso contrario, può verificarsi uno shock elettrico o un incendio.		

Note sulla sicurezza

Questa sezione fornisce note sull'utilizzo in sicurezza del server. Leggere attentamente questa sezione per garantire un uso corretto e sicuro del server. Per i simboli, consultare *Precauzioni di sicurezza*.

Generalità

⚠ AVVERTIMENTO

Non utilizzare il server per servizi in cui la vita umana può essere a rischio o dove è richiesta un'elevata affidabilità.

Questo server non è destinato all'uso in applicazioni mediche, nucleari, aerospaziali, per il trasporto pubblico o applicazioni di altro genere in cui la vita umana può essere a rischio o dove è richiesta un'elevata affidabilità, né è destinato all'uso per il controllo di tali applicazioni. Decliniamo qualsiasi responsabilità per qualsiasi lesione personale e danni materiali provocati da un tale uso di questo server.

Non utilizzare il server se sono presenti segni di fumo, odori o rumori.

Se sono presenti segni di fumo, odori o rumore, spegnere immediatamente il server e scollegare la presa dell'alimentazione, successivamente contattare il negozio in cui è stato acquistato il prodotto o la propria azienda addetta alla manutenzione. L'uso del server in tali condizioni può provocare un incendio.

Non inserire aghi né oggetti di metallo.

Non inserire aghi né oggetti di metallo nei fori di ventilazione nel server o nelle aperture dell'unità del disco ottico. In caso contrario, può verificarsi uno shock elettrico.

Utilizzare un rack conforme allo standard designato

Questo server può essere montato su un rack da 19 pollici che è conforme agli standard EIA. Non montare il server su rack che non siano conformi agli standard EIA. In caso contrario, possono verificarsi malfunzionamenti del server, lesioni personali o danni a dispositivi periferici. Per maggiori informazioni sui rack che possono essere utilizzati con il server, consultare la propria azienda addetta alla manutenzione.

Utilizzare il server solo nell'ambiente specificato

Non installare il rack del server in ambienti che non sono adatti per l'installazione.

L'installazione in un ambiente non adatto è pericolosa per il server e per altri sistemi installati nel rack e può provocare incendi o lesioni personali a causa della caduta del rack. Per una spiegazione dettagliata degli ambienti di installazione o su rinforzi sismici, consultare il manuale di istruzioni fornito con il rack o la propria azienda addetta alla manutenzione.

⚠ ATTENZIONE

Tenere l'acqua o materiale estraneo lontano dal server.

Evitare che qualsiasi liquido come acqua o materiale estraneo, compresi perni o graffette, entrino nel server. La mancata osservanza di questo avvertimento può provocare uno shock elettrico, un incendio o danni al server. Quando tali oggetti entrano accidentalmente nel server, spegnere immediatamente l'alimentazione e scollegare la presa dell'alimentazione. Non smontare il server e contattare il negozio in cui è stato acquistato il prodotto o la propria azienda addetta alla manutenzione.

Vorsichtsmaßnahmen beim Gebrauch (Bitte durchlesen)

Folgendes bietet Informationen, die für einen sicheren und richtigen Gebrauch Ihres Servers erforderlich sind. Einzelheiten zu Namen in diesem Abschnitt finden Sie in Kapitel 1 (5. *Namen und Funktionen der Teile)* in diesem Dokument.

Sicherheitsmaßnahmen

Folgen Sie den Anleitungen in diesem Dokument für sicheren Gebrauch des NEC Express Servers.

Diese Bedienungsanleitung beschreibt die gefährlichen Teile des Servers, mögliche Gefahren und wie man sie vermeidet. Server-Komponenten mit möglicher Gefahr sind mit einem Warnschild gekennzeichnet, das auf ihnen oder neben ihnen angebracht ist (oder in einigen Fällen sind sie auf dem Server aufgedruckt).

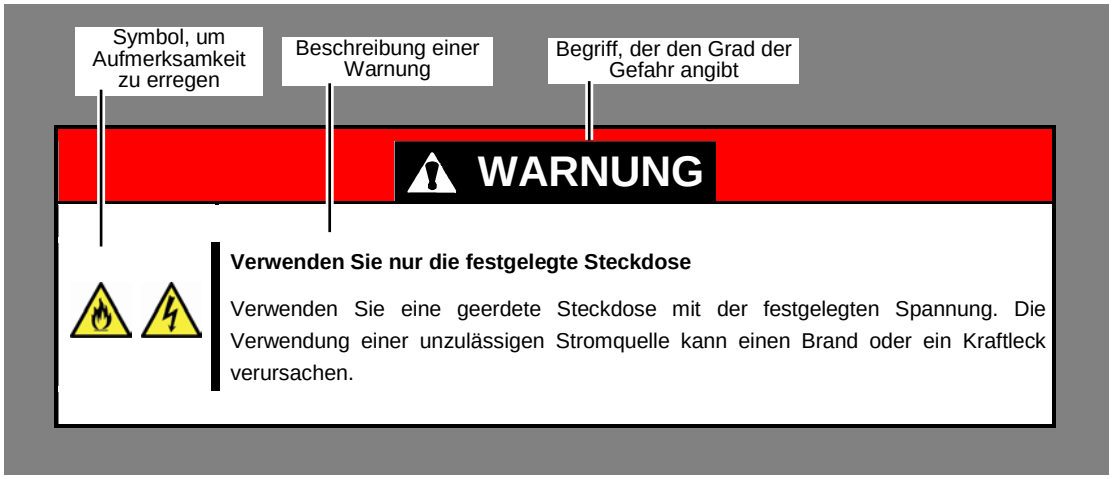
In der Bedienungsanleitung oder auf den Warnschildern werden **WARNUNG** oder **ACHTUNG** verwendet, um den Grad der Gefahr anzuzeigen. Diese Begriffe werden wie folgt definiert:

WARNING	Zeigt an, dass es ein Todesrisiko gibt oder es zu ernsthaften Verletzungen kommen kann
ACHTUNG	Zeigt an, dass es ein Risiko für Verbrennungen, andere Personenschäden oder zu Schäden am Eigentum kommen kann

Vorsichtsmaßnahmen und Gefahrenhinweise werden mit einem den folgenden drei Symbole dargestellt. Die individuellen Symbole werden wie folgt definiert:

	Achtung	Dieses Symbol weist auf eine Gefahr hin, wenn die Anleitung ignoriert wird. Ein Bild im Symbol beschreibt den Gefahrentyp.	(Beispiel) (Risiko eines elektrischen Schlags)
	Untersagte Aktion	Dieses Symbol verweist auf untersagte Aktionen. Ein Bild im Symbol beschreibt eine bestimmte untersagte Aktion.	(Beispiel) (Nicht auseinander nehmen)
	Verbindliche Aktion	Dieses Symbol verweist auf verbindliche Aktionen. Ein Bild im Symbol illustriert eine verbindliche Aktion, um eine bestimmte Gefahr zu vermeiden.	(Beispiel) (Ziehen Sie einen Stecker)

(Ein Schildbeispiel, wie es in der Bedienungsanleitung verwendet wird)



Symbole, die in diesem Dokument und auf den Warnschildern verwendet werden

Achtung

	Weist auf die Gefahr eines elektrischen Schlags hin.		Weist auf die Gefahr hin, dass mechanische Teile Verletzungen verursachen können.
	Weist auf eine heiße Oberfläche oder Komponente hin. Das Berühren dieser Oberfläche kann zu Verletzungen führen.		Weist auf die Gefahr hin, dass mechanische Teile einklemmen oder andere Verletzungen am Körper verursachen können.
	Weist auf das Risiko einer Explosion hin.		Weist auf einen Laserstrahl hin, der zu Blindheit führen kann.
	Weist auf das Risiko eines Brandes oder Rauch hin.		Weist auf einen allgemeinen Hinweis oder Warnung hin, welche nicht speziell identifiziert werden können.

Untersagte Aktionen

	Nehmen Sie den Server nicht auseinander, reparieren und modifizieren Sie ihn nicht. Ansonsten kann es zu einem elektrischen Schlag oder zu Feuer kommen.		Berühren Sie den Server nicht mit nassen Händen. Ansonsten kann es zu einem elektrischen Schlag kommen.
	Berühren Sie nicht die Komponente, die durch dieses Symbol angegeben ist. Ansonsten kann es zu einem elektrischen Schlag oder Verbrennungen kommen.		Verwenden Sie den Server nicht an einem Ort, an dem Wasser oder Flüssigkeiten austreten können. Ansonsten kann es zu einem elektrischen Schlag oder zu Feuer kommen.
	Stellen Sie den Server nicht in die Nähe von Feuer auf. Ansonsten kann ein Feuer verursacht werden.		Weist auf eine allgemeine untersagte Aktion hin, welche nicht speziell identifiziert werden kann.

Verbindliche Aktionen

	Ziehen Sie das Stromkabel des Servers heraus. Ansonsten kann es zu einem elektrischen Schlag oder zu Feuer kommen.		Weist auf eine verbindliche Aktion hin, welche nicht speziell identifiziert werden kann. Achten Sie darauf, der Anleitung zu folgen.
	Achten Sie darauf, dass die Geräte richtig geerdet sind. Ansonsten kann es zu einem elektrischen Schlag oder zu Feuer kommen.		

Sicherheitshinweise

Dieser Abschnitt gibt Hinweise darauf, wie der Server sicher verwendet werden kann. Lesen Sie sich diesen Abschnitt sorgfältig durch, um einen korrekten und sicheren Gebrauch des Servers zu gewährleisten. Symbole finden Sie in den Sicherheitsmaßnahmen.

Allgemein

⚠ WARNUNG

Verwenden Sie den Server nicht für Dienste, bei denen das menschliche Leben auf dem Spiel steht oder eine hohe Zuverlässigkeit erforderlich ist.

Dieser Server ist nicht dazu gedacht, bei medizinischen, nuklearen, Luftraum, Massenverkehr oder anderen Anwendungen eingesetzt zu werden, bei denen menschliches Leben auf dem Spiel steht oder eine hohe Zuverlässigkeit erforderlich ist. Auch ist er nicht für die Steuerung solcher Anwendungen gedacht. Wir übernehmen keine Haftung für persönliche Schäden und Sachschäden, die durch einen solchen Gebrauch des Servers verursacht werden.

Verwenden Sie den Server nicht, wenn Rauch, Gerüche oder Geräusche vorhanden sind.

Wenn Rauch, Gerüche oder Geräusche vorhanden sind, stellen Sie den Server sofort aus und ziehen Sie den Stecker aus der Steckdose, dann kontaktieren Sie das Geschäft, wo Sie das Produkt gekauft haben oder Ihre Wartungsfirma. Die Verwendung des Servers unter solchen Umständen kann Feuer auslösen.

Stecken Sie keine Nadeln oder Metallobjekte hinein.

Stecken Sie keine Nadeln oder Metallobjekte in die Lüftungslöcher des Servers oder in die Öffnungen im optischen Laufwerk. Dies kann zu einem elektrischen Schlag führen.

Verwenden Sie ein Gestell, das dem entsprechenden Standard entspricht

Dieser Server kann auf ein 19-Zoll Gestell montiert werden, das den EIA Standards entspricht. Montieren Sie den Server nicht auf ein Gestell, das nicht den EIA Standards entspricht. Dies kann zu einer Fehlfunktion des Servers, Personenschäden oder Schäden an den Peripheriegeräten führen. Weitere Informationen über Gestelle, die mit dem Server verwendet werden können, bekommen Sie von Ihrer Wartungs-Service-Firma.

Server nur in der festgelegten Umgebung benutzen

Installieren Sie das Server-Gestell nicht in einer Umgebung,die sich nicht für die Installation eignet.

Die Installation in einer ungeeigneten Umgebung ist gefährlich für den Serverund andere Systeme, die im Gestell installiert sind und können Feuer oder Personenschäden verursachen, wenn das Gestell umfällt. Eine detaillierte Erklärung zur Installationsumgebung oder seismischer Verstärkung, finden Sie in der Bedienungsanleitung, die mit dem Gestell geliefert wurde oder erhalten Sie von Ihrer Wartungs-Service-Firma.

⚠ ACHTUNG

Halten Sie Wasser oder Fremdmaterialien vom Server fern.

Lassen Sie keine Flüssigkeit, wie Wasser oder Fremdmaterialien, wie zum Beispiel Stifte oder Papierclips in den Server kommen. Wird diese Warnung nicht beachtet, kann es zu einem elektrischen Schlag, Feuer oder einer Fehlfunktion des Servers kommen. Wenn solche Dinge versehentlich in den Server gelangen, stellen Sie sofort den Strom aus und ziehen Sie den Stromstecker aus der Steckdose. Nehmen Sie den Server nicht auseinander und setzen Sie sich mit dem Geschäft in Verbindung, in dem Sie das Produkt gekauft haben oder mit Ihrer Wartungs-Service-Firma.

Precauciones de uso (leer atentamente)

A continuación se ofrece información necesaria para el uso correcto y seguro del servidor. Para obtener información detallada de los nombres de esta sección, consulte el Capítulo 1 (5. *Nombres y funciones de las piezas)* de este documento.

Precauciones de seguridad

Siga las instrucciones de este documento para poder realizar un uso seguro del servidor NEC Express.

Esta guía del usuario describe las piezas peligrosas del servidor, los posibles peligros y cómo evitarlos. Los componentes del servidor que pueden suponer un peligro se indican con una etiqueta de advertencia situada sobre o cerca de los mismos (en algunos casos, las advertencias se imprimen en el servidor).

En la guía del usuario o en las etiquetas de advertencia, **ADVERTENCIA** o **CUIDADO** se utilizan para indicar un grado de peligro. Estos términos se definen como sigue:

ADVERTENCIA Indica que existe un riesgo de muerte o de daños personales graves.

CUIDADO Indica que existe un riesgo de quemaduras, otros daños personales o daños a la propiedad.

Las precauciones y los avisos frente a los peligros se presentan con uno de los tres símbolos que figuran a continuación. Los símbolos individuales se definen como sigue:

	Atención	Este símbolo indica la presencia de un peligro si se ignoran las instrucciones. La imagen del símbolo ilustra el tipo de peligro.	(Ejemplo) (Riesgo de descarga eléctrica)
	Acción prohibida	Este símbolo indica acciones prohibidas. La imagen del símbolo ilustra una acción prohibida en particular.	(Ejemplo) (No desmontar)
	Acción obligatoria	Este símbolo indica acciones obligatorias. La imagen del símbolo ilustra una acción obligatoria para evitar un peligro en particular.	(Ejemplo) (Desconectar un enchufe)

(Una etiqueta de ejemplo utilizada en esta Guía del usuario)

Símbolos utilizados en este documento y en las etiquetas de advertencia

Atención

	Indica la presencia de peligro de descarga eléctrica.		Indica la presencia de piezas mecánicas que pueden provocar daños físicos.
	Indica la presencia de una superficie o un componente calientes. Tocar esta superficie podría provocar daños físicos.		Indica la presencia de piezas mecánicas que pueden provocar pellizcos o daños físicos.
	Indica la presencia de riesgo de explosión.		Indica la presencia de un haz de láser que provoca ceguera.
	Indica la presencia de riesgo de incendio o humo.		Indica un aviso o advertencia general que no puede identificarse de forma específica.

Acciones prohibidas

	No desmontar, reparar ni modificar el servidor. De lo contrario, puede producirse una descarga eléctrica o un incendio.		No tocar el servidor con las manos mojadas. De lo contrario, puede producirse una descarga eléctrica.
	No tocar el componente especificado por este símbolo. De lo contrario, puede producirse una descarga eléctrica o quemaduras.		No utilizar el servidor en un lugar en el que pueda verterse agua o líquido sobre el mismo. De lo contrario, puede producirse una descarga eléctrica o un incendio.
	No colocar el servidor cerca del fuego. De lo contrario, podría producirse un incendio.		Indica una acción general prohibida que no puede identificarse de forma específica.

Acciones obligatorias

	Desenchufar el cable de alimentación del servidor. De lo contrario, puede producirse una descarga eléctrica o un incendio.		Indica una acción obligatoria que no puede identificarse de forma específica. Asegúrese de seguir las instrucciones.
	Asegúrese de que el equipo esté correctamente puesto a tierra. De lo contrario, puede producirse una descarga eléctrica o un incendio.		

Notas de seguridad

Esta sección proporciona notas acerca del uso seguro del servidor. Lea atentamente esta sección para garantizar un uso seguro y correcto del servidor. Para conocer los símbolos, consulte las *Precauciones de seguridad*.

General

⚠ ADVERTENCIA

No utilizar el servidor para servicios en los que la vida humana pueda ponerse en riesgo o en el que se exija una elevada fiabilidad.

Este servidor no está diseñado para su uso en aplicaciones médicas, nucleares, aeroespaciales, de tránsito masivo o en otras en las que pueda ponerse en riesgo una vida humana o en la que se requiera una gran fiabilidad. Asimismo, tampoco está diseñado para ser utilizado para controlar tales aplicaciones. No asumimos responsabilidad alguna por los posibles daños personales o a la propiedad ocasionados por dichos usos del servidor.

No utilizar el servidor si hay presencia de humo, olores o ruido.

Si hay presencia de humo, olores o ruido, apagar inmediatamente el servidor y desconectar el enchufe de alimentación de la toma de corriente. Ponerse en contacto con el establecimiento en el que se adquirió el producto o con la empresa de servicio de mantenimiento. El uso del servidor en tales condiciones puede provocar un incendio.

No introducir agujas ni objetos metálicos.

No introducir agujas ni objetos metálicos en los orificios de ventilación del servidor ni en las aberturas de la unidad de disco óptico. De lo contrario, podría producirse una descarga eléctrica.

Utilizar un rack que cumpla la norma establecida

Este servidor puede montarse en un rack de 19 pulgadas que cumpla con las normas de la EIA (Alianza de industrias electrónicas, EIA por sus siglas en inglés). El servidor no debe montarse en un rack que no cumpla las normas de la EIA. De lo contrario, puede producirse un funcionamiento incorrecto del servidor, daños personales o daños en los dispositivos periféricos. Para obtener más información acerca de los racks que pueden utilizarse con el servidor, consulte con la empresa de servicio de mantenimiento.

Utilizar el servidor únicamente en el entorno especificado

No instalar el rack del servidor en ningún entorno que no resulte adecuado para la instalación.

La instalación en un entorno no adecuado resulta perjudicial para el servidor y otros sistemas instalados en el rack, y puede provocar un incendio o daños personales debido a la caída del rack. Para obtener una explicación detallada acerca de los entornos de instalación o el refuerzo sísmico, consulte el manual de instrucciones que se proporciona con el rack o con la empresa de servicio de mantenimiento.

⚠ CUIDADO

Mantener el servidor alejado del agua objetos extraños.

No permita la entrada de líquido como, por ejemplo, agua, objetos extraños como agujas o clips en el servidor. El incumplimiento de esta advertencia puede producir una descarga eléctrica, un incendio o un fallo del servidor. Cuando un objeto extraño entre en el servidor, apáguelo inmediatamente y desconecte el enchufe de la toma de corriente. No desmonte el servidor y póngase en contacto con el establecimiento en el que adquirió el producto o con la empresa de servicio de mantenimiento.

⚠使用时的注意事项（必读）

以下内容为您安全、正确地使用本产品提供了必要的信息。关于此处所述名称的详细信息，请参阅【第 1 章（5. 各部分的名称和功能）】。

安全标识

为了安全使用本产品，请遵守用户指南中的指示。

该用户指南描述了本设备中存在危险的组件、可能遭遇的危险以及如何避开危险。在本设备中可能存在危险的组件处或其周围粘贴（或者印刷）有警告标签。

用户指南及警告标签中，根据危险程度不同来使用词语“警告”和“注意”。其各自的意义如下所示：

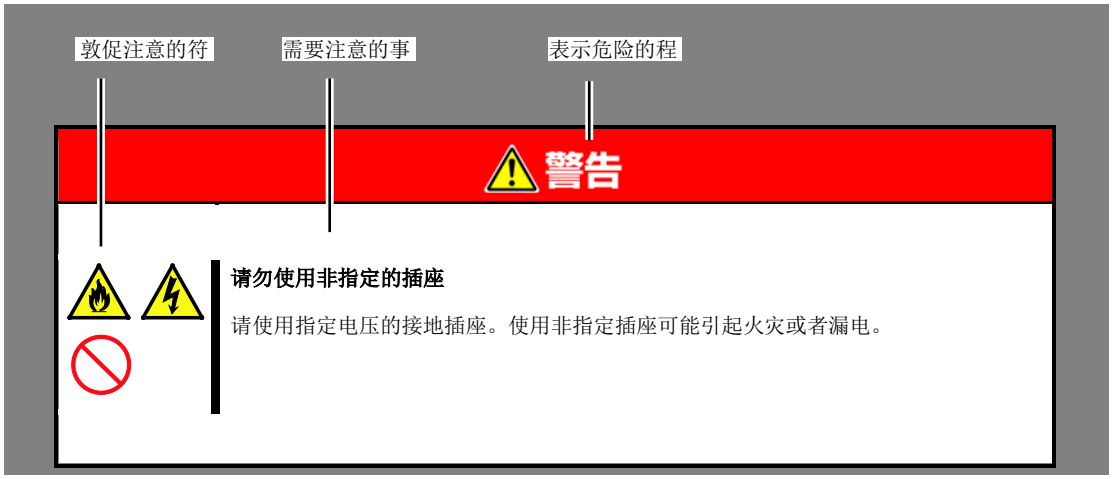
⚠警告 **表示有导致人员死亡或者重伤的风险。**

⚠注意 **表示有导致烧伤、其它伤害或财产损失的风险。**

为了提醒针对危险事项的注意，采用以下三种符号进行提示。其各自的意义如下所示：

	敦促注意	该符号表示可能发生危险。符号中的图用于表示危险的内容。	（例） （注意触电）
	禁止行为	该符号表示禁止某种行为。符号中或者附近的图用于表示禁止的行为。	（例） （禁止拆卸）
	必须执行	该符号表示必须执行某种行为。符号中的图用于表示必须执行的行为。执行该行为是为了避免危险。	（例） （拔下插头）

（用户指南中的标示例）


敦促注意的符
需要注意的事
表示危险的程
警告
请勿使用非指定的插座
请使用指定电压的接地插座。使用非指定插座可能引起火灾或者漏电。

本书及警告标签中使用的符号及其内容

敦促注意

	表示有触电的危险。		表示有手指被夹伤的危险。
	表示有高温受伤的危险。		表示有受伤的危险。
	表示有爆炸或破裂的危险。		表示有激光导致失明的危险。
	表示有冒烟或着火的危险。		表示非特定的一般性注意和警告。

禁止行为

	请勿对本设备进行拆卸、修理或改造。否则有触电或发生火灾的危险。		请勿用湿手触摸。否则有触电的危险。
	请勿触摸指定位置以外的部分。否则有触电或灼伤的危险。		请勿在水或其他液体飞溅的环境中使用。沾水后有触电或着火的危险。
	请勿靠近火源。否则有着火的危险。		表示非特定的一般性禁止。

必须执行

	请将本设备的电源插头从插座上拔下。否则有发生火灾或触电的危险。		非特定的对于一般性用户操作的指示。请按照说明进行操作。
	请务必接地。否则有触电或发生火灾的危险。		

安全注意事项

为了安全使用本产品，请仔细阅读并理解本节所述的注意事项。关于符号，请参照【安全标识】。

整体注意事项

⚠警告

请勿用于涉及到生命安全或需要高度可靠性的业务。

本设备并非用于嵌入医疗器械、核能设备、航空宇宙机器或者运输设备及器械等事关人命或需要高度可靠性的设备和机器，也不用于对其进行控制。对于将本设备用于这些设备和机器、控制系统所引起的后果、人身伤亡、财产损失等，本公司概不负责。

发生冒烟、异味、杂音时请不要继续使用

如发生冒烟、异味、杂音等现象时，请立即关闭电源，并将电源插头从插座上拔下。然后请联系维护服务公司。若继续使用可能导致火灾。

请勿插入金属丝或金属片

请勿从通气孔或光盘驱动器的缝隙插入金属片或金属丝等异物。可能导致触电。

请勿使用规格外的机架

本设备也可安装在符合EIA标准的19型（英寸）机架上。请勿安装在不符合EIA标准的机架上。否则不但可能引起本设备的功能异常，还可能导致人员受伤或者周围设施的损坏。关于本设备适用的机架，请咨询维护服务公司。

请勿在指定以外的场所使用

请勿将安装本设备的机架设置在不合适的场所。
否则不但可能给安装在本设备或机架上的其他系统带来负面影响，还可能引起火灾或者由于机架翻倒而引起受伤。关于设置场所的详细说明以及防震措施，请参照机架附带的说明说或咨询维护服务公司。

⚠注意

防止水或异物进入本设备

务必防止水之类的液体、细针以及别针等异物进入本设备。有可能导致火灾、触电以及故障。一旦有异物进入，请立即关闭电源，将电源插头从插座上拔下来。不要自行拆卸，请联系维护服务公司。

使用時之注意事項(必讀)

以下內容為您安全、正確地使用本產品提供了資訊。關於此處所述名稱之詳細資訊，請參閱【第 1 章（5. 各部分名稱及功能）】。

安全標識

為了安全使用本產品，請遵守用戶指南中之指示。 該用戶指南描述了本設備中存在危險之組件、可能遭遇危險及如何避開危險。在本設備中可能存在危險之組件處或其周圍粘貼(或者印刷)有警告標籤。

用戶指南及警告標籤中，根據危險程度不同來使用詞語“警告”和“注意”。其各自之意義如下所示：

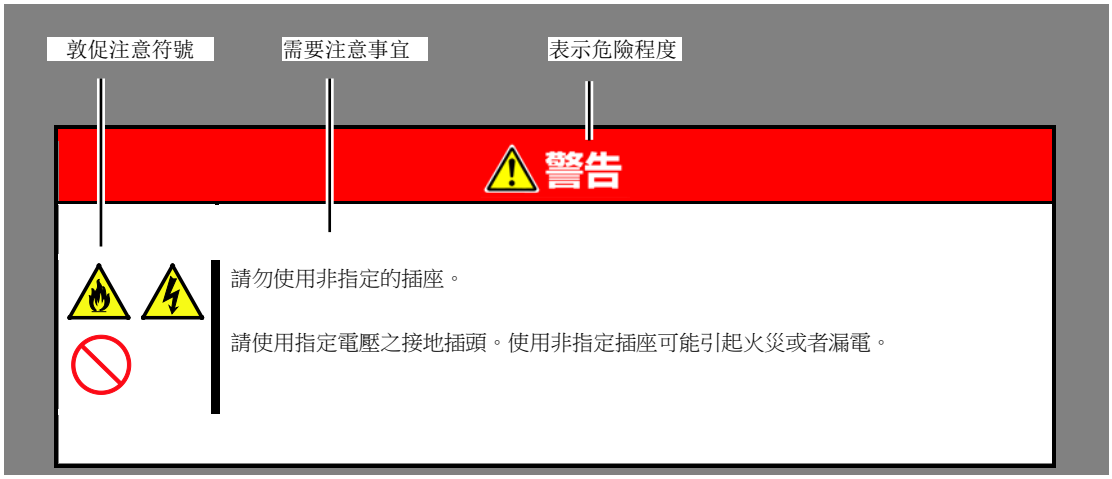
警告 **表示有導致人員死亡或者重傷之風險。**

注意 **表示有其他傷害或者財產損失的風險。**

為了提醒針對危險事項之注意，採用以下三種符號進行提示。其各自之意義如下所示：

	敦促注意	該符號表示可能發生危險。符號中之圖用於表示危險的內容。	(例) （注意觸電）
	禁止行為	該符號表示禁止某種行為。符號中或者附近之圖用於表示禁止的行為。	(例) （禁止拆卸）
	必須執行	該符號表示必須執行某種行為。符號中之圖用於表示必須執行的行為。執行行為為了避免危險。	(例) （拔下插頭）

（用戶指南表示例子）


敦促注意符號
需要注意事宜
表示危險程度
警告
請勿使用非指定的插座。
請使用指定電壓之接地插頭。使用非指定插座可能引起火災或者漏電。

本書及警告標籤中使用之符號及其內容

敦促注意

	表示有觸電之危險。		表示有手指被夾傷之危險。
	表示有高溫受傷之危險。		表示有受傷之危險。
	表示有爆炸或爆裂之危險。		表示有激光導致失明之危險。
	表示有冒煙或著火之危險。		表示非特定之一般性注意和警告。

禁止行為

	請勿對本設備進行拆卸、修理或改造。否則有觸電或發生火災的危險。		請勿用濕手觸摸。否則有觸電之危險。
	請勿觸摸指定位置以外的部分。否則有觸電或请勿触摸指定位置以外的部分。否則有触电或灼傷之危險。		請勿在水或其他液體飛濺之環境中使用。沾水後有觸電或著火之危險。
	請勿靠近火源。否則有著火之危險。		表示非特定之一般性禁止。

必須執行

	請將本設備之電源插頭從插座傷拔下。否則有發生火災或觸電之危險。		非特定之對於一般性用戶操作的指示。請按照說明進行操作。
	請務必接地。否則有觸電或發生火災之危險。		

安全注意事項

為了安全使用本產品，請仔細閱讀並理解本節所述的注意事項。關於符號，請參照【安全標識】。

整體注意事項

⚠警告

請勿用於涉及生命安全或需要高度可靠性的業務

本設備並非用於嵌入醫療器械、核能設備、航空宇宙機器或者運輸設備及器械等事關人命或需要高度可靠性的設備和機器，也不用於對其進行控制。對於將本設備用於這些設備和機器、控制系統所引起的後果、人身傷亡、財產損失等，本公司概不負責任。

發生冒煙、異味、雜音時請不要繼續使用

如發生冒煙、異味、雜音等現象時，請立即關閉電源，並將電源插頭從插座上拔下。然後請聯繫維護服務公司。若繼續使用可能導致火災。

請勿插入金屬絲或金屬片

請勿從通氣孔或光盤驅動器之縫隙插入金屬片或金屬絲等異物。可能導致觸電。

請勿使用規格外之機架

本設備也可安裝於符合 EIA 標準之 19 型(英吋)機架上。請勿安裝於不符合 EIA 標準的機架上。否則不但可能引起本設備之功能異常，還可能導致人員受傷或周圍設施之損壞。關於本設備適用之機架，請諮詢維護服務公司。

請勿於指定以外之場所使用

請勿將安裝本設備之機架設置於不合適之場所。否則不但可能給安裝於本設備或機架上之其他系統帶來負面影響，還可能引起火災或者由於機架翻到而引起傷害。關於設置場所之詳細說明以及防震措施，請參照機架附帶之說明或諮詢維護服務公司。

⚠注意

防止水域或異物進入本設備

務必防止水之類液體、細針以及別針等異物進入本設備。有可能導致火災、觸電以及故障。一旦有異物進入，請立即關閉電源，將電源插頭從插座上拔下來。不要自行拆卸，請聯繫維護服務公司。

Rack installation

⚠ CAUTION

Do not attempt to carry or install the server alone

More than two people are required to carry or install the rack. Otherwise, the rack may fall, resulting in personal injury or damage to peripheral devices. In particular, tall racks such as a 44U rack become unstable unless steadied with a stabilizer. Make sure that two or more people hold the rack to carry or install the rack.

Do not install with the load weight distributed unevenly

To avoid unevenly distributing the load of the rack and server, install a stabilizer or connect multiple racks to distribute the weight. Otherwise, the rack may fall, resulting in personal injury.

Do not install components alone, and check the door hinge pins of the rack

Two or more people are required to install the rack components such as the door or rails. When installing the door, make sure that both upper and lower hinge pins are held in place. Incomplete attachment may cause components to fall off as well as personal injury.

Do not extend any device from the rack that is not stabilized

When extending a device from the rack, make sure that the rack is stable (by using a stabilizer or seismic reinforcement). Otherwise, the rack may fall, resulting in personal injury.

Do not extend more than one device out of the rack

Extending multiple devices from the rack may cause the rack to fall, resulting in personal injury. Extend only one device at one time.

Do not exceed the rated capacity of the power supply when connecting devices

To prevent burn injuries, fire, and damage to the server, make sure the load on the branch circuit that supplies power to the rack will not exceed the rated load. For inquiries regarding the installation or wiring of the power supply system, consult with the company that performed the installation or wiring, or the power company that services your area.

Installation du rack

⚠ ATTENTION

N’essayez pas de porter ou d’installer le serveur seul

Au moins deux personnes sont nécessaires pour transporter ou installer le rack. Autrement, le rack peut tomber et vous blesser ou endommager périphériques. En particulier, les grands racks comme le rack 44U deviennent instables à moins de les stabiliser avec un stabilisateur. Assurez-vous qu’au moins deux personnes tiennent le rack pour le transporter ou l’installer.

Ne l’installez pas avec le poids distribué de manière inégale

Pour éviter de distribuer inégalement la charge du rack et du serveur, installez un stabilisateur ou connectez plusieurs racks pour distribuer le poids. Autrement, le rack peut tomber et vous blesser.

N’installez pas les composants seul, et vérifiez les gonds de la porte du rack

Au moins deux personnes sont nécessaires pour installer les composants du rack comme la porte ou les rails. Lors de l’installation de la porte, assurez-vous que les gonds supérieurs et inférieurs sont bien fixés. Les composants peuvent tomber à cause d’une mauvaise fixation et vous blesser.

Ne prolongez aucun périphérique à partir d’un rack qui n’est pas stabilisé

Lorsque vous prolongez un périphérique à partir du rack, assurez-vous que le rack est stable (à l’aide d’un stabilisateur ou d’un renfort parasismique). Autrement, le rack peut tomber et vous blesser.

Ne prolongez pas plus d’un périphérique hors du rack

Prolonger plusieurs périphériques à partir du rack peut le faire chuter et vous blesser. Prolongez un périphérique à la fois.

Ne dépassez pas la capacité nominale de l’alimentation en énergie lors du branchement des périphériques

Afin d’empêcher toute brûlure, incendie, et dommages au serveur, veillez à ce que la charge sur le circuit de dérivation qui alimente le rack ne dépasse pas la charge nominale. Pour toute demande concernant l’installation ou le câblage du système d’alimentation, consultez la société qui a exécuté l’installation ou le câblage, ou la compagnie d’électricité qui opère dans votre secteur.

Installazione del rack

⚠ ATTENZIONE

Non tentare di trasportare o installare il server da soli

Sono necessarie più di due persone per trasportare o installare il rack. In caso contrario, il rack può cadere, provocando lesioni personali o danni a dispositivi periferici. In particolare, rack alti come i rack 44U diventano instabili tranne se fissati con uno stabilizzatore. Accertarsi che due o più persone mantengano il rack durante il suo trasporto o la sua installazione.

Non installare con il peso del carico distribuito in modo non uniforme

Per evitare di distribuire il carico del rack e del server in modo non uniforme, installare uno stabilizzatore o collegare più rack per distribuire il peso. In caso contrario, il rack può cadere, provocando lesioni personali.

Non installare i componenti da soli e verificare i perni della cerniera dello sportello del rack

Sono necessarie due o più persone per installare i componenti del rack come lo sportello o i binari. Quando si installa lo sportello, accertarsi che sia i perni della cerniera superiore sia quelli della cerniera inferiore siano in posizione. Il fissaggio incompleto può provocare la caduta dei componenti nonché lesioni personali.

Non estendere alcun dispositivo dal rack che non sia stabile

Quando si estende un dispositivo dal rack, accertarsi che il rack sia stabile (utilizzando uno stabilizzatore o un rinforzo sismico). In caso contrario, il rack può cadere, provocando lesioni personali.

Non estendere più di un dispositivo dal rack

Estendere più dispositivi dal rack può provocare la caduta del rack, causando lesioni personali. Estendere un solo dispositivo alla volta.

Non superare la capacità nominale dell'alimentazione quando si collegano i dispositivi

Per evitare ustioni, incendi e danni al server, accertarsi che il carico sul circuito derivato che fornisce energia al rack non superi il carico nominale. Per domande relative all'installazione o al cablaggio del sistema di alimentazione, consultare l'azienda che ha eseguito l'installazione o il cablaggio o l'azienda di servizi elettrici che fornisce la propria area.

Gestellinstallation

⚠ ACHTUNG

Versuchen Sie nicht den Server allein zu tragen oder zu installieren

Es sind mehr als zwei Personen erforderlich, um das Gestell zu tragen oder zu installieren. Ansonsten kann das Gestell umfallen, was zu Personenschäden oder Schäden an den Peripheriegeräten führen kann. Speziell hohe Gestelle, wie zum Beispiel ein 44U-Gestell, können instabil werden, es sei denn, sie werden mit einem Stabilisator ausgeglichen. Achten Sie darauf, dass zwei oder mehr Personen das Gestell halten, um es zu tragen oder zu installieren.

Installieren Sie es nicht, wenn die Last ungleich verteilt ist

Um eine ungleiche Verteilung der Last auf dem Gestell und Server zu vermeiden, installieren Sie einen Stabilisator oder verbinden Sie mehrere Gestelle miteinander, um das Gewicht zu verteilen. Ansonsten kann das Gestell umkippen und es kann zu Personenschäden kommen.

Installieren Sie keine Komponenten alleine und prüfen Sie die Türscharnierstifte des Gestells

Es sind zwei oder mehr Personen erforderlich, um die Gestellkomponenten zu installieren, wie zum Beispiel die Tür oder Schienen. Wenn Sie die Tür installieren, achten Sie darauf, dass sowohl die oberen als auch die unteren Scharnierstifte an ihrem Platz sind. Ein unvollständiges Anbringen kann dazu führen, dass die Komponenten herunterfallen oder es kann zu Personenschäden kommen.

Ziehen Sie kein Gerät aus dem Gestell heraus, das nicht stabilisiert ist

Wenn Sie ein Gerät vom Gestell ausfahren achten Sie darauf, dass das Gestell stabil ist (indem Sie einen Stabilisator oder seismische Verstärkung verwenden). Ansonsten kann das Gestell umkippen und es kann zu Personenschäden kommen.

Lassen Sie nicht zu, dass mehr als ein Gerät aus dem Gestell gezogen wird

Werden mehrere Geräte aus dem Gestell gezogen kann dies dazu führen, dass das Gestell umkippt und es kann zu Personenschäden kommen. Ziehen Sie immer nur jeweils ein Gerät heraus.

Überschreiten sich nicht die Nennkapazität der Stromversorgung, wenn Sie die Geräte anschließen

Um Verbrennungen, Feuer und Schäden am Server zu vermeiden, achten Sie darauf, dass die Last am Abzweigstromkreis, der den Strom an das gerät liefert, nicht die Nennlast überschreitet. Bei Fragen hinsichtlich der Installation oder der Verkabelung des Stromversorgungssystems, fragen Sie die Firma, die die Installation oder die Verkabelung vorgenommen hat oder das Stromversorgungsunternehmen, das für Ihr Gebiet zuständig ist.

Instalación del rack

⚠ CUIDADO

No debe trasladar o instalar el servidor una única persona

Se requieren más de dos personas para trasladar o instalar el rack. De lo contrario, el rack puede caerse, produciendo daños personales o a los dispositivos periféricos. En particular, los racks de gran altura como el rack 44U se desequilibra a menos que se fije con un estabilizador. Asegúrese de que dos o más personas sujetan el rack durante el traslado o la instalación.

No instalar con el peso de la carga distribuido de forma desigual

Para evitar una distribución desigual de la carga del rack y el servidor, instale un estabilizador o conecte múltiples racks para distribuir el peso. De lo contrario, el rack podría caer y provocar daños personales.

No debe instalar los componentes una única persona y es necesario comprobar los pasadores de la bisagra de la puerta del rack

La instalación de los componentes del rack como, por ejemplo, la puerta o los rieles, requiere un mínimo de dos personas. Durante la instalación de la puerta, asegúrese de que los pasadores inferiores y superiores de la bisagra están sujetos en su posición. Un acople incompleto puede provocar la caída de los componentes y daños personales.

No extraer ningún dispositivo del rack que no esté estabilizado

Cuando se extraiga un dispositivo desde el rack, asegúrese de que el rack sea estable (utilizando un estabilizador o un refuerzo antisísmico). De lo contrario, el rack podría caer y provocar daños personales.

No extraer más de un dispositivo del rack

Extraer múltiples dispositivos del el rack puede producir la caída del mismo y producir daños personales. Extraer un único dispositivo cada vez.

No sobrepasar la capacidad nominal de la fuente de alimentación cuando se conecten dispositivos

Para evitar quemaduras, incendios y daños en el servidor, asegúrese de que la carga del circuito de derivación que suministra alimentación al rack no supere la carga nominal. Si tiene alguna consulta en relación con la instalación o el cableado del sistema de alimentación, consulte con la empresa que realizó la instalación o el cableado o con la compañía eléctrica que realiza el suministro en su zona.

有关安装及使用机架的注意事项

⚠注意

请勿试图一个人搬运或安装

如果搬运或者安装机架，需要两人以上。否则可能出现机架翻倒，导致人员受伤或者周围设施损坏。尤其是高的机架（例如44U机架），在没有用稳固器固定的情况下会处于不稳定的状况。请确保两人以上一边扶持一边进行机架的搬运或安装。

设置时请避免重量分配过于集中

为避免机架和所安装设备的重量分布过于集中，请安装稳固器或者将多个机架连接在一起以分散荷重。否则可能出现机架翻倒从而造成人员受伤。

请勿独自安装组件，并请检查机架门上合页的轴

安装机架组件例如门或者导轨时需要两人以上。安装机架门时要确保上方和下方的合页轴安装到位。否则可能导致组件掉落甚至人员受伤。

请勿从不稳定状态的机架中抽取设备

从机架中抽取设备时，请确保机架处于稳定状态（使用稳固器或者采取防震措施）。否则可能出现机架翻倒从而造成人员受伤。

请勿一次性从机架中抽取一台以上的设备

一次性从机架中抽取一台以上的设备可能会导致机架翻倒从而造成人员受伤。请一次仅抽取一台设备。

连接设备时请勿超过电源的额定容量

为避免烧伤、火灾以及设备损坏，请确保为机架提供电源的分支电路的负荷不超过额定数值。关于供电设备的安装以及布线，请咨询电源系统的施工公司或当地的电力公司。

有關安裝及使用機架之注意事項

⚠注意

請勿試圖一個人搬運或安裝

如果搬運或安裝機架，需要兩人以上。否則可能出現機架翻倒，導致人員受傷或者周圍設施損壞。尤其是高的機架（例如44U機架），於沒有用穩固器固定之情況下會處於不穩定之狀況。請確保兩人以上一邊扶持一邊進行機架的搬運或安裝。

設置時請避免重量分配過於集中

為避免機架和所安裝設備的重量分佈過於集中，請安裝穩固器或者將多個機架連接於一起以分散荷重。否則可能出現機架翻倒從造成人員受傷。

請勿獨自安裝組件，並請檢查機架門上合頁之軸

安裝機架組件例如門或者導軌時需要兩人以上。安裝機架門時要確保上方和下方之合頁軸安裝到位。否則可能導致組件掉落甚至人員受傷。

請勿從不穩定狀態之機架中抽取設備

從機架中抽取設備時，請確保機架處於穩定狀態（使用穩固器或者採取防震措施）。否則可能出現機架翻倒從而造成人員受傷。

請勿一次性從機架中抽取一台以上的設備

一次性從機架中抽取一台以上之設備可能會導致機架翻倒從而造成人員受傷。請一次僅抽取一台設備。

連接設備時請勿超過電源的額定容量

為避免燒傷、火災以及設備損壞，請確保為機架提供電源之分支電路之負荷不超過額定數值。關於供電設備之安全以及佈線，請諮詢電源系統之施工公司或當地電力公司。

Power supply and power cord use

WARNING

Do not hold the power plug with a wet hand.

Do not disconnect/connect the plug while your hands are wet. Failure to follow this warning may cause an electric shock.

CAUTION

Plug in to a proper power source.

Use a grounded outlet with the specified voltage. Use of an outlet with a voltage other than that specified causes fire and electrical leakage. Do not install the server in any environment that requires an extension cord. Connecting to a cord that does not conform to the power supply specs of the server causes overheating, resulting in fire.

If you want to use an AC cord set with a ground wire of class 0I, be sure to connect the ground wire before inserting the power plug into the outlet. Before disconnecting the ground wire, be sure to disconnect the power plug from the output.

Do not connect many cords into a single outlet by using extension cords.

The electric current exceeding the rated flow overheats the outlet, which may cause a fire.

Insert the power plug into the outlet as far as it goes.

Heat generation resulting from a halfway inserted power plug (imperfect contact) may cause a fire. Heat will also be generated if condensation is formed on dusty blades of the halfway inserted plug, increasing the possibility of fire.

Do not use any unauthorized interface cable.

Use only the interface cables provided with the server. Electric current that exceeds the amount allowed could cause fire. Also, observe the following precautions to prevent electrical shock or fire caused by a damaged power cord.

- Do not stretch the cord harness
- Do not bend the power cord.
- Do not twist the power cord
- Do not step on the power cord.
- Uncoil the power cord before use
- Do not secure the power cord with staples or equivalents
- Do not pinch the power cord
- Keep chemicals away from the power cord
- Do not place any object on the power cord
- Do not alter, modify, or repair the power cord
- Do not use a damaged power cord (replace the damaged power cord with a power cord of the same standard. For information on replacing the power cord, contact the store where you purchased the product or a maintenance service company)

⚠ CAUTION

Do not use the attached power cord for any other devices or usage.

The power cord that comes with your server is designed aiming to connect with this server and to use with the server, and its safety has been tested. Do not use the attached power cord for any other purpose. Doing so may cause a fire or an electric shock.

Do not pull out a cable by gripping the cable part.

Pull a cable straight out by gripping the connector part. Pulling a cable by gripping the cable part or applying extra pressure to the connector part may damage the cable part, which may cause a fire or electric shock.

Utilisation de l’alimentation et du cordon d’alimentation

⚠ AVERTISSEMENT

Ne touchez pas la fiche d’alimentation si vous avez les mains mouillées.

Ne débranchez pas/branchez pas la prise si vos mains sont mouillées. Si vous ne respectez pas cet avertissement, vous risquez de vous électrocuter.

⚠ ATTENTION

Branchez le serveur sur une source d’alimentation appropriée.

Utilisez une prise murale conforme à la tension attendue par l’appareil. Faute de quoi, existe un risque d’incendie ou de fuite de courant. N’installez pas le serveur dans un endroit impliquant l’utilisation d’une rallonge. Si vous utilisez un cordon d’alimentation non conforme aux spécifications électriques du serveur, il risque de surchauffer et de provoquer un incendie.

Si vous souhaitez utiliser un cordon d’alimentation secteur avec un fil de masse de la classe 0I, assurez-vous de connecter le fil de masse avant d’insérer la fiche d’alimentation dans la prise murale. Avant de débrancher le fil de masse, assurez-vous de démonter la fiche d’alimentation de la prise.

Ne reliez pas plusieurs cordons dans une seule prise en utilisant des rallonges.

Lorsque le courant électrique excède l’intensité nominale, la prise surchauffe et risque du même coup de provoquer un incendie.

Insérez la fiche d’alimentation dans la prise électrique.

La génération de chaleur résultant d’une fiche d’alimentation qui n’est pas totalement inséré (mauvais contact) peut provoquer un incendie. De la chaleur est également générée si de la condensation se forme sur les lames poussiéreuses d’une fiche mal insérée, augmentant ainsi les risques d’incendie.

N’utilisez qu’un câble d’interface agréé.

N’utilisez que les câbles d’interface fournis avec le serveur. Le courant électrique qui dépasse l’intensité nominale risque de provoquer un incendie. Respectez bien les interdictions suivantes pour éviter tout choc électrique ou incendie causé par des cordons d’alimentation endommagés.

- N’étirez pas le cordon
- Ne pliez pas le cordon d’alimentation.
- Ne tordez pas le cordon d’alimentation
- Ne marchez pas sur le cordon d’alimentation.
- Déroulez le cordon d’alimentation avant utilisation
- Ne fixez pas le cordon d’alimentation avec des agrafes ou quelque chose d’équivalent
- Ne pincez pas le cordon d’alimentation
- Éloignez tout produit chimique du cordon d’alimentation
- Ne posez aucun objet sur le cordon d’alimentation
- Vous ne devez en aucun cas altérer, modifier ou réparer le cordon d’alimentation
- N’utilisez pas un cordon d’alimentation endommagé. (Remplacez-le par un nouveau cordon présentant les mêmes spécifications. Si vous avez des questions concernant le remplacement du cordon d’alimentation, contactez votre revendeur ou votre société de maintenance)

⚠ ATTENTION

N’utilisez pas le cordon d’alimentation fourni avec d’autres périphériques ou à d’autres fins.

Le cordon d’alimentation fourni avec le serveur a été conçu pour être branché et utilisé sur ce dernier et sa sécurité a été testée. N’utilisez pas le cordon d’alimentation fourni à d’autres fins. Vous risqueriez de provoquer un incendie ou de vous électrocuter.

Ne retirez pas un câble en tirant au niveau du câble.

Retirez le câble en tirant directement au niveau du connecteur. Retirer le câble en tirant au niveau du câble ou en appliquant une force excessive au niveau du connecteur peut endommager la partie câble, provoquant un incendie ou un choc électrique.

Uso dell'alimentazione e del cavo dell'alimentazione

⚠ AVVERTIMENTO

Non mantenere la presa dell'alimentazione con le mani bagnate.

Non scollegare/collegare la presa con le mani bagnate. La mancata osservanza di questo avvertimento può provocare uno shock elettrico.

⚠ ATTENZIONE

Inserire la presa in un alimentatore adatto.

Utilizzare un'uscita con messa a terra con la tensione specificata. L'uso di un'uscita con una tensione diversa da quella specificata provoca incendi e perdite elettriche. Non installare il server in ambienti che richiedono una prolunga. Il collegamento a un cavo che non è conforme alle specifiche dell'alimentazione del server provoca il surriscaldamento, provocando un incendio.

Se si desidera utilizzare un cavo CA impostato con un filo di terra di classe 0I, accertarsi di collegare il filo di terra prima di inserire la presa dell'alimentazione. Prima di scollegare il filo di terra, accertarsi di scollegare la presa dell'alimentazione.

Non collegare più cavi in una singola uscita utilizzando prolunghe.

La corrente elettrica che supera il flusso nominale surriscalda l'uscita, il che può provocare un incendio.

Inserire completamente la presa dell'alimentazione.

La generazione di calore derivante da una presa dell'alimentazione inserita a metà (contatto imperfetto) può provocare un incendio. Il calore sarà generato anche se si forma condensa sulle lame polverose della presa inserita a metà, aumentando la possibilità di incendi.

Non utilizzare alcun cavo di interfaccia non autorizzato.

Utilizzare esclusivamente cavi di interfaccia forniti con il server. La corrente elettrica che supera la quantità consentita può causare incendi. Inoltre, osservare le seguenti precauzioni per impedire shock elettrici o incendi causati da un cavo dell'alimentazione danneggiato.

- Non tirare il cablaggio del cavo
- Non piegare il cavo dell'alimentazione.
- Non torcere il cavo dell'alimentazione
- Non calpestare il cavo dell'alimentazione.
- Srotolare il cavo dell'alimentazione prima dell'uso
- Non fissare il cavo dell'alimentazione con punti metallici o equivalenti
- Non schiacciare il cavo dell'alimentazione
- Tenere le sostanze chimiche lontano dal cavo dell'alimentazione
- Non porre alcun oggetto sul cavo dell'alimentazione
- Non cambiare, modificare né riparare il cavo dell'alimentazione
- Non utilizzare un cavo dell'alimentazione danneggiato (sostituire il cavo dell'alimentazione danneggiato con un cavo dell'alimentazione dello stesso standard. Per informazioni sulla sostituzione del cavo dell'alimentazione, contattare il negozio in cui è stato acquistato il prodotto o la propria azienda addetta alla manutenzione)

⚠ ATTENZIONE

Non utilizzare il cavo dell'alimentazione fissato per altri dispositivi o usi.

Il cavo dell'alimentazione in dotazione con il server è progettato per il collegamento con questo server e l'uso con il server e la sua sicurezza sono stati testati. Non utilizzare il cavo dell'alimentazione fissato per altri scopi. In caso contrario, può verificarsi un incendio o uno shock elettrico.

Non estrarre un cavo afferrando la parte del cavo.

Estrarre un cavo in modo dritto afferrando la parte del connettore. Estrarre un cavo afferrando la parte del cavo o applicando una pressione aggiuntiva alla parte del connettore può danneggiare la parte del cavo, il che può provocare un incendio o uno shock elettrico.

Verwendung Stromversorgung und Stromkabel

⚠ WARNUNG

Halten Sie den Stromstecker nicht mit einer feuchten Hand fest.

Nicht den Stecker ziehen/anschließen, wenn Ihre Hände nass sind. Wird diese Warnung nicht beachtet, kann es zu einem elektrischen Schlag kommen.

⚠ ACHTUNG

Stecken Sie ihn in eine richtige Stromquelle.

Verwenden Sie eine geerdete Steckdose mit der festgelegten Spannung. Die Verwendung einer Steckdose, die eine andere Spannung hat als die festgelegte verursacht Feuer und Kraftlecks. Installieren Sie den Server nicht in einer Umgebung, in der man ein Verlängerungskabel braucht. Der Anschluss an ein Kabel, das nicht den Spezifikationen der Stromversorgung des Servers entspricht, verursacht Überhitzung und führt zu Feuer.

Wenn Sie ein Netzkabel verwenden möchten, das mit einem Erdungskabel der Klasse 0I eingestellt ist, achten Sie darauf, dass Sie das Erdungskabel anschließen, bevor Sie den Stromstecker in die Steckdose stecken. Bevor Sie das Erdungskabel trennen, achten Sie darauf, den Stromstecker von der Steckdose zu trennen.

Schließen Sie nicht viele Kabel mit Verlängerungskabeln an eine einzige Steckdose an.

Die elektrische Spannung, welche den Nennfluss übersteigt, überhitzt die Steckdose, wodurch es zu Feuer kommen kann.

Stecken Sie den Stromstecker soweit es geht in die Steckdose.

Eine Wärmegenerierung, die durch einen halb hineingesteckten Stromstecker verursacht wird (kein richtiger Kontakt) kann ein Feuer auslösen. Hitze wird auch generiert, wenn sich Kondenswasser auf staubigen Klingen des halb eingesteckten Steckers bildet, was die Möglichkeit eines Feuers erhöht.

Verwenden Sie kein nicht autorisiertes Schnittstellenkabel.

Verwenden Sie nur Schnittstellenkabel, die mit dem Server geliefert werden. Elektrische Spannung, die den erlaubten Betrag überschreitet, kann Feuer verursachen. Auch sollten Sie die folgenden Vorsichtsmaßnahmen beachten, um einen elektrischen Schlag oder Feuer zu vermeiden, was durch ein defektes Stromkabel entstehen kann.

- Dehnen Sie nicht das Kabelgeschirr
- Biegen Sie nicht das Stromkabel.
- Verdrehen Sie nicht das Stromkabel
- Treten Sie nicht auf das Stromkabel.
- Wickeln Sie das Stromkabel ab, bevor Sie es verwenden
- Sichern Sie nicht das Stromkabel mit Klammern oder Ähnlichem
- Klemmen Sie nicht das Stromkabel ein
- Halten Sie Chemikalien vom Stromkabel fern
- Stellen Sie kein Objekt auf das Stromkabel
- Verändern, modifizieren oder reparieren Sie nicht das Stromkabel
- Verwenden Sie kein beschädigtes Stromkabel (ersetzen Sie das beschädigte Stromkabel durch ein Stromkabel des gleichen Standards. Informationen darüber, wie Sie das Stromkabel austauschen erhalten Sie in dem Geschäft , in dem Sie das Produkt gekauft haben oder bei Ihrer Wartungs-Service-Firma)

⚠ ACHTUNG

Verwenden Sie das angebrachte Stromkabel nicht für andere Geräte oder einen anderen Zweck.

Das Stromkabel, das mit Ihrem Server geliefert wird, ist so entwickelt worden, dass es mit Ihrem Server verbunden werden kann und sollte mit diesem Server verwendet werden und seine Sicherheit wurde getestet. Verwenden Sie das angebrachte Stromkabel nicht für andere Zwecke. Dies kann zu Feuer oder einem elektrischen Schlag führen.

Ziehen Sie kein Kabel heraus, indem Sie das Kabelteil anfassen.

Ziehen Sie ein Kabel gerade heraus, indem Sie das Steckerteil greifen. Das Kabelteil kann beschädigt werden, wenn das Kabel am Kabelteil gegriffen oder wenn extra Druck auf den Teil des Steckers ausgeübt wird.

Alimentación eléctrica y uso del cable de alimentación

⚠ ADVERTENCIA

No sujetar el enchufe con las manos mojadas.

No desconecte/conecte el enchufe con las manos mojadas. De lo contrario, puede producirse una descarga eléctrica.

⚠ CUIDADO

Enchufar en una fuente de alimentación adecuada.

Utilizar una toma de corriente a tierra con la tensión especificada. Utilizar una toma de corriente con una tensión distinta a la especificada provocará un incendio o fugas de electricidad. No instalar el servidor en ningún entorno que requiera un alargador. La conexión a un cable que no cumpla las especificaciones de la alimentación eléctrica del servidor produce un sobrecalentamiento, lo que producirá un incendio.

Si desea utilizar un cable CA equipado con cable de puesta a tierra de clase 0I, asegúrese de conectar el cable de puesta a tierra antes de introducir el enchufe en la toma de corriente. Antes de desconectar el cable de puesta a tierra, asegúrese de desconectar el enchufe de la toma.

No conectar un gran número de cables en una única toma de corriente utilizando alargadores.

La corriente eléctrica que supere el flujo nominal sobrecalienta la toma de corriente, lo que puede provocar un incendio.

Introduzca firmemente el enchufe de alimentación en la toma de corriente.

La generación de calor de un enchufe introducido a medias (contacto imperfecto) puede producir un incendio. También se generará calor si se forma condensación en las patas polvorientas de un enchufe introducido a medias, lo que incrementará la posibilidad de que se produzca un incendio.

No utilizar un cable de interfaz no autorizado.

Utilice únicamente los cables de interfaz proporcionados con el servidor. La corriente eléctrica que supere la cantidad permitida podría provocar un incendio. Además, deben observarse las siguientes precauciones para evitar las descargas eléctricas o los incendios provocados por un cable de alimentación dañado.

- No estirar del juego de cables.
- No doblar el cable de alimentación.
- No retorcer el cable de alimentación.
- No pisar el cable de alimentación.
- Desenrollar el cable de alimentación antes del uso.
- No asegurar el cable de alimentación con grapas o algún elemento similar.
- No pellizcar el cable de alimentación.
- Mantener el cable de alimentación alejado de los productos químicos.
- No colocar objetos sobre el cable de alimentación.
- No alterar, modificar ni reparar el cable de alimentación.
- No utilizar un cable de alimentación dañado (sustituir el cable de alimentación dañado por un cable de alimentación del mismo estándar. Para obtener información acerca de cómo sustituir el cable de alimentación, póngase en contacto con el establecimiento en el que adquirió el producto o con la empresa de servicio de mantenimiento).

⚠ CUIDADO

No utilizar el cable de alimentación proporcionado con otros dispositivos o para un uso distinto.

El cable de alimentación que se proporciona con el servidor está diseñado para conectarse con este servidor y para ser utilizado con el servidor, y su seguridad ha sido comprobada. No utilice el cable de alimentación proporcionado para un uso distinto. De lo contrario, podría producirse un incendio o una descarga eléctrica.

No tirar del cable sujetándolo por la parte del cable.

Tire del cable sujetándolo por la parte del conector. Tirar de un cable sujetándolo por la parte del cable o aplicar una presión adicional en la parte del conector puede dañar la parte del cable, lo que podría producir un incendio o una descarga eléctrica.

电源及电源线的注意事项

⚠警告

请勿湿手触摸电源插头

请勿用湿手插拔电源插头。否则有触电的危险。

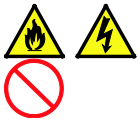
⚠注意

请勿使用非指定的插座

请使用指定电压的接地插座。使用非指定插座可能引起火灾或者漏电。另外，不要设置在需要用延长电线的场所。如果连接与本设备电源规格不符的电线，可能因为电线过热而引起火灾。
使用带有0Ⅰ级别地线的AC电线系统时，必须在将电源插头连接到电源之前接好地线。断开地线连接时，必须先断开电源插头和电源的连接。

请勿采用将多条电线连接至一个插座的布线方式

超过额定值的电流可能会使插座过热，从而引起火灾。



请勿只将插头的一部分插入插座

务必将电源插头插入直至根部。只插入一部分可能会因为接触不良而导致发热，从而引起火灾。另外，如果插入部堆积有灰尘或者沾着水滴等，也可能导致发热而引起火灾。

请勿使用规定外的电源线

请勿使用本机附带电源线以外的电线。通过电源线的电流超过额定值时，可能引起火灾。
另外，为了避免由于电源线破损而引起的触电或者火灾，请遵守以下的注意事项：

- 请勿用力拉拽电线。
- 请勿弯折电源线。
- 请勿扭曲电源线。
- 请勿踩踏电源线。
- 请勿在没有打开捆包的状态下使用电源线。
- 请勿用订书器等固定电源线。
- 请勿夹电源线。
- 请避免化学药品沾附在电源线上。
- 请勿在线缆上放置物品。
- 请勿对电源线进行改造、加工或修复。
- 请勿使用破损的电源线。（请立即用相同规格的电源线来更换破损的电源线。关于更换，请联系维护服务公司。

⚠注意

请勿将附带电源线用于其他设备或用途

附带电源线被设计为用于连接本设备，确保能够满足使用上的安全要求。切忌用于其他设备或用途。否则可能引起火灾或者触电。

拔掉插头时请勿拉拽电源线部分

断开电源线时，请捏住接头部分并将其垂直拔出。如果抓着电线部分拉拽或者对接头部分施加蛮力，可能会导致电线部分破损，引起火灾或触电。

電源以及電源線之注意事項

⚠警告

請勿濕手觸摸電源插頭

請勿用濕手插拔電源插頭。否則有觸電的危險。

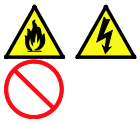
⚠注意

請勿使用非指定的插座

請使用指定電壓之接地插座。使用非指定插座可能引火災或漏電。另外，不要設置於需要延長電線的場所。如果連接於本設備電源規格不符之電線，可能因為電線過熱而引起火災。使用帶有0Ⅰ級別地線之 AC 電線系統時，必須於將電源插頭連接到電源前接好地線。斷開地線連接時，必須現斷開電源插頭和電源連接。

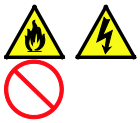
請勿採用多條電線連接至一個插座的不限方式

超過額定值之電流可能會插座過熱從而引起火災。



請勿只將插頭之一部分插入插座

務必將電源插頭插入直至根部。只插入一部分可能會因為接觸不良而導致發熱，從而引起火災。另外，如果插入部如果插入部堆積有灰塵或者沾著水滴等，也可能導致發熱而引起火災。



請勿使用規定外之電源線

請勿使用本機附帶電源線以外的電線。通過電源線的電流超過額定值時，可能引起火災。另外，為了避免由於電線破損而引起之觸電或者火災，請遵守以下的注意事項：

- 請勿用力拉拽電線
- 請勿彎折電源線
- 請勿扭曲電源線
- 請勿踩踏電源線
- 請勿於沒有打開捆包狀態下使用電源線
- 請勿用訂書器等固定電源線
- 請勿夾電源線。
- 請避免化學藥品沾附於電源線上。
- 請勿於線纜上防止物品。
- 請勿對電源線進行改造、加工或修復。
- 請勿使用破損的電源線（請立即用相同規格之電源線來更換破損的電源線。關於更換，請聯繫維修服務公司）。

⚠注意

請勿將附帶電源線用於其他設備或用途

附帶電源線被設計為用於連接本設備，確保能夠滿足使用上的安全要求。切忌用於其他設備或用途。否則可能引起火災或觸電。

拔掉插頭時請勿拉拽電源線部分

斷開電源線時，請捏住接頭部分並將其垂直拔出。如果抓著電線部分拉拽或者對接頭部分施加蠻力，可能會導致電線部分破損，引起火災或觸電。

Installation, relocation, storage, and connection

CAUTION

Do not attempt to lift the server by three or less persons

Some servers weigh up to 54 kg depending on the server components. Carrying the server by three or less persons may damage their back. At least four persons should securely hold the server from its bottom when carrying it. Do not attempt to lift the server while the front bezel attached. Doing so causes the front bezel to fall off the server, resulting in personal injury.

Do not install the server in any place other than specified.

Do not install the server in the following places or any place other than specified in this User's Guide. Failure to follow this instruction may cause a fire.

- A dusty place
- A humid place such as near a boiler
- A place exposed to direct sunlight
- An unstable place

Do not use the server in an environment where corrosive gas is present

Do not install the server in a place subject to corrosive gases including sodium chloride, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia, or ozone. Do not install the server in an environment that contains dust, chemicals that accelerate corrosion such as NaCl or sulfur, or conductive materials. Failure to follow this warning may cause the wiring on the printed wiring board to short-circuit, leading to fire. If you have any questions, contact the store where you purchased the product or a maintenance service company.

Do not install the server while the cover is removed

Do not install the server to a rack while the cover or other relevant items removed. Not only will the cooling effect within the server decrease, causing the server to malfunction, but also may allow dust to enter the server, resulting in fire or electrical shock.

Do not get your fingers caught in the rails

When mounting/removing the server onto/from the rack, be careful to avoid getting your fingers caught in the rails or cutting your fingers on the rails.

Do not apply any weight on the server when it is extended from the rack

Do not apply force on the server when it is extended from the rack. Doing so cause the frames to bend, which makes it impossible to be mounted on the rack. It also may cause the server to fall, resulting in personal injury.

Do not attempt to connect or disconnect the interface cable while the power cord is plugged into an outlet

Be sure to unplug the power cord from a power outlet before connecting/disconnecting any interface cable to/from the server. If the server is off-powered but its power cord is plugged to a power source, touching a cable or connector may cause an electric shock or a fire resulted from a short circuit.

Use only the specified interface cable.

Use only interface cables provided by NEC and locate a proper device and connector before connecting a cable. Using an authorized cable or connecting a cable to an improper destination may cause a short circuit, resulting in a fire.

Also, observe the following notes on using and connecting an interface cable.

- Do not use any damaged cable connector.
- Do not step on the cable.
- Do not place any object on the cable.
- Do not use the server with loose cable connections.
- Do not use any damaged cable.

Installation, déplacement, stockage et branchement

⚠ ATTENTION

N'essayez jamais de soulever le serveur à moins de trois personnes

Certains serveurs pèsent jusqu'à 54 kg selon les composants du serveur. Si vous n'êtes que trois, voire moins, pour porter le serveur, vous risquez de vous faire mal au dos. Avec l'aide d'au moins quatre personnes, saisissez fermement la partie inférieure du serveur. Ne soulevez pas le serveur en tenant la porte avant de ce dernier. Elle risque de se désengager du serveur et donc de vous blesser.

N'installez pas le serveur dans un endroit autre que ceux spécifiés.

N'installez pas le serveur dans les endroits suivants ou dans un autre endroit que ceux spécifiés dans le Guide de l'utilisateur. Si vous ne respectez pas cette instruction, vous risquez de provoquer un incendie.

- Un endroit poussiéreux
- Un endroit humide (près d'une chaudière, par exemple)
- Un endroit directement exposé au soleil
- Une surface instable

N'utilisez pas le serveur dans des endroits contenant des gaz corrosifs

Assurez-vous de ne pas installer ou utiliser le serveur dans un endroit contenant des gaz corrosifs (dioxyde de soufre, sulfure d'hydrogène, dioxyde d'azote, chlore, ammoniac, ozone, etc.). De même, n'installez pas le serveur dans un environnement dont l'air contient de la poussière, des composants accélérant la corrosion (soufre, chlorure de sodium, par exemple) ou des métaux conducteurs. Faute de quoi, la corrosion et l'éventuel court-circuit d'une carte imprimée interne risquent de provoquer un incendie. Si vous avez des questions, contactez votre revendeur ou votre société de maintenance.

N'installez pas le serveur lorsque son couvercle est retiré

N'installez pas le serveur sur un rack lorsque son couvercle ou un autre élément important est retiré. Non seulement, cela diminuera l'effet de refroidissement dans le serveur, entraînant un dysfonctionnement du serveur, mais cela peut également permettre à la poussière d'entrer dans le serveur, provoquant un incendie ou une décharge électrique.

Faite attention à ne pas coincer vos doigts dans les rails

Lors du montage/retrait du serveur sur/du rack, faites attention à ne pas coincer vos doigts dans les rails ou de les couper sur les rails.

N'appliquez pas de poids sur le serveur quand il est prolongé du rack

N'appliquez pas de serveur sur le serveur quand il est prolongé du rack. Cela pourrait faire plier les cadres pour se plier, le rend impropre à un montage sur le rack. Cela peut également faire tomber le serveur et vous blesser.

Ne connectez/déconnectez aucun câble d'interface sans avoir au préalable débranché le cordon d'alimentation du serveur de la source d'alimentation

N'oubliez pas d'éteindre le serveur et de débrancher le cordon d'alimentation de la prise de courant avant de brancher/de débrancher tout câble d'interface au/du serveur. Si le serveur est éteint mais que son cordon d'alimentation est branché sur une source d'alimentation, vous risquez de vous électrocuter ou de provoquer un incendie en raison d'un court-circuit en touchant un câble ou un connecteur.

N'utilisez pas de câbles d'interface autres que ceux agréés.

N'utilisez que les câbles d'interface fournis par NEC et avant de brancher un câble, recherchez le périphérique et le connecteur auxquels il doit être raccordé. Si vous utilisez un câble non autorisé ou que vous branchez un câble au mauvais endroit, vous risquez de provoquer un court-circuit et du même coup un incendie.

Conformez-vous également aux remarques suivantes portant sur l'utilisation et le branchement d'un câble d'interface.

- Ne branchez pas le câble dans un connecteur endommagé.
- Ne marchez pas sur le câble.
- Ne posez aucun objet sur le câble.
- Ne branchez pas un connecteur de câble lâche sur le serveur.
- N'utilisez pas de câble endommagé.

Installazione, spostamento, immagazzinamento e collegamento

⚠ ATTENZIONE

Non tentare di sollevare il server con meno di tre persone

Alcuni server pesano fino a 54 kg, a seconda dei componenti del server. Il trasporto del server con meno di tre persone può danneggiare la schiena. Almeno quattro persone devono mantenere in modo sicuro il server dalla sua parte inferiore durante il trasporto. Non tentare di sollevare il server con la cornice anteriore fissata. In questo modo si provoca la caduta della cornice anteriore del server, provocando lesioni personali.

Non installare il server in luoghi diversi da quelli specificati.

Non installare il server nei seguenti luoghi o in qualsiasi luogo diverso da quello specificato in questa Guida per l'utente. La mancata osservanza di questa istruzione può provocare un incendio.

- Luoghi polverosi
- Luoghi umidi come nelle vicinanze di una caldaia
- Luoghi esposti alla luce diretta del sole
- Luoghi instabili

Non utilizzare il server in un ambiente in cui è presente gas corrosivo

Non installare il server in un luogo soggetto a gas corrosivi inclusi cloruro di sodio, diossido di zolfo, solfuro di idrogeno, diossido di azoto, cloro, ammoniaca oppure ozono. Non installare il server in un ambiente che contiene polvere, sostanze chimiche che accelerano la corrosione quali NaCl o zolfo o materiali conduttivi. La mancata osservanza di questo avvertimento può provocare il cortocircuito del cablaggio sulla scheda stampata, causando un incendio. Per domande, contattare il negozio in cui è stato acquistato il prodotto o un'azienda addetta alla manutenzione.

Non installare il server mentre il coperchio è rimosso

Non installare il server su un rack durante la rimozione del coperchio o di altri oggetti rilevanti. Non solo l'effetto di raffreddamento all'interno del server verrà ridotto, causando il malfunzionamento del server, ma si consentirà anche la penetrazione della polvere nel server, causando incendi o shock elettrici.

Prestare attenzione a non schiacciarsi le dita nei binari

Durante il montaggio/la rimozione del server sul/dal rack, prestare attenzione a evitare di schiacciarsi le dita nei binari o di tagliarsi le dita sui binari.

Non applicare alcun peso sul server quando viene esteso dal rack

Non applicare forze sul server quando viene esteso dal rack. In caso contrario, si provocherà il piegamento dei telai, il che rende impossibile il loro montaggio sul rack. Inoltre, può provocare la caduta del server, causando lesioni personali.

Non tentare di collegare o scollegare il cavo di interfaccia mentre il cavo dell'alimentazione è inserito in una presa

Accertarsi di scollegare il cavo dell'alimentazione da una presa prima di collegare/scollegare eventuali cavi di interfaccia al/dal server. Se il server è spento, ma il suo cavo dell'alimentazione è inserito in un alimentatore, toccare un cavo o un connettore può provocare uno shock elettrico o un incendio causati da un cortocircuito.

Utilizzare solo il cavo di interfaccia specificato.

Utilizzare esclusivamente cavi di interfaccia forniti da NEC e posizionare un dispositivo e un connettore adatti prima di collegare un cavo. L'uso di un cavo non autorizzato o la connessione di un cavo in una destinazione non corretta può provocare un cortocircuito, causando un incendio.

Inoltre, osservare le seguenti note sull'uso e il collegamento di un cavo di interfaccia.

- Non utilizzare alcun connettore per cavo danneggiato.
- Non calpestare il cavo.
- Non porre alcun oggetto sul cavo.
- Non utilizzare il server con collegamenti di cavi allentati.
- Non utilizzare alcun cavo danneggiato.

Installation, Verlegung, Lagerung und Verbindung

⚠ ACHTUNG

Versuchen Sie nicht den Server mit drei oder weniger Personen anzuheben

Einige Server wiegen bis zu 54 kg, je nach den Komponenten des Servers. Wird der Server von drei oder weniger Personen getragen, kann es dem Rücken schaden. Es sollten mindestens vier Personen den Server am Boden festhalten, wenn er getragen wird. Versuchen Sie nicht den Server anzuheben, wenn die vordere Blende angebracht ist. Sonst kann die vordere Blende vom Server abfallen und es kann zu Verletzungen von Personen kommen.

Installieren Sie den Server an keinem anderen Ort als den festgelegten.

Installieren Sie den Server nicht an folgenden Orten oder nicht an einem Ort, der nicht in der Bedienungsanleitung genannt ist. Wird diese Anleitung nicht beachtet, kann es zu Feuer kommen.

- Ein staubiger Ort
- Ein feuchter Ort wie zum Beispiel in der Nähe eines Boilers
- Ein Ort, der direktem Sonnenlicht ausgesetzt ist
- Ein instabiler Ort

Den Server nicht in einer Umgebung verwenden, in der korrosives Gas vorhanden ist

Installieren Sie den Server nicht an einem Ort, an dem es korrosive Gase gibt, wie Natriumchlorid, Schwefeldioxid, Schwefelwasserstoff, Stickstoffdioxid, Chlor, Ammoniak oder Ozon. Installieren Sie den Server nicht in einer Umgebung, die staubig ist, in der Chemikalien sind die eine Korrosion beschleunigen wie zum Beispiel NaCl oder Schwefel oder leitende Materialien sind. Wird diese Warnung nicht beachtet, kann es dazu kommen, dass die Verkabelung auf der Leiterplatte einen Kurzschluss bekommt und Feuer ausbricht. Wenn Sie fragen haben, wenden Sie sich an das Geschäft, in dem Sie das Produkt gekauft haben oder an Ihre Wartungs-Service-Firma.

Installieren Sie den Server nicht mit entfernter Abdeckung

Installieren Sie den Server nicht auf einem Gestell, wenn die Abdeckung oder andere wichtige Artikel entfernt wurden. Es wird nicht nur der Kühleffekt innerhalb des Servers abnehmen und zu einer Fehlfunktion des Servers führen, sondern es kann auch Staub in den Server gelangen, was zu Feuer oder elektrischem Schlag führen kann.

Klemmen Sie Ihre Finger nicht in den Schienen ein

Wenn der Server an das/vom Gestell montiert/entfernt wird, seien Sie vorsichtig und vermeiden Sie, dass Ihre Finger nicht in die Schienen gelangen oder sie davon geschnitten werden.

Üben Sie kein Gewicht auf den Server aus, wenn der aus dem Gestell ausgezogen wird

Üben Sie keine Kraft auf den Server aus, wenn der aus dem Gestell ausgezogen wird. Sonst können sich die Rahmen verbiegen, was es unmöglich macht, dass er auf dem Gestell montiert wird. Es kann auch verursachen, dass der Server umfällt und dann kann es zu Verletzungen von Personen kommen.

Versuchen Sie nicht, das Schnittstellenkabel anzuschließen und trennen Sie es nicht, wenn das Stromkabel in einer Steckdose steckt

Achten Sie darauf, dass Sie das Stromkabel aus der Steckdose ziehen, bevor Sie ein Schnittstellenkabel vom Server anschließen/trennen. Wenn der Server ausgeschaltet ist aber sein Stromkabel in einer Stromquelle steckt, kann die Berührung eines Kabels oder Steckers zu einem elektrischen Schlag oder zu Feuer führen, was durch einen Kurzschluss entsteht.

Verwenden Sie nur das festgelegte Schnittstellenkabel.

Verwenden Sie nur Schnittstellenkabel, die von NEC bereit gestellt werden und suchen Sie ein richtiges Gerät und Stecker, bevor Sie ein Kabel anschließen. Wird ein nicht genehmigtes Kabel verwendet oder wenn das Kabel an ein unsachgemäßes Ziel angeschlossen wird, kann es zu einem Kurzschluss kommen, der Feuer auslösen kann.
Beachten Sie auch die folgenden Hinweise, wie ein Schnittstellenkabel verwendet werden und angeschlossen werden kann.

- Verwenden Sie keinen beschädigten Kabelstecker.
- Treten Sie nicht auf das Kabel.
- Stellen Sie kein Objekt auf das Kabel.
- Verwenden Sie den Server nicht mit lockeren Kabelverbindungen.
- Verwenden Sie kein beschädigtes Kabel.

Instalación, reubicación, almacenamiento y conexión

⚠ CUIDADO

Se requiere un mínimo de cuatro personas para levantar el servidor

Algunos servidores pueden llegar a pesar hasta 54 kg dependiendo de los componentes del servidor. Desplazar el servidor entre menos de cuatro personas puede producir lesiones en la espalda. Cuando deba desplazarse el servidor, se requiere un mínimo de cuatro personas para sujetarlo de forma segura por la parte inferior. No intente levantar el servidor con el panel frontal acoplado. De lo contrario, el panel frontal se caerá del servidor y provocará daños personales.

No instalar el servidor en un lugar distinto al especificado.

No instale el servidor en los lugares que se indican a continuación o en cualquier lugar distinto al especificado en la guía del usuario. De lo contrario, puede producirse un incendio.

- Un lugar lleno de polvo
- Un lugar húmedo como, por ejemplo, cerca de una caldera
- Un lugar expuesto a la luz solar directa
- Un lugar inestable

No utilizar el servidor en un entorno en el que haya presencia de gas corrosivo

No instale el servidor en un lugar con presencia de gases corrosivos, incluyendo cloruro de sodio, dióxido de sulfuro, sulfuro de hidrógeno, dióxido de nitrógeno, cloro, amoníaco u ozono. No instalar el servidor en un entorno que contenga polvo, productos químicos que aceleren la corrosión como, por ejemplo, NaCl, azufre o materiales conductores. El incumplimiento de esta advertencia puede ocasionar que se produzca un cortocircuito en el cableado de la placa de circuitos que provoque un incendio. Si tiene alguna duda, póngase en contacto con el establecimiento en el que adquirió el producto o con la empresa de servicio de mantenimiento.

No instalar el servidor con la cubierta extraída

No instale el servidor en un rack si la cubierta u otro elemento importante están extraídos. No solo se reducirá el efecto de refrigeración del servidor, provocando un funcionamiento incorrecto del mismo, sino que además se introducirá polvo en el servidor, dando como resultado un incendio o una descarga eléctrica.

Evitar que los dedos queden atrapados en los raíles

Cuando monte/retire el servidor en/del rack, procure que sus dedos no queden atrapados en los raíles y evite cortarse.

No aplicar ningún peso sobre el servidor cuando esté extraído del rack

No aplique ninguna fuerza sobre el servidor cuando esté extraído del rack. De lo contrario, los marcos se doblarán y resultará imposible volver a colocarlo en el rack. Además, puede provocar la caída del servidor y ocasionar daños personales.

No conectar o desconectar el cable de interfaz con el cable de alimentación enchufado en la toma de corriente

Asegúrese de desenchufar el cable de alimentación de la toma de corriente antes de conectar/ desconectar cualquier cable de interfaz en/del servidor. Si el servidor está apagado pero el cable de alimentación está enchufado en una fuente de alimentación, tocar el cable o el conector puede provocar una descarga eléctrica o un incendio debidos a un corto circuito.

Utilizar únicamente el cable de interfaz especificado.

Utilice únicamente los cables de interfaz proporcionados por NEC e instale un dispositivo y un conector adecuados antes de conectar un cable. El uso de un cable no homologado o la conexión de un cable en un destino incorrecto pueden provocar un cortocircuito, que produciría un incendio.
Tome en consideración, además, las siguientes notas sobre el uso y la conexión de un cable de interfaz.

- No utilizar un conector de cable dañado.
- No pisar el cable.
- No colocar objetos sobre el cable.
- No utilizar el servidor con conexiones de cable flojas.
- No utilizar un cable de cable dañado.

设置、设备的移动、存放以及连接的注意事项

⚠注意

搬运时需要至少四个人

本设备的系统整体重量最大可达到54kg（根据组成而有所不同）。进行搬运时如果不到四个人有可能引起腰部损伤。本设备需要至少四个人来牢牢托住底面进行搬运。另外，请勿在安装着前边框的状态下搬运。前边框有可能掉落而导致受伤。

请勿设置或存放在指定场所以外的地方

请勿在以下的场所或者本书中指定场所以外的地方设置本设备。否则可能引起火灾。

- 灰尘较多的地方。
- 锅炉附近等潮湿的地方。
- 阳光直射的地方。
- 不平稳的地方。

请勿在有腐蚀性气体的环境中使用或存放

请勿在有腐蚀性气体（二氧化硫、硫化氢、二氧化氮、氯气、氨水、臭氧等）的地方设置或使用。此外，也不要在灰尘较多或者空气中含有加速腐蚀的成份（如氯化钠、硫磺）或导电金属的环境中设置和使用。否则可能引起设备内部的基板腐蚀、发生故障以及冒烟和着火。如果您的使用环境具有上述情况，请联系维护服务公司。

请勿在拆掉盖板的状态下进行安装

请勿在拆掉盖板类的状态下将本设备安装到机架上。否则不光会降低设备内部的冷却效果导致功能异常，还可能由于灰尘入侵而引起火灾或触电。

请注意不要夹伤手指

安装至机架或者取出时，请注意不要被导轨夹住手指或者割伤手指。

请勿在处于从机架取出的状态下的本设备上放置物品

请勿在处于从机架取出的状态下的本设备上放置物品。否则可能导致框架弯曲变形而不能再次安装到机架上。另外，也可能发生本设备掉落而使人员受伤。

请勿在插着电源插头的状态下插拔接口线缆

除了支持热插拔的设备以外，请务必将电源线从插座拔下来之后再进行接口线缆的插拔。即使关掉电源，如果在电源线保持连接的状态下触摸电线或者接头时，也可能发生触电或者由于短路而引起火灾。

⚠注意

请勿使用非指定的接口线缆

请使用本公司指定的接口线缆，并在连接之前须确认被连接的设备和接头。如果使用非指定的接口线缆，或者弄错连接位置，可能会由于短路而引起火灾。
另外，关于接口线缆的使用以及连接，请遵守以下的注意事项：

- 请勿使用破损的线缆接头。
- 请勿踩踏线缆。
- 请勿在线缆上放置物品。
- 线缆连接松动时请及时修正。
- 请勿使用破损的线缆。

設置, 設備移動, 存放以及連接之注意事項

⚠注意

搬運時至少需要四位人員

本設備之系統整體重量最大組成可達 54kg（依據組成而有所不同）。進行搬運時如不足四位人員，可能會致使人員之腰部疼痛或損傷。搬運本設備少需要四位人員牢牢托住底面進行搬運。另外，請勿在安裝有前邊框的狀態下搬運。

前邊框有可能脫落而導致受傷。

請勿設置或存放於指定場所以外之處

請勿在以下的場所或者本書中指定場所以外之處設置本設備。否則可能引起火災。

- 灰塵較多之處。
- 鍋爐附近等潮濕之處。
- 陽光直射之處。
- 不平穩之處。

請勿在有腐蝕性氣體的環境中使用或存放

請勿在有腐蝕性氣體（二氧化硫、硫化氫、二氧化氮、氯氣、氨水、臭氧等）之處設置或使用。此外，也不要在灰塵較多或者空氣中含有加速腐蝕的成份（如氯化鈉、硫磺）或導電金屬的環境中設置和使用。否則可能引起設備內部的基板腐蝕、發生故障以及冒煙和著火。如果您的使用環境具有上述情況，請聯繫維護服務公司。

請勿在拆掉蓋板之狀態下進行安裝

請勿在拆掉蓋板之狀態下將本設備安裝到機架上。否則不僅會降低設備內部之冷卻效果導致功能異常，還可能由於灰塵入侵而引起火災或觸電。

請注意不要夾傷手指

設備安裝至機架或從機架取出時，請注意不要被導軌夾住或刮傷手指。

請勿在處於從機架取出的狀態下之本設備上放置物品

請勿在處於從機架取出的狀態下之本設備上放置物品。否則可能導致框架彎曲變形而不能再安裝到機架上。另外，也可能導致發生本設備掉落而使人員受傷。

請勿在電源插頭安插狀態下插拔接口線纜

請務必將電源線從插座拔下來之後再進行接口線纜的插拔。即使關掉電源，如果在電源線保持連接的狀態下觸摸電線或者接頭時，也可能發生觸電或者由於短路而引起火災。

⚠注意

請勿使用指定外的接口線纜

請使用本公司指定的接口線纜，並在連接之前須確認被連接的設備和接頭。如果使用非指定的接口線纜，或者弄錯連接位置，可能會由於短路而引起火災。另外，關於接口線纜的使用以及連接，請遵守以下之注意事項：

- 請勿使用破損接頭。
- 請勿踩踏線纜。
- 請勿在線纜上放置物品。
- 線纜連接鬆動時，請及時修正。
- 請勿使用破損線纜。

Cleaning and working with internal devices

⚠ WARNING

Do not disassemble, repair, or alter the server.

Never attempt to disassemble, repair, or alter the server on any occasion except as described in this document. Failure to follow this warning may cause not only malfunction of the server but also an electric shock or fire.

Do not attempt to remove lithium, NiMH, or Li-ion batteries.

The server contains the lithium, NiMH, or Li-ion battery (some optional devices have a lithium, NiMH, or Li-ion battery installed). Do not remove the battery. Placing a battery close to a fire or in the water may cause an explosion.

When the server does not operate appropriately due to the dead battery, contact the store you purchased the product or your maintenance service company. Do not attempt to disassemble the server to replace or recharge the battery by yourself.

Disconnect the power plug before cleaning the server.

Be to power off the server and disconnect the power plug from a power outlet before cleaning or installing/removing internal optional devices. Touching any internal device of the server with its power cord connected to a power source may cause an electric shock even of the server is off-powered.
Occasionally disconnect the power plug from the outlet and clean the plug with a dry cloth. Heat will be generated if condensation is formed on a dusty plug, which may cause a fire.

⚠ CAUTION

Pay attention to hot surface

Components including internal hard disk drives in the server are extremely hot just after the server is turned off. Allow the surface to cool before installing/removing.

Secure cables or cards in place

Be sure to secure the power cord, interface cables, and cards in place. Incomplete installation causes a loose connection, resulting in smoke or fire

Electric shock

The cooling fans, hard disk drives, and power supply unit (only when two servers are installed) support hot swapping. If replacing a component when the electrical current is being supplied, use extreme caution not to get electric shock by touching terminal parts of the internal components.

Nettoyage et manipulation des périphériques internes

⚠ AVERTISSEMENT

Ne démontez pas, ne réparez pas et ne transformez pas le serveur.

N'essayez pas de démonter, réparer ou modifier le serveur autrement que selon les procédures décrites dans ce guide. Il existe un risque de choc électrique ou d'incendie ainsi que de dysfonctionnement du serveur.

Ne retirez pas les batteries au lithium, NiMH et Li-ion.

Le serveur est équipé de batteries au lithium, NiMH ou Li-ion (certains appareils en option disposent d'une batterie au lithium, NiMH, ou Li-ion). Ne retirez pas la batterie. Si vous placez la batterie près d'un feu ou dans l'eau, elle risque d'exploser.

Lorsque le serveur présente des défauts de fonctionnement dus à l'usure de la pile, contactez votre revendeur ou votre société de maintenance. Ne démontez pas le serveur pour remplacer la batterie par vous-même.

Débranchez la fiche d'alimentation avant de nettoyer le serveur.

Assurez-vous de mettre le serveur hors tension et de débrancher toutes les fiches d'alimentation avant de le nettoyer ou de brancher/débrancher des périphériques internes. Toucher un périphérique interne du serveur alors que les cordons d'alimentation de ce dernier sont branchés sur une source d'alimentation risque de vous électrocuter, et ce même si le serveur est éteint.
De temps en temps, débranchez toutes les fiches d'alimentation des prises et nettoyez-les au moyen d'un chiffon sec. De la chaleur est générée si de la condensation se forme sur une fiche poussiéreuse, risquant ainsi de provoquer un incendie.

⚠ ATTENTION

Faites attention aux surfaces chaudes

Juste après la mise hors tension du serveur, certains composants, comme les disques durs dans le serveur, sont encore très chauds. Laisser le serveur refroidir avant d'installer/retirer des composants.

Fixez fermement les câbles ou cartes

Assurez-vous de fixez fermement le cordon d'alimentation, les câbles d'interface et les cartes. Une installation incomplète risque d'entraîner un mauvais contact, provoquant ainsi la formation de fumée et/ou un incendie

Choc électrique

Les ventilateurs, lecteurs de disque dur, et l'unité d'alimentation en énergie (uniquement lorsque deux serveurs sont installés) supportent l'échange à chaud. Lors du remplacement d'un composant avec l'appareil sous tension, faites extrêmement attention de ne pas vous électrocuter en touchant les parties terminales des composants internes.

Pulizia e funzionamento di dispositivi interni

⚠ AVVERTIMENTO

Non smontare, riparare né modificare il server.

Non tentare mai di smontare, riparare né modificare il server eccetto come descritto nel presente documento. La mancata osservanza di questo avvertimento può provocare non solo il malfunzionamento del server, ma anche uno shock elettrico o un incendio.

Non tentare di rimuovere la batteria al litio, la batteria NiMH o a ioni di litio.

Il server contiene la batteria a litio, NiMH o a ioni di litio (alcuni dispositivi opzionali hanno una batteria a litio, NiMH o a ioni di litio installata). Non rimuovere la batteria. Il posizionamento di una batteria vicino a un incendio o nell'acqua può provocare un'esplosione.

Quando il server non funziona correttamente a causa della batteria scarica, contattare il negozio in cui è stato acquistato il prodotto o la propria azienda addetta alla manutenzione. Non tentare di smontare da soli il server per sostituire o ricaricare la batteria.

Scollegare la presa dell'alimentazione prima di eseguire la pulizia del server.

Prestare attenzione a spegnere il server e scollegare la presa dell'alimentazione prima di eseguire la pulizia o l'installazione/la rimozione di dispositivi opzionali interni. Toccare qualsiasi dispositivo del server con il cavo dell'alimentazione collegato a un alimentatore può provocare uno shock elettrico anche se il server è spento.
Di tanto in tanto scollegare la presa dell'alimentazione e pulire la presa con un panno asciutto. Verrà generato calore se si forma condensa su una presa polverosa, il che può provocare un incendio.

⚠ ATTENZIONE

Prestare attenzione alle superfici calde

I componenti, incluse le unità di disco rigido interne del server, sono estremamente caldi subito dopo lo spegnimento del server. Lasciar raffreddare la superficie prima di eseguire l'installazione/la rimozione.

Fissare i cavi o le schede al loro posto

Accertarsi di fissare il cavo dell'alimentazione, i cavi di interfaccia e le schede al loro posto. L'installazione incompleta provoca una connessione allentata, che provoca fumo o incendio

Shock elettrico

Le ventole di raffreddamento, le unità del disco rigido e l'unità dell'alimentazione (solo quando sono installati due server) supportano l'hot swap. Se si sostituisce un componente quando è applicata la corrente elettrica, prestare estrema attenzione agli shock elettrici che possono verificarsi toccando parti terminali dei componenti interni.

Reinigung und arbeiten mit internen Geräten

⚠ WARNUNG

Nehmen Sie den Server nicht auseinander, reparieren Sie ihn nicht und verändern Sie ihn nicht.

Versuchen Sie niemals den Server auseinander zu nehmen, zu reparieren oder abzuändern, außer wenn es in diesem Dokument so beschrieben wird. Wird diese Warnung nicht beachtet, kann es nicht nur zu einer Fehlfunktion des Servers kommen, sondern auch zu einem elektrischen Schlag oder Feuer.

Versuchen Sie nicht, die Lithium, NiMH oder Li-Ionen-Batterien zu entfernen.

Der Server enthält Lithium, NiMH oder Li-Ionen-Batterien (einige optionale Geräte haben eine Lithium, NiMH oder Li-Ionen-Batterie installiert). Nicht die Batterie entfernen. Wird die Batterie in der Nähe von Feuer oder in Wasser gestellt, kann es zu einer Explosion kommen.

Wenn der Server aufgrund der toten Batterie nicht richtig funktioniert, wenden Sie sich an das Geschäft, wo Sie das Produkt gekauft haben oder an Ihre Wartungs-Service-Firma. Versuchen Sie nicht, den Server auseinander zu nehmen, um selbst die Batterie aufzuladen oder auszutauschen.

Ziehen Sie den Stromstecker vom Netz, bevor Sie den Server reinigen.

Achten Sie darauf, den Server auszuschalten und das Stromkabel von der Steckdose zu trennen, bevor Sie interne optionale Geräte installieren/entfernen. Wird ein internes Gerät des Servers berührt, wenn sein Stromkabel an der Stromquelle angeschlossen ist, kann es zu einem elektrischen Schlag kommen, selbst wenn der Server ausgeschaltet ist.
Ziehen Sie den Stromstecker gelegentlich aus der Steckdose und reinigen Sie den Stecker mit einem trockenen Tuch. Es wird Hitze generiert, wenn sich Kondenswasser auf einem staubigen Stecker bildet, was ein Feuer verursachen kann.

⚠ ACHTUNG

Achten Sie auf heiße Oberflächen

Komponenten wie interne Festplatten im Server sind extrem heiß, nachdem der Server ausgeschaltet wurde. Lassen Sie die Oberfläche abkühlen, bevor Sie installieren/entfernen.

Befestigen Sie Kabel oder Karten vor Ort

Achten Sie darauf, das Stromkabel, Schnittstellenkabel und Karten vor Ort zu befestigen. Eine unvollständige Installation verursacht eine lockere Verbindung, was zu Rauch oder Feuer führt

Elektrischer Schlag

Die Kühlerlüfter, Festplatten und Stromversorgungseinheit (nur wenn zwei Server installiert sind) unterstützen das Hot Swapping (Austausch, Entfernen oder Hinzufügen von Hardware während des Betriebes des Computers). Wenn eine Komponente ausgetauscht wird, wenn die elektrische Spannung geliefert wird, seien Sie extrem vorsichtig, dass Sie keinen elektrischen Schlag bekommen, wenn Sie die Anschlussteile der internen Komponenten anfassen.

Limpieza y trabajo con los dispositivos internos

⚠ ADVERTENCIA

No desmonte, repare ni modifique el servidor.

Jamás intente desmontar, reparar ni modificar el servidor, salvo en las ocasiones descritas en este documento. El incumplimiento de esta advertencia puede producir no solo un funcionamiento incorrecto del servidor, sino también una descarga eléctrica o un incendio.

No intentar retirar las baterías de litio, NiMH o de ión de litio.

El servidor contiene una batería NiMH o de ión de litio (algunos dispositivos opcionales disponen de una batería de litio, NiMH o de ión de litio). No retire la batería. Colocar la batería cerca de una llama o en el agua puede provocar una explosión.

Cuando el servidor no funcione correctamente debido a una batería agotada, póngase en contacto con el establecimiento en el que se adquirió el producto o con la empresa de mantenimiento. No intente desmontar el servidor para sustituir o recargar la batería usted mismo.

Desconectar el enchufe antes de limpiar el servidor.

Apague el servidor y desconecte el enchufe de la toma de corriente antes de limpiar o instalar/retirar dispositivos internos opcionales. Tocar cualquier dispositivo interno del servidor con el cable de alimentación conectado a una fuente de alimentación, puede producir una descarga eléctrica, incluso si el servidor está apagado.
Desconecte el cable de alimentación de la toma de corriente y limpie el enchufe con un paño seco ocasionalmente. Se generará calor si se forma condensación en un enchufe lleno de polvo, lo que podría provocar un incendio.

⚠ CUIDADO

Prestar atención a las superficies calientes.

Los componentes, incluyendo las unidades de disco duro internas, del servidor están extremadamente calientes justo después de apagar el servidor. Permita que las superficies se enfríen antes de realizar la instalación o la retirada.

Asegurar los cables y las tarjetas en su lugar.

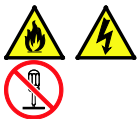
Asegúrese de fijar el cable de alimentación, los cables de interfaz y las tarjetas en su lugar. Una instalación incompleta causa una conexión floja, lo que daría como resultado humo o un incendio

Descargas eléctricas.

Los ventiladores de refrigeración, las unidades de disco duro y la unidad de alimentación (solo cuando hay dos servidores instalados) soportan el intercambio en caliente. Si sustituye un componente mientras el servidor recibe alimentación eléctrica, sea extremadamente precavido y evite tocar las partes terminales de los componentes internos para no sufrir una descarga eléctrica.

有关清洁、使用内置设备的注意事项

⚠警告

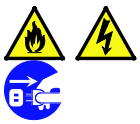


请勿自行拆卸、修理或改造

除了本用户指南记载的情况以外，请不要试图对本设备进行拆卸、修理或改造。否则不但可能引起本设备的功能异常，还可能导致触电或者火灾。

请勿试图拆下锂电池、镍氢电池或锂离子电池

本设备内部安装有锂电池、镍氢电池或者锂离子电池（有些选配设备中安装有锂电池、镍氢电池或者锂离子电池）。请不要拆卸电池。如果将电池靠近火源或者浸泡在水里，可能会导致电池爆炸。
另外，由于电池寿命而导致本设备不能正常运行时，请勿自行拆卸、更换或充电，请务必联系维护服务公司。



请勿在电源插头插在插座里的状态下进行清理等操作

在进行清理、拆卸安装本设备内置的选配设备（支持热插拔的设备除外）时，请关掉电源，并且将电源插头从插座上拔下来。即使关掉电源，如果在电源线保持连接的状态下触摸本设备内的部件时，也可能发生触电。
请定期拔掉电源插头，用干布清理灰尘和其他污垢。在堆积有灰尘的状态下，或者沾着水滴等，可能导致发热而引起火灾。

⚠注意

注意高温

刚刚将本设备的电源关掉时，内置硬盘驱动器等本设备内部的部件会处于高温状态。请在完全冷却之后再进行安装或拆卸。

确保连接稳固

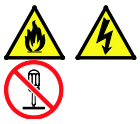
请确保电源线、接口线缆以及板卡被稳固地连接好。如果连接松动，有可能引起接触不良而导致冒烟或者着火。

注意触电

本设备的冷却风扇、硬盘驱动器以及供电单元支持热插拔。在通电的状态下更换部件时，请务必注意不要碰到内部部件的接头部位以避免触电。

有關清潔、使用內置設備的注意事項

⚠警告

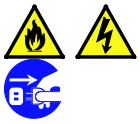


請勿自行拆卸、修理或改造

除了本用戶指南記載之情況外，請不要試圖對本設備進行拆卸、修理或改造。否則不但可能引起本設備之功能異常，還可能導致觸電或者火災。

請勿試圖拆下鋰電池、鎳氫電池或鋰離子電池

本設備內部安裝有本设备内部安装有鋰電池、鎳氫電池或鋰離子電池（有些選配設備中安裝鋰電池、鎳氫電池或鋰離子電池）。請不要拆卸電池。如果電池靠近火源或者浸泡在水裡，可能會導致電池爆炸。另外，由於電池壽命而導致本設備不能正常運行時，請勿自行拆卸、更換或充電，請務必聯繫維護服務公司。



請勿在電源插頭插在插座裡的狀態下進行清理等工作

在進行清理、拆卸安裝本設備內置之選配設備（支持熱插拔之設備除外）時，請關掉電源，並且將電源插頭從插座拔下來。即使關掉電源，如果在電源線保持連接狀態下觸摸本設備內之部件時，也可能發生觸電。請定期拔掉電源插頭，用乾布清理灰塵和其他污垢。在堆積有灰塵的狀態下，或者沾者水滴等，可能呆滯發熱而引起火災。

⚠注意

注意高溫

剛剛將本設備之電源關掉時，內置硬盤驅動器等本設備內部的部件會處於高溫狀態。請於完全冷卻後再進行安裝或拆卸。

確保連接穩固

請確保電源線、借口線纜以及板卡被穩固連接好。如果連接鬆動，有可能引起接觸不良而導致冒煙或者著火。

注意觸電

本設備之冷卻風扇、硬盤驅動器以及供電單位支持熱插拔。在通電之狀態下更換部件時，請務必注意不要碰到內部部件的接頭部位以避免觸電。

During operation

⚠ CAUTION

Do not pull out or remove the server from the rack.

Do not pull the server out of the rack or remove it from the rack. In addition to causing equipment to not function properly, separating the server from the rack may result in personal injury.

Avoid contact with the server during thunderstorms.

Do not touch any part of the server including the cables when a thunderstorm is approaching. Also, do not connect or disconnect any devices. There may be a risk of electric shock from lightning strike.

Keep animals away from the server.

Keep animals such as pets away from the server. Pet hair or other waste enters the server, which may cause a fire or electric shock.

Do not leave the optical disk drive tray open.

Dust may get in the server when the tray is open, which may result in a malfunction. In addition, bumping the open tray could cause personal injury.

Do not remove the server from the rack while it is operating.

Do not pull out or remove the server from the rack while the server is running. In addition to causing equipment to not function properly, separating the server from the rack may result in personal injury.

Do not place any object on top of servers.

Separating the server from the rack may result in personal injury and damage to nearby personal belongings.

Do not get yourself caught in the fan

Keep your hands and hair away from the cooling fan at the rear of the server during operation. Failure to observe this warning may cause your hands or hair to catch in the fan, resulting in personal injury.

En cours de fonctionnement

⚠ ATTENTION

Ne retirez pas ou ne sortez pas le serveur du rack.

Ne sortez pas le serveur du rack ou ne le retirez pas du rack. En plus de causer des dysfonctionnements de l'équipement, séparer le serveur du rack peut vous blesser.

Ne touchez pas le serveur pendant un orage.

Ne touchez aucune partie du serveur, y compris les câbles lorsqu'un orage approche. De même, ne branchez/débranchez aucun périphériques. Il existe un risque de choc électrique à cause de la foudre.

Éloignez les animaux du serveur.

Éloignez les animaux comme les animaux domestiques du serveur. Les excréments ou poils d'animaux pourraient s'introduire dans le serveur et provoquer un choc électrique ou un incendie.

Ne laissez pas le tiroir du lecteur de disque optique ouvert.

De la poussière pourrait s'introduire dans le lecteur et l'empêcher de fonctionner. Le tiroir ouvert pourrait également causer des blessures.

Ne retirez pas le serveur du rack lorsqu'il fonctionne.

Ne retirez pas ou ne sortez pas le serveur du rack lorsqu'il fonctionne. En plus de causer des dysfonctionnements de l'équipement, séparer le serveur du rack peut vous blesser.

Ne placez pas d'objet sur le serveur.

Séparer le serveur du rack peut vous blesser et endommager les affaires personnelles à proximité.

Faite attention à ne pas vous faire coincer par le ventilateur

Éloignez vos mains et cheveux du ventilateur à l'arrière du serveur lors de son fonctionnement. Faute de quoi, vos mains ou cheveux pourraient s'y coincer et ce faisant, vous blesser.

Durante il funzionamento

⚠ ATTENZIONE

Non tirare né rimuovere il server dal rack.

Non tirare il server dal rack né rimuoverlo dal rack. Oltre a provocare l'errato funzionamento delle apparecchiature, staccare il server dal rack può provocare lesioni personali.

Evitare di venire a contatto con il server durante i temporali.

Non toccare alcuna parte del server inclusi i cavi quando si avvicina una tempesta. Inoltre, non collegare né scollegare alcun dispositivo. Può esservi il rischio di shock elettrico causato dai fulmini.

Tenere gli animali lontano dal server.

Tenere gli animali, come gli animali domestici, lontano dal server. I peli degli animali o altri rifiuti possono entrare nel server e provocare un incendio o shock elettrico.

Non lasciare il vassoio unità del disco ottico aperto.

La polvere può entrare nel server quando il vassoio è aperto, il che può provocare un malfunzionamento. Inoltre, l'urto con il vassoio aperto può provocare lesioni personali.

Non rimuovere il server dal rack durante il funzionamento.

Non tirare né rimuovere il server dal rack mentre il server è in funzione. Oltre a provocare l'errato funzionamento delle apparecchiature, staccare il server dal rack può provocare lesioni personali.

Non porre alcun oggetto sulla parte superiore dei server.

Separare il server dal rack può provocare lesioni personali e danni agli oggetti personali nelle vicinanze.

Prestare attenzione a non restare incastrati nella ventola

Tenere mani e capelli lontano dalla ventola di raffreddamento nella parte posteriore del server durante il funzionamento. La mancata osservanza di questo avvertimento può far restare incastrati mani o capelli nella ventola, provocando lesioni personali.

Während des Betriebs

⚠ ACHTUNG

Ziehen Sie den Server nicht aus dem Gestell und entfernen Sie ihn nicht.

Ziehen Sie den Server nicht aus dem Gestell und entfernen Sie ihn nicht. Zusätzlich dazu, dass die Geräte nicht richtig funktionieren, kann das Entfernen des Servers aus dem Gestell zu Verletzungen von Personen führen.

Vermeiden Sie bei Gewittern den Kontakt mit dem Server.

Berühren Sie keinen Teil des Servers, auch nicht die Kabel, wenn ein Gewitter im Anmarsch ist. Schließen Sie keine Geräte an und trennen Sie keine. Es kann ein Risiko eines elektrischen Schlags durch Blitzeinschlag geben.

Halten Sie Tiere vom Server fern.

Halten Sie Tiere wie Haustiere vom Server fern. Wenn Haare von Haustieren oder anderer Schmutz in den Server gelangt, kann es zu Feuer oder elektrischem Schlag kommen.

Lassen Sie die optische Laufwerkschublade nicht geöffnet.

Es kann Staub in den Server gelangen, wenn das Schubfach geöffnet ist, was zu einer Fehlfunktion führen kann. Außerdem kann es zu Verletzungen von Personen kommen, wenn sie dagegen laufen.

Entfernen Sie den Server nicht aus dem Gestell, wenn er gerade läuft.

Ziehen Sie den Server nicht aus dem Gestell, wenn der Server gerade läuft. Zusätzlich dazu, dass die Geräte nicht richtig funktionieren, kann das Entfernen des Servers aus dem Gestell zu Verletzungen von Personen führen.

Stellen Sie kein Objekt oben auf denServer.

Das Trennen des Servers vom Gestell kann zu Verletzungen von Personen führen und die umstehenden persönlichen Dinge beschädigen.

Klemmen Sie sich nicht im Lüfter ein

Halten Sie während des Betriebs Ihre Hände und Haare fern vom Kühlerlüfter hinten am Server. Werden diese Warnungen missachtet, kann es passieren, dass Ihre Hände oder Haare in den Lüfter gelangen, was zu Verletzungen führen kann.

Durante el funcionamiento

⚠ CUIDADO

No extraer o retirar el servidor del rack.

No extraiga ni retire el servidor del rack. Además de provocar un funcionamiento incorrecto del equipo, separar el servidor del rack puede provocar daños personales.

Evitar tocar el servidor durante las tormentas.

No toque ninguna parte del servidor, incluyendo los cables, cuando se aproxime una tormenta. No conecte ni desconecte ninguno de los dispositivos. Existe el riesgo de sufrir una descarga eléctrica debida a un relámpago.

Mantener a los animales alejados del servidor.

Mantenga a los animales, por ejemplo las mascotas, alejados del servidor. El pelo u otros restos pueden entrar en el servidor, lo que podría provocar un incendio o una descarga eléctrica.

No dejar abierta la bandeja de la unidad de disco óptico.

Cuando la bandeja está abierta, puede entrar polvo en el servidor y podría producirse un funcionamiento incorrecto. Además, chocar con la bandeja abierta puede producir daños personales.

No retirar el servidor del rack mientras esté funcionando.

No extraiga ni retire el servidor del rack mientras el servidor esté en funcionamiento. Además de provocar un funcionamiento incorrecto del equipo, separar el servidor del rack puede provocar daños personales.

No colocar objetos en la parte superior de los servidores.

Separar el servidor del rack puede producir daños personales, así como daños a las pertenencias personales.

Evitar quedar atrapado en el ventilador.

Mantenga las manos y el pelo alejados del ventilador de refrigeración situado en la parte posterior del servidor durante el funcionamiento. El incumplimiento de esta advertencia puede provocar que las manos o el pelo queden atrapados en el ventilador y se produzcan daños personales.

运行时的注意事项

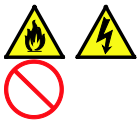
⚠注意

请勿随意从机架上取出或者拆下

请勿随意从机架上取出或者拆下本设备。否则不光可能导致本设备的操作异常，而且可能使其从机架上掉落而引起人员受伤。

打雷时请勿碰触

请勿在打雷时触摸包括线缆类在内的本机所有装置。同时，也不要进行机器的连接或拆卸。否则有可能因为雷击而导致触电。



请勿让宠物靠近

请勿让宠物之类的生物靠近本设备。如果排泄物或毛发混入本设备内部，则有可能引起火灾或触电。

请勿将光学驱动器的托盘一直暴露在外部

可能会通过打开的托盘混入灰尘从而引起异常操作。另外，也可能撞到托盘而导致受伤。

运行过程中请勿从机架抽取设备

运行过程中请勿随意从机架上取出或者拆下本设备。否则不光可能导致本设备的操作异常，而且可能使其从机架上掉落而引起人员受伤。

请勿在本设备上放置物品。

否则有可能使设备从机架上掉落而导致人员受伤或者财物的损失。

请注意避免被卷入

在本设备运行时，请勿将手或头发靠近其背面的冷却风扇。否则有可能导致手被夹伤或者头发被卷入而受伤。

運行時之注意事項

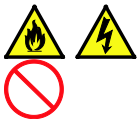
⚠注意

請勿隨意從機架上取出或者拆下

請勿隨意從機架上取出或者拆下本設備。否則不光可能導致本設備的操作異常，而且可能使其從機架上掉落而引起人員受傷。

打雷時請勿碰觸

請勿於打雷時觸摸包括線纜類在內之本機所有裝置。同時，也不要進行機器的連接或拆卸。否則有可能因為雷擊而導致觸電。



請讓寵物靠近

請勿讓寵物之類生物靠近本設備。如果排泄物或毛髮混入本設備內部，則有可能引起火災或觸電。

請勿將光學驅動器之托盤一直暴露於外部

請勿將光學驅動器之托盤一直暴露於外部。可能會通過打開之托盤混入灰塵從而引起異常操作。另外也可能撞到托盤而導致受傷。

運行過程中請勿從機架抽取設備

運行過程中請勿隨意從機架上取出或者拆下本設備。否則不光可能導致本設備之操作異常，而且可能使其從機架上掉落而引起人員受傷。

請勿在本設備上放置物品

否則有可能使設備從機架上掉落而導致人員受傷或者財務損失。

請注意避免被捲入

在本設備運行時，請勿將手或頭髮靠近其背面冷卻風扇。否則有可能導致手被夾傷或者頭髮被卷入而受傷。

Warning labels

Warning label are attached on or near the components with potential hazards (This label is either attached or printed on the component.) to draw attention from users to potential hazards involved in handling the server. (Do not remove or black out this label and keep it clean). If no label is attached or printed on the server, or if there is a label coming off or stained, contact your sales representative .

Étiquettes d’avertissement

Les étiquettes d’avertissement sont apposées sur les composants potentiellement dangereux (cette étiquette est fixée ou imprimée sur le composant) afin d’informer l’utilisateur de l’éventualité d’une situation dangereuse lors de l’utilisation du serveur. (Ne retirez pas et n’endommagez pas ces étiquettes). Si l’une des étiquettes sur le serveur a été entièrement/partiellement retirée ou qu’elle a été endommagée au point de la rendre illisible, contactez votre représentant.

Etichette di avvertimento

Le etichette di avvertimento sono attaccate sui o vicino ai componenti con potenziali pericoli (questa etichetta è attaccata o stampata sul componente) per attirare l'attenzione degli utenti verso potenziali pericoli coinvolti nella manipolazione del server. (Non rimuovere o coprire questa etichetta e tenerla pulita). Se non è attaccata né stampata alcuna etichetta sul server o se è presente un'etichetta che si sta staccando o sta perdendo il colore, contattare il proprio rivenditore.

Warnschilder

An oder in der Nähe der Komponenten werden Warnschilder angebracht, die auf mögliche Gefahren hinweisen (Dieses Schild ist entweder angebracht oder auf der Komponente aufgedruckt.) um die Aufmerksamkeit des Nutzers auf mögliche Gefahren zu lenken, die mit der Handhabung des Servers zu tun haben. (Entfernen Sie dieses Schild nicht, dunklen Sie es nicht ab und halten Sie es sauber). Wenn kein Schild angebracht ist oder auf den Server gedruckt wurde oder wenn es ein Schild gibt, das abgeht oder beschmutzt ist, kontaktieren Sie Ihren Verkaufsmitarbeiter.

Etiquetas de advertencia

La etiqueta de advertencia está colocada en o cerca de los componentes que suponen posibles peligros (esta etiqueta está adherida o impresa en el componente), para atraer la atención de los usuarios respecto a los posibles peligros que supone la manipulación del servidor. (No despegue ni manipule esta etiqueta y manténgala limpia.) Si no hay una etiqueta adherida o impresa en el servidor o si la etiqueta está despegada o manchada, póngase en contacto con su representante de ventas.

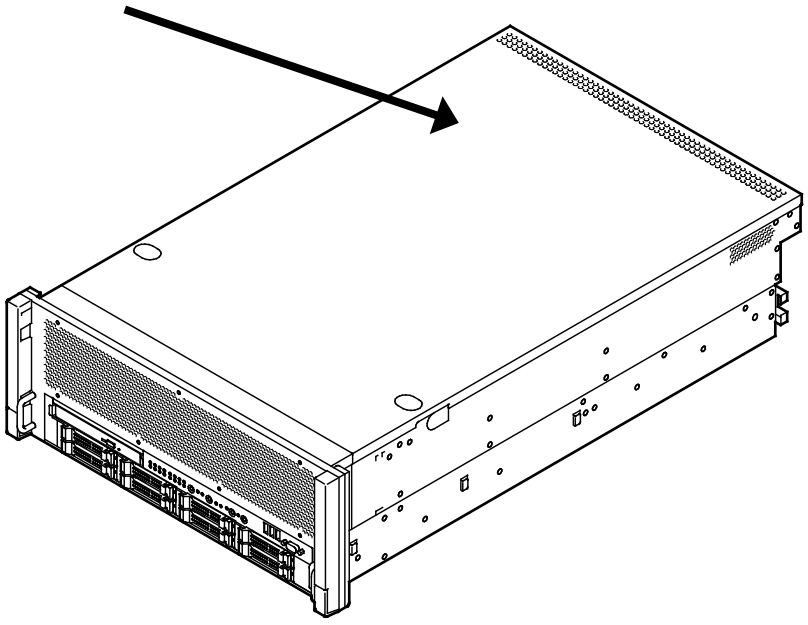
警告标签

在具有危险性的部件或其附近设置有警告标签（警告标签的设置方法有印刷和粘贴）。该标签是用来提醒顾客在使用本产品时有可能发生的危险（请不要揭掉、涂写或弄脏标签）。如果出现没有粘贴标签或者标签脱落、脏污、或没有印刷标签等情况时，请联系本公司的销售代表或者购买本产品的经销商。

警告標籤

在具有危險性的部件或其附近設置有警告標籤（警告標籤之設置方法有印刷和粘貼）。該標籤時用來提醒顧客在使用本產品時有可能發生之危險（請不要揭掉、塗寫或弄髒標籤）。如果出現沒有粘貼標籤或者標籤脫落、髒污、或者沒有印刷標籤等情況時，請聯繫本公司之銷售代表或購買本產品之經銷商。

External view



Handling precautions (for proper operations)

Be sure to observe the following precautions for the proper functioning of the server. Ignoring the precautions may cause server malfunction or failure.

- Do not use any cell phone or PHS and switch off them near the server. Electric waves from such devices can cause server to malfunction.
- Install the server in an appropriate place. For details about the installation location, refer to *Chapter 2 Preparations (2. Installation and Connection)*.
- Before connecting/removing cables to/from peripheral devices, make sure that the server is off and unplug the power cord, if they are non plug-and-play devices.
- Connect the provided power cord to a 100/200 VAC outlet.
- Make sure that the access LED on the server is off before turning off the power or ejecting an optical disk.
- Wait for at least 30 seconds before turning on the server after turning off the server.
- If any Uninterruptible Power Supply unit is connected, set it to wait for at least 30 seconds before turning on the server after power off.
- Turn off the server and unplug the power cord before moving it.
- Regularly clean the server to prevent various types of failure. (Refer to *Chapter 1 Maintenance (2. Daily Maintenance)* in "*Maintenance Guide*" for details about cleaning.)
- Momentary voltage drop may occur due to lightning strike. To prevent this, use of UPS is recommended.
- We do not guarantee that any copy-protected CD that does not conform to standards will play on the server's optical disk drive.
- In the following cases, check and adjust the system clock before operation.

  —After transportation

  —After storage

  —After the server is used following a period of disuse, in which storage conditions did not conform to those that guarantee server operations (temperature: 10 to 40°C; humidity: 20% to 80%).
- Check the system clock approximately once per month. Use of a time server (NTP server) is recommended if high accuracy timing is required by the system.
- In order to get the server and internal devices to work properly, we recommend you store the server at room temperature.
  Observe the storage conditions (Temperature: −10°C to 55°C, Humidity: 20% to 80%, No condensation of moisture) to store the server.
- Do not power off or reset the server, nor disconnect the power cord before POST completes.
- If this server, internal optional devices, and media set for the backup devices (tape cartridges) are moved from a cold place to a warm place in a short time, condensation will occur and cause malfunctions and failures when these are used in such state. To protect important stored data and property, make sure to wait for a sufficient period to use the server and components in the operating environment.

  Reference: Time effective at avoiding condensation in winter (more than 10°C differences between the room temperature and atmospheric temperature)

  Disk devices: Approximately 2 to 3 hours Tape media: Approximately 1 day
- For optional devices, we recommend you use our NEC products. Even if they are successfully installed or connected, installation of unsupported devices can cause the server to malfunction or even failure. You will be charged to repair failure or damage caused by use of such products even within warranty period.

Handling precautions (for anti-static measures)

The server contains electronic components sensitive to static electricity. Observe the following precautions to avoid failures caused by static electricity when installing or removing any optional devices.

- Wear a wrist strap (an arm belt or anti-static glove)

  Wear a wrist strap on your wrist and provide earthing before starting work. If no wrist strap is available, discharge static electricity from your body by touching an unpainted metal part of the chassis which is grounded. Touch a metal part regularly when working with the server to discharge static electricity.

- Select a suitable work space

  — Work with the server on the anti-static or concrete floor.

  — When you work with the server on a carpet where static electricity is likely to be generated, be sure to take anti-static measures beforehand.

- Use a work table

  Place the server on an anti-static mat to work with.

- Clothing

  — Do not wear wool or synthetic clothes.

  — Wear anti-static shoes.

  — Take off any jewels (a ring, bracelet, or wrist watch) before working with the server.

- Handling of components

  — Keep any component in an anti-static bag until you actually install it to the server.

  — Hold any component by its edge to avoid touching any terminals or parts.

  — To store or carry any component, place it in an anti-static bag.

- Handling of cable

  When connecting a cable (e.g., LAN cable), static electricity may also be charged due to friction against floor. Connecting a charged cable with an I/O device may cause damage to the device. It is recommended to discharge static electricity before connecting a cable by using ionizer or the like. Consult with your sales representative for apparatus to discharge static electricity.

- Installing/remoing optional devices

  — To avoid electric hazard and malfunction of the device, be sure to turn off the POWER switch of the server and unplug the power cord from outlet before starting work, except for hot-swappable devices.

  — Optional devices also contain electronic components sensitive to static electricity. To avoid malfunction of the device, discharge static electricity from your body by an adequate anti-static measures (e.g., wear a wrist strap). To use a wrist strap, connect an earth wire to the place where grounded.

Précautions de manipulation (pour un bon fonctionnement)

Conformez-vous aux consignes suivantes pour garantir le bon fonctionnement du serveur. Si vous ne tenez pas compte de ces consignes, le serveur risque de ne pas fonctionner correctement ou de tomber en panne .

- N'utilisez aucun téléphone portable ou PHS et coupez-les à proximité du serveur. Les ondes électriques de tels appareils peuvent causer un dysfonctionnement du serveur.
- Installez le serveur dans un endroit approprié. Pour plus de détails sur l'emplacement d'installation, consultez le *Chapitre 2 Préparations (2.* Installation et Branchements*)*.
- Avant de brancher/débrancher les câbles aux/des périphériques, assurez-vous que le serveur est éteint et débranchez le cordon d'alimentation, s'il ne s'agit pas de dispositifs prêts à l'emploi.
- Branchez le cordon d'alimentation fourni dans une prise de 100/200 VCA.
- Vérifiez que le témoin d'accès situé sur le serveur es t éteint avant de mettre ce dernier hors tension ou d'éjecter une disquette.
- Après avoir éteint le serveur, patientez au moins 30 secondes avant de le rallumer.
- Si un UPS est branché, réglez-le afin qu'il patiente au moins 30 secondes avant de rallumer le serveur après sa mise hors tension.
- Éteignez le serveur et débranchez le cordon d'alimentation avant de le déplacer.
- Nettoyez le serveur régulièrement. Un nettoyage régulier du serveur permet d'éviter bon nombre de défaillances. (reportez-vous au chapitre 1 Maintenance (2. *Maintenance quotidienne)* dans « *Guide de Maintenance* » pour savoir comment le nettoyer).
- La foudre peut provoquer une chute de tension momentanée. Il est conseillé d'utiliser un UPS pour prévenir ce problème.
- La lecture de disques protégé contre la copie non conformes aux standards inhérents aux CD avec le lecteur de disque optique du serveur n'est pas garantie.
- Vérifiez et réglez l'horloge du serveur avant d'utiliser ce dernier lorsque l'une quelconque des conditions suivantes est applicable.
  - — Après avoir transporté le serveur
  - — Après avoir stocké le serveur
  - — Après que le serveur soit utilisé à la suite d'une période de non-utilisation, pendant laquelle les conditions de stockage n'étaient pas conformes à celles qui garantissent le bon fonctionnement du serveur (température : 10 à 40 °C ; humidité : 20% à 80%).
- Vérifiez l'horloge du système environ une fois par mois. Pour ce qui est des systèmes nécessitant une précision temporelle accrue, il est conseillé d'utiliser un serveur d'horloge (serveur NTP).
- Afin que le serveur et les périphériques internes fonctionnent correctement, nous vous recommandons de stocker le serveur à la température ambiante.
  Stockez le serveur conformément aux conditions de stockage appropriées (température : –10 °C à 55 °C, humidité : 20% à 80%, sans condensation).
- Ne pas éteindre ou réinitialiser le serveur, et ne pas débrancher le cordon d'alimentation avant la fin de l'auto-test au démarrage.
- Un problème de condensation peut survenir au niveau du serveur, du périphérique optionnel interne et des médias réglés pour les appareils de sauvegarde (cartouches de bande) s'il sont déplacés d'une pièce chaude vers une pièce froide de façon soudaine. Le cas échéant, ils risquent de ne pas fonctionner correctement ou de tomber en panne si vous les utilisez. Pour protéger la propriété et les données stockées importantes, laissez-les s'adapter au nouvel environnement d'exploitation avant d'utiliser le serveur et les composants.

  Référence : Durée effective pour éviter la condensation en hiver (plus de 10 °C de différence entre la température ambiante et la température atmosphérique)

  Périphériques disques : Environ 2 à 3 heures Média de bande : Environ 1 jour
- Nous vous conseillons d'utiliser nos produits NEC pour les périphériques optionnels. Même s'ils sont installés ou branchés avec succès, l'installation de périphériques non pris en charge peut provoquer un dysfonctionnement ou une panne du serveur. La réparation du serveur en raison d'une panne ou d'un dommage résultant de l'utilisation de ces produits tiers vous sera facturée même pendant la période de garantie.

Précautions de manipulation (pour les mesures antistatiques)

Le serveur intègre des composants électroniques sensibles à l'électricité statique. Observez les précautions suivantes pour éviter toute panne résultant de l'électricité statique lors de l'installation ou du retrait de périphériques optionnels.

- Portez un bracelet antistatique (une ceinture passée autour de votre bras ou des gants antistatiques)

  Portez un bracelet autour de votre poignet et effectuez une mise à la terre avant de commencer à travailler. Si vous ne disposez pas de bracelet de ce type, touchez une partie métallique non peinte du boîtier avant de manipuler un composant afin de vous décharger de toute électricité statique. Lorsque vous manipulez les composants, touchez de temps en temps une partie métallique pour empêcher toute accumulation d'électricité statique.

- Choisissez un espace de travail approprié

  — Placez le serveur sur une surface antistatique ou un sol en béton.

  — Si vous placez le serveur sur un tapis susceptible de générer de l'électricité statique, n'oubliez pas de prendre au préalable les mesures antistatiques requises.

- Utilisez une table de travail

  Placez le serveur sur un tapis antistatique.

- Vêtements

  — Ne portez pas de vêtements en laine ou en fibre synthétique.

  — Portez des chaussures antistatiques pour travailler dans le serveur.

  — Retirez tous vos bijoux (bague, bracelet ou montre) avant de travailler sur le serveur.

- Manipulation des composants

  — Laissez les composants dans des sacs antistatiques avant de les installer dans le serveur.

  — Tenez les composants par le bord afin d'éviter de toucher tout connecteur ou composant.

  — Pour ranger ou transporter un composant, placez-le dans un sac antistatique.

- Manipulation des câbles

  Lors du branchement d'un câble (p. ex., câble LAN), de l'électricité statique peut également être chargée à cause du frottement contre le sol. Brancher un câble chargé sur une unité d'E/S peut endommager l'appareil. Il est recommandé de décharger l'électricité statique avant de brancher un câble à l'aide d'un ioniseur ou similaire. Consultez votre représentant de commerce pour trouver un appareil qui décharge l'électricité statique.

- Installation/retrait des périphériques optionnels

  — Pour éviter tout danger électrique et dysfonctionnement du périphérique, assurez-vous de placer le commutateur du serveur sur ARRET et de débrancher le cordon d'alimentation de la prise avant de commencer les travaux, sauf pour les appareils d'échange à chaud.

  — Les périphériques optionnels contiennent également des composants électroniques sensibles à l'électricité statique. Pour éviter tout dysfonctionnement du périphérique, déchargez l'électricité statique de votre corps par des mesures antistatiques appropriées (p. ex., portez un bracelet antistatique). Pour utiliser un bracelet antistatique, branchez un fil de terre à l'endroit de la mise à la terre.

Precauzioni di manipolazione (per il corretto funzionamento)

Accertarsi di osservare le seguenti precauzioni per il corretto funzionamento del server. Ignorare le precauzioni può provocare il malfunzionamento o il guasto del server.

- Non utilizzare alcun telefono cellulare o palmare e spegnerli nelle vicinanze del server. Le onde elettriche da tali dispositivi possono provocare il malfunzionamento del server.
- Installare il *server* in un luogo adatto. Per maggiori dettagli sul luogo di installazione, consultare il *Capitolo 2 Operazioni preliminari (2. Installazione e collegamento)*.
- Prima di collegare/rimuovere cavi verso/da dispositivi periferici, accertarsi che il server sia spento e scollegare la presa dell'alimentazione, se si tratta di dispositivi che non sono del tipo plug-and-play.
- Collegare il cavo dell'alimentazione fornito a una presa da 100/200 V CA.
- Accertarsi che il LED di accesso sul server sia spento prima di scollegare l'alimentazione o espellere il disco ottico.
- Attendere almeno 30 secondi prima di accendere il server dopo aver spento il server.
- Se è collegato un gruppo di continuità, impostarlo in modo che attenda 30 secondi prima di accendere il server dopo lo spegnimento.
- Spegnere il server e scollegare il cavo dell'alimentazione prima di spostarlo.
- Pulire regolarmente il server per impedire vari tipi di guasto. (Consultare il *Capitolo 1 Manutenzione (2. Manutenzione quotidiana)* nella "*Guida alla manutenzione*" per maggiori dettagli relativi alla pulizia).
- Un momentaneo calo di tensione può verificarsi a causa di fulmini. Per evitare che questo accada, si raccomanda l'uso di un UPS.
- Non garantiamo che qualsiasi CD con protezione da copie che non sia conforme agli standard venga riprodotto nell'unità del disco ottico del server.
- Nei seguenti casi, verificare e regolare l'orologio del sistema prima del funzionamento.
  - — Dopo il trasporto
  - — Dopo l'immagazzinamento
  - — Dopo l'uso del server a seguito di un periodo di disuso, in cui le condizioni di immagazzinamento non erano conformi a quelle che garantiscono il funzionamento del server (temperatura: da 10 a 40 °C; umidità: dal 20% all'80%).
- Verificare l'orologio del sistema circa una volta al mese. L'uso di un server di sincronizzazione (server NTP) è raccomandato se il sistema richiede una sincronizzazione con elevata precisione.
- Per fare in modo che il server e i dispositivi interni funzionino correttamente, si raccomanda di immagazzinare il server a temperatura ambiente.
  Osservare le condizioni di immagazzinamento (Temperatura: – da 10 °C a 55 °C, Umidità: dal 20% all'80%, nessuna condensa di umidità) per immagazzinare il server.
- Non spegnere o ripristinare il server né scollegare il cavo dell'alimentazione prima del completamento del POST.
- Se questo server, i dispositivi opzionali interni e i mezzi impostati per i dispositivi di backup (cartucce a nastro) vengono spostati da un luogo freddo a un luogo caldo in un breve tempo, si verificherà la condensa che provocherà malfunzionamenti e guasti quando questi vengono utilizzati in tale stato. Per proteggere dati e proprietà importanti archiviati, accertarsi di attendere un periodo sufficiente di tempo prima di utilizzare il server e i componenti nell'ambiente operativo.

  Riferimento: efficace dal punto di vista temporale per evitare la condensa in inverno (differenze di oltre 10 °C tra la temperatura ambiente e la temperatura atmosferica)

  Dispositivi del disco: da 2 a 3 ore circa Nastri: 1 giorno circa
- Per i dispositivi opzionali, si raccomanda l'uso dei nostri prodotti NEC. Anche se sono installati o collegati correttamente, l'installazione di dispositivi non supportati può provocare il malfunzionamento o perfino il guasto del server. L'utente sarà responsabile delle spese per riparare guasti o danni causati dall'uso di tali prodotti anche nel periodo di validità della garanzia.

Precauzioni di manipolazione (per misure antistatiche)

Il server contiene componenti elettronici sensibili all'elettricità statica. Osservare le seguenti precauzioni per evitare guasti provocati dall'elettricità statica durante l'installazione o la rimozione di dispositivi opzionali.

- Indossare un bracciale antistatico (una fascia per braccio o guanto antistatico)

  Indossare un bracciale antistatico al polso e fornire la messa a terra prima di iniziare il lavoro. Se non è disponibile alcun bracciale antistatico, scaricare l'elettricità statica dal corpo toccando una parte metallica non verniciata del telaio che ha messa a terra. Toccare una parte metallica quando si lavora con il server per scaricare l'elettricità statica.

- Selezionare uno spazio di lavoro adatto

  — Lavorare con il server posizionato su un pavimento antistatico o in cemento.

  — Quando si lavora con il server su un tappeto su cui è probabile che si generi elettricità statica, accertarsi di prendere anticipatamente misure antistatiche.

- Utilizzare un tavolo da lavoro

  Posizionare il server su un tappeto antistatico su cui lavorare.

- Indumenti

  — Non indossare indumenti di lana o sintetici.

  — Indossare scarpe antistatiche.

  — Togliere qualsiasi gioiello (anelli, braccialetti oppure orologi) prima di lavorare con il server.

- Manipolazione dei componenti

  — Tenere qualsiasi componente in una borsa antistatica fino a quando non viene effettivamente installato sul server.

  — Mantenere i componenti dal loro bordo per evitare di toccare terminali o parti.

  — Per immagazzinare o trasportare i componenti, porli in una borsa antistatica.

- Manipolazione dei cavi

  Quando si collega un cavo (ad es. un cavo LAN), può generarsi elettricità statica anche a causa dell'attrito contro il pavimento. Il collegamento di un cavo caricato a un dispositivo I/O può provocare danni al dispositivo. Si raccomanda di scaricare l'elettricità statica prima di collegare un cavo utilizzando uno ionizzatore o simili. Consultare il proprio rivenditore per l'apparato per scaricare l'elettricità statica.

- Installazione/rimozione di dispositivi opzionali

  — Per evitare pericoli elettrici e malfunzionamento del dispositivo, accertarsi di disattivare l'interruzione di ACCENSIONE del server e scollegare il cavo dell'alimentazione dalla presa prima di iniziare il lavoro, eccetto per i dispositivi in grado di eseguire l'hot swap.

  — Anche i dispositivi opzionali contengono componenti elettronici sensibili all'elettricità statica. Per evitare il malfunzionamento del dispositivo, scaricare l'elettricità statica dal corpo mediante misure antistatiche adeguate (ad es. indossare un bracciale antistatico). Per utilizzare un bracciale antistatico, collegare ciascun filo di terra al luogo in cui verrà messo a terra.

Vorsichtsmaßnahmen bei der Handhabung (für einwandfreien Betrieb)

Stellen Sie scher, dass Sie die folgenden Vorsichtsmaßnahmen für die richtige Funktion des Servers beachten. Werden die Vorsichtsmaßnahmen ignoriert, kann es zu einer Fehlfunktion des Servers oder einem Fehler kommen.

- Verwenden Sie keine Mobiltelefone oder PHS und schalten Sie sie in der Nähe des Servers aus. Elektrische Wellen von solchen Geräten können eine Fehlfunktion des Servers verursachen.
- Installieren Sie den Server am richtigen Ort. Einzelheiten zum Installationsort finden Sie jn *Kapitel 2 Vorbereitungen (2. Installation und Verbindung)*.
- Bevor Sie Kabel an die Peripheriegeräte anschließen/entfernen, achten Sie darauf, dass der Server ausgeschaltet ist und ziehen Sie das Stromkabel, wenn es keine Plug-and-Play-Geräte gibt.
- Schließen Sie das mitgelieferte Stromkabel am 100/200 VAC Steckdose an.
- Achten Sie darauf, dass die Zugangs-LED am Server ausgeschaltet ist, bevor Sie den Strom ausschalten oder eine CD auswerfen.
- Warten Sie mindestens 30 Sekunden, bevor Sie den Server einschalten, nachdem Sie den Server ausgeschaltet haben.
- Wenn eine unterbrechungsfreie Stromversorgungseinheit angeschlossen ist, setzen Sie sie mindestens für 30 Sekunden auf Warten, bevor Sie den Server nach dem Ausschalten wieder einschalten.
- Stellen Sie den Server aus und ziehen Sie das Stromkabel, bevor Sie ihn bewegen.
- Reinigen Sie regelmäßig den Server, um verschiedene Arten von Fehlern zu vermeiden. (Siehe *Kapitel 1 Wartung (2. Tägliche Wartung)* in „*Wartungsanleitung“* zu Einzelheiten über das Reinigen.)
- Aufgrund von Blitzeinschlägen können zeitweise Spannungsabfälle auftreten. Um dies zu vermeiden, wird die Verwendung von UPS empfohlen.
- Wir können nicht garantieren, dass eine kopiergeschützte CD, die nicht den Standards entspricht, auf dem optisches Laufwerk des Servers abgespielt werden kann.
- In den folgenden Fällen, prüfen Sie die Systemuhr undt stellen Sie sie vor dem Betrieb ein.

  —Nach einem Transport

  —Nach Lagerung

  —Nachdem der Server längere Zeit nicht verwendet wurde und unter Lagerbedingungen stand, die nicht den Bedingungen entsprechen, die einen Serverbetrieb garantieren (Temperatur: 10 bis 40 °C; Feuchtigkeit: 20% bis 80%).

- Überprüfen Sie die Systemuhr etwa einmal im Monat. Die Verwendung einer Zeit Server (NTP Server) wird empfohlen, wenn ein genaue Zeit vom System erforderlich ist.
- Damit der Server und die internen Geräte richtig funktionieren, empfehlen wir Ihnen, dass Sie den Server bei Raumtemperatur lagern.
  Überwachen Sie die Lagerbedingungen (Temperatur: −10 °C bis 55 °C, Feuchtigkeit: 20% bis 80%, Keine Kondenswasserbildung), um den Server zu lagern.
- Stellen Sie den Server nicht aus und starten Sie ihn nicht neu, trennen Sie auch nicht das Stromkabel, bevor POST abgeschlossen ist.
- Wenn dieser Server, interne optionale Geräte und für die Backup-Geräte eingestellten Medien (Bandkassetten) von einem kalten zu einem warmen Ort in kurzer zeit gebracht werden, tritt Kondenswasserbildung auf und verursacht Fehlfunktionen und Fehler, wenn diese in diesem Status verwendet werden. Um wichtige gespeicherte Daten und Eigentum zu schützen, achten Sie darauf, dass Sie eine Weile Warten, um den Server und Komponenten in der Betriebsumgebung zu verwenden.

  Referenz: Zeiteffektiv, um Kondensation im Winter zu vermeiden (mehr als 10 °C Unterschied zwischen der Raumtemperatur und der atmosphärischen Temperatur)

  CD-Geräte: Etwa 2 bis 3 Stunden Band-Medien: Etwa 1 Tag

- Für optionale Geräte empfehlen wir, dass Sie unsere NEC-Produkte verwenden. Selbst wenn sie erfolgreich installiert oder angeschlossen sind, kann die Installation von nicht unterstützten Geräten dazu führen, dass der Server eine Fehlfunktion bekommt oder fehlerhaft wird. Sie müssen für die Kosten selbst aufkommen, wenn

dieser Fehler oder Schaden repariert werden muss, wenn Sie solche Produkte verwneden, selbst in der Garantiezeit.

Vorsichtsmaßnahmen bei der Handhabung (für anti-statische Maßnahmen)

Der Server enthält elektronische Komponenten, die auf statische Elektrizität empfindlich reagieren. Beachten Sie die folgenden Vorsichtsmaßnahmen, um Fehler zu vermeiden, die durch statische Elektrizität entstehen, wenn Sie optionale Geräte installieren oder entfernen.

- Tragen Sie eine Handschlaufe (ein Armgurt oder Anti-Statik-Handschuh)

  Tragen Sie eine Handschlaufe an Ihrem Handgelenk und sorgen Sie für eine Erdung, bevor Sie mit der Arbeit beginnen. Wenn keine Handschlaufe zur Verfügung steht, entladen Sie die statische Elektrizität aus Ihrem Körper, indem Sie ein unlackiertes Metallteil des Chassis berühren, das geerdet ist. Berühren Sie regelmäßig ein Metallteil, wenn Sie mit dem Server arbeiten, um die statische Elektrizität zu entladen.

- Wählen Sie einen passenden Arbeitsplatz aus

  — Arbeiten Sie mit dem Server auf dem anti-statischen oder Betonboden.

  — Wenn Sie mit dem Server auf einem Teppich arbeiten, wo sich schnell statische Elektrizität aufbauen kann, treffen Sie vorab anti-statische Maßnahmen.

- Verwenden Sie einen Arbeitstisch

  Stellen Sie den Server auf eine anti-statische Matte, um an ihm zu arbeiten.

- Kleidung

  — Tragen Sie keine Wolle oder synthetische Kleidung.

  — Tragen Sie anti-statische Schuhe.

  — Legen Sie jeglichen Schmuck ab (einen Ring, Armreifen oder Armbanduhr), bevor Sie mit dem Server arbeiten.

- Handhabung der Komponenten

  — Bewahren Sie alle Komponenten in einer anti-statischen Tasche auf, bis Sie sie tatsächlich im Server installieren.

  — Halten Sie alle Komponenten an ihren Kanten fest, um zu vermeiden, dass Anschlüsse oder teile berührt werden.

  — Um alle Komponenten zu lagern der zu tragen, stecken Sie sie in eine anti-statische Tasche.

- Handhabung der Kabel

  Wenn Sie ein Kabel anschließen (z.B. ein LAN-Kabel), kann sich die statische Elektrizität auch durch Reibung gegen den Boden laden. Das Anschließen des aufgeladenen Kabels mit einem I/O -Gerät kann Schäden am Gerät verursachen. Es wird empfohlen, die statische Elektrizität zu entladen, bevor Sie ein Kabel anschließen, indem Sie einen Ionisierer oder Ähnliches verwenden. Wenden Sie sich an Ihren Vertriebsmitarbeiter für Apparate, um statische Elektrizität zu entladen.

- Installation/Demontage optionaler Geräte

  — Um eine elektrische Gefahr und eine Fehlfunktion des Geräts zu vermeiden, achten Sie darauf, den STROM-Schalter des Servers auszuschalten und das Stromkabel aus der Steckdose zu ziehen, bevor Sie die Arbeit beginnen, außer bei hot-swappable Geräten.

  — Optionale Geräte enthalten auch elektronische Komponenten, die auf statische Elektrizität empfindlich reagieren. Um eine Fehlfunktion des Geräts zu vermeiden, entladen Sie die statische Elektrizität aus Ihrem Körper, indem Sie entsprechende anti-statische Maßnahmen treffen (tragen Sie zum Beispiel eine Handschlaufe). Um eine Handschlaufe zu verwenden, schließen Sie ein Erdungskabel an dem Ort an, wo geerdet werden soll.

Precauciones de manipulación (para operaciones correctas)

Asegúrese de observar las precauciones que figuran a continuación para garantizar el correcto funcionamiento del servidor. Ignorar las precauciones puede provocar el funcionamiento incorrecto del servidor o un fallo.

- No utilice teléfonos móviles o PHS y apáguelos cuando se encuentre cerca del servidor. Las ondas eléctricas de dichos dispositivos pueden provocar el funcionamiento incorrecto del servidor.
- Instale el servidor en un lugar adecuado. Para obtener información detallada acerca del lugar de instalación, consulte el *Capítulo 2 Preparativos (2. Instalación y conexión).*
- Antes de conectar/retirar los cables en/de los dispositivos periféricos, asegúrese de que el servidor esté apagado y desenchufe el cable de alimentación si no son dispositivos “plug-and-play”.
- Conecte el cable de alimentación proporcionado en una toma de corriente de 100/200 V CA.
- Asegúrese de que el LED de acceso situado en el servidor esté apagado antes de apagar o expulsar un disco óptico.
- Espere durante un mínimo de 30 segundos antes de encender el servidor después de haberlo apagado.
- Si hay una unidad de alimentación ininterrumpida conectada, configúrela para que espere un mínimo de 30 segundos antes de encender el servidor tras el apagado.
- Apague el servidor y desenchufe el cable de alimentación antes de moverlo.
- Limpie regularmente el servidor para evitar varios fallos. (Consulte el *Capítulo 1 Mantenimiento (2. Mantenimiento diario)* de la “*Guía de mantenimiento*” para obtener detalles acerca de la limpieza.)
- Puede producirse una caída momentánea de tensión debida a un relámpago. Para evitar esta situación, se recomienda el uso de un SAI.
- No garantizamos que la unidad de disco óptico del servidor reproduzca cualquier CD protegido contra copia que no cumpla los estándares.
- En los casos que se indican a continuación, compruebe y ajuste el reloj del sistema antes de ponerlo en funcionamiento.
  - — Después del transporte
  - — Después del almacenamiento
  - — Después de utilizar el servidor tras un periodo en desuso durante el cual las condiciones de almacenamiento no fueron aquellas que garantizan el funcionamiento del servidor (temperatura: de 10 a 40 °C; humedad: de 20% a 80%).
- Compruebe el reloj del sistema una vez al mes aproximadamente. Se recomienda el uso de un servidor de tiempo (servidor NTP) si el sistema requiere precisión horaria.
- Para que el servidor y los dispositivos internos funcionen correctamente, recomendamos almacenar el servidor a temperatura ambiente.
  Respete las condiciones de almacenamiento (temperatura: de −10 °C a 55 °C, humedad: de 20% a 80%, sin condensación de humedad) para guardar el servidor.
- No apague o reinicie el servidor ni desconecte el cable de alimentación antes de que se haya completado POST.
- Si el servidor, los dispositivos internos opcionales y los medios configurados para los dispositivos de copia de seguridad (cartuchos de cinta) se trasladan de un lugar frío a un lugar cálido en un plazo de tiempo breve, se formará condensación y se producirán fallos de funcionamiento cuando se utilicen en este estado. Para proteger datos y propiedad almacenados importantes, asegúrese de esperar el tiempo suficiente para utilizar el servidor y los componentes en el entorno de funcionamiento.

  Referencia: Tiempo necesario para evitar la condensación en invierno (diferencias de más de 10 °C entre la temperatura de la sala y la temperatura atmosférica)

  Dispositivos de disco: aproximadamente entre 2 y 3 horas Medios de cinta: aproximadamente 1 día
- Para los dispositivos opcionales, recomendamos utilizar productos NEC. Incluso si se instalan y conectan correctamente, la instalación de dispositivos no compatibles puede provocar un funcionamiento incorrecto

del servidor o incluso un fallo. Deberá abonar el coste de la reparación del fallo o el daño provocados por el uso de tales productos, incluso dentro del periodo de garantía.

Precauciones de manipulación (para medidas antiestáticas)

El servidor contiene componentes eléctricos sensibles a la electricidad estática. Respete las siguientes precauciones para evitar los fallos provocados por la electricidad estática cuando instale o retire cualquier dispositivo opcional.

- Colocarse una correa para muñeca (una correa para el brazo o un guante antiestático)

  Colocarse una correa para muñeca y derivarla a tierra antes de iniciar el trabajo. Si no se dispone de una correa para muñeca, descargar la electricidad estática del cuerpo tocando una parte metálica no pintada del chasis que esté conectada a tierra. Tocar una parte metálica de forma regular cuando se trabaja con el servidor para descargar la electricidad estática.

- Seleccionar un espacio de trabajo adecuado

  — Trabajar con el servidor en un suelo antiestático o de hormigón.

  — Cuando se trabaje con el servidor sobre una alfombra en la que es probable que se genere electricidad estática, asegúrese de tomar medidas antiestáticas de antemano.

- Utilizar una mesa de trabajo

  Colocar el servidor sobre una estera antiestática para trabajar en él.

- Vestimenta

  — No vista prendas de lana o sintéticas.

  — Utilice zapatos antiestáticos.

  — Quítese las joyas (anillos, pulseras o relojes) antes de trabajar con el servidor.

- Manipulación de los componentes

  — Guarde los componentes en una bolsa antiestática hasta que los instale en el servidor.

  — Sujete los componentes por el borde para evitar tocar cualquier terminal o pieza.

  — Para almacenar o transportar cualquier componente, colóquelo en una bolsa antiestática.

- Manipulación del cable

  Cuando conecte un cable (por ejemplo, un cable LAN), es posible que se acumule electricidad estática debido a la fricción contra el suelo. La conexión de un cable cargado en un dispositivo de E/S puede producir daños en el dispositivo. Se recomienda descargar la electricidad estática antes de conectar un cable, utilizando un ionizador o algún dispositivo similar. Consulte con el representante de ventas acerca de los aparatos para descargar electricidad estática.

- Instalar/desinstalar dispositivos opcionales

  — Para evitar riesgos eléctricos y un funcionamiento incorrecto del dispositivo, asegúrese de apagar el interruptor POWER del servidor y desenchufar el cable de alimentación de la toma de corriente antes de iniciar el trabajo, excepto para los dispositivos intercambiables en caliente.

  — Los dispositivos opcionales también contienen componentes electrónicos sensibles a la electricidad estática. Para evitar el funcionamiento incorrecto del dispositivo, descargue la electricidad estática de su cuerpo mediante medidas antiestáticas adecuadas (por ej., utilizar una correa para muñeca). Para utilizar una correa para muñeca, conecte el cable de tierra a un lugar que esté derivado a tierra.

使用时的注意事项（如何正确使用）

为保障本产品正确运行，请务必遵守以下的注意事项。如果在使用时无视以下的注意事项，则有可能导致功能异常或者故障。

- 为了避免无线电波的影响，在本设备附近时请关闭手机和小灵通的电源。
- 请参照【第 2 章（2. 设置与连接）】，将本设备设置在合适的场所。
- 在连接或拔掉不支持即插即用的外围装置时，请在确保本设备的电源已关闭并将电源线从插座上拔掉之后再进行。
- 连接电源时，请将附带的电源线插入 100V 或 200V 的插座。
- 请在确保访问指示灯熄灭之后再关闭电源或取出光盘。将电源关闭后，必须等待 30 秒以上才可以再次打开电源。使用不间断电源设备(UPS)时，请将其设置为等待 30 秒以上之后再启动。
- 移动本设备时，请关闭电源，并将电源插头从插座上拔下来。
- 请定期打扫（关于打扫，请参照【维护指南】的【第 1 章（2. 日常维护）】）。
- 雷击等原因可能导致瞬间电压降低。建议使用 UPS 等设备。
- 本设备的光驱不能保证可正常播放不支持 CD 规格的“防拷贝 CD”等的光盘。
- 在下述情况下，请在使用前确认并调整系统时钟：
  - 运送后
  - 长期存放后
  - 停止使用的状态下，在不符合运行所需的环境（温度：10℃到 40℃；湿度：20%～80%）中存放了一段时间后
- 请按照大约一月一次的频度检查系统时钟。对于要求高精度时刻的系统，建议使用时间服务器（NTP 服务器）。
- 请在符合存放环境条件（温度：-10℃～55℃；湿度：20%～80%；不结露）的环境中长期存放。
- 打开电源后，在 POST 结束之前，请不要关闭电源、重启或者拔掉电源线。
- 将本设备、内置的选配设备以及安装在备份装置的介质（盒式磁带）等在短时间内从寒冷的地方移动到温暖的环境中时，将发生结露，如果直接使用可能会导致功能异常或故障。为了保护重要的数据和财产，请等待足够的时间使设备与环境充分协调之后再使用。

  参考：冬季（室内外温度差为 10 度以上）的防止结露有效时间

  介质装置：大约 2～3 小时　　介质：大约 1 天
- 关于选配设备，推荐使用本公司的产品。未经本公司检查的设备，即使能够安装或连接，不仅可能引起操作异常，更可能导致本设备出现故障。即使在保修期间内，由于这样的产品而引起的故障以及损坏需要支付维修费用。

关于维护服务

对于本产品，我们提供由具有专门知识的维护人员进行的定期检查和维护服务。为了在良好的状态下长期使用本产品，建议您与维护服务公司签订长期维护服务合约。

使用时的注意事项 (防止静电措施)

本设备内部的部件由容易受到静电影响的电子部件构成。在安装或拆卸时，为了防止因受静电影响而导致产品发生故障，请遵循以下的注意事项。

- 使用防静电腕带或防静电手套
  请将腕带系在手腕上，并将地线接地后方可作业。如果没有腕带，请先触摸接地机箱上没有喷涂的金属表面，将身体里积累的静电放出之后再接触部件。另外，作业过程中也要定期地触摸金属表面以放出静电。

- 检查作业场所
  - 请在已进行防止静电处理的地面或水泥地上进行作业。
  - 如需在地毯等容易产生静电的地方展开作业时，请事先进行防止静电处理。

- 使用作业台
  将本设备放置在防止静电的垫子上，然后开始作业。

- 服装
  - 作业时请勿穿上由毛纺或化学纤维制的服装。
  - 作业时请穿上防止静电的鞋子。
  - 安装前请摘掉贵金属饰品（戒指、手环和手表等）。

- 使用部件的注意事项
  - 在部件安装到本设备之前，请装入防止静电的袋子。
  - 请手持各部件的边缘部分，不要接触端子或安装部件。
  - 保管、搬运部件时，请将部件装入防止静电的袋子等。

- 使用电缆线的注意事项
  连接 LAN 缆线等的电缆线时，有可能因与地面发生摩擦而导致缆线附带静电。

  若在带有静电的状态下与输入/输出设备连接，则有可能导致设备受到破坏，因此，在连接前，建议使用排除静电组件等来排除静电。

  注）关于排除静电组件

  有关下述的排除静电组件，请咨询购买本产品的经销商或者维护服务公司。

  产品名：LAN 缆线排除静电工具

  机型：SG001 (東京下田工业株式会社 生产)

- 关于安装或拆卸选购件
  - 为了防止发生危险以及故障，在进行作业时，请切断本设备的电源开关，并将电源插头从插座上拔下。但是，安装及拆卸支持热插拔的产品时，不需要切断本设备的电源开关和拔除电源插头。
  - 选购件产品由容易受到静电影响的电子部件组成。在安装或拆卸产品时，为了防止因静电而导致的产品故障，请使用防止静电用的腕带等来排除静电。
    此外，使用腕带时，请将地线连接到已接地的部位。

使用時之注意事項(如何正確使用)

為保障本產品正確運行，請務必遵守以下的注意事項。如果在使用時無視以下的注意事項，則有可能導致功能異常或者故障。

- 為了避免無線電波的影響，在本設備附近時請關閉手機和小靈通之電源。
- 請參照【第2章（2. 設置與連接）】，將本設備設置在何時的場所。
- 在連接或拔掉不支持即插即用之外圍裝置時，請在確保本設備之電源已關閉並將電源線從插座上拔掉後再進行。
- 連接電源時，請將附帶的電源線插入100V或200V的插座。
- 請在確保訪問指示燈熄滅之後再關閉電源或取出光盤。將電源關閉後，必須等待30秒以上才可以再次打開電源。使用不間斷電源設備(UPS)時，請將其設置為等待30 秒以上之後再啟動。
- 移動本設備時，請關閉電源，並將電源插頭從插座上拔下來。
- 請定期打掃（關於打掃，請參照【維護指南】之【第1章（2. 日常維護）】）。
- 雷擊等原因可能導致瞬間電壓降低。建議使用UPS等設備。
- 本設備的光驅不能保證可正常播放不支持 CD 規格的“防拷貝 CD”等光盤。
- 在下述情況下，請在使用前確認並調整系統時鐘：
  - 運送後
  - 長期存放後
  - 停止使用狀態下，在不符合運行所需的環境（溫度：10℃到40℃；濕度：20%～80%）中存放了一段時間後
- 請按照大約一月一次之頻度檢查系統時鐘。對於要求高精度時刻之系統，建議使用時間服務器(NTP 服务器)。
- 請在負荷存放環境條件（溫度：-10℃～55℃；濕度：20%～80%；不結露）之環境中長期存放。
- 打開電源後，在POST 結束前，請不要關閉電源、重啟後者拔掉電源線。
- 將本設備、內置之選配設備以及安裝於備份裝置之介質（盒式磁帶）等短時間內從寒冷地方移動到溫暖環境中時、將發生結露，如果直接使用可能會導致功能異常或故障。為了保護重要數據和財產，請等待足夠之時間使設備與環境充分協調之後再使用。

  參考：冬季（室內外溫差為10度以上）之防止結露有效時間

  介質裝置：大約2～3 小時　　介質：大約1 天
- 關於選配設備，推薦使用本公司產品。未經本公司檢查之設備，即使能夠安裝或連接，不僅可能引起操作異常，更可能導致本設備出現故障。即使在保修期間內，由於這樣的產品而引起之故障以及損壞需要支付維修費用。

關於維護服務對於本產品，我們提供由具有專門知識的維護人員進行之定期檢查和維護服務。為了於良好的狀態下長期使用本產品，建議您與維護服務公司簽訂長期維護服務合約。

使用時的注意事項(防止靜電措施)

本設備內部的部件由容易受到靜電影響的電子部件構成。在安裝或拆卸時，為了防止因受靜電影響而導致產品發生故障，請遵循以下注意事項。

- 使 用 防 靜 電 腕 帶 或 防 靜 電 手 套
  請將腕帶繫上手腕上，並將地線接地後方可作業。如果沒有腕帶，請先觸摸接地機箱上沒有噴塗的金屬表面，將身體禮積累之靜電放出後再接觸部件。另外，作業過程中也要定期觸摸金屬表面以放出靜電。

- 檢 查 作 業 場 所
  － 請在已經防止靜電處理的地面或水泥地上進行作業。
  － 如需在地毯等容易產生靜電之地方展開作業時，請事先進行防止靜電處理。

- 使 用 作 業 台
  將本設備放置在防止靜電之墊子上，然後開始作業。

- 服 裝
  － 作業時請勿穿上由毛紡或化學纖維制之服裝。
  － 作業時請穿上防止靜電之鞋子。
  － 安裝前請摘掉貴金屬飾品（戒指、手環和手錶等）。

- 使 用 電 纜 線 的 注 意 事 項
  － 在部件安裝到本設備之前，請裝入防止靜電之袋子。
  － 請手持各部件之邊緣部分，不要接觸端子或安裝部件。
  － 保管、搬運部件時，請將部件裝入防止靜電之袋子等。

- 使 用 電 纜 線 的 注 意 事 項
  連接 LAN 纜線等的電纜線時，有可能因與地面發生摩擦而導致纜線附帶靜電。若在帶有靜電的狀態下與輸入/輸出設備連接，則有可能導致設備受到破壞，因此，在連接前，建議使用排除靜電組件等來排除靜電。

- 關 於 安 裝 或 拆 卸 選 購 件
  － 為了繁殖發生危險以及故障，在進行作業時，請切斷本設備的電源開關，並將電源插頭從插座上拔下。但是，安裝及拆卸支持熱插拔之產品時，不需要切斷本設備之電源開關和拔除電源插頭。
  － 選購件產品由容易收到靜電影響的電子組成。在安裝或拆卸產品時，為了防止因靜電而導致之產品故障，請使用防止靜電的腕帶等來排除靜電。
  此外，使用腕帶時，請將地線連接到已接地的部位。

其他注意事項

- 「不得打開產品外殼，以免造成安全問題」或「不要對本設備進行機械或電氣修改，以免造成安全問題」。
- 請勿任意拆裝設備。任何未經授權或認證人員之設備拆裝可能造成嚴重的安全問提。任何問提，請洽您的銷售人員或經銷商尋求協助」。
- **除非安裝手冊或使用手冊中提及，否則請勿當試維修您的設備。永遠遵守安裝手冊及使用手冊的**說**明**。

Tips for your health and safety

Using a computer extensively may affect different parts of your body. Here are tips you should follow while working on a computer to minimize strain on your body.

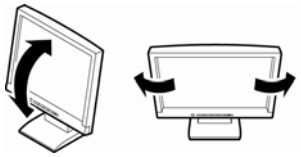
Keep proper posture

The basic body position for using a computer is sitting straight with your hands on the keyboard parallel with the floor, and your eyes directed slightly downward toward the monitor. With the proper posture described above, no unnecessary strain is applied on any part of your body, in other words when your muscles are most relaxed.

Working on the computer with bad posture such as hunching over or being too close to the monitor could cause fatigue or deteriorated eyesight.

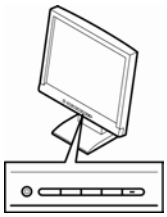
Adjust the angle of your display

Most display units are designed for adjustment of the horizontal and vertical angles. This adjustment is important to prevent the screen from reflecting bright lights and to make the display contents easy to see. Working without adjusting the display to a comfortable angle makes it difficult for you to maintain a proper posture and you will get tired easily. Adjust the viewing angle before use.



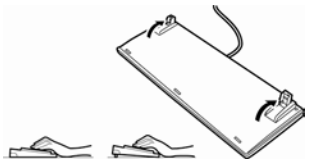
Adjust the brightness and contrast of the display

Display screens have functions to control brightness and contrast. The most suitable brightness/contrast depends on age, individuals, and environment, so adjust it to suit your preferences. A too bright or too dark display is bad for your eyes.



Adjust the angle of keyboard

Some keyboards are ergonomically designed, which allow the angle to be adjusted. Adjusting the angle of the keyboard is effective to reduce tension on your shoulders, arms, and fingers.



Clean your equipment

Keeping your equipment clean is important not only for the appearance but also for functional and safety reasons. A dusty monitor makes it difficult to see the display contents, so clean it regularly.

Take rest breaks

When you feel tired, take a break. Light exercise is also recommended.

Conseils pour votre santé et votre sécurité

Plus vous restez devant votre ordinateur, plus vous vous fatiguez, ce qui peut entraîner divers troubles physiques. Lorsque vous utilisez un ordinateur, respectez les conseils suivants pour éviter une trop grande fatigue :

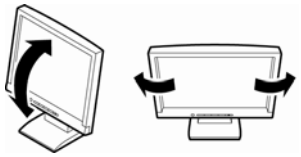
Garder une posture appropriée

La position de base pour utiliser un ordinateur nécessite d'être assis avec le dos droit, vos mains doivent être parallèles au sol lorsqu'elles sont sur le clavier, votre écran est légèrement plus bas que le niveau de vos yeux. .Avec la posture décrite ci-dessus, aucune partie de votre corps ne doit subir de tensions excessives et vos muscles doivent être détendus.

Si vous courbez le dos ou que vos yeux sont trop près de votre écran, vous avez une mauvaise posture. Le cas échéant, vous risquez de souffrir de fatigue visuelle ou d'abîmer vos yeux.

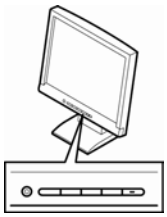
Réglage de l'angle de votre écran

Vous pouvez régler la plupart des écrans verticalement et horizontalement. Ajustez la position de l'écran pour éviter les reflets qui vous empêcheraient de voir ce que s'y affiche. Si vous travaillez sans régler l'écran à un angle confortable, vous risquez de prendre une mauvaise posture et de vous fatiguer plus vite. Ajustez l'angle de visualisation avant utilisation.



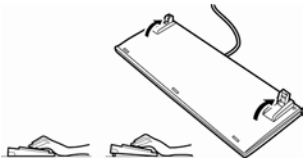
Réglage de la luminosité et du contraste de l'écran

Vous pouvez régler la luminosité et le contraste de l'écran. Les réglages dépendent de chaque individu, de son âge et de l'environnement de travail. Ajustez-le selon vos préférences. Un écran trop lumineux ou trop sombre peut provoquer des troubles oculaires.



Réglage de l'angle de votre clavier

Certains claviers sont ergonomiques ce qui permet d'ajuster l'angle. Réglez l'angle du clavier de sorte qu'il soit facilement utilisable. Ce faisant, vous réduirez les tensions dans vos épaules, vos bras et vos doigts.



Nettoyage de l'équipement

Il est plus agréable d'un point de vue visuel de préserver la propreté de l'équipement, mais également pour des raisons de fonctionnalité et de sécurité. Nettoyez l'équipement régulièrement car l'écran est plus difficilement lisible lorsqu'il est poussiéreux.

Fatigue et repos

En cas de fatigue, arrêtez de travailler. Il est recommandé de faire de petits exercices.

Suggerimenti per la salute e la sicurezza

L'uso prolungato di un computer può influire su diverse parti del corpo. Di seguito alcuni suggerimenti da seguire quando si lavora con un computer per ridurre al minimo lo stress sul corpo.

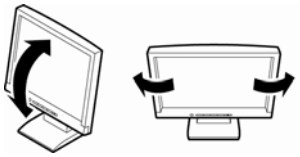
Mantenere una postura adatta

La posizione di base del corpo per utilizzare un computer è seduti in modo dritto con le mani sulla tastiera parallele al pavimento e gli occhi diretti leggermente verso il basso verso il monitor. Con la postura corretta descritta in precedenza, non viene applicato alcuno sforzo non necessario su nessuna parte del corpo, in altre parole quando i muscoli sono maggiormente rilassati.

Lavorare al computer con una postura errata, come curvati in avanti o troppo vicini al monitor, può provocare stanchezza o compromettere la vista.

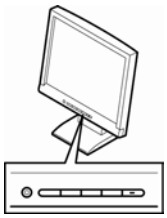
Regolare l'angolo del display

La maggior parte dei display è progettata per la regolazione degli angoli orizzontali e verticali. Questa regolazione è importante per impedire che lo schermo rifletta luci chiare e per rendere i contenuti del display di facile visualizzazione. Lavorare senza regolare il display a un angolo adatto rende difficile mantenere una postura corretta e ci si stancherà facilmente. Regolare l'angolo di visualizzazione prima dell'uso.



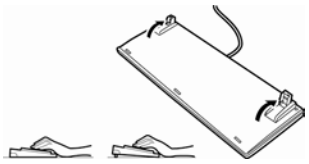
Regolare la luminosità e il contrasto del display

Gli schermi dei display hanno funzioni per controllare la luminosità e il contrasto. La luminosità/il contrasto più adatti dipendono dall'età, dal soggetto e dall'ambiente, per cui effettuare la regolazione per adattarla alle proprie esigenze. Un display troppo chiaro o troppo scuro è nocivo per gli occhi.



Regolare l'angolo della tastiera

Alcune tastiere sono progettate in modo ergonomico, il che consente la regolazione dell'angolo. Regolare l'angolo della tastiera è efficace per ridurre la tensione su spalle, braccia e dita.



Pulire le proprie apparecchiature

Mantenere le proprie apparecchiature pulite è importante non solo per l'aspetto, ma anche per motivi di funzionalità e sicurezza. Un monitor polveroso rende difficile la visualizzazione dei contenuti sul display, per cui occorre pulirlo regolarmente.

Fare pausa

Quando ci si sente stanchi, può essere utile fare una pausa. Si raccomanda anche un leggero esercizio fisico.

Tipps für Ihre Gesundheit und Sicherheit

Wird ein Computer extensiv verwendet, kann dies Einfluss auf verschiedene Teile Ihres Körpers haben. Hier sind Tipps, die Sie bei der Arbeit am Computer beachten sollten, um die Belastung für Ihren Körper zu minimieren.

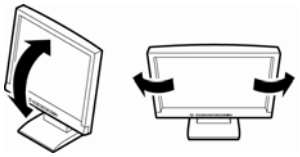
Nehmen Sie die richtige Haltung ein

Die grundlegende Körperhaltung zur Bedienung eines Computers ist es, gerade zu sitzen, wobei Ihre Hände auf der Tastatur parallel zum Boden sind und Ihre Augen leicht nach unten in Richtung Monitor schauen. Mit der oben beschriebenen richtigen Haltung wird keine unnötige Belastung auf einen Teil Ihres Körpers ausgeübt, in anderen Worten - Ihre Muskeln sind entspannter.

Das Arbeiten am Computer in einer schlechten Haltung , wie krummes Sitzen oder wenn man sich zu nah am Monitor befindet, kann zu Ermüdung oder nachlassendem Sehvermögen führen.

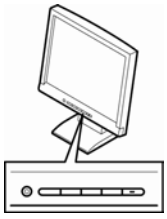
Stellen Sie den Winkel Ihres Displays ein

Die meisten Display-Einheiten wurden zur Einstellung von horizontalen und vertikalen Winkeln entwickelt. Diese Einstellung ist wichtig, um den Bildschirm davor zu bewahren, dass er helles Licht reflektiert und damit die Inhalte des Displays gut zu sehen sind. Das Arbeiten ohne Einstellung des Displays mit einem bequemen Winkel macht es schwierig für Sie, eine richtige Haltung zu bewahren und Sie werden schneller müde. Stellen Sie den Blickwinkel vor dem Gebrauch ein.



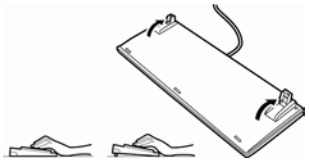
Stellen Sie die Helligkeit und den Kontrast des Displays ein

Display-Bildschirme haben Funktionen, um die Helligkeit und den Kontrast zu steuern. Der passendste Helligkeit/Kontrast hängt von Ihrem Alter, individuell und die Umgebung ab, also stellen Sie ihn so ein, wie Sie es angenehm empfinden. Ein zu heller oder zu dunkler Bildschirm ist schlecht für Ihre Augen.



Stellen Sie den Winkel Ihrer Tastatur ein

Einige Tastaturen sind ergonomisch designt, was es möglich macht, dass der Winkel angepasst werden kann. Die Einstellung des Winkels der Tastatur ist effektiv, um die Spannung in Ihren Schultern, Armen und Fingern zu reduzieren.



Reinigen Sie Ihre Geräte

Es ist wichtig, dass Sie Ihre Geräte sauber halten, nicht nur wegen der äußeren Erscheinung sondern auch zur Erhaltung der Funktionalität und aus Sicherheitsgründen. Ein staubiger Monitor macht es schwierig, die Inhalte des Displays zu sehen, also reinigen Sie ihn regelmäßig.

Machen Sie Pausen

Wenn Sie sich müde fühlen, machen Sie eine Pause. Es wir auch leichte Gymnastik empfohlen.

Consejos para su salud y su seguridad

El uso prolongado de un ordenador puede afectar a distintas partes del cuerpo. Le ofrecemos algunos consejos que debería seguir cuando trabaje en un ordenador, para minimizar la tensión ejercida sobre el cuerpo.

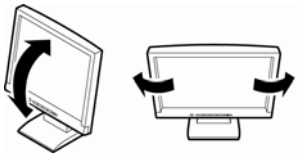
Mantener una postura correcta

La posición corporal básica para utilizar un ordenador consiste en sentarse con la espalda recta, las manos en el teclado en paralelo con el suelo y los ojos dirigidos levemente en dirección descendente, hacia el monitor. Con la postura correcta descrita anteriormente, no se ejerce una tensión innecesaria sobre ninguna parte del cuerpo. En otras palabras, los músculos están relajados.

Trabajar en el ordenador adoptando una postura incorrecta como, por ejemplo, encorvando la espalda o acercándose demasiado al monitor, podría producir fatiga y problemas de visión.

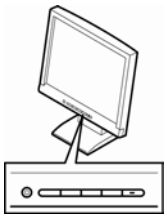
Ajustar el ángulo de la pantalla

La gran mayoría de unidades de pantalla están diseñadas para poder ajustar el ángulo horizontal y el vertical. Este ajuste es importante para evitar que la pantalla refleje las luces brillantes, así como para facilitar el visionado del contenido. Trabajar sin ajustar la pantalla a un ángulo que resulte cómodo, dificulta poder mantener una postura correcta y produce cansancio. Ajuste el ángulo de visión antes de utilizar el ordenador.



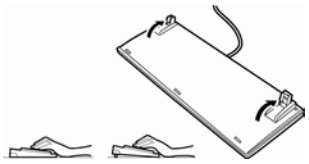
Ajustar el brillo y el contraste de la pantalla

Las pantallas disponen de funciones que permiten controlar el brillo y el contraste. El brillo/contraste más adecuados depende de la edad, la persona y el entorno, por lo que deberá ajustarlo según sus preferencias. Una pantalla demasiado brillante o demasiado oscura resulta perjudicial para los ojos.



Ajustar el ángulo del teclado

Algunos teclados están diseñados ergonómicamente, lo que permite ajustar el ángulo. El ajuste del ángulo del teclado resulta efectivo para reducir la tensión en los hombros, los brazos y los dedos.



Limpiar el equipo

Mantener limpio el equipo es importante, no solo para el aspecto del mismo sino también por motivos funcionales y de seguridad. Un monitor polvoriento dificulta ver el contenido de la pantalla; límpielo regularmente.

Descansar

Cuando se sienta cansado, descanse. Se recomienda, también, realizar ejercicios suaves.

健康小贴士

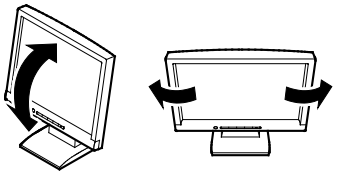
连续长时间使用计算机，可能会使身体的各个部位出现异常。使用计算机时，请注意以下几点，以减轻身体的负担。

保持良好的坐姿

使用计算机时您应该保持如下的良好姿势：挺直腰背坐在椅子上，调整键盘高度以使两手能够保持与地面平行，注视画面的视线应该从眼睛的高度略微向下。如果采用良好的姿势，身体的任何部位都不用施加多余的力，也就是说，这是最能够减少肌肉紧张的姿势。
不好的操作姿势：如果弯腰曲背，脸离显示器很近，这种状态下工作会造成疲劳和视力下降。

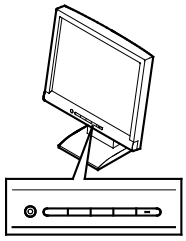
调整显示器的角度

显示器角度大多可上下、左右调节。为防止耀眼强光射入画面、保持显示内容清晰，调节显示器的角度必常重要。如果不调节角度，在不易观看的角度下工作，则无法保持良好坐姿，很容易疲劳。因此，使用前，为便于观看，请调整好显示器的角度。



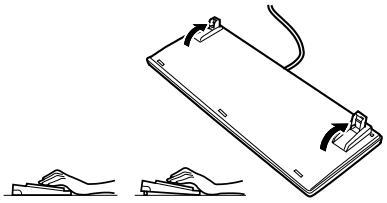
调整画面亮度和对比度

显示器具有调节亮度（辉度）和对比度的功能。根据年龄、个人差异以及环境的明亮程度不同，画面的最佳亮度、对比度也有所不同，请根据具体情况将画面调节到易于观看的状态。画面过亮、过暗都会对眼睛产生不良影响。



调整键盘的角度

选配的键盘有些被设计为可以调节角度。将键盘角度调节到适合输入的状态可以有效减轻肩、手臂和手指的负担。



保持设备的清洁

不仅是外观，从功能和安全角度来看保持设备清洁也很重要。尤其是显示器的画面，沾有灰尘等污垢时会不容易看清显示内容，需要定期清理。

累了要及时休息

建议您在感觉到疲惫时适当地休息，可以做做简单的体操，来转换一下心情。

健康小貼士

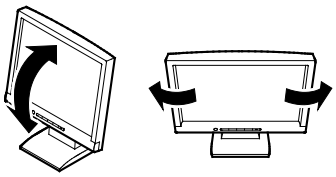
連續長時間使用計算機，可能會使聖體各個部位出現異常。使用計算機時，請注意以下幾點，以減輕身體負擔。

保持良好的坐姿

使用計算機時您應該保持如下的良好姿勢：挺直腰背坐在椅子上，調整鍵盤高度以使兩手能夠保持與地面平行，注視畫面的視線應該從眼睛的高度略微向下。如果採用良好的姿勢，身體的任何部位都不用施加多餘的力，也就是說，這是最能夠減少肌肉緊張的姿勢。
不好的操作姿勢操作姿勢：如果彎腰曲背，臉離顯示器很近，這種狀態下工作會造成疲勞和視力下降。

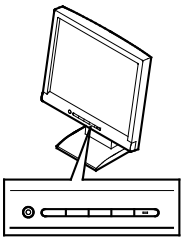
調整顯示器的角度

顯示器角度大多可上下、左右調節。為防止耀眼強光射入畫面、保持顯示內容清晰，調節顯示器的角度必常重要。如果不調節角度，不易觀看的角度下工作，則無法保持良好坐姿，很容易疲勞。因此，使用前為便於觀看，請調節顯示器的角度。



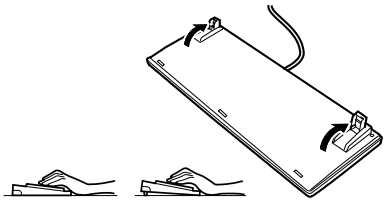
調整畫面亮度和對比度

顯示器具有調節亮度（輝度）和對比度的功能。根據年齡、個人差異以及環境的明亮程度不同，畫面的最佳亮度、對比度也有所不同，請根據具體情況將畫面調節到易於觀看的狀態。畫面過亮、過暗都會眼睛產生不良影響。



調整鍵盤的角度

選配的鍵盤有些被設計為可以調節角度。將鍵盤角度調節到適合輸入的狀態可以有效減輕肩、手臂和手指的負擔。



保持設備的清潔

不僅是外觀，從功能和安全角度來看保持設備清潔也很重要。尤其是顯示器的畫面，沾有灰塵等污垢時會不容易看清顯示內容需要定期清理。

累了要及時休息

建議您在感覺到疲憊時適當地休息，可以做做簡單的體操，來轉換一下心情。

NEC Express5800 Series

Express5800/A1040c, A2040c,
A2020c, A2010c

1

General Description

This chapter describes the features of the server and points that the customer needs to understand at introducing the server.

1. Introduction

2. Accessories

Verify the condition of your server's accessories.

3. Standard Features

This section describes the server’s features and the system management.

4. Introducing the Server

This section describes points and advices for reference that the customer needs to understand when introducing the server.

5. Names and Functions of Components

This section describes the name of each component contained in this server.

1. Introduction

Thank you for purchasing this NEC Express5800 Series product.

This high performance server is powered by the latest microprocessor "Intel® Xeon® processor".

NEC's latest technology and architectures realize high-power and high-speed operation that cannot be matched by existing servers.

The server is designed with consideration of not only reliability but also expandability, which enables you to use it as an enterprise server.

Read this document before using the server thoroughly to fully understand handling of Express5800 Series Server and appreciate its functions to the maximum extent.

2. Accessories

The carton box contains various accessories which are required for setup or maintenance. **Make sure you have them all** for future use.

- Rack-mount kit
- EXPRESSBUILDER [*1]
- SUV cable
- Getting Started
- Codeword notification (only for COPT-supported models)
- TeDoLi (System diagnostic tool stored in CD)

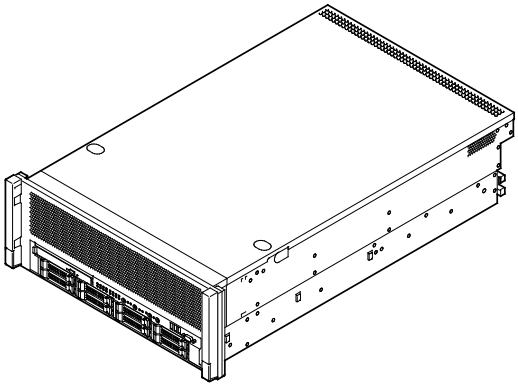
[*1] Documents are stored in EXPRESSBUILDER. Adobe Reader is required to read the documents so make sure you have it installed in your PC.

Make sure you have all accessories and inspect them. If an accessory is missing or damaged, contact your sales representative.

3. Standard Features

The server has the following standard features:

(★: Feature depending on server model or OS)



High Performance

- Intel® Xeon® Processor E7-8800/4800 v3 Product Family
- Intel® Turbo Boost Technology feature
- Intel® Hyper Threading Technology feature
- High-speed memory access (DDR4 1866 supported)
- High-speed disk access (SAS 12Gbps supported)

High Reliability

- MCA recovery (processor) system *1 ★
- Degradation of processor core on which occurrence of frequent minor failure is suspected *4 ★
- Periodic diagnosis on processor core in offline state *2 ★
- Processor core online feature *4 ★
- Sparing of processor core on which occurrence of frequent minor failure is suspected *4 ★
- Memory monitoring (error correction/error detection)
- Memory degradation (logical isolation of a failed device)
- Memory SDDC/DDDC feature
- Memory mirroring, memory LockStep, memory sparing features
- Memory scrubbing feature
- DDR4 recovery feature
- Mirroring in a partial memory address area *4 ★
- Degradation of memory on which occurrence of frequent minor failure is suspected *7 ★
- Redundant I/O card
- Hot-add / Hot-remove of I/O card *5 ★
- I/O error recovery *4 ★
- Advanced Mission Critical I/O Failover *4 ★
- Mission Critical I/O Failover (Windows) *6 ★
- RAID System (Disk Array) (An option card is required)
- Auto rebuild feature (hot swapping supported)
- Temperature detection

- Error detection
- Internal voltage monitoring feature
- Internal fan monitoring feature
- Power redundant feature (hot plug supported)
- Redundant cooling fan (hot plug supported)
- BMC Failover feature(replace role of standby BMC with that of master BMC at occurrence of master BMC error) *3 ★
- BIOS password feature

Management Utilities

- Server management software (NEC ESMPRO product)
- Remote controlling feature (EXPRESSSCOPE Engine SP3)
- RAID System management utility (Universal RAID Utility)
- Hard disk drive monitoring
- Power supply monitoring

Power saving and noiseless design

- Processor throttling feature
- Memory throttling feature
- Dynamic CKE feature
- Selection of power unit appropriate to environment, work load, and configuration
- Power consumption monitoring feature
- Power control feature
- 80 PLUS® Platinum certified high efficiency power supply
- Fan control appropriate to environment, work load, and configuration
- Enhanced Intel SpeedStep® Technology supported
- Disabling hardware component
- Disabling interface

Expandability

- Can upgrade to multi-processor system ★
  Up to 4 processors can be installed (A1040c/A2040c model only)
- Large capacity memory ★
  A1040c/A2020c/A2040c: Up to 4TB, A2010c: Up to 2TB
- I/O option slots ★
  A1040c/A2020c/A2040c: 16 slots, A2010c: 9 slots
- Hard disk drive bay: 8 slots
- Management LAN port ★
  A1040c: 1 port, A2010c/A2020c/A2040c: 2 ports
- USB2.0 interface (Front: 3 ports, rear: 1 port, internal: 1 port)

Ready to use

- No cable connection is required to install a hard disk drive and additional power supply unit (hot plug supported).

Many built-in Features

- Redundant power supply system supported
- Software power-off
- Remote power-on feature
- AC-Link feature
- Remote console feature
- Connector for display unit provided on front panel
- Baseboard Management Controller (BMC) conforming to IPMI v2.0
- Error device notification using BID (Built-In Diagnostics)

Self-diagnosis

- Power On Self-Test (POST)
- Test and Diagnosis (T&D) utility

Easy setup

- EXPRESSBUILDER (setup utility)
- BIOS Setup utility (SETUP)

Maintenance features

- Off-line Tools
- Memory dump feature using DUMP Switch
- Feature to backup and restore BIOS/BMC configuration information using EXPRESSSCOPE Profile Key

*1: Supported on A1040c/A2010c/A2020c/A2040c model, supported by all OSs

*2: Supported on A2010c/A2020c/A2040c model, supported by all OSs

*3: Supported on A2010c/A2020c/A2040c model, supported by all Oss
(As for A2010c model, after switching BMC, the server is not rebooted)

*4: Supported on model=A2040c COPT model, supported by RHEL (*8) / OLUEK (*9) OS

*5: Supported on model=A2010c/A2020c/A2040c, supported by RHEL (*8) / OLUEK (*9) / Windows OS

*6: Supported on model=A1040c/A2010c/A2020c/A2040c, supported by Windows OS

*7: Supported on model=A2010c/A2020c/A2040c, supported by RHEL (*8) OS / OLUEK (*9) and
Supported on model=A1040c/A2010c/A2020c/A2040c, supported by VMware / Windows

*8: RHEL is an abbreviation of Red Hat Enterprise Linux

*9: OLUEK is an abbreviation of Oracle Linux/Unbreakable Enterprise Kernel

3.1 Feature of Each Model

There are 4 types of models for the server.

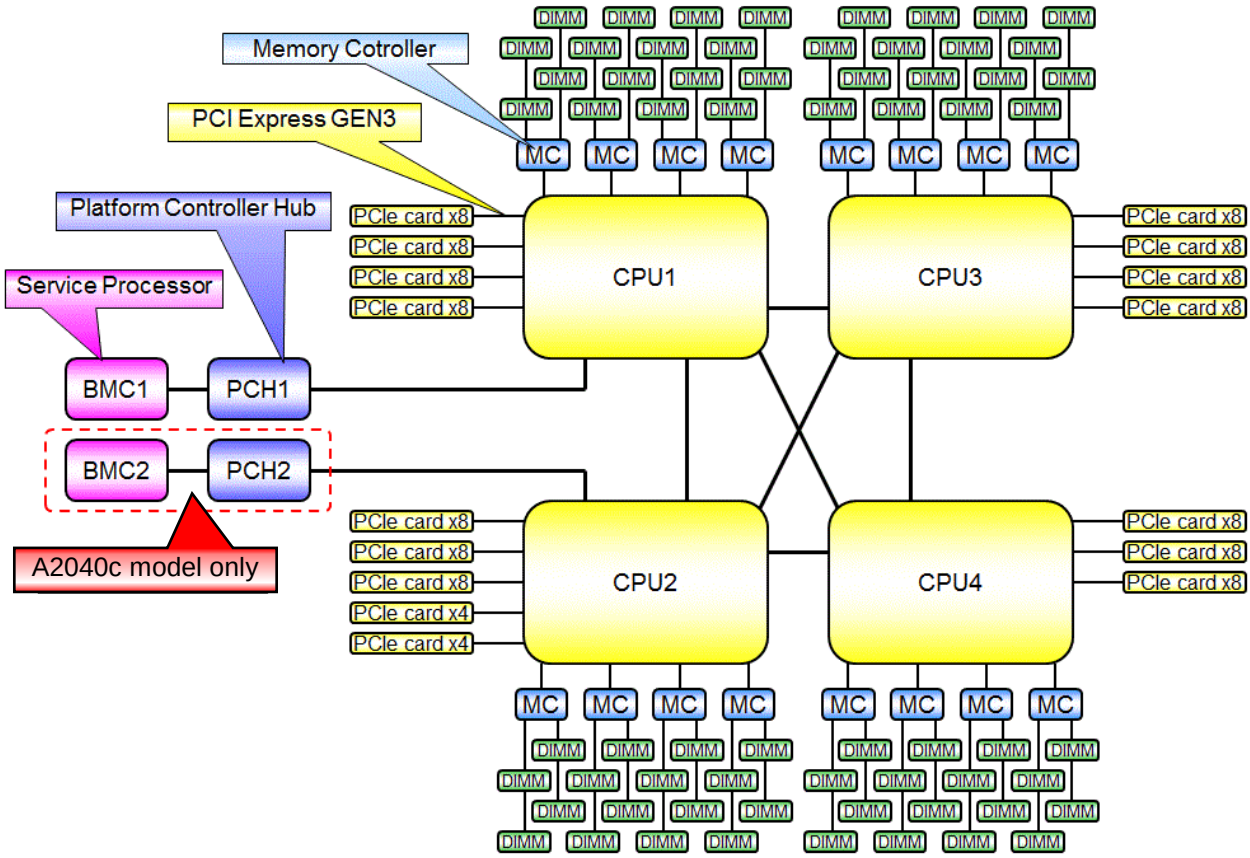
- A1040c Model
- A2010c Model
- A2020c Model
- A2040c Model

3.1.1 A1040c Model, A2040c Model

On A1040c model and A2040c model, up to 4 processors, up to 4TB (64GB*64) of memory, and 16 PCI Express Card (Gen3) (x8*14, x4*2) can be installed.

A1040c model and A2040c model are designed to improve system performance by installing CPU, memory, and I/O resources in well balance.

A1040c model and A2040c model can have maximum configuration as shown in the figure below.

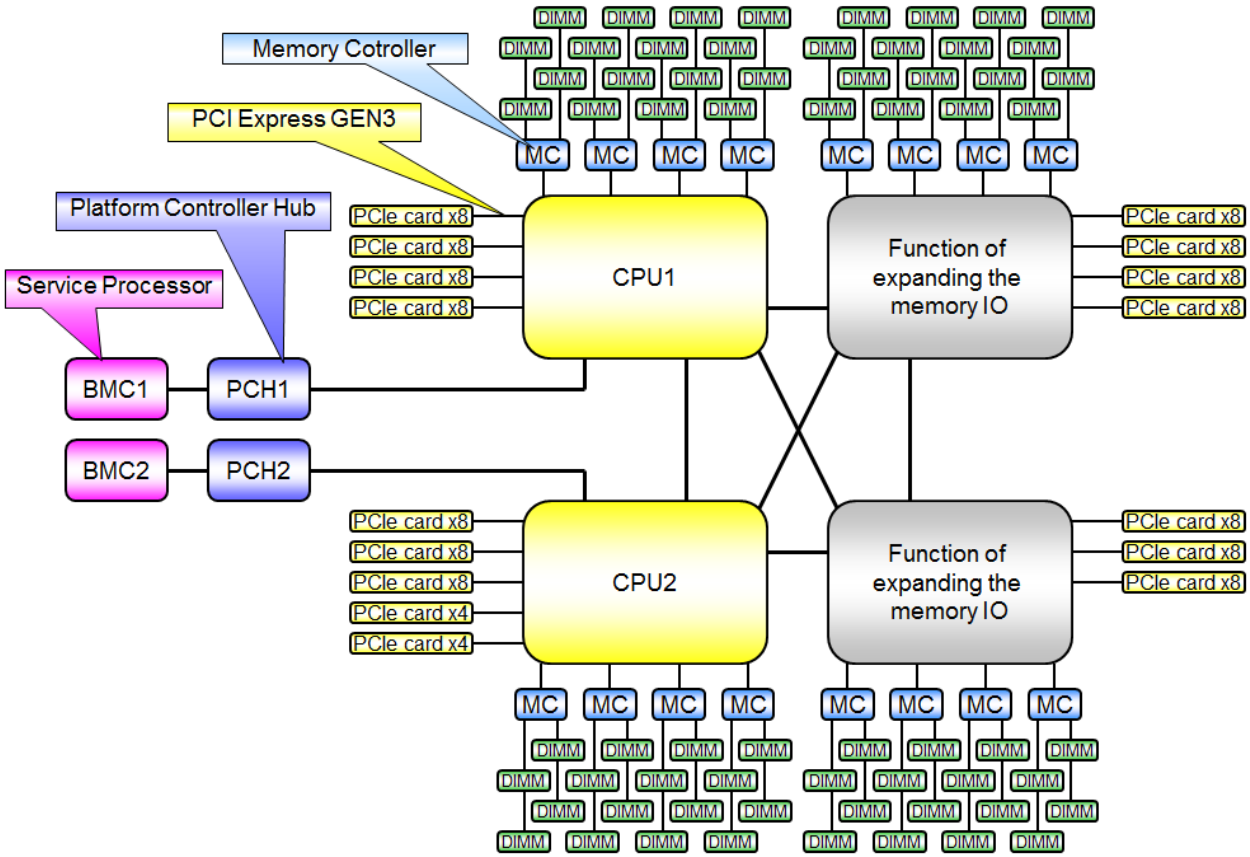


3.1.2 A2020c Model

On A2020c model, up to 2 processors, up to 4TB (64GB*64) of memory, and 16 PCI Express Card (Gen3) (x8*14, x4*2) can be installed.

A2020c model has the feature which expands the memory IO, this model can provide abundant memory capacity and PCI Express Card (Gen3) slots.

A2020c model can have maximum configuration as shown in the figure below.

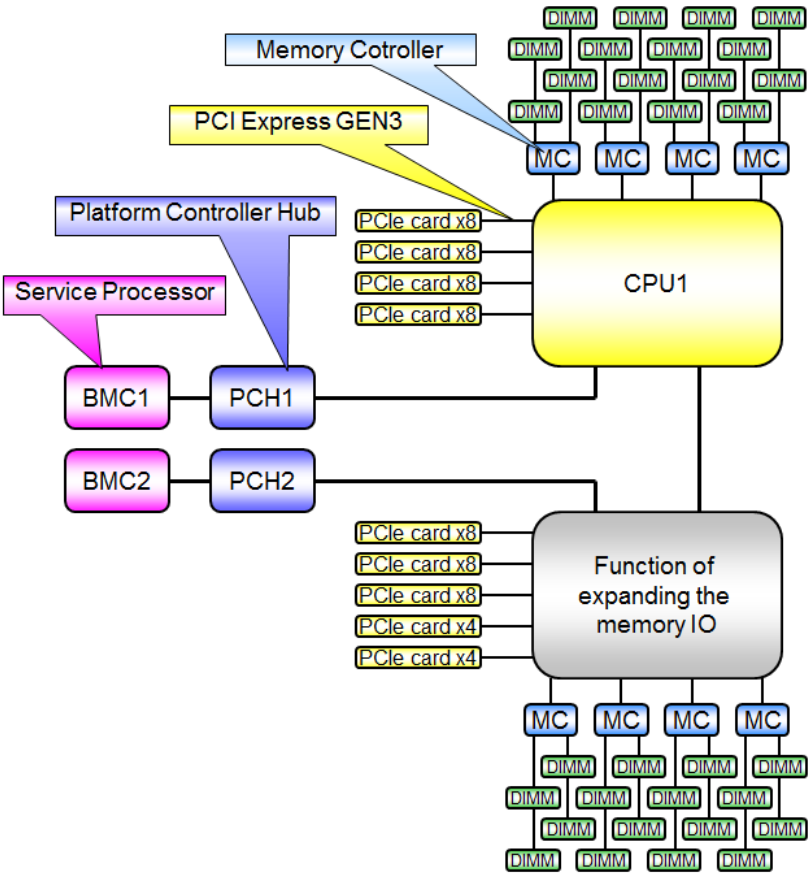


3.1.3 A2010c Model

On A2010c model, up to 1 processor, up to 2TB (64GB*32) of memory, and 9 PCI Express Card (Gen3) (x8*7, x4*2) can be installed.

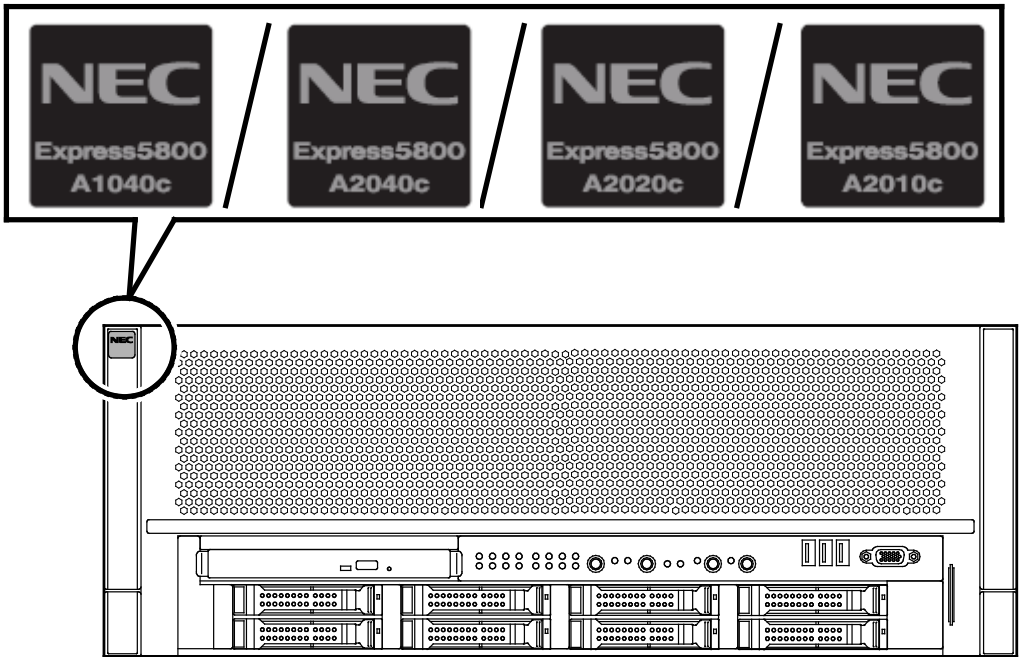
A2010c model has the feature which expands the memory IO, this model can provide abundant memory capacity and PCI Express Card (Gen3) slots.

A2010c model can have maximum configuration as shown in the figure below.



3.1.4 Checking Model Name

Check the model name of your server with the stick-on label on upper left of the front panel.



Front of the server

4. Introducing the Server

This section describes important points for introducing the server.

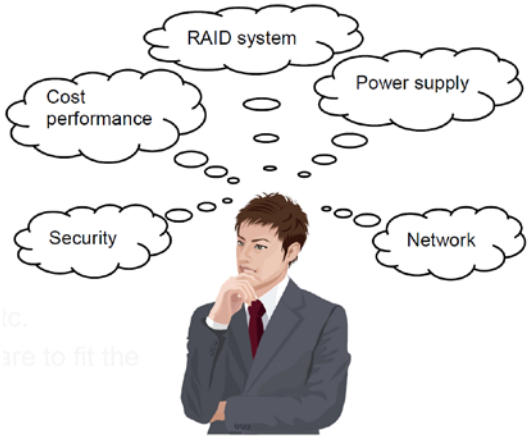
4.1 Important Points for System Configuration

Make sure to consider the following points to configure the system before starting the setup.

4.1.1 Operation Procedures

As described in Chapter 1 (3. Standard Features), the server provides various hardware features and bundled software for operation management and system reliability.

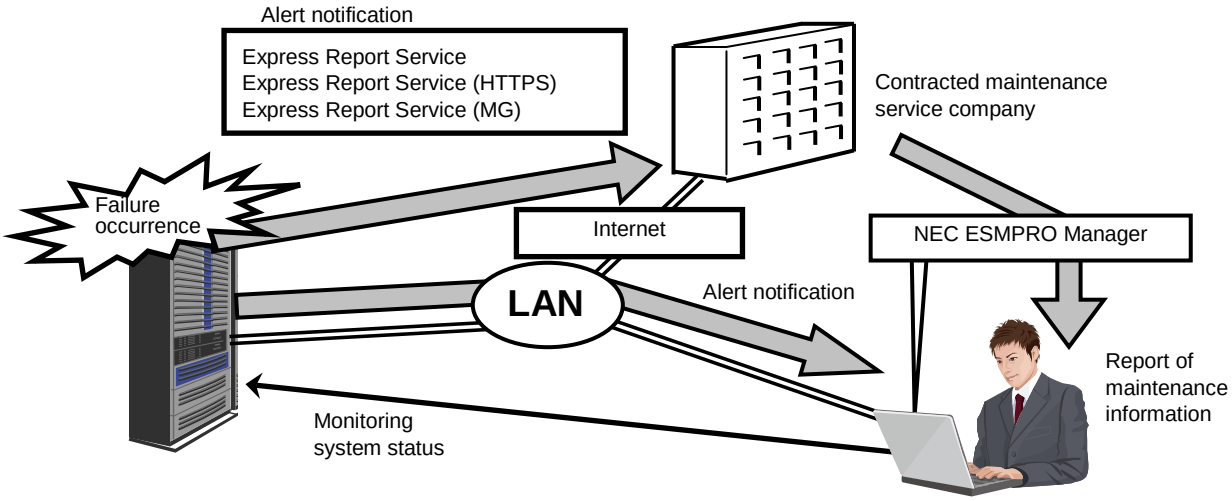
In various phases of system life cycle, consider "what hardware feature and bundled software should be used, how the system should be operated," etc.
Install and configure the necessary hardware and software to fit your purpose.



4.1.2 Operation Status/Failure Monitoring and Maintenance

The operation status and failure of the server can be monitored remotely and failures can be prevented preliminarily or recovered in a short period of time by using "NEC ESMPRO Manager" and "NEC ESMPRO ServerAgentService" "NEC ESMPRO Agent" attached to the server as standard.

Make sure to use "NEC ESMPRO Manager" and "NEC ESMPRO ServerAgentService" "NEC ESMPRO Agent" to protect the system from unexpected trouble.



You can use Express Report Service / Express Report Service (HTTPS) / Express Report Service (MG) to let your service representative receive an alert notification and maintain your server. With this service, you can monitor and maintain your Express5800 series server at low cost.

Important **In addition to Express Report Service, we recommend you setup for Email alert to recover form a failure quickly and reliably when a failure occurs. See Chapter 3 (7.7.1 BMC – (3) (a) Email Alert) for details. Also, if you use Email alert, you need to configure the management LAN. See Chapter 3 (5. EXPRESSSCOPE Engine SP3) for details.**

4.2 Notes on Configuring and Operating the System

Make sure to confirm the following points before configuring and operating the actual system.

4.2.1 Check the Shipped Status

Make sure to check the following points for shipped status of the server you purchased before introducing it.

- Hardware to be installed in the server and peripheral devices to be connected to the the server
- System and server configuration at shipment

4.2.2 Check the Setup Procedure

For configuring the system, setup of the server is a requisite point. Make sure to consider carefully which procedure for setup should be selected before setting up the server.

If unnecessary procedure is included or necessary procedure is omitted, not only the system configuring schedule lags, but also the stable operation and function of the whole system provided by the server cannot be fully realized.

(1) Considering Operation Policy and Countermeasures for Failure

Operation policy, security and countermeasures for failure differ depending on features provided by hardware of the server and the OS to be used.

Make sure to configure the system taking full advantage of features provided by hardware and software of the server described in Chapter 1 (3. Standard Features). It is recommended to consult the maintenance service company or NEC sales representative for configuring the system.

(2) Hardware Setup

Make sure to perform the setup procedure until the server can be powered on. Set up the server in the same status as when the server is operating to start "System Setup" described later. See Chapter 3 (2.2 Setup of Hardware) for details.

Hardware setup includes installing the rack, installing optional devices, connecting peripheral devices, and setting up internal parameters such as BIOS setting. Setting parameters to match your environment is one of the important procedures to take advantage of functions linking with the OS and the management software.

(3) System Setup

When the hardware setup such as installation of optional devices or BIOS setting is completed, proceed to set the hard disk drive partition, set the RAID system, and install the OS and the management software.

Refer to the *Installation Guide (Windows)* or *Installation Guide (Linux)* for details of OS or Management Software Installation.

(4) Setup for Solving Problems

Set up the server to prepare troubleshooting for identifying or resolving the cause of failure immediately. For Windows Server 2012 R2 and Windows Server 2012, refer to the following document stored in EXPRESSBUILDER provided with your server.

– Installation Guide (Windows)

(5) Installation and Setup of Management Software

Set parameters of installed software to match your hardware/network environment.

Define the management PC on a network connectable to the server and install the management and monitoring software.

Refer to *Chapter 2 (6. NEC ESMPRO)* for details.

(6) System Information Backup

Important

After changing the hardware configuration or changing the BIOS setting, back up the system information using backup/restore feature of Remote Management. See Chapter 3 (7.7.3 Backup/Restore) for details.

When the server fails and system information is lost, the status of the server can be recovered to the status before the failure by restoring the backed up information.

4.2.3 Using Operation Management Features

To perform operation management such as fault monitoring on the server, NEC ESMPRO ServerAgentService, NEC ESMPRO Agent and NEC ESMPRO Manager, or software sold separately is required. Follow the instruction of the setup procedure described in Installation Guide (Windows / Linux) or the description of the software (when sold separately) to install and provide settings.

Note the following when using operation management feature.

When Using Server Management Feature

Setting threshold values on NEC ESMPRO Manager, on NEC ESMPRO ServerAgentService and on NEC ESMPRO Agent is required depending on the monitoring items such as the usage condition of each component of the server (e.g., processor, memory, disk, and cooling fan) or the stall monitoring of OS. Refer to the descriptions of each software or online help for details.

When Using Storage Management Function

The following software is required in addition to the RAID Controller (option), NEC ESMPRO ServerAgentService and NEC ESMPRO Agent to manage the RAID system.

- When using RAID system

  Install Universal RAID Utility when using the RAID system.

  When using option board, refer to the manuals of each board for installation.

- When using backup file system

  Make sure to clean up the head of the drive periodically by the cleaning tape when using the tape drive. Dirt on the head of the drive causes reading and writing error and the data cannot be backed up or restored properly.

When Using Power Management Function

- Setting up the dedicated control software is required to use Uninterruptible Power System (UPS).
- Change the setting of the UPS to match your environment for automatic operation or automatic booting at the recovery from power failure when using the UPS.

4.3 Management Features

The server provides various features to secure the high reliability.

System failure can be prevented or recovered in a short period of time by the linkage between features provided by the hardware itself such as redundancy of each resource as well as RAID system and monitoring features provided by software such as NEC ESMPRO attached to the server.

Reliability can be further improved by using various optional products such as uninterruptible power supply unit used for preventing the server from power failure and backup device to prevent unexpected data loss.

These features are realized by hardware and software shown below.

Management area	Required hardware	Required software
Server management	Basic features of server	NEC ESMPRO Manager NEC ESMPRO ServerAgentService NEC ESMPRO Agent
Storage management • Disk management	RAID Controller	NEC ESMPRO Manager NEC ESMPRO ServerAgentService NEC ESMPRO Agent Universal RAID Utility
• Backup management	LTO, and others	ARCserve , BackupExec , NetBackup, NetVault, NetWorker
Power management	Uninterruptible power supply (UPS)	ESMPRO/AutomaticRunningController ESMPRO/AC Enterprise ESMPRO/AC Enterprise Multi-server Option
Network management	Network cards	WebSAM/Netvisor, and others
Remote management	Embedded EXPRESSSCOPE Engine SP3	NEC ESMPRO Manager NEC ESMPRO ServerAgentService NEC ESMPRO Agent

4.3.1 Storage Management

Note the following to manage the server that can install and connect a mass storage device.

(1) Disk Management

Improving the fault-tolerance of the hard disk drive can directly result in improving the reliability of the whole system.

Data loss can be prevented and the utilization of hard disk drive can be improved by setting redundancy of hard disk drive by grouping with use of optional RAID controller (disk array controller).

Important **If you are using external RAID Controller (NE3303-H004), use SMASH-CLP (command line interface of BMC) to specify "enabled" for oemnec_CoolingTimeExtension property. For details, see Chapter 3 (8.15 Viewing and Modifying Server Configuration Information).**

The RAID system management utility can monitor RAID system status totally to cope with the failure of the hard disk drive in a short period of time with the linkage of NEC ESMPRO Manager, NEC ESMPRO ServerAgentService and NEC ESMPRO Agent.

Tips Universal RAID Utility, NEC ESMPRO Manager, NEC ESMPRO ServerAgentService and NEC ESMPRO Agent are provided with the server as standard. Refer to descriptions of each software for the installation procedure or usage.

Important **Preventive maintenance by Patrol Read**

Patrol Read is available as the preventive maintenance for subsequent defects of hard disk drive. This allows subsequent defects to be found in early stage.

Features of RAID Controller	Description
RAID Level	6Gbps SAS HW RAID 0/1/5/6/10/50/60 6Gbps SAS SW RAID 0/1/10
Hot Plug	Hard disk drive can be replaced while the system is operating.
Auto Rebuild	After replacing the failed hard disk drive with the new one, this feature restores the data automatically which the failed hard disk saved by acquiring data from other hard disk drives.
Hot Spare	This is a feature to prepare an extra hard disk drive preliminary to replace a failed hard disk drive. By preparing the hot spare, the rebuilding feature is activated automatically when a failure occurs and RAID system is recovered.

(2) Backup Management

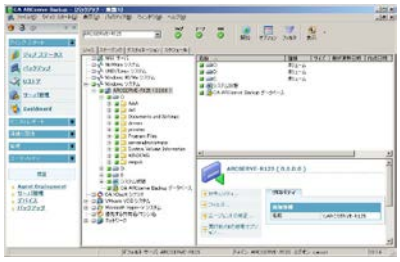
Periodical backup is the most basic provision for an unexpected server failure.

Devices for backup and various software for auto-backup are provided for the server. Use them appropriately to your environment such as disk capacity, transmitting speed or backup schedule setting.

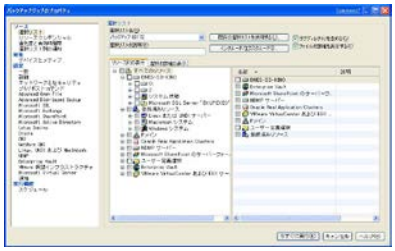
Device Name	Description
LTO	This is high performance backup device for large-scale system such as mission critical operations.

Software Name	Description
ARCserve (CA)	This is backup tool of PC server. This operates by schedule and is available for assembled backup device and DB online backup.
BackupExec (Symantec)	This is backup tool of PC server. The same tape format as NTBackup is used. This operates by schedule and is available for assembled backup device and DB online backup.
NetBackup (Symantec)	This is superior backup tool of BackupExec which realizes integrated control/management in a heterogeneous platform environment. This is available for large scale system such as mission critical operations. This supports open file backup and Disaster Recovery as standard. This is available for DB online backup.
NetVault (BakBone)	This is backup tool of PC server. This is used on Linux/Windows and available for device of schedule management and assembled backup device, and DB online backup.
NetWorker (EMC)	This is available for small to large scale system and realizes integrated backup system in a multi-platform environment. This enables backup and restoration of Oracle, SQLServer and NAS. In addition, this is available for every type of backup environment, including virtualized environment such as Hyper-V and clustering of backup server.

ARCserve

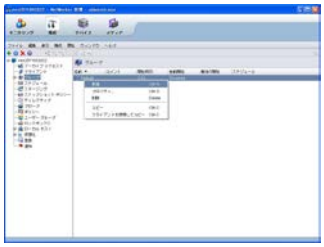


BackupExec



NetBackup

Networker



NetVault

4.3.2 Power Management

Failure of commercial power supply is one of major causes of system stop.

In addition to power failure and temporary blackout, voltage reduction, electrical overload power distribution, failure in power facility, etc. may cause system failure.

Uninterruptible Power System (UPS) automatically supplies power from the battery when voltage of commercial power supply starts dropping because of power failure or temporary blackout and thus prevents the system from being stopped. System administrator can save files and perform necessary processes while power is supplied. UPS also reduces the variation of voltage and electric current and extends lifespan of the power device, resulting in contributing to increasing the mean time between failures (MTBF). This can also achieve automatic and unattended operation by schedule.

4.3.3 Network Management

By using NEC ESMPRO Manager, NEC ESMPRO ServerAgentService and NEC ESMPRO Agent, error packet of LAN connected to the server can be monitored. By using separately sold WebSAM/Netvisor of Windows version, the entire network can be managed.

4.3.4 Remote Management

By using EXPRESSSCOPE Engine SP3 and NEC ESMPRO Manager provided with the server as standard, the remote monitoring and management of the server through LAN or WAN can be performed.

EXPRESSSCOPE Engine SP3 is realized by using the LSI for system management. The following management features are provided by EXPRESSSCOPE Engine SP3.

- Monitoring power supply unit
- Monitoring temperature, voltage, fan, and electric power
- Generating System Event Log (SEL) at hardware failure
- Monitoring OS stall by watchdog timer
- Notification process after OS stop error occurred
- Remote control using web browser (resetting server, power-ON/OFF, checking system event log(SEL))
- Remote KVM feature
- Remote control and central management of multiple servers by NEC ESMPRO Manager through LAN/WAN, and remote KVM feature

See Chapater 3 (5. EXPRESSSCOPE Engine SP3) for details of remote control using web browser and remote KVM feature.

Tips Measured values of temperature, voltage, fan, and electric power have a margin of error. The margin may become 10% or more depending on the operation environment.

4.4 Firmware and Software Version Management

By using EXPRESSSCOPE Engine SP3, you can confirm the version of BMC FW and BIOS. Also you can update them by applying the update packages.

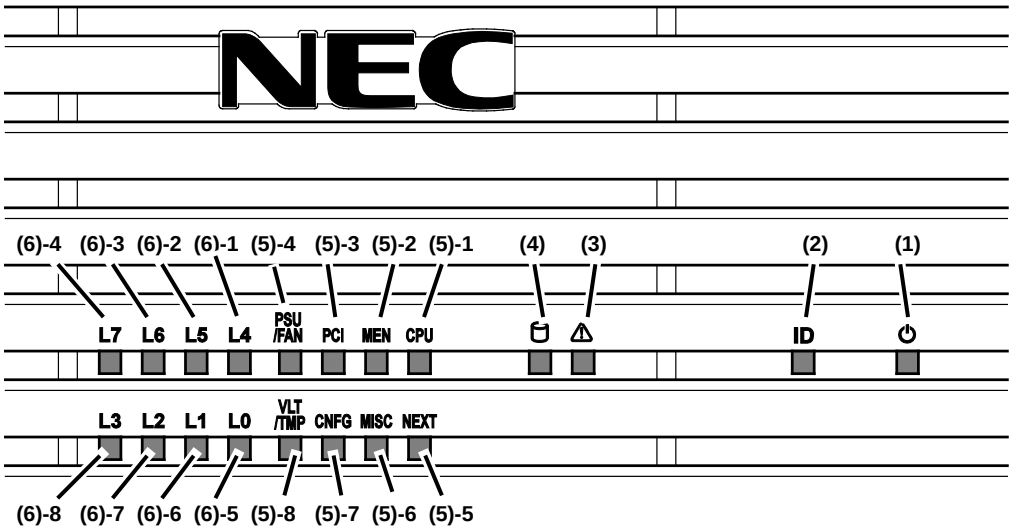
The NEC ESMPRO Manager and ExpressUpdate Agent can control the version of softwares supported by the ExpressUpdate, and update the softwares.

This feature automatically updates modules supported by ExpressUpdate without stopping the system just by specifying the update packages from NEC ESMPRO Manager.

5. Names and Functions of Components

This section describes the names of the server components.

5.1 Front View (with Front Bezel Mounted)



(1) SYSTEM POWER LED ( )

Indicates power status of server.

(See Chapter 1 (5.6.1 SYSTEM POWER LED ( ).)

(2) UID (Unit ID) LED

Used to identify the target server.

(See Chapter 1 (5.6.2 UID LED).)

(3) SYSTEM STATUS LED ( )

Indicates the system status.

(See Chapter 1 (5.6.3 SYSTEM STATUS LED ( )).)

(4) DISK ACCESS LED ( )

Indicates access status of all hard disk drives.

(See Chapter 1 (5.6.4 DISK ACCESS LED ( )).)

(5) FRU LED

Indicate failed component. Details are as follows:

(5)-1: CPU LED

(5)-2: MEM LED

(5)-3: PCI LED

(5)-4: PSU/FAN LED

(5)-5: NEXT LED

(See Chapter 1 (5.6.5 FRU (CPU, MEM, PCI, PSU/FAN, NEXT, MISC) LED).)

(5)-6: MISC LED

(5)-7: CNFG LED

(See Chapter 1 (5.6.6 CNFG LED).)

(5)-8: VLT/TMP LED

(See Chapter 1 (5.6.7 VLT/TMP LED).)

(6) Location LED

Indicate locations of failed component.

Details are as follows:

(6)-1: Location (#4)

(6)-2: Location (#5)

(6)-3: Location (#6)

(6)-4: Location (#7)

(6)-5: Location (#0)

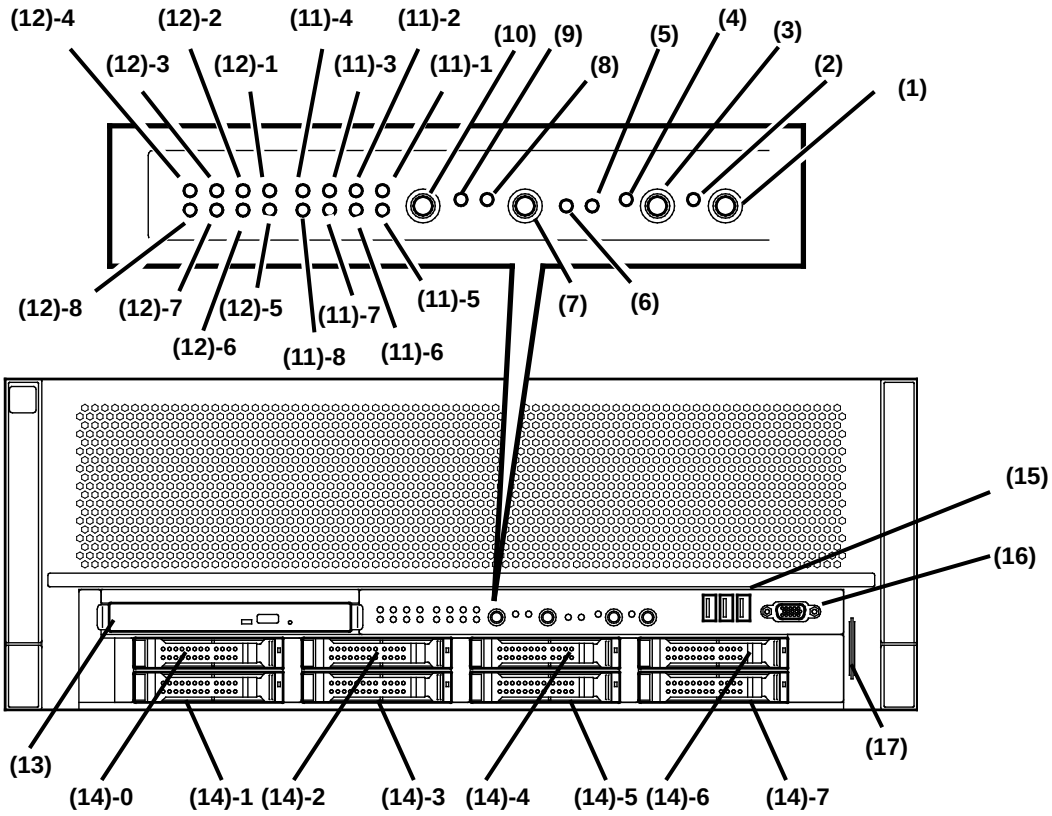
(6)-6: Location (#1)

(6)-7: Location (#2)

(6)-8: Location (#3)

(See Chapter 1 (5.6.8 Location LED).)

5.2 Front View (with Front Bezel Removed)



(1) SYSTEM POWER switch

Used to turn on/off the server power. Pressing this switch once powers on the server and turns on SYSTEM POWER LED. Pressing again powers off the server.

Pressing for 4 seconds or longer powers off the server forcibly.

(2) SYSTEM POWER LED

Indicates server power status.

(See Chapter 1 (5.6.1 SYSTEM POWER LED).)

(3) UID (Unit ID) switch

Used to turn on/off the UID LED at front and rear of the server. Pressing this switch once turns on UID LED. Pressing again turns off UID LED. Some software command can turn on (or blink) this UID LED.

(4) UID (Unit ID) LED

Used to identify the target server.

(See Chapter 1 (5.6.2 UID LED).)

(5) RESET switch

Used to reset the server.

(6) NMI switch

Pressing this switch starts collecting memory dump.

(7) BMC OFF switch

Pressing this switch for 4 seconds or longer shuts down BMC of the server forcibly.

(8) SYSTEM STATUS LED

Indicates system status.

(See Chapter 1 (5.6.3 SYSTEM STATUS LED).)

(9) DISK ACCESS LED

Indicates access status of all hard disk drives.

(See Chapter 1 (5.6.4 DISK ACCESS LED).)

(10) Next switch

Pressing this switch for a short time displays the next fault information. (If only one fault information exists, the display does not change. If the last information is currently displayed, the first information is displayed by pressing this switch.) Pressing this switch for 4 seconds or longer clears all fault information.

(11) FRU LED

Indicate failed component. Details are as follows:

(11)-1: CPU LED

(11)-2: MEM LED

(11)-3: PCI LED

(11)-4: PSU/FAN LED

(11)-5: NEXT LED

(11)-6: MISC LED

(See Chapter 1 (5.6.5 FRU (CPU, MEM, PCI, PSU/FAN, NEXT, MISC) LED).)

(11)-7: CNFG LED

(See Chapter 1 (5.6.6 CNFG LED).)

(11)-8: VLT/TMP LED

(See Chapter 1 (5.6.7 VLT/TMP LED).)

(12) Location LED

Indicate locations of failed component. Details are as follows:

(12)-1: Location (#4)

(12)-2: Location (#5)

(12)-3: Location (#6)

(12)-4: Location (#7)

(12)-5: Location (#0)

(12)-6: Location (#1)

(12)-7: Location (#2)

(12)-8: Location (#3)

(See Chapter 1 (5.6.8 Location LED).)

(13) Optical disk drive bay

Used to mount optical disk drive bay.

Either of the following drive can be installed.

– DVD-ROM drive

– DVD Super MULTI drive

(14) 2.5-inch hard disk drive bay

The bay where hard disk drive is installed. The last digit number indicates the corresponding slot numbers. All bays contain Dummy Trays at shipment.

(15) USB connector

Used to connect devices that support the USB interface.

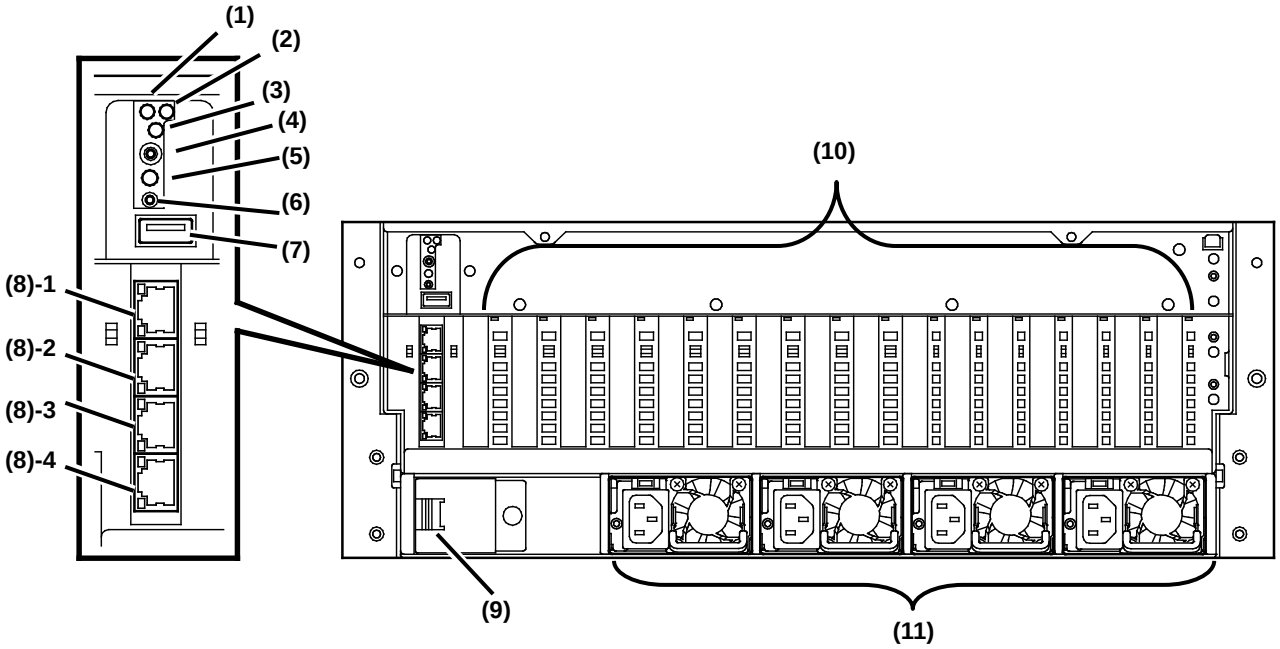
(16) VGA connector

Used to connect display unit.

(17) Slide tag

The tag in which the N code, the serial number, and the bar code of the serial number are printed.

5.3 Rear View



(1) MGB#1 Status LED

Indicates MGB (BMC) #1 status.

(See Chapter 1 (5.6.9 LEDs on RCB (Rear Connector Board)).)

(2) MGB#2 Status LED

Indicates MGB (BMC) #2 status.

(See Chapter 1 (5.6.9 LEDs on RCB (Rear Connector Board)).)

(3) UID LED

Indicates on/off status of UID LED.

(See Chapter 1 (5.6.9 LEDs on RCB (Rear Connector Board)).)

(4) UID switch

Used to turn on/off the UID LED at front and rear of the server. Pressing this switch once turns on UID LED. Pressing again turns off UID LED. Some software command can turn on (or blink) this UID LED.

(5) BMC#1 Reset switch

Used to reset BMC #1 of the server.

(6) BMC#2 Reset switch

Used to reset BMC #2 of the server.

(7) USB connector

Used to connect devices that support the USB interface.

(8) LAN connector

1000BASE-T/100BASE-TX/10BASE-T supported network connectors. The last digit number indicates the port type.

(8)-1: MGB1 Maintenance LAN

(8)-2: MGB1 Management LAN

(8)-3: MGB2 Maintenance LAN

(8)-4: MGB2 Management LAN

(See Chapter 1 (5.6.9 LEDs on RCB (Rear Connector Board)).)

(9) SUV cable connector

Used to connect devices that support serial interface and USB interface, and display unit.

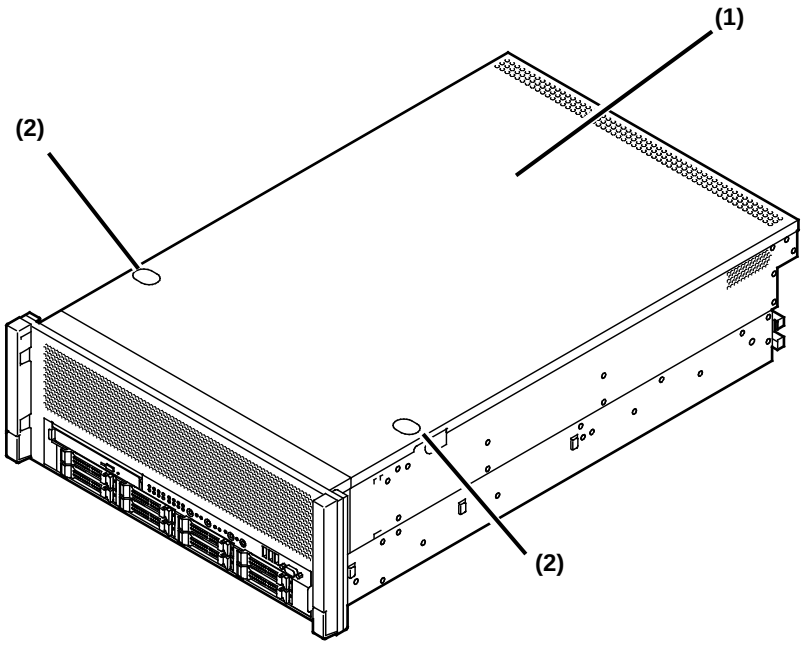
(10) PCI card slot (#1 to #16)

Used to install low-profile PCI card.
Slot number: #1 to #16 from left.

(11) Power supply unit (#1 to #4)

Supplies DC power to the server. #1 to #4 from left.

5.4 External View

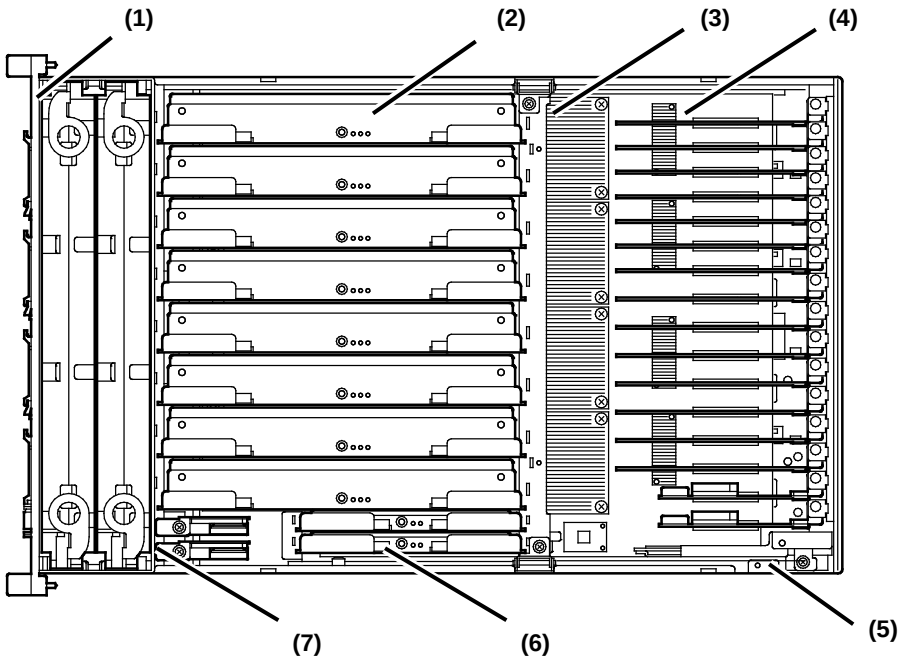


(1) Top cover

(2) Lock lever

5.5 Internal View

The duct is not shown in the figure below.



(1) Cooling fan

Two cooling fan units are factory installed. (One unit contains 4 cooling fans.)

(2) Memory riser (MR)

Up to 8 MRs can be installed in the server. One memory riser can contain up to 8 DIMMs.

(3) Processor (CPU)

To be installed under the heat sink. Up to 4 processors can be installed in the server.

(4) PCI card slot

Up to 16 low-profile PCI card can be installed.

(5) Rear connector board (RCB)

Provides connectors and LEDs.

(6) MGB (Management Board)

A1040c can have one management board, and A2040c/ A2010c/ A2020c can have two management boards.

(7) FBU (Flash Backup Unit)

Additional battery unit for RAID Controller. Up to 2 units can be installed.

For FBU, one each per a processor can be mounted on the heat sink of processor (location (3) shown in the figure above).

5.6 LED Indications

This section explains the indication and meanings of the server LEDs.

5.6.1 SYSTEM POWER LED (💡)

SYSTEM POWER LED indicates power ON/OFF status of the server.

The following table lists SYSTEM POWER LED patterns and their explanation.

SYSTEM POWER LED pattern	Explanation
On (green)	The server is powered on and operating normally.
On (amber)	BMC is being initialized. When the power cable is connected, the LED lights amber for 40 seconds. Do not power on the server while the LED is lit amber. The server can be powered on after the amber LED is unlit.
Off	The server is off-powered. The server is in halt status.

5.6.2 UID LED

UID LED is provided one each at the front and rear of the server. If you press UID Switch at the front or rear of the server, the LED lights. If you press it again, the LED goes off. It blinks when commands from software are received. This LED is used to identify the target server among multiple servers installed in a rack. Especially when performing maintenance from behind the server, lighting the LED will help you to identify which server to work with.

The following table lists UID LED patterns and their explanation.

UID LED pattern	Explanation
On (blue)	The UID switch is pressed.
Off	The UID switch is not pressed.

Tips You can let an LED to light using remote management software.

5.6.3 SYSTEM STATUS LED (⚠)

The SYSTEM STATUS LED lights in green when the system runs properly. When the SYSTEM STATUS LED is off, or lighting in amber, it indicates that some kind of error occurred in the system.

The following table lists SYSTEM STATUS LED patterns, their explanation and solution.

Tips If you have installed NEC ESMPRO, you can view error logs to check the causes of failures.

SYSTEM STATUS LED pattern	Explanation	Solution
On (green)	The server is operating normally.	–
Off	The power is off.	Turn on the server.
	POST is in progress.	SYSTEM STATUS LED will turn green after POST completes.
On (amber)	Memory dump is requested. (e.g. when DUMP Switch (NMI) is pressed) Note: It remains green if the dump is caused by software.	Wait until the memory dump is completed. After the OS shuts down, perform Clear All Faults to clear fault information. See Chapter 3 (7.9.2 Component Status Fault Information) for how to perform Clear All Faults.
	A critical event was detected other than above.	Contact your service representative.
Blinking (amber)	A temperature warning was detected.	If any obstruction is placed near the inlet port at front of the server, remove it. If the LED indication does not change, contact your service representative.
	A non critical event was detected other than above.	Contact your service representative.

5.6.4 DISK ACCESS LED (🛢)

DISK Access LED at front of the server indicates the status of internal hard disk drive. You can check the status of each hard disk drive by viewing the LED on each hard disk drive.

The following table lists DISK ACCESS LED patterns, their explanation, and solution.

DISK ACCESS LED pattern	Explanation	Solution
On (green)	Hard disk drive is being accessed.	–
On (amber)	Hard disk drive is failed.	Contact your service representative.
Blinking green and amber alternately. (only when RAID system is configured)	Rebuild is in progress.	–
Off	Hard disk drive is halted.	–

5.6.5 FRU (CPU, MEM, PCI, PSU/FAN, NEXT, MISC) LED

You can confirm the failed FRU by viewing FRU LED. (FRU is an abbreviation of Field Replacement Unit. FRUs include all parts (modules/units) replaceable when a failure occurs and are replaced.) You can identify the failed component in detail by viewing Location LED together with FRU LED. For Location LED, see Chapter 1 (1.6.8 Location LED).

The following table lists FRU LED patterns, their explanation, and solution.

LED	LED pattern	Explanation	Solution
CPU	On (amber)	Failed FRU is processor (CPU).	Contact your service representative.
MEM	On (amber)	Failed FRU is memory riser (MR) or DIMM (including a pair).	Contact your service representative.
PCI	On (amber)	Failed FRU is PCI card.	Contact your service representative.
PSU/FAN	On (amber)	Failed FRU is PSU (power supply unit) or cooling fan unit.	Identify the failed FRU by viewing Location LED and replace it with new one. Or, contact your service representative.
NEXT	On (amber)	Two or more fault information exist, and the currently displayed information is not the last one.	–
MISC	On (amber)	Cannot identify the failed FRU specifically because the failed FRU is other than described above or two or more FRUs are faulty.	Contact your service representative.
–	Off	No fault information of FRU exists.	–

5.6.6 CNFG LED

CNFG LED indicates hardware configuration status of the server.

The following table lists CNFG LED patterns, their explanation, and solution.

CNFG LED pattern	Explanation	Solution
On (amber)	The system cannot startup with this configurataion.	Contact your service representative.
Off	The system can startup with this configurataion.	–

5.6.7 VLT/TMP LED

VLT/TMP LED indicates abnormal voltage or temperature in the server.

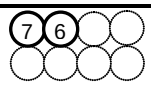
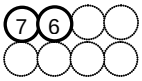
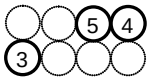
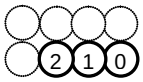
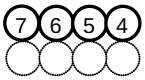
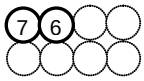
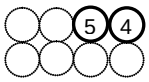
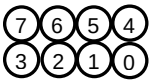
The following table lists VLT/TMP LED patterns, their explanation, and solution.

VLT/TMP LED pattern	Explanation	Solution
On (amber)	Voltage is in abnormal state.	Contact your service representative.
Blinking (amber)	Temperature is in abnormal state.	Contact your service representative.
Off	Operating normally.	–

5.6.8 Location LED

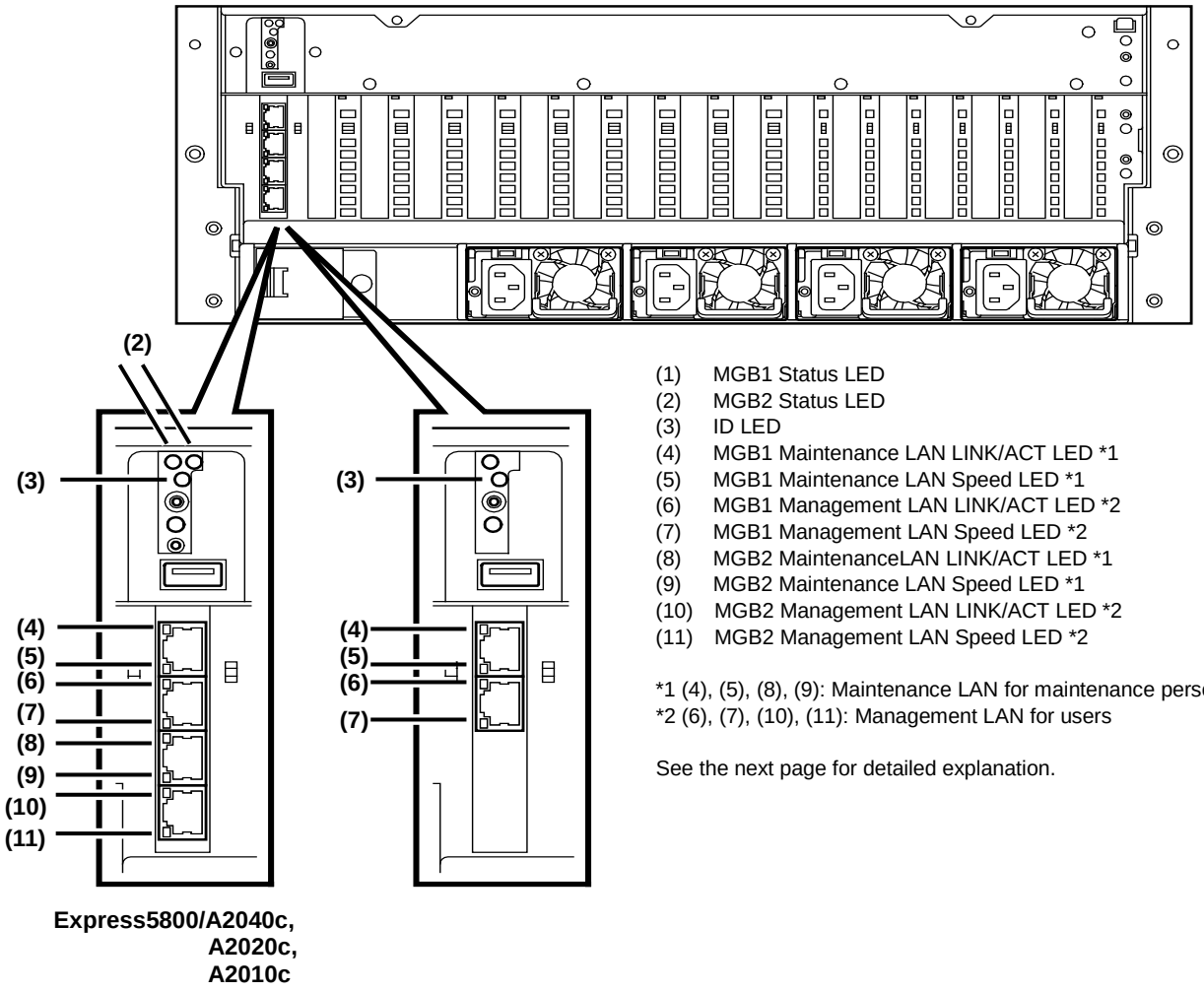
The failed FRU can be identified in detail by viewing Location LED together with FRU LED. (For FRU LED, see Chapter 1 (1.6.5 FRU (CPU, MEM, PCI, PSU/FAN, NEXT, MISC) LED).) Location LED is composed of 8 LEDs. If any of 8 LEDs are lit, the relevant FRU LED (one of CPU, MEM, PCI, PSU/FAN, MISC) also goes on at the same time.

The following table lists Location LED patterns and their explanation.

Lighting FRU LED	Location LED	LED pattern	Explanation (○: Off/ ●: On)
CPU		On (green)	Indicate the failed CPU number. ⑦⑥: CPU#1, ⑦❻: CPU#2, ❼⑥: CPU#3, ❼❻: CPU#4
MEM		On (green)	Indicates failure occurred on DIMM, PAIR, or MR. ⑦⑥: DIMM failed, ⑦❻: PAIR failed, ❼⑥: MR failed
		On (green)	At MR failure, indicates the failed MR number. ⑤④③: MR#1, ⑤④❸: MR#2, ⑤❹③: MR#3, ⑤❹❸: MR#4, ❺④③: MR#5, ❺④❸: MR#6, ❺❹③: MR#7, ❺❹❸: MR#8
		On (green)	At DIMM failure, indicates the failed DIMM number. ②①⓪: DIMM#1, ②①❿: DIMM #2, ②❶⓪: DIMM #3, ②❶❿: DIMM #4, ❷①⓪: DIMM #5, ❷①❿: DIMM #6, ❷❶⓪: DIMM #7, ❷❶❿: DIMM #8 At PAIR failure, indicates the failed PAIR number. ②①⓪: PAIR #1, ②①❿: PAIR #2, ②❶⓪: PAIR #3, ②❶❿: PAIR #4, Unused when failure occurred on MR(②①⓪).
PCI		On (green)	Indicates the PCI slot number. ⑦⑥⑤④: Slot #1, ⑦⑥⑤❹: Slot #2, ⑦⑥❺④: Slot #3, ⑦⑥❺❹: Slot #4, ⑦❻⑤④: Slot #5, ⑦❻⑤❹: Slot #6, ⑦❻❺④: Slot #7, ⑦❻❺❹: Slot #8, ❼⑥⑤④: Slot #9, ❼⑥⑤❹: Slot #10, ❼⑥❺④: Slot #11, ❼⑥❺❹: Slot #12, ❼❻⑤④: Slot #13, ❼❻⑤❹: Slot #14, ❼❻❺④: Slot #15, ❼❻❺❹: Slot #16
PSU/FAN		On (green)	Indicates that PSU (power supply unit) or SFM (cooling fan unit) is failed. ⑦⑥: PSU, ❼⑥:SFM
		On (green)	At PSU failure, indicates the PSU (power supply unit) number. ⑤④: PSU#1, ⑤❹: PSU#2, ❺④: PSU#3, ❺❹: PSU#4 At SFM failure, indicates that SFM (cooling fan unit) number. ⑤④: SFM#1, ⑤❹: SFM#2
MISC		On (green)	Indicates the failed FRU other than above. ⑦⑥⑤④③②①⓪: BM ⑦⑥⑤④③②①❿: Battery (on motherboard) ⑦⑥⑤④③②❶⓪: FDM, ⑦⑥⑤④③②❶❿: DVD ⑦⑥⑤④③❷①⓪: MGB#1, ⑦⑥⑤④③❷①❿: MGB#2 ⑦⑥⑤④③❷❶⓪: MGB#1 Battery ⑦⑥⑤④③❷❶❿: MGB#2 Battery ⑦⑥⑤④❸②①⓪: SPI Mezz#1 ⑦⑥⑤④❸②①❿: SPI Mezz#2, ⑦⑥⑤④❸②❶⓪: RCB, ❼⑥⑤④③②①⓪: Cannot identify the failed FRU.

5.6.9 LEDs on RCB (Rear Connector Board)

This section describes the location of LEDs on rear connector board and their explanations.



Express5800/A2040c, A2020c, A2010c

(1) MGB1 Status LED
(2) MGB2 Status LED
(3) ID LED
(4) MGB1 Maintenance LAN LINK/ACT LED *1
(5) MGB1 Maintenance LAN Speed LED *1
(6) MGB1 Management LAN LINK/ACT LED *2
(7) MGB1 Management LAN Speed LED *2
(8) MGB2 MaintenanceLAN LINK/ACT LED *1
(9) MGB2 Maintenance LAN Speed LED *1
(10) MGB2 Management LAN LINK/ACT LED *2
(11) MGB2 Management LAN Speed LED *2

*1 (4), (5), (8), (9): Maintenance LAN for maintenance personnel
*2 (6), (7), (10), (11): Management LAN for users

See the next page for detailed explanation.

Important **Maintenance LAN is dedicated for maintenance personnel, not for users.**

	Explanation	Solution
(1) (2)	On (green)	MGB is operating normally.
	Blinking (green)	MGB is operating normally, and BMCFW is being booted, or being shutdown.
	On (amber)	MGB is failed.
	Blinking (amber)	MGB is failed, and BMCFW is being booted, or being shutdown.
	Off	MGB is in halt state.
(3)	On (blue) or blinking (blue)	The UID switch is pressed.
	Off	The UID switch is not pressed.
(4) (6) (8) (10)	On (green)	The port is connected with network normally.
	Blinking (green)	The port is accessing the network.
	Off	The port is disconnected from network.
(5) (7) (9) (11)	On (yellow)	The port is operating with 1000BASE-T.
	On (green)	The port is operating with 100BASE-TX.
	Off	The port is operating with 10BASE-T.

Supplementary note

LINK/ACT LED (1, 2, M1, M2) : (4), (6), (8), (10)

LINK/ACT LED indicates the status of LAN port. This LED lights in green (LINK) while electrical power is supplied to the server and HUB and they are connected normally. This blinks in green (ACT) while the network port is transmitting/receiving.

Check the network cable status and cable connection status if the LED does not light even in the LINK state. The network (LAN) controller may have failed if the LED does not still light. Contact your service representative.

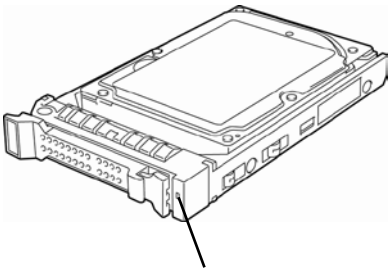
SPEED LED (1, 2, M1, M2) : (5), (7), (9), (11)

This LED indicates which of network interfaces is used for the network port.

Lighting in yellow indicates that network port is operating at 1000Mbps. Lighting in green indicates that network port is operating at 100Mbps. When network port is operating at 10Mbps, this LED is off.

5.6.10 LED on hard disk drive

Each hard disk drive has an LED.



The following table lists Hard disk drive LED patterns, their explanation, and solution.

Hard disk drive LED pattern	Explanation	Solution
On (green)	Hard disk drive is being accessed.	–
On (amber)	Hard disk drive is failed.	Contact your service representative.
Blinking green and amber alternately. (only when RAID system is configured)	Rebuild is in progress. When the failed hard disk drive is replaced, rebuild process starts automatically (auto rebuild feature).	–
Off	Hard disk drive is not accessed.	–

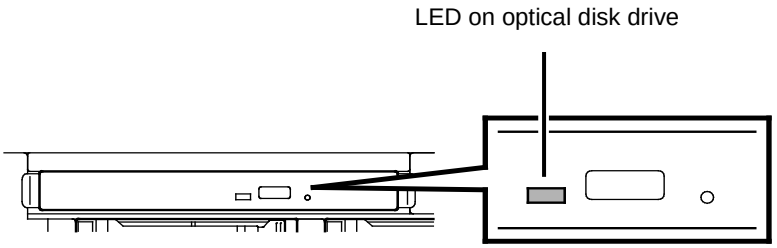
Important

Observe the following when you use the auto rebuild feature.

- **Do not turn off or reboot the server while hard disk drives are being rebuilt.**
- **Wait at least 90 seconds before installing a hard disk drive after removing one.**
- **Do not replace any hard disk drive while another hard disk drive is being rebuilt.**

5.6.11 LED on optical disk drive

The LED on optical disk drive blinks when a disk is being accessed.

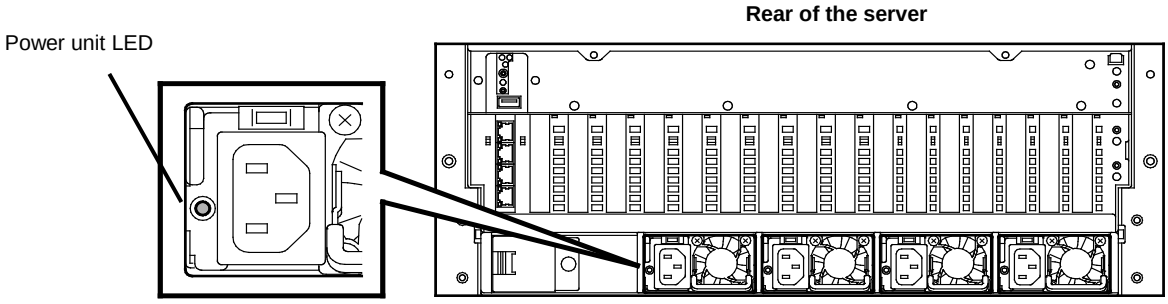


The following table lists optical disk LED patterns and their explanation.

Optical disk drive LED pattern	Explanation
Blinking (green)	Optical disk drive is being accessed.
Off	Optical disk drive is not accessed.

5.6.12 Power unit LED

The Power unit LED indicates power supply status of power unit.



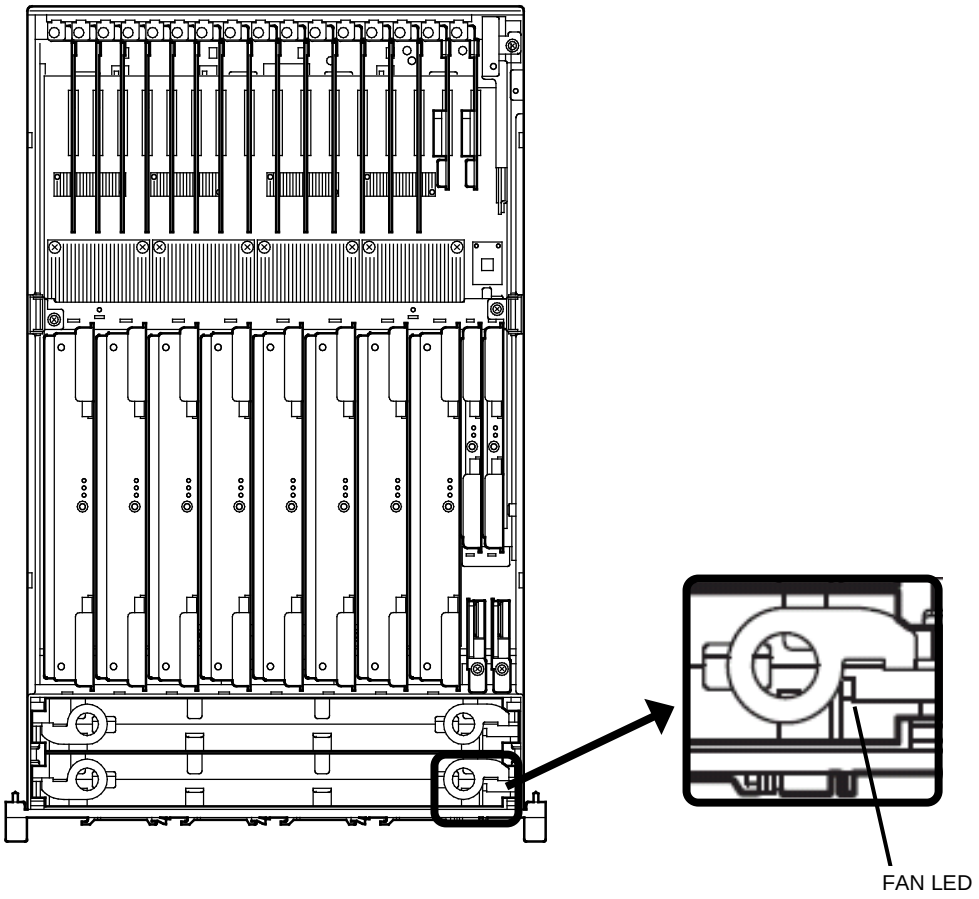
The following table lists Power Unit LED patterns and their explanation.

Power Unit LED pattern	Explanation	Solution
On (green)	The server is powered on.	–
Blinking (green)	The power cable is connected and AC power is supplied (DC power is off).	–
On (amber)	The power cable is not connected to power unit in redundant power configuration.	–
	Power unit is failed.	Contact your service representative.
Blinking (amber)	Power unit is failed.	Contact your service representative.

5.6.13 Cooling Fan LED

If a cooling fan fails, the LED on relevant fan lights amber. The failed fan can be replaced with new one by hot plugging.

- Do not remove any cooling fan that is working normally. If any cooling fan fails, replace it with new one immediately or ask your service representative to replace it.
- Do not remove the failed fan until it is replaced with new one. When removing the failed fan, install the healthy cooling fan within 60 seconds after removal.



The following table lists FAN LED patterns and their explanation.

FAN LED pattern	Explanation
Off	The cooling fan works normally.
On (amber)	The cooling fan is faulty.

NEC Express5800 Series

Express5800/A1040c, A2040c, A2020c, A2010c

2

Preparations

This chapter describes preparations for using this server.

1. **Installing / Removing Internal Options**
   You can skip this section if you did not purchase any optional devices.

2. **Installation and Connection**
   You must place the server in a suitable location and connect some cables following this section.

1. Installing / Removing Internal Options

This section describes the instructions for installing supported optional devices and precautions.

If you did not purchase any optional device requiring installation, you may skip this section.

Important

- **Optional devices described in this chapter may be installed or removed by any user. However, NEC does not assume any liability for damage to optional devices or the server or malfunctions of the server resulted from installation by the user. NEC recommends you ask your service representative for installing or removing any optional devices.**
- **Use only the devices and cables specified by NEC. You will be charged to repair damages, malfunctions, and failures caused by the use of any devices or cables not specified for use with this server even within the warranty period.**

Important

- **It is required to set the maintenance mode to prevent Alert Report during the operation when mounting optional products/replacing components. Clear the maintenance mode setting after the operations. The maintenance mode can be set and cleared from Web Console.**
- **Ensure to clear the maintenance mode after the operations. If it is not cleared, this setting is cleared automatically 6 minutes (default) after the setting.**
- **Alert notification is sustained if you are under contract for the maintenance of Report Service. Note that a failure occurred before the setting is cleared automatically is not reported if the maintenance mode is not cleared after the operation.**

1.1 Safety Precautions

Observe the following precautions to install and remove optional devices properly and safely.

WARNING

Be sure to observe the following precautions to use the server safety. Failure to observe the precautions may cause death or serious injury. For details, refer to *Safety precautions* in *Precautions for Use*.

- **Do not disassemble, repair, or modify the server.**
- **Do not remove the lithium battery, NiMH battery, or Li-ion battery.**

CAUTION

Be sure to observe the following precautions to use the server safely. Failure to observe the precautions may cause burns, injury, and property damage. For details, refer to *Safety precautions* in *Precautions for Use.*

- **Do not drop**
- **Do not leave the server being pulled out.**
- **Make sure to complete installation.**
- **Do not install with the cover removed.**
- **Do not get your fingers caught.**
- **Pay attention to hot surface**
- **Electrical shock**

Conformez-vous aux consignes suivantes pour installer ou désinstaller des périphériques optionnels correctement et en toute sécurité.

AVERTISSEMENT

Conformez-vous aux instructions suivantes pour utiliser le serveur en toute sécurité. Le non-respect de ces instructions risque de vous blesser mortellement ou sérieusement. Pour plus de détails, consultez *Mesures de sécurité* dans *Précautions d'utilisation*.

- **Ne démontez pas, ne réparez pas et ne modifiez pas le serveur.**
- **Ne retirez pas les batteries au lithium, batteries NiMH ou les batteries Li-ion.**

ATTENTION

Conformez-vous aux instructions suivantes pour utiliser le serveur en toute sécurité. Le non-respect de ces instructions risque de provoquer un incendie, de vous blesser ou d'endommager votre équipement. Pour plus de détails, consultez *Mesures de sécurité* dans *Précautions d'utilisation*.

- **Ne le laissez pas tomber.**
- **Ne laissez pas le serveur pendant son retrait.**
- **Assurez-vous de terminer l'installation.**
- **N'installez pas le serveur avec le couvercle retiré.**
- **Faite attention à ne pas coincer vos doigts.**
- **Faites attention aux surfaces chaudes**
- **Choc électrique**

Osservare le seguenti precauzioni per installare e rimuovere dispositivi opzionali in modo corretto e sicuro.

AVVERTIMENTO

Accertarsi di osservare le seguenti precauzioni per utilizzare il server in modo sicuro. La mancata osservanza delle precauzioni può provocare lesioni gravi o mortali. Per maggiori dettagli, consultare *Precauzioni di sicurezza* in *Precauzioni per l'uso*.

- **Non smontare, riparare né modificare il server.**
- **Non rimuovere la batteria al litio, la batteria NiMH o la batteria a ioni di litio.**

ATTENZIONE

Accertarsi di osservare le seguenti precauzioni per utilizzare il server in modo sicuro. La mancata osservanza delle precauzioni può provocare ustioni, lesioni e danni materiali. Per maggiori dettagli, consultare *Precauzioni di sicurezza* in *Precauzioni per l'uso*.

- **Evitare di far cadere il server**
- **Non lasciare il server estratto.**
- **Accertarsi di completare l'installazione.**
- **Non installare con il coperchio rimosso.**
- **Prestare attenzione a non schiacciarsi le dita.**
- **Prestare attenzione alle superfici calde**
- **Shock elettrico**

Beachten Sie die folgenden Sicherheitsmaßnahmen, um die optionalen Geräte richtig und sicher zu installieren und zu entfernen.

⚠ WARNUNG

Achten Sie darauf, die folgenden Vorsichtsmaßnahmen zu beachten, um den Server sicher zu verwenden. Werden diese Vorsichtsmaßnahmen nicht beachtet, kann es zum Tod oder zu ernsthaften Verletzungen kommen. Einzelheiten finden Sie auf *Sicherheitsmaßnahmen* in *Vorsichtsmaßnahmen beim Gebrauch*.

- **Nehmen Sie den Server nicht auseinander, reparieren und modifizieren Sie ihn nicht.**
- **Entfernen Sie nicht die Lithium Batterie, NiMH-Batterie oder Li-Ionen-Batterie.**

⚠ ACHTUNG

Achten Sie darauf, die folgenden Vorsichtsmaßnahmen zu beachten, um den Server sicher zu verwenden. Werden diese Vorsichtsmaßnahmen nicht beachtet, kann es zu Verbrennungen, Verletzungen oder zu Schäden am Eigentum kommen. Einzelheiten finden Sie auf *Sicherheitsmaßnahmen* in *Vorsichtsmaßnahmen beim Gebrauch.*

- **Nicht fallen lassen**
- **Lassen Sie den Server nicht herausgezogen.**
- **Achten Sie darauf, die Installation abzuschließen.**
- **Installieren Sie den Server nicht mit entfernter Abdeckung.**
- **Klemmen Sie Ihre Finger nicht ein.**
- **Achten Sie auf heiße Oberflächen**
- **Elektrischer Schlag**

Observe las precauciones que figuran a continuación para instalar o retirar los dispositivos opcionales de forma correcta y segura.

⚠ ADVERTENCIA

Asegúrese de respetar las precauciones que figuran a continuación para utilizar el servidor de forma segura. De lo contrario, pueden producirse lesiones graves e, incluso, la muerte. Para obtener información detallada, consulte la Sección *Precauciones de seguridad* de las *Precauciones de uso*.

- **No desmontar, reparar ni modificar el servidor.**
- **No extraer la batería de litio, NiMH ni la batería de ión de litio.**

⚠ CUIDADO

Asegúrese de respetar las precauciones que figuran a continuación para utilizar el servidor de forma segura. De lo contrario, pueden producirse quemaduras, lesiones y daños a la propiedad. Para obtener información detallada, consulte la Sección *Precauciones de seguridad* de las *Precauciones de uso*.

- **No permitir las caídas.**
- **No dejar el servidor extraído.**
- **Asegurarse de completar la instalación.**
- **No instalar el servidor con la cubierta extraída.**
- **Evitar que sus dedos queden atrapados.**
- **Prestar atención a las superficies calientes.**
- **Descargas eléctricas.**

为了安全地安装和卸除选配件，请务必遵守以下的注意事项。

⚠警告

为了安全使用本设备，请务必遵守以下的注意事项。否则有导致人员死亡或者重伤的危险。详情请参阅本书【使用注意事项】的【安全注意事项】。

- 请勿自行拆卸、修理或改造
- 请勿试图拆下锂电池、镍氢电池或锂离子电池

⚠注意

为了安全使用本设备，请务必遵守以下的注意事项。否则有导致烧伤、其它伤害或财产损失的危险。详情请参照本书【使用注意事项】的【安全注意事项】。

- 注意掉落
- 将设备抽取出来后请及时放回原处
- 确保连接稳固
- 请勿在拆掉盖板的状态下进行安装
- 请注意不要夹伤手指
- 注意高温
- 注意触电

為了安全地安裝和卸除選配件，請務必遵守以下注意事項。

⚠警告

為了安全使用本設備，請務必遵守以下注意事項。否則有導致人員死亡或者重傷之危險。詳情請參閱本書中【使用注意事項】之【安全注意事項】。

- 請勿自行拆卸、修理或改造
- 請勿試圖拆下鋰電池、鎳氫電池或鋰離子電池

⚠注意

為了安全使用本設備，請務必遵守以下注意事項。否則有導致燒傷、其他傷害或財產損失之危險。詳情請參照本書【使用注意事項】之【安全注意事項】。

- 請注意掉落
- 將設備抽取出來後請及時放回原處
- 請確保連接穩固
- 請勿在拆掉蓋板的狀態下進行安裝
- 請注意不要夾傷手指
- 請注意高溫
- 請注意觸電

1.2 Anti-Static Measures

The server contains electronic components sensitive to static electricity. Avoid failures caused by static electricity when installing or removing any optional devices.

Wear a wrist strap (an arm belt or anti-static glove)

Wear a wrist strap on your wrist. If no wrist strap is available, touch an unpainted metal part of the chassis before touching a component to discharge static electricity from your body.

Also discharge static electricity by periodically touching a metal surface while working on the components.

Select a suitable work space

- Work with the server on the anti-static or concrete floor.
- If you work with the server on a carpet where static electricity is likely to be generated, be sure to take anti-static measures beforehand.

Use a work table

Place the server on an anti-static mat to work with.

Clothing

- Do not wear wool or synthetic clothes.
- Wear anti-static shoes.
- Take off any jewels (a ring, bracelet, or wrist watch) before working with the server.

Handling of components

- Keep any component in an anti-static bag until you actually install it to the server.
- Hold any component by its edge to avoid touching any terminals or parts.
- To store or carry any component, place it in an anti-static bag.

Handling of Cables

When connecting a cable (e.g., LAN cable), static electricity may also be charged due to friction against the floor. Connecting the charged cable with an I/O device may cause damage to the devices in the system. It is recommended to use a product such as electrostatic discharge kit to eliminate the static charge before connecting the cable.

Installing and Removing the Optional Device

- To avoid electric hazard and malfunction, be sure to turn off the power switch of the server and unplug the power cord from the outlet before installing or uninstalling any optional device. If the device is hot-swappable, you do not need to turn off the power switch nor unplug the power cord.
- The optional device contains static-sensitive electronic components. When installing or uninstalling the optional device, wear an anti-static wrist strap on your wrist to avoid a failure caused by the static electricity. To use the strap, connect the wire to the chassis.

Le serveur intègre des composants électroniques sensibles à l'électricité statique. Évitez toute panne résultant de l'électricité statique lors de l'installation ou du retrait de périphériques optionnels.

Portez un bracelet antistatique (une ceinture passée autour de votre bras ou des gants antistatiques)

Portez un bracelet antistatique à votre poignet. Si vous ne disposez pas de bracelet antistatique, touchez une partie métallique non peinte du châssis avant de manipuler un composant afin de vous décharger de toute électricité statique.

De même, déchargez l'électricité statique en touchant régulièrement une surface métallique lorsque vous travaillez sur des composants.

Choisissez un espace de travail approprié

- Placez le serveur sur une surface antistatique ou un sol en béton.
- Si vous placez le serveur sur un tapis susceptible de générer de l'électricité statique, n'oubliez pas de prendre au préalable les mesures antistatiques nécessaires.

Utilisez une table de travail

Placez le serveur sur un tapis antistatique.

Vêtements

- Ne portez pas de vêtements en laine ou en fibre synthétique.
- Portez des chaussures antistatiques pour travailler dans le serveur.
- Retirez tous vos bijoux (bague, bracelet ou montre) avant de travailler sur le serveur.

Manipulation des composants

- Laissez les composants dans des sacs antistatiques avant de les installer dans le serveur.
- Tenez les composants par le bord afin d'éviter de toucher tout connecteur ou composant.
- Pour ranger ou transporter un composant, placez-le dans un sac antistatique.

Manipulation des câbles

Lors du branchement d'un câble (p. ex., câble LAN), de l'électricité statique peut également être chargée à cause du frottement contre le sol. Brancher un câble chargé sur une unité d'E/S peut endommager les périphériques dans le système. Il est recommandé d'utiliser un produit comme un kit de décharge électrostatique pour éliminer la charge statique avant de brancher un câble.

Installation et retrait du périphérique optionnel

- Pour éviter tout danger électrique et dysfonctionnement, assurez-vous de mettre le serveur hors tension et de débrancher le cordon d'alimentation de la prise avant d'installer ou de désinstaller le périphérique optionnel. Si le périphérique supporte l'échange a chaud, il n'est pas nécessaire de mettre l'appareil hors tension ou de débrancher le cordon d'alimentation.
- Le périphérique optionnel contient des composants électroniques sensibles à l'électricité statique. Lors de l'installation ou de la désinstallation du périphérique optionnel, portez un bracelet antistatique à votre poignet pour éviter toute panne provoquée par l'électricité statique. Pour utiliser le bracelet, reliez le fil au châssis.

Il server contiene componenti elettronici sensibili all'elettricità statica. Evitare guasti provocati dall'elettricità statica durante l'installazione o la rimozione di dispositivi opzionali.

Indossare un bracciale antistatico (una fascia per braccio o guanto antistatico)

Indossare un bracciale antistatico al polso. Se non è disponibile alcun bracciale antistatico, toccare una parte metallica non verniciata del telaio prima di toccare un componente per scaricare l'elettricità statica dal corpo.

Inoltre, scaricare l'elettricità statica toccando periodicamente una superficie metallica mentre si lavora sui componenti.

Selezionare uno spazio di lavoro adatto

- Lavorare con il server posizionato su un pavimento antistatico o in cemento.
- Se si lavora con il server su un tappeto su cui è probabile che si generi elettricità statica, accertarsi di prendere anticipatamente misure antistatiche.

Utilizzare un tavolo da lavoro

Posizionare il server su un tappeto antistatico su cui lavorare.

Indumenti

- Non indossare indumenti di lana o sintetici.
- Indossare scarpe antistatiche.
- Togliere qualsiasi gioiello (anelli, braccialetti oppure orologi) prima di lavorare con il server.

Manipolazione dei componenti

- Tenere qualsiasi componente in una borsa antistatica fino a quando non viene effettivamente installato sul server.
- Mantenere i componenti dal loro bordo per evitare di toccare terminali o parti.
- Per immagazzinare o trasportare i componenti, porli in una borsa antistatica.

Manipolazione dei cavi

Quando si collega un cavo (ad es. un cavo LAN), può generarsi elettricità statica anche a causa dell'attrito contro il pavimento. Il collegamento di un cavo caricato a un dispositivo I/O può provocare danni ai dispositivi nel sistema. Si raccomanda di utilizzare un prodotto come un kit per la scarica elettrostatica per eliminare la carica elettrostatica prima di collegare il cavo.

Installazione e rimozione del dispositivo opzionale

- Per evitare pericoli elettrici e malfunzionamento, accertarsi di disattivare l'interruttore di accensione del server e scollegare il cavo dell'alimentazione dalla presa prima di installare o disinstallare un dispositivo opzionale. Se il dispositivo è in grado di eseguire l'hot swap, non è necessario disattivare l'interruttore di accensione né scollegare il cavo dell'alimentazione.
- Il dispositivo opzionale contiene componenti elettronici sensibili alla staticità. Quando si installa o disinstalla il dispositivo opzionale, indossare un bracciale antistatico al polso per evitare un guasto provocato dall'elettricità statica. Per utilizzare il bracciale, collegare il filo al telaio.

Der Server enthält elektronische Komponenten, die auf statische Elektrizität empfindlich reagieren. Vermeiden Sie Fehler, die durch statische Elektrizität entstehen, wenn Sie optionale Geräte installieren oder entfernen.

Tragen Sie eine Handschlaufe (ein Armgurt oder Anti-Statik-Handschuh)

Tragen Sie eine Handschlaufe um ihr Handgelenk. Wenn keine Handschlaufe zur Verfügung steht, berühren Sie ein unlackiertes Metallteil des Chassis, bevor Sie eine Komponente anfassen, um die statische Elektrizität Ihres Körpers zu entladen.

Entladen Sie auch die statische Elektrizität, indem Sie in gewissen Abständen eine Metalloberfläche berühren, während Sie an den Komponenten arbeiten.

Wählen Sie einen passenden Arbeitsplatz aus

- Arbeiten Sie mit dem Server auf dem anti-statischen oder Betonboden.
- Wenn Sie mit dem Server auf einem Teppich arbeiten, wo sich schnell statische Elektrizität aufbauen kann, treffen Sie vorab anti-statische Maßnahmen.

Verwenden Sie einen Arbeitstisch

Stellen Sie den Server auf eine anti-statische Matte, um an ihm zu arbeiten.

Kleidung

- Tragen Sie keine Wolle oder synthetische Kleidung.
- Tragen Sie anti-statische Schuhe.
- Legen Sie jeglichen Schmuck ab (einen Ring, Armreifen oder Armbanduhr), bevor Sie mit dem Server arbeiten.

Handhabung der Komponenten

- Bewahren Sie alle Komponenten in einer anti-statischen Tasche auf, bis Sie sie tatsächlich im Server installieren.
- Halten Sie alle Komponenten an ihren Kanten fest, um zu vermeiden, dass Anschlüsse oder teile berührt werden.
- Um alle Komponenten zu lagern der zu tragen, stecken Sie sie in eine anti-statische Tasche.

Handhabung der Kabel

Wenn Sie ein Kabel anschließen (z.B ein LAN-Kabel), kann sich die statische Elektrizität auch durch Reibung gegen den Boden laden. Das Anschließen des aufgeladenen Kabels mit einem I/O -Gerät kann Schäden an den Geräten im System verursachen. Es wird empfohlen, ein Produkt zu verwenden, wie zum Beispiel ein elektrostatisches Entlade-Kit, um die statische Ladung zu beseitigen, bevor Sie das Kabel anschließen.

Installieren und Entfernen des optionalen Geräts

- Um eine elektrische Gefahr und eine Fehlfunktion zu vermeiden, achten Sie darauf, den Stromschalter des Servers auszuschalten und das Stromkabel aus der Steckdose zu ziehen, bevor Sie ein optionales Gerät installieren oder deinstallieren. Wenn das Gerät hot-swappable (es während des Betriebs angeschlossen werden kann) ist, müssen Sie nicht den Stromschalter ausschalten und nicht das Stromkabel ziehen.
- Das optionale Gerät enthält statisch empfindliche elektronische Komponenten. Wenn das optionale Gerät installiert oder deinstalliert wird, tragen Sie eine anti-statische Handschlaufe an Ihrem Handgelenk, um eine Fehlfunktion aufgrund der statischen Elektrizität zu vermeiden. Um die Schlaufe zu verwenden, schließen Sie das Kabel am Chassis an.

El servidor contiene componentes eléctricos sensibles a la electricidad estática. Evite los fallos provocados por la electricidad estática cuando instale o retire cualquier dispositivo opcional.

Colocarse una correa para muñeca (una correa para el brazo o un guante antiestático)

Utilice una correa para muñeca. Si no dispone de una correa para muñeca, toque la parte metálica no pintada del chasis antes de tocar un componente para descargar la electricidad estática acumulada en el cuerpo.

Además, debe descargar la electricidad estática tocando de forma periódica una superficie metálica mientras trabaje con los componentes.

Seleccionar un espacio de trabajo adecuado

- Trabajar con el servidor en un suelo antiestático o de hormigón.
- Si trabaja con el servidor sobre una alfombra en la que es probable que se genere electricidad estática, asegúrese de tomar medidas antiestáticas de antemano.

Utilizar una mesa de trabajo

Colocar el servidor sobre una estera antiestática para trabajar en él.

Vestimenta

- No vista prendas de lana o sintéticas.
- Utilice zapatos antiestáticos.
- Quítese las joyas (anillos, pulseras o relojes) antes de trabajar con el servidor.

Manipulación de los componentes

- Guarde los componentes en una bolsa antiestática hasta que los instale en el servidor.
- Sujete los componentes por el borde para evitar tocar cualquier terminal o pieza.
- Para almacenar o transportar cualquier componente, colóquelo en una bolsa antiestática.

Manipulación de los cables

Cuando conecte un cable (por ejemplo, un cable LAN), es posible que se acumule electricidad estática debido a la fricción contra el suelo. La conexión de un cable cargado en un dispositivo de E/S puede producir daños en los dispositivos del sistema. Se recomienda utilizar un producto como, por ejemplo, un kit de descarga electroestática, para eliminar la carga estática antes de conectar el cable.

Instalar y retirar un dispositivo opcional

- Para evitar riesgos eléctricos y un funcionamiento incorrecto, asegúrese de apagar el interruptor del servidor y desenchufar el cable de alimentación de la toma de corriente antes de instalar o desinstalar cualquier dispositivo opcional. Si el dispositivo soporta el intercambio en caliente, no es necesario apagar el interruptor ni desenchufar el cable de alimentación.
- El dispositivo opcional contiene componentes eléctricos sensibles a la electricidad estática. Cuando instale o desinstale el dispositivo opcional, utilice una correa antiestática para muñeca, para evitar un fallo debido a la electricidad estática. Para utilizar la cinta, conecte el cable en el chasis.

本设备内部的部件由容易受到静电影响的电子部件构成。在安装或拆卸时，为了防止因受静电影响而导致产品发生故障，请遵循以下的注意事项。

● **使用防静电腕带或防静电手套**

请将腕带系在手腕上，并将地线接地后方可作业。如果没有腕带，请先触摸接地机箱上没有喷涂的金属表面，将身体里积累的静电放出之后再接触部件。另外，作业过程中也要定期地触摸金属表面以放出静电。

● **检查作业场所**

- 请在已进行防止静电处理的地面或水泥地上进行作业。
- 如需在地毯等容易产生静电的地方展开作业时，请事先进行防止静电处理。

● **使用作业台**

将本设备放置在防止静电的垫子上，然后开始作业。

● **服装**

- 作业时请勿穿上由毛纺或化学纤维制的服装。
- 作业时请穿上防止静电的鞋子。
- 安装前请摘掉贵金属饰品（戒指、手环和手表等）。

● **使用部件的注意事项**

- 在部件安装到本设备之前，请装入防止静电的袋子。
- 请手持各部件的边缘部分，不要接触端子或安装部件。
- 保管、搬运部件时，请将部件装入防止静电的袋子等。

● **使用电缆线的注意事项**

连接 LAN 缆线等的电缆线时，有可能因与地面发生摩擦而导致缆线附带静电。
若在带有静电的状态下与输入/输出设备连接，则有可能导致设备受到破坏，因此，在连接前，建议使用排除静电组件等来排除静电。

● **关于安装或拆卸选购件**

— 为了防止发生危险以及故障，在进行作业时，请切断本设备的电源开关，并将电源插头从插座上拔下。

但是，安装及拆卸支持热插拔的产品时，不需要切断本设备的电源开关和拔除电源插头。

本設備內部的部件由容易受到靜電影響的電子部件構成。在安裝或拆卸時，為了防止因受靜電影響而導致產品發生故障，請遵循以下注意事項。

- **使 用 防 靜 電 腕 帶 或 防 靜 電 手 套**
  請將腕帶繫上手腕上，並將地線接地後方可作業。如果沒有腕帶，請先觸摸接地機箱上沒有噴塗的金屬表面，將身體禮積累之靜電放出後再接觸部件。另外，作業過程中也要定期觸摸金屬表面以放出靜電。

- **檢 查 作 業 場 所**
  - 請在已經防止靜電處理的地面或水泥地上進行作業。
  - 如需在地毯等容易產生靜電之地方展開作業時，請事先進行防止靜電處理。

- **使 用 作 業 台**
  將本設備放置在防止靜電之墊子上，然後開始作業。

- **服 裝**
  - 作業時請勿穿上由毛紡或化學纖維制之服裝。
  - 作業時請穿上防止靜電之鞋子。
  - 安裝前請摘掉貴金屬飾品（戒指、手環和手錶等）。

- **使 用 部 件 的 注 意 事 項**
  - 在部件安裝到本設備之前，請裝入防止靜電之袋子。
  - 請手持各部件之邊緣部分，不要接觸端子或安裝部件。
  - 保管、搬運部件時，請將部件裝入防止靜電之袋子等。

- **使 用 電 纜 線 的 注 意 事 項**
  連接 LAN 纜線等的電纜線時，有可能因與地面發生摩擦而導致纜線附帶靜電。若在帶有靜電的狀態下與輸入/輸出設備連接，則有可能導致設備受到破壞，因此，在連接前，建議使用排除靜電組件等來排除靜電。

- **關 於 安 裝 或 拆 卸 選 購 件**
  - 為了繁殖發生危險以及故障，在進行作業時，請切斷本設備的電源開關，並將電源插頭從插座上拔下。
    但是，安裝及拆卸支持熱插拔之產品時，不需要切斷本設備之電源開關和拔除電源插頭。

1.3 Parts Able to be Added/Replaced by Customers

The server provides parts that can be added/replaced under customer installation environment. The replaceable parts are grouped into 2 types of FRU and CRU.

CRU is an abbreviation of Customer Replacement Unit. CRUs include components (modules/units/cables) that can be replaced at failure occurrence or added by customers.

FRU is an abbreviation of Field Replacement Unit. FRUs include all components (modules/units) replaceable when a failure occurs and are replaced by a maintenance service personnel.

The following shows the list of CRUs. There are 5 CRUs in the server (Optical disk drive, Hard disk drive, Power supply unit, SUV cable , and Cooling fan), as shown in the table below.

Important **These CRUs can be replaced/added by customers. However, it is also possible to ask the maintenance service company for replacement.**

List of CRUs

No.	Abbreviation	Name	Name used in this Guide	CRU / FRU
1	DVD	Digital Versatile Disk	Optical disk drive	CRU
2	HDD	Hard Disk Drive	Hard disk drive	CRU
3	PSU	Power Supply Unit	Power supply unit	CRU
4	FAN	FAN Module	Cooling fan *1	CRU
5			SUV cable	CRU
6	–	–	Internal flash memory	FRU
7	–	–	Processor (CPU)	FRU
8	–	–	Memory riser (MR)	FRU
9	–	–	DIMM	FRU
10	–	–	Flush Backup Unit for RAID Controller	FRU
11	–	–	PCI card	FRU
12	–	–	TPM	FRU

*1: The server needs to be pulled out from the rack to mount/unmount the cooling fan.

The abbreviations in the above table are used when suspicious failure indications are displayed on Web Console at failure occurrence. For an FRU that cannot be replaced by customers, contact the maintenance service company and request for replacement.

The following table shows replacement conditions and the accompanying tasks.

Replacement conditions and required additional tasks	Abbreviations of CRU (Customer Replaceable Unit)			
	HDD	PSU	DVD	FAN
Online Replacement	Possible *1	Possible *2	Impossible	Possible
Offline Replacement	Possible	Possible	Possible	Possible
Pulling out or inserting the server from/into the rack	Not Required	Not Required	Not Required	Required

*1: When RAID system is configured (other than RAID 0)

*2: When power redundant configuration is built

The following describes how to install/uninstall CRUs.

If CRUs are installed or removed, perform diagnostic test to verify operations of server.

Refer to *Chapter 1 (1.8 System Diagnostics)* in *Maintenance Guide* for how to perform the diagnostic test.

1.4 Overview of Installation and Removal

Install/remove components by using the following procedure.

Ask your maintenance service company to install or remove components except for optical disk drive, hard disk drive, power supply unit, and cooling fan.

⚠ CAUTION

Be sure to observe the following precautions to use the server safely. Failure to observe the precautions may cause burns, injury, and property damage. For details, refer to *Safety precautions* in *Precautions for Use.*

- **Do not drop the server**
- **Do not leave the server pulled out of the rack**
- **Do not install the server with its cover being removed.**
- **Pay attention to hot surface**
- **Do not get your fingers caught when installing components**

⚠ ATTENTION

Conformez-vous aux instructions suivantes pour utiliser le serveur en toute sécurité. Le non-respect de ces instructions risque de provoquer un incendie, de vous blesser ou d'endommager votre équipement. Pour plus de détails, consultez *Mesures de sécurité* dans *Précautions d'utilisation*.

- **Ne laissez pas tomber le serveur**
- **Ne laissez pas le serveur hors du rack**
- **N'installez pas le serveur avec son couvercle retiré.**
- **Faites attention aux surfaces chaudes**
- **Faite attention à ne pas coincer vos doigts lors de l'installation des composants**

⚠ ATTENZIONE

Accertarsi di osservare le seguenti precauzioni per utilizzare il server in modo sicuro. La mancata osservanza delle precauzioni può provocare ustioni, lesioni e danni materiali. Per maggiori dettagli, consultare *Precauzioni di sicurezza* in *Precauzioni per l'uso*.

- **Non far cadere il server**
- **Non lasciare il server estratto dal rack**
- **Non installare il server mentre il coperchio è rimosso.**
- **Prestare attenzione alle superfici calde**

- **Prestare attenzione a non schiacciarsi le dita durante l'installazione dei componenti**

⚠ ACHTUNG

Achten Sie darauf, die folgenden Vorsichtsmaßnahmen zu beachten, um den Server sicher zu verwenden. Werden diese Vorsichtsmaßnahmen nicht beachtet, kann es zu Verbrennungen, Verletzungen oder zu Schäden am Eigentum kommen. Einzelheiten finden Sie auf *Sicherheitsmaßnahmen* in *Vorsichtsmaßnahmen beim Gebrauch.*

- **Nicht den Server fallen lassen**
- **Lassen Sie den Server nicht aus dem Gestell herausgezogen**
- **Installieren Sie den Server nicht bei entfernter Abdeckung.**
- **Achten Sie auf heiße Oberflächen**
- **Klemmen Sie Ihre Finger nicht ein, wenn Sie Komponenten installieren**

⚠ CUIDADO

Asegúrese de respetar las precauciones que figuran a continuación para utilizar el servidor de forma segura. De lo contrario, pueden producirse quemaduras, lesiones y daños a la propiedad. Para obtener información detallada, consulte la Sección *Precauciones de seguridad* de las *Precauciones de uso*.

- **No permitir que caiga el servidor.**
- **No dejar el servidor extraído del rack.**
- **No instalar el servidor con la cubierta extraída.**
- **Prestar atención a las superficies calientes.**
- **Evitar que los dedos queden atrapados cuando se instale componentes.**

⚠ 注意

为了安全使用本设备，请务必遵守以下的注意事项。否则有导致烧伤、其它伤害或财产损失的危险。详情请参照本书的【使用注意事项】。

- 注意掉落
- 将设备抽取出来后请及时放回原处
- 请勿在拆掉盖板的状态下进行安装
- 注意高温
- 请注意不要夹伤手指

⚠ 注意

為了安全使用本設備，請務必遵守以下注意事項。否則有導致燒傷、其他傷害或財產損失之危險。詳情請參照本書【使用注意事項】之【安全注意事項】。

- 請注意掉落
- 將設備抽出出來後請及時放回原處
- 請勿在拆掉蓋板之狀態下進行安裝
- 請注意高溫
- 請注意不要夾傷手指

1. If the server is mounted on a rack, use the UID switch to identify the target server as needed.
   See Chapter 2 (1.5 Confirming Servers (UID Switch)).
2. Set to the maintenance mode. See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for details.
3. Remove the Front Bezel, if installed.
   See Chapter 2 (1.6 Removing Front Bezel).
4. If the server is ON, turn it off. Press the BMC shutdown switch on front panel. After making sure that MGB#1 Status LED on rear panel is unlit, disconnect power cable from the server, and from outlet. See Chapter 3 (13. Turning Off the Server) for powering off the server.
   You can install or remove CRU (hard disk drive / power supply unit / cooling fan) while the server is powered on.
5. Depending on the components to be installed or removed, follow the procedure in order.
   See Chapter 2 (1.7 Optical Disk Drive) to (1.18 SUV Cable).
6. Install the removed components to original place in the server.

   Install the components/cables which are removed while removing or adding the other part/cable to the original place in the server accurately. Missing any components/cables or installing the components/cable incompletely may result in some malfunction.
   For how to mount front bezel, see Chapter 2 (1.17 Installing the Front Bezel).
7. Ensure not to leave any components or screws inside the server.

   If the DC power is turned on while a conductive part such as screw is left on the motherboard or the terminal of cable in the server, some malfunction or failure may occur.
8. Check if any cables do not prevent the air flow from cooling the system

   If any cables are installed improperly and prevent the air flow, it reduces the cooling effect in the server, resulting in some malfunction.
9. Confirm that the replacement/installation is done properly using tools.

   Using tools such as System Diagnostic Utility or BIOS Setup Utility, confirm that the component/device is replaced/installed properly. Refer to the replacing/installing procedure of each component/device for detail
10. Turn off the SYSTEM STATUS LED.

    If CRU is installed/removed while the system power is on (online), the SYSTEM STATUS LED may stay lit amber. In this case, perform Clear All Faults to turn off the SYSTEM STATUS LED.

Important **Perform Clear All Faults after all the failed components are replaced. If any of failed component is left, proceed to next replacement process. You can check if any component is left as failed by viewing NEXT LED. (See Chapter 1 (5.6.5 FRU (NEXT, PROC, MEM, PCI, PSU/FAN, MISC) LED). If NEXT LED is lit amber, it indicates some**

failed component is left and is not replaced. If you need to perform Clear All Faults, write down information about the failed component (e.g., component type and installed location, and others) before executing the command. See Chapter 3 (7.9.2 Component Status Fault Information) for how to perform Clear All Faults.

Important **If any of HDDs is defective, the SYSTEM STATUS LED, Disk Access LEC, and HDD LED for each HDD will be lit amber. If the HDD is replaced in the DC power off status, Disk Access LED and HDD LED for each HDD turn off automatically. Perform Clear All Faults to turn off the SYSTEM STATUS LED. If the HDD is replaced in the DC power on status, Disk Access LED and HDD LED for each HDD stay lit amber. Perform Clear All Faults to turn off the SYSTEM STATUS LED. When the system is rebooted and POST is completed, Disk Access LED and HDD LED for each HDD will turn off automatically.**

11. Clear the maintenance mode setting after the operation. See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for how to clear the maintenance mode.
12. If the UID LED is on, turn off the UID LED using UID switch.

This is the end of the installation or removal procedures for internal optional devices.

Continue the setup with reference to *Chapter 2 (1.4 Overview of Installation and Removal)*.

1.5 Confirming Servers (UID Switch)

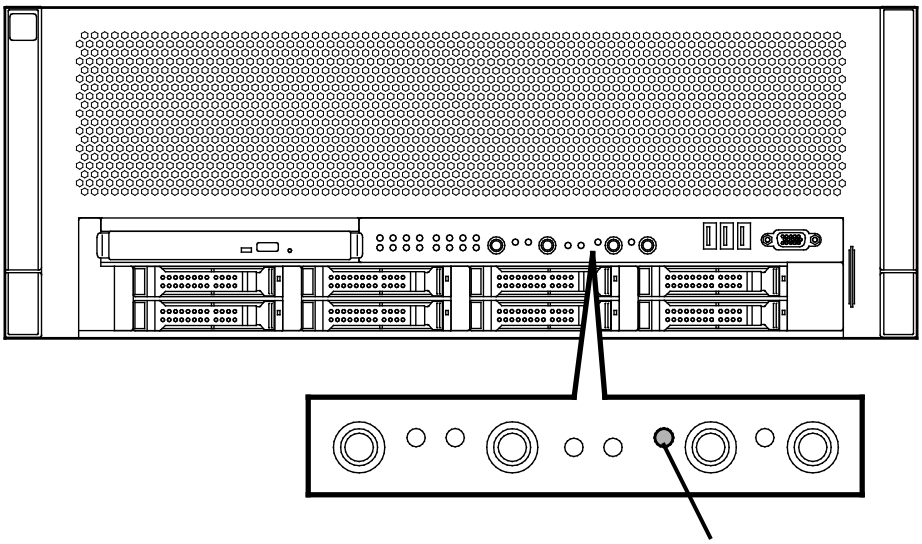
Using UID (Unit ID) Switch helps you to identify the target server.

You can turn on or off UID LED in either of following two ways:

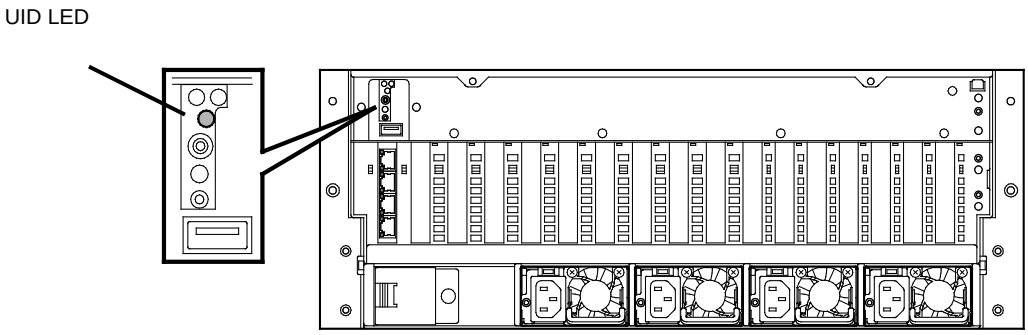
(1) Press the UID switch on web console.
If the location of target server is unknown, press the UID button of the target server to blink the UID LEDs on the target server (front and rear). Press it again to turn off the LEDs.

(2) Press the UID switch on server.
When the location of target server is known and you need to work with the server from rear side, press the UID switch on front panel. The UID LEDs on front and rear panel go on. You can identify the target server by viewing the LED on rear panel. Similarly, press the UID switch on rear panel to identify the target server by viewing the UID LED on front panel when working with the server from front side. Press the UID switch again to turn off the LEDs.

FRONT



REAR

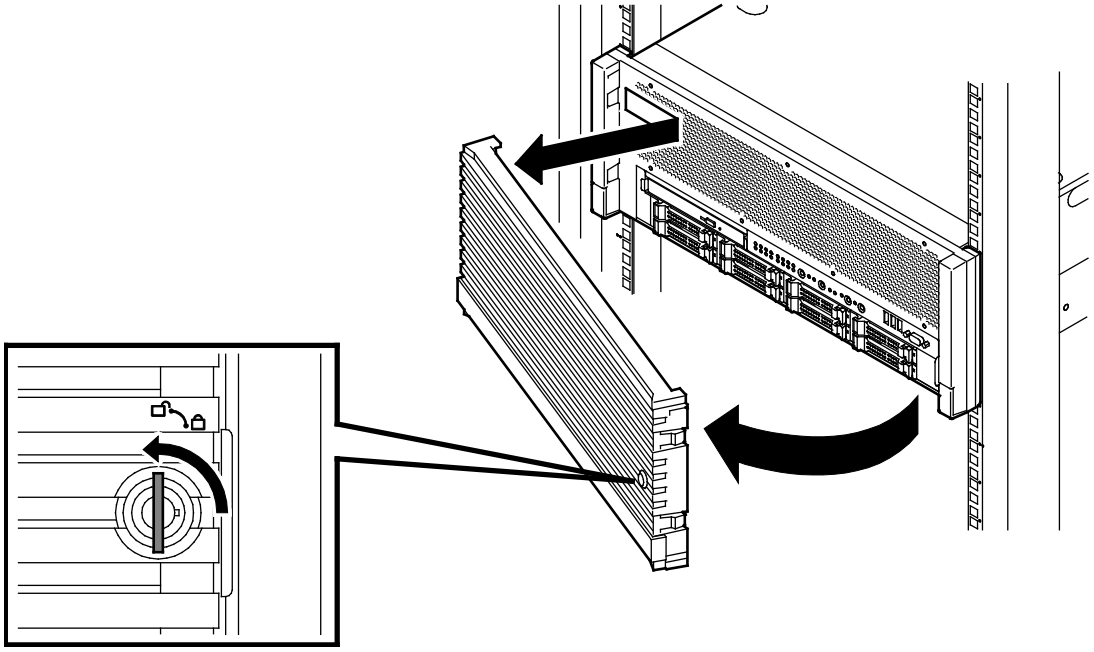


1.6 Removing Front Bezel

Remove the front bezel when pressing switches such as SYSTEM POWER switch.

Note You can skip this step if your server is not equipped with front bezel.

Insert the Bezel Lock Key into the key slot and turn the key to the front bezel side while pressing it lightly to release the lock. Move the front bezel toward right to disengage tabs from frame, and remove the front bezel from chassis.



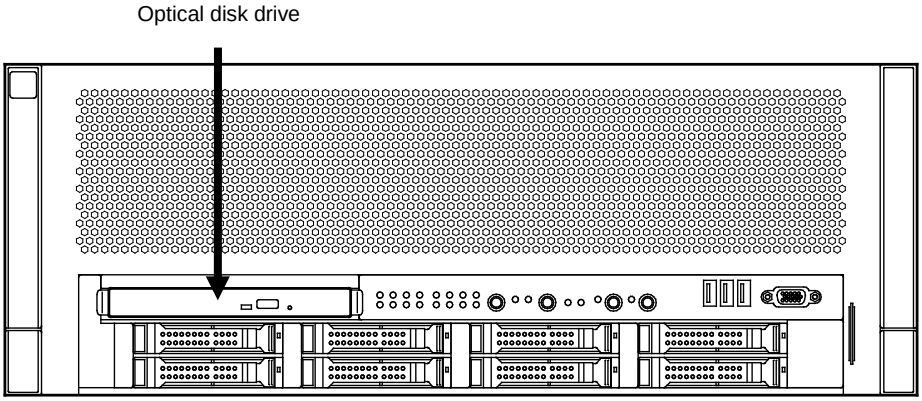
Turn to unlock.

Important **Be careful not to press the SYSTEM POWER switch when removing the front bezel.**

1.7 Optical Disk Drive

This section describes the procedure for installing the optical disk drive.

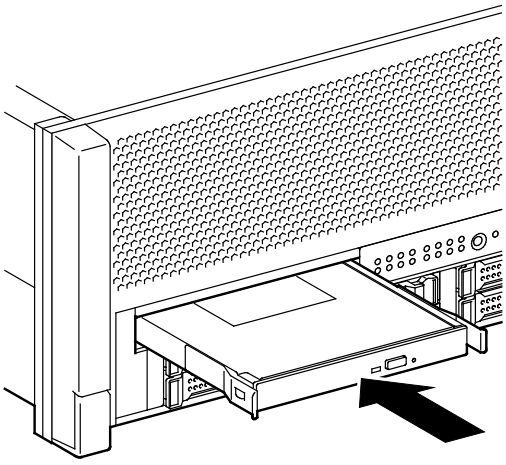
Important **Do not install any unsupported optical disk drive.**



1.7.1 Installation

Install an optical disk drive in the following procedure.

1. Set to the maintenance mode. See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for details.
2. Refer to Steps 3 to 4 in Chapter 2 (1.4 Overview of Installation and Removal) for preparations.
3. Insert the optical disk drive into the slot of optical disk drive.
4. Push the optical disk drive completely until the lock levers on both ends are locked with clicks.



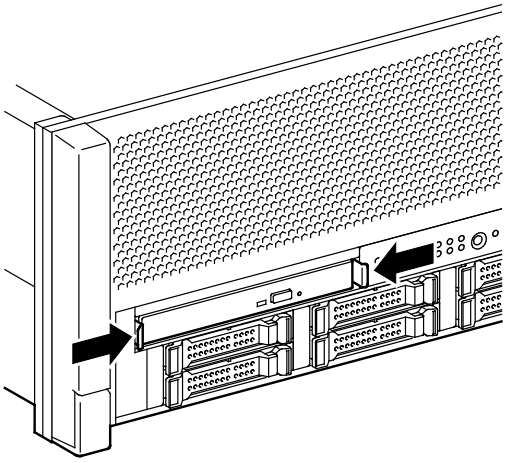
Important **Insert the optical disk drive straight into the slot. If the drive is inserted obliquely or applied excess force, the optical disk drive and internal connector may be damaged.**

5. Refer to Steps 6 to 10 in Chapter 2 (1.4 Overview of Installation and Removal) to check if work is successfully completed.
6. If you installed component offline (while the server is off-powered), perform diagnostic test according to Chapter 1 (1.8 System Diagnostic) in Maintenance Guide.
7. Cancel the maintenance mode you have set in Step 1. (See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for how to cancel the maintenance mode. If the UID LED is on, turn off the UID LED using UID switch.

1.7.2 Removal

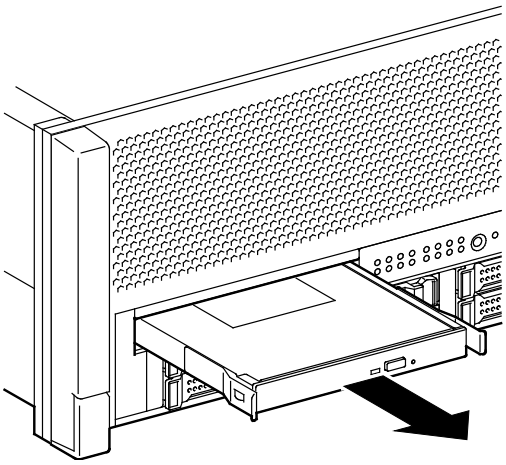
Take the steps below to remove the optical disk drive.

1. Set to the maintenance mode. See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for details.
2. Refer to Steps 3 to 4 in Chapter 2 (*1.4 Overview of Installation and Removal*) for preparations.
3. Push the lock levers on both sides of optical disk drive toward inside.



4. Pull the optical disk drive toward front while pushing the lock levers (as described in Step 3).

5. When the optical disk drive is unlocked, pull it out from the slot completely.



Important **Pull out the optical disk drive straight from the slot. If the drive is pulled out obliquely or applied excess force, the optical disk drive and internal connector may be damaged.**

6. Refer to Steps 6 to 10 in Chapter 2 (1.4 Overview of Installation and Removal) to check if work is successfully completed.
7. Cancel the maintenance mode you have set in Step 1. (See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for how to cancel the maintenance mode. If the UID LED is on, turn off the UID LED using UID switch.

1.8 Hard Disk Drive

The server has device bay for hard disk drive located at the front of the server.

A hard disk drive mounted in a dedicated tray can be purchased. Install the hard disk drive on the server with it mounted on the tray. Install a hard disk in the following order.

- Single RAID card configuration: Port 0 → 1 → 2 → 3 → 4 → 5 → 6 → 7
- Two RAID cards configuration:Port 0 → 4 → 1 → 5 → 2 → 6 → 3 → 7

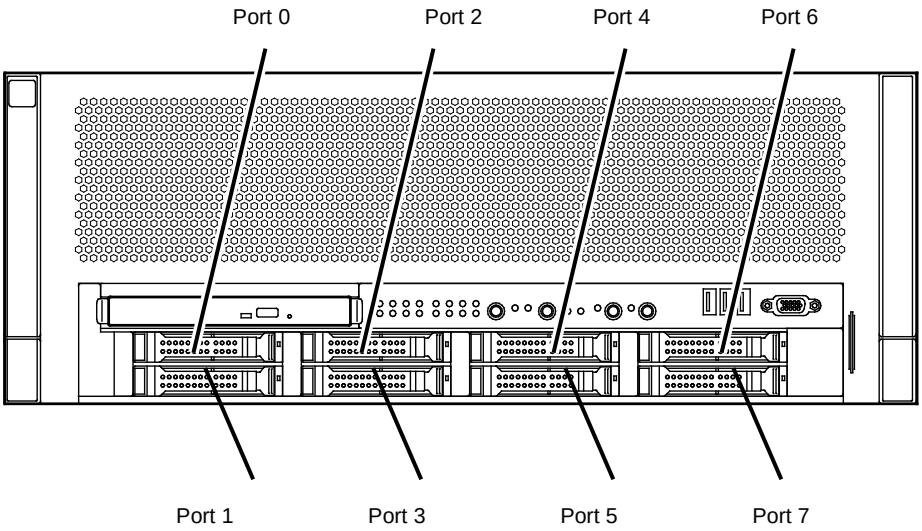
Important **Use hard disk drives specified by NEC. Installing a third-party hard disk drive might cause a failure of the server as well as the hard disk drive.**

Note the following precautions to install hard disk drives.

- Hard disk drives having different capacities, interface types, or rotational speeds cannot be installed together.

Bays can contain up to 8 hard disk drives.

Port numbers have been assigned to each slot.



1.8.1 Installation

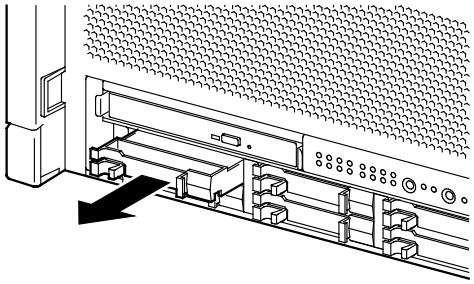
Install a hard disk drive by using the following procedure.

Note In the RAID System, use hard disk drives that have the same specifications (capacity, rotational speed, and standard).

1. Set to the maintenance mode. See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for details.
2. Refer to Steps 3 to 4 in Chapter 2 (*1.4 Overview of Installation and Removal*) for preparations.

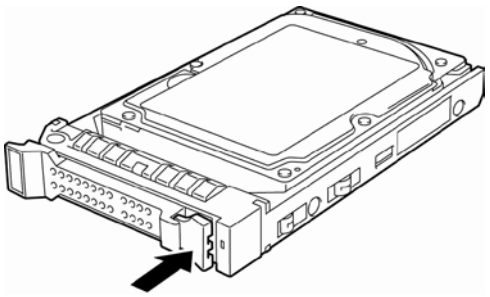
   You can install hard disk drive online (while the server is powered on).
3. Locate the slot where you install the hard disk drive.

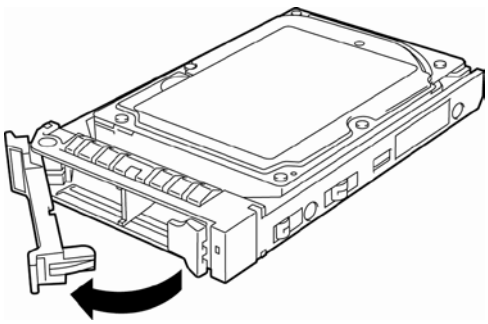
   The server has 8 slots. Install hard disk drives in ascending order of port number.
4. Remove the HDD dummy tray.



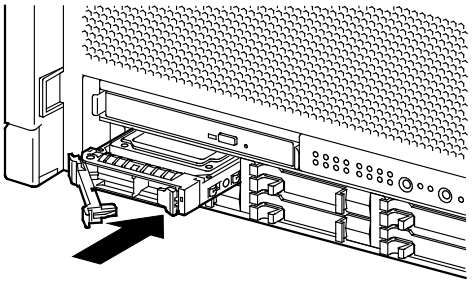
Note Keep the dummy tray for future use.

5. Unlock the handle of the tray.





6. Hold the tray firmly and insert it into the slot.

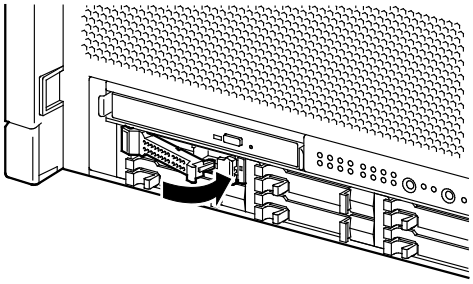


Note

- Push the tray all the way until the handle's hook touches the frame.
- Hold the tray firmly with both hands.

7. Slowly close the handle.
   The tray is locked making a clicking sound.

   After inserting a hard disk drive into the slot, please wait about 10 seconds. After it is inserted into the slot, if it is removed from the slot within 10 seconds, the fault notification might be sent.



Note

When you push the drive into the slot, confirm the hook of handle is engaged with the frame

8. Run BIOS SETUP utility, and specify the boot order from the **Boot** menu. For details about the **Boot** menu, refer to *Chapter 2 (1.2.5 Boot)* in "*Maintenance Guide*".

Tips

The saved boot order is cleared when a hard disk drive is added.

9. Refer to Steps 6 to 10 in Chapter 2 (1.4 Overview of Installation and Removal) to check if work is successfully completed.
10. If you installed component offline (while the server is off-powered), perform diagnostic test according to Chapter 1 (1.8 System Diagnostic) in Maintenance Guide.
11. Cancel the maintenance mode you have set in Step 1. (See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for how to cancel the maintenance mode. If the UID LED is on, turn off the UID LED using UID switch.

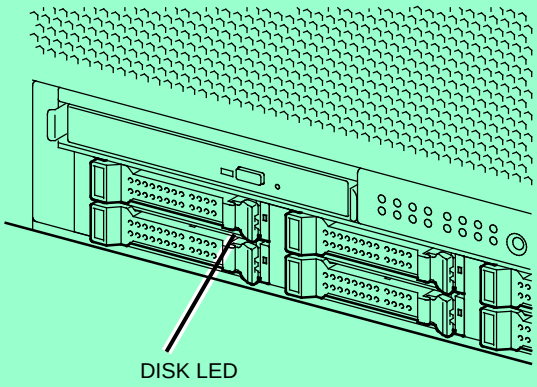
1.8.2 Removal

Take the steps below to remove hard disk drive.

If you transfer or dispose of the removed hard disk drive, refer to *Chapter 1 (1. Transfer, Movement, and Disposal) in "Maintenance Guide"* to erase data.

Important **NEC assumes no liability for data leakage should the product be transferred to a third party without erasing the data.**

Note If you need to remove a disk due to a hard disk drive failure, check the slot with its DISK LED lit in amber.

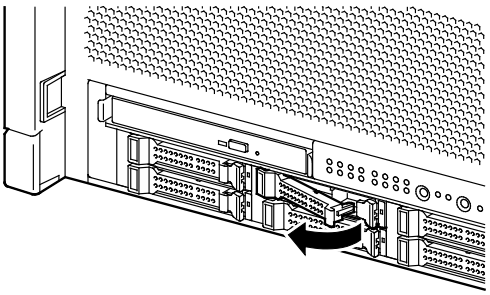


1. Set to the maintenance mode. See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for details.

2. Refer to Steps 3 to 4 in Chapter 2 (*1.4 Overview of Installation and Removal*) for preparations.

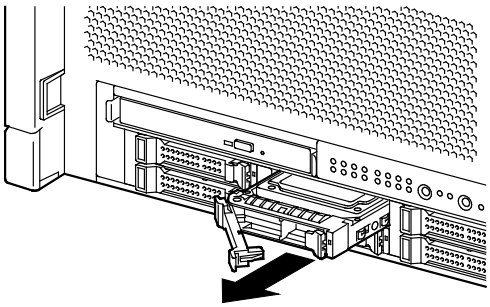
   You can remove hard disk drive online (while the server is powered on).

3. Push the lever to unlock the drive, and open the handle.



4. Hold the tray firmly and pull the tray toward the front.

   After removing a hard disk drive from the slot, please wait about 10 seconds. After it is removed from the slot, if it is inserted into the slot again within 10 seconds, the fault notification might be sent.



5. If you use the server with hard disk drive being removed, mount dummy trays in the vacant slot.

Note Do not hold the handle to pull the hard disk drive out from the slot. Doing so may damage the handle.

6. Run BIOS SETUP utility, and then specify the boot order from the **Boot** menu. For details about the **Boot** menu, refer to *Chapter 2 (1. System BIOS)* in "*Maintenance Guide*".

Tips The saved boot order is cleared when a hard disk drive is removed.

7. Refer to Steps 6 to 10 in Chapter 2 (1.4 Overview of Installation and Removal) to check if work is successfully completed.
8. Cancel the maintenance mode you have set in Step 1. (See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for how to cancel the maintenance mode. If the UID LED is on, turn off the UID LED using UID switch.

1.8.3 Use of Internal hard disk drives in the RAID System

This section describes how to use the internal hard disk drives in the RAID System.

Important **If you use hard disk drives in the RAID System or change the RAID level, the hard disk drives are initialized. If the hard disk drive contains valuable data, be sure to backup the hard disk drive before installing the RAID Controller and configuring the RAID System.**

Note In the RAID System, use hard disk drives that have the same specifications (capacity, rotational speed, and standard) for each Disk Array.

Tips Logical Drives can be created even with only one Physical Device.

Note the following points when building a RAID System.

- The number of hard disk drives required varies depending on RAID level.

RAID level	The minimum number of hard disk drives required to build a RAID System (when RAID Controller NE3303-177/178/H004 is used)
RAID 0	1
RAID 1	2
RAID 5	3
RAID 6	3
RAID 10	4
RAID 50	6
RAID 60	6

- In the RAID System, all the hard disk drives must have the same capacity, interface type, and rotational speed.
- If you intend to install the OS to the RAID System, first build the RAID system. When using Off-line Utility (Ctrl-R or HII) and building the RAID system, refer to *Chapter 2 (3. RAID System Configuration)* in "*Maintenance Guide*" or the manual supplied with the optional RAID Controller (NE3303-177/178/H004).

Important

- **Do not let the system enter hibernate or standby state when RAID System is configured.**
- **Build a Disk Array in the RAID System using hard disk drives that have the same specifications (capacity, rotational speed, and standard).**

1.8.4 Replacing a hard disk drive in the RAID System (Auto Rebuild)

In the RAID System, you can use the auto rebuild feature to restore data back to the state before a failure occurred.

The disk is automatically rebuilt when hot swapping (replacing a disk while the power on) a failed hard disk drive (except for RAID0).

During the auto rebuild, the DISK LED on the hard disk drive blinks green and amber alternately to indicate that the auto rebuild is in progress.

Observe the following precautions when executing the auto rebuild.

- Do not turn off the server until the auto build completes after a hard disk drive fails.
- Leave an interval of at least 90 seconds between a hard disk drive removal and a hard disk drive installation.
- Do not replace a disk during the auto rebuilding of another hard disk drive (during an auto rebuild, the DISK LED on the hard disk drive blinks green and amber alternately).

Needed time for Rebuild

Here describes the sample time for Rebuild while few accesses to the HDDs in the system.The more the accesses are, the more the time is.

N code	Name	Rebuild Time
NE3350-479M	Extra 300GB HDD(10,000 rpm) 512Byte/Sector	26min
NE3350-481M	Extra 600GB HDD(10,000 rpm) 512Byte/Sector	55min
NE3350-482M	Extra 900GB HDD(10,000 rpm) 512Byte/Sector	79min
NE3350-483M	Extra 1.2TB HDD(10,000 rpm) 512Byte/Sector	110min
NE3350-485M	Extra 300GB HDD(15,000 rpm) 512Byte/Sector	23min
NE3350-486M	Extra 450GB HDD(15,000 rpm) 512Byte/Sector	34min
NE3350-518M	Extra 600GB HDD(15,000 rpm) 512Byte/Sector	45min

Note

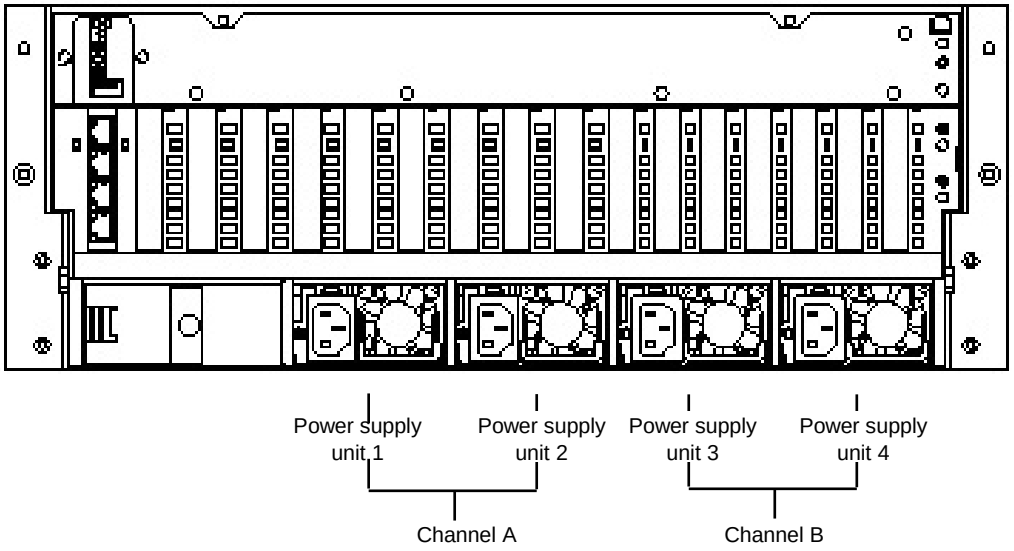
When you replace both a disk and a RAID controller in the system including a hot spare (sequentially or in parallel), the configuration information about a hot spare might not be taken over correctly. Therefore, after you perform the maintenance replacement, check the configuration information. If it has not been taken over correctly, restore the hot spare setting by using Off-line Utility or Universal RAID Utility.

1.9 Power Supply Unit

The server has four slots for installing power supply units. Thus, the redundant power system can be configured by installing hot-plug power supply units. This ensures continued operation of the system in the unlikely event one of the redundant power supply units fails.

Install the power supply unit in the order power supply units 1, 3, 2, then 4.

Important **The default value of power supply unit configuration in this server is 2N (Redundancy). If you select N (Non-redundant) or N+1 (Redundancy) as power supply unit configuration, change Operation Mode [PSU Redundancy] to an appropriate setting before the first power on. See Chapter 4 (2 Operation Mode (2) Remote Management) for details.**



- N (Non-redundant):
  Up to four units can be configured.
  With non-redundant mode, the server can work with minimum requisite power supply units connected to distribution board.
- N+1 (Redundancy):
  Operation can be continued even when one of power supply units fails.
  For example, if the minimum requisite power supply units are two and one more unit is added, this enables continuous operation by using the available two units even when one of three units fails.
- 2N (Redundancy):
  Operation can be continued by supplying power to two power supply units from two electric power companies respectively even in the case of power supply outage from one of the electric power companies.

The minimum requisite power supply units (N) depends on server model or configuration. Refer to the next page.

Voltage	Model	Power Supply Unit	# of CPU	Number of PowerSupply Unit		
				No-redundancy	N+1	2N
200V	A2040c	1000W	2/3/4	2	3	4
		800W	2	2	3	4
			3/4	3	4	Not available
	A2020c	1000W	2	2	3	4
		800W	2	3	4	Not available
	A2010c	1000W	1	2	3	4
		800W	1	2	3	4
	A1040c	1000W	1	1	2	2
			2/3/4	2	3	4
		800W	1/2	2	3	4
			3/4	3	4	Not available
100V	A2040c	1000W	2/3	2	3	4
			4	3	4	Not available
		800W	2	2	3	4
			3/4	3	4	Not available
	A2020c	1000W	2	3	4	Not available
		800W	2	3	4	Not available
	A2010c	1000W	1	2	3	4
		800W	1	2	3	4
	A1040c	1000W	1	1	2	2
			2/3	2	3	4
			4	3	4	Not available
		800W	1/2	2	3	4
			3/4	3	4	Not available

1.9.1 Installation

Follow steps below to install a power supply unit:

1. Set to the maintenance mode. See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for details.
2. Refer to Steps 3 to 4 in Chapter 2 (*1.4 Overview of Installation and Removal*) for preparations.

   You can install power supply unit online (while the server is powered on).
3. Remove the blank cover from power supply unit.

Note

Keep the removed blank cover for future use.

4. Firmly insert the power supply unit until it is locked with clicking sound.

   After inserting a power supply unit to the server, connect a power code to the power supply unit after waiting about 10 seconds. After the power supply unit is inserted to the server, if the power code is connected to the power supply unit within 10 seconds, the fault notification might be sent.

5. Connect power cords.

   Use the power cord that comes with the power supply unit.

   The Power Unit LED blinks green when the power cord is connected. If the power unit is not connected with the power cord, its LED lights amber.

   When all of the power cords are connected, Power Unit LEDs on power supply units blink green.

   After connecting a power code to a power supply unit, please wait about 10 seconds. After the power supply unit is connected to the power code, if the power code is disconnected from the power supply unit within 10 seconds, the fault notification might be sent.

Tips

If the power supply unit is installed while DC power is on (online) and the power cord is connected as in redundant power supply configuration, the Power Unit LED lights green.

If the power supply unit is installed while DC power is off (offline) and the power cord is connected as in non-redundant power supply configuration, the Power Unit LED blinks green. The Power Unit LED goes on when DC power is turned on.

6. Power on the server.

   Power Unit LED lights green.
7. Confirm, by the SYSTEM STATUS LED or on the POST screen, that there are no errors related to the power supply units.

   Refer to *Chapter 3 (1. POST Error Message)* in *Maintenance Guide* for details on the error messages.

   If the Power Unit LEDs are off, reinstall the power supply units. If the same error message still appears, contact your service representative.

Important

- **If an additional power supply unit is installed in the server (where one or more power supply units are already installed and powered-on), the following message appears on web console (Select the "System" tab, click "Component" – "Power Supply" from the menu tree) and the SYSTEM STATUS LED will go on amber. However, it is not a failure.**

  Message on web console: Recovered from input error (AC/DC)

  In this case, perform Clear All Faults before canceling the maintenance mode to turn off the SYSTEM STATUS LED, and start running the system. Note, however, perform Clear All Faults after all the failed components have replaced. If any of failed component is left, proceed to next replacement process. You can check if any component is left as failed by viewing NEXT LED. (See Chapter 1 (5.6.5 FRU

(NEXT, PROC, MEM, PCI, PSU/FAN, MISC) LED).
If NEXT LED is lit amber, it indicates some failed component is left and is not replaced. If you need to perform Clear All Faults, write down information about the failed component (e.g., component type and installed location, and others) before executing the command. See Chapter 3 (7.9.2 Component Status Fault Information) for how to perform Clear All Faults.

- **If you cancel the maintenance mode while the SYSTEM STATUS LED is on, the fault notification according to message displayed on web console is performed, if you have contracted fault notification service.**

8. Refer to Steps 6 to 10 in Chapter 2 (1.4 Overview of Installation and Removal) to check if work is successfully completed.
9. Cancel the maintenance mode you have set in Step 1. (See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for how to cancel the maintenance mode. If the UID LED is on, turn off the UID LED using UID switch.

1.9.2 Removal

Remove the power supply unit only when it fails.

Important **Do not remove the power supply unit that is working normally.**

Tips If the server is running normally with a minimum of power supply unit (Power Unit LEDs are lit green), you can replace the failed power supply unit while the server is powered on.

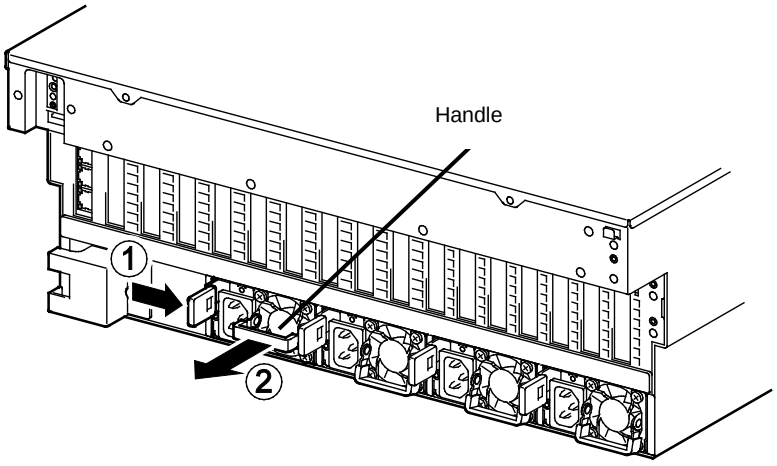
1. Set to the maintenance mode. See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for details.
2. Refer to Steps 3 to 4 in Chapter 2 (*1.4 Overview of Installation and Removal*) for preparations.

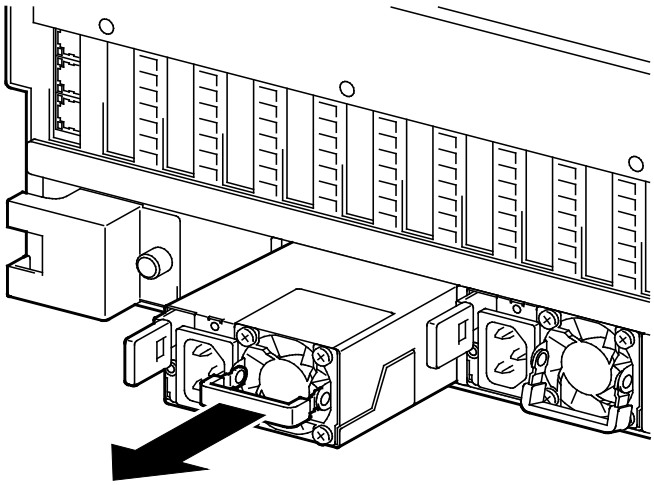
   In redundant power configuration, you can install power supply unit online (while the server is powered on).
   In non-redundant power configuration, you need to turn off the power before removal.
3. Disconnect the power cord.

   After disconnecting a power code from a power supply unit, remove the power supply unit from the server after waiting about 10 seconds. After the power code is disconnected from the power supply unit, if the power supply unit is removed from the server within 10 seconds, processing might not be performed correctly.
4. While unlocking the power supply unit, hold the handle and pull the unit toward the rear side to remove it.

   After disconnecting a power supply unit from the server, please wait about 10 seconds. After the power supply unit is disconnected, if the power supply unit is connected to the server again within 10 seconds, the fault notification might be sent.

Important **Pull out the power supply unit straight from the slot. If the unit is pulled out obliquely or applied excess force, the power supply unit and internal connector may be damaged.**





Important

- **If the power supply unit running in redundant power supply configuration is removed while the system is powered on (online), the following message appears on web console (Select the "System" tab, click "Component" – "Power Supply" from the menu tree) and the SYSTEM STATUS LED will go on amber. However, it is not a failure.**

  Message on web console: Recovered from input error (AC/DC)

  In this case, perform Clear All Faults before canceling the maintenance mode to turn off the SYSTEM STATUS LED, and start running the system. Note, however, perform Clear All Faults after all the failed components have replaced. If any of failed component is left, proceed to next replacement process. You can check if any component is left as failed by viewing NEXT LED. (See Chapter 1 (5.6.5 FRU (NEXT, PROC, MEM, PCI, PSU/FAN, MISC) LED).
  If NEXT LED is lit amber, it indicates some failed component is left and is not replaced. If you need to perform Clear All Faults, write down information about the failed component (e.g., component type and installed location, and others) before executing the command. See Chapter 3 (7.9.2 Component Status Fault Information) for how to perform Clear All Faults.

- **If you cancel the maintenance mode while the SYSTEM STATUS LED is on, the fault notification according to message displayed on web console is performed, if you have contracted fault notification service.**

5. Refer to Steps 6 to 10 in Chapter 2 (1.4 Overview of Installation and Removal) to check if work is successfully completed.
6. Cancel the maintenance mode you have set in Step 1. (See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for how to cancel the maintenance mode. If the UID LED is on, turn off the UID LED using UID switch.

1.10 Cooling Fan

The server has two slots for installing cooling fans. Two cooling fans are factory installed.

You can replace cooling fans online (while the server is powered on).

Important

- **A cooling fan can be replaced online (DC ON). Removing one cooling fan causes another cooling fan to rotate at a high speed. It retuns to normal rotation when a cooling fan is installed to a slot where the failed cooling fan was removed.**
- **In online replacement, abnormal temperature may be detected, which may cause shutdown. Note the following:**
  - **Do not remove 2 cooling fans at the same time.**
  - **Replace a cooling fan within 60 seconds (from removal to installation).**

1.10.1 Replacement

Replace the cooling fan when it fails.

Important

Do not remove the cooling fan that is working normally.

(1) Pulling Out Server from Rack

Mount/Unmount the cooling fan with the server being pulled out from the rack.

CAUTION

Be sure to observe the following precautions to use the server safely. Failure to observe the precautions may cause burns, injury, and property damage. For details, refer to *Safety precautions* in *Precautions for Use.*

- **Do not pinch your finger.**
- **Pay attention to hot surface.**
- **Do not pull out the server from the rack when the rack is unstable.**
- **Confirm that quake-proof construction is performed on the rack or stabilizers are mount at front bottom of rack to prevent the rack from falling.**
- **Do not leave more than one device being pulled out from the rack.**

⚠ ATTENTION

Conformez-vous aux instructions suivantes pour utiliser le serveur en toute sécurité. Le non-respect de ces instructions risque de provoquer un incendie, de vous blesser ou d'endommager votre équipement. Pour plus de détails, consultez *Mesures de sécurité* dans *Précautions d'utilisation*.

- **Ne vous pincez pas les doigts.**
- **Faites attention aux surfaces chaudes.**
- **Ne sortez pas un périphérique du rack si ce dernier est instable.**
- **Confirmez qu'une construction antisismique est effectuée sur le rack ou que des stabilisateurs sont montés sur la partie inférieure avant du rack pour empêcher le rack de tomber.**
- **Ne laissez pas plus d'un périphérique hors du rack.**

⚠ ATTENZIONE

Accertarsi di osservare le seguenti precauzioni per utilizzare il server in modo sicuro. La mancata osservanza delle precauzioni può provocare ustioni, lesioni e danni materiali. Per maggiori dettagli, consultare *Precauzioni di sicurezza* in *Precauzioni per l'uso*.

- **Prestare attenzione a non schiacciarsi le dita.**
- **Prestare attenzione alle superfici calde.**
- **Non estrarre il server dal rack quando il rack è instabile.**
- **Verificare che la struttura anti-sismica sia presente sul rack o che gli stabilizzatori vengano montati sulla parte anteriore inferiore del rack per impedire che il rack cada.**
- **Non lasciare più di un dispositivo estratto dal rack.**

⚠ ACHTUNG

Achten Sie darauf, die folgenden Vorsichtsmaßnahmen zu beachten, um den Server sicher zu verwenden. Werden diese Vorsichtsmaßnahmen nicht beachtet, kann es zu Verbrennungen, Verletzungen oder zu Schäden am Eigentum kommen. Einzelheiten finden Sie auf *Sicherheitsmaßnahmen* in *Vorsichtsmaßnahmen beim Gebrauch.*

- **Klemmen Sie nicht Ihre Finger ein.**
- **Achten Sie auf heiße Oberflächen.**
- **Ziehen Sie den Server nicht aus dem Gestell, wenn das Gestell instabil ist.**
- **Bestätigen Sie, dass eine erdbebensichere Konstruktion am Gestell ausgeführt wurde oder Stabilisatoren vorne und hinten am Gestell angebracht wurden, damit das Gestell nicht umfällt.**
- **Lassen Sie nicht zu, dass mehr als ein Gerät aus dem Gestell gezogen wird.**

⚠ CUIDADO

Asegúrese de respetar las precauciones que figuran a continuación para utilizar el servidor de forma segura. De lo contrario, pueden producirse quemaduras, lesiones y daños a la propiedad. Para obtener información detallada, consulte la Sección *Precauciones de seguridad* de las *Precauciones de uso*.

- **Evite pellizcarse los dedos.**
- **Preste atención a las superficies calientes.**
- **No extraiga el servidor del rack cuando este se encuentre en condiciones inestables.**
- **Confirme que se prepare la estructura antisísmica en el rack o que se monten los estabilizadores en la parte inferior frontal del rack, para evitar que se produzcan caídas.**
- **No deje más de un dispositivo extraído del rack.**

⚠ 注意

为了安全使用本设备，请务必遵守以下的注意事项。否则有导致烧伤、其它伤害或财产损失的危险。详情请参照本书的【使用注意事项】。

- 请注意不要夹伤手指
- 注意高温
- 请勿从不稳定状态的机架中抽取设备
- 进行作业前，请确认对机架实行了防震施工或者机架正面底部安装有稳固器。
- 请勿一次性从机架中抽取一台以上的本设备

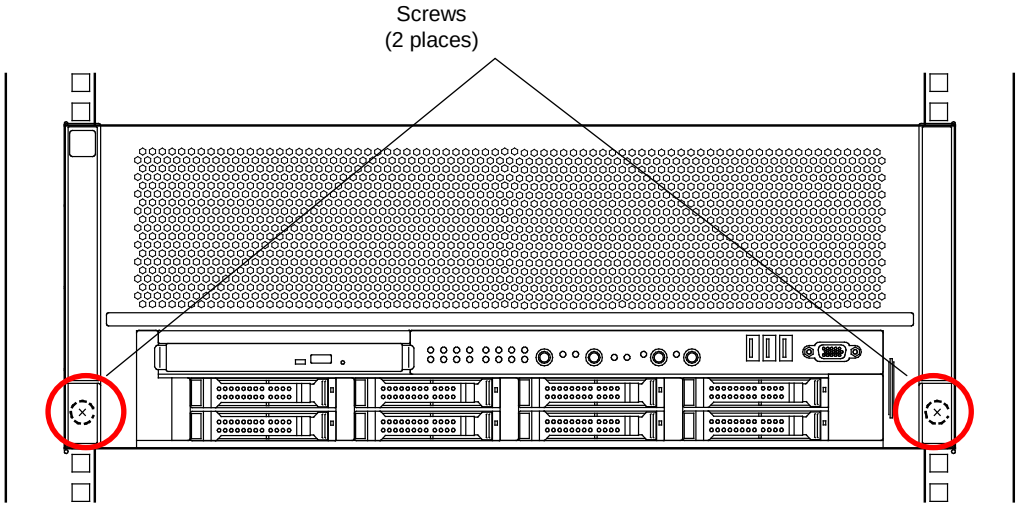
⚠ 注意

為了安全使用本設備，請務必遵守以下注意事項。否則有導致燒傷、其他傷害或財產損失之危險。詳情請參照本書【使用注意事項】。

- 请注意不要夹伤手指
- 請注意高溫
- 請勿從不穩定狀態之機架中抽取設備
- 進行作業前，請確認對機架實行了防震施工或者機架正面地步安裝有穩固器。
- 請勿一次性從機架中抽取一台以上的本設備

1. Set to the maintenance mode. See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for details.
2. Refer to Steps 3 to 4 in Chapter 2 (*1.4 Overview of Installation and Removal*) for preparations.

   You can replace the cooling fan online (while the server is powered on).
3. Confirm that quake-proof construction is performed on the rack or stabilizers are mount at front bottom of rack to prevent the rack from falling.
4. Loosen the two screws at both sides of front panel.



5. Pull the server out from rack slowly and carefully until it is latched with clicking sound.

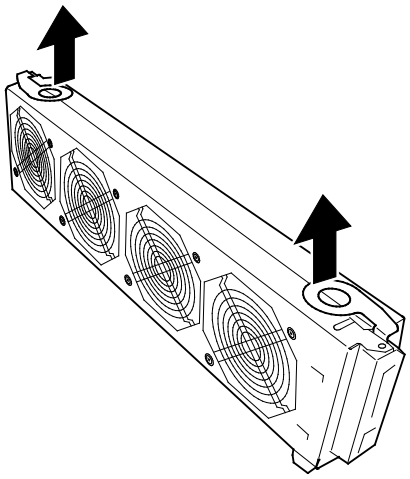
Important **When pulling the server out from the rack while the server is running (power-on state) to replace the cooling fan, pay attention not to disconnect or damage the cables due to excess force.**

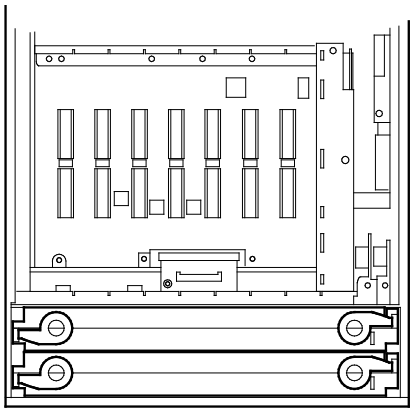
(2) Removal of cooling fan

1. Open the top cover of the server.

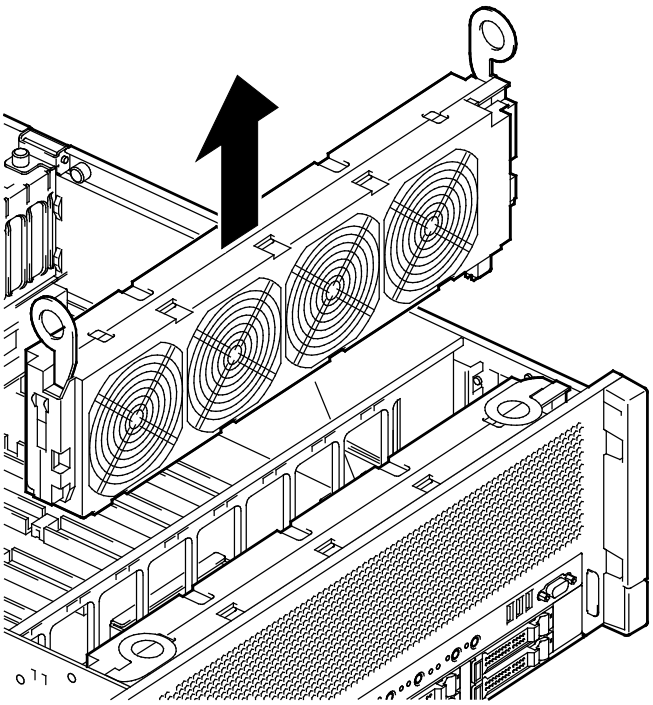
Important **Make sure that the cooling fan LED on the failing fan is lit amber.**

2. Check the location of cooling fan you are going to replace.
3. Lift the lock levers on both sides of cooling fan to unlock the cooling fan.





4. Pull the cooling fan upward while keeping the condition of Step 3, and remove the fan.



(3) Installation

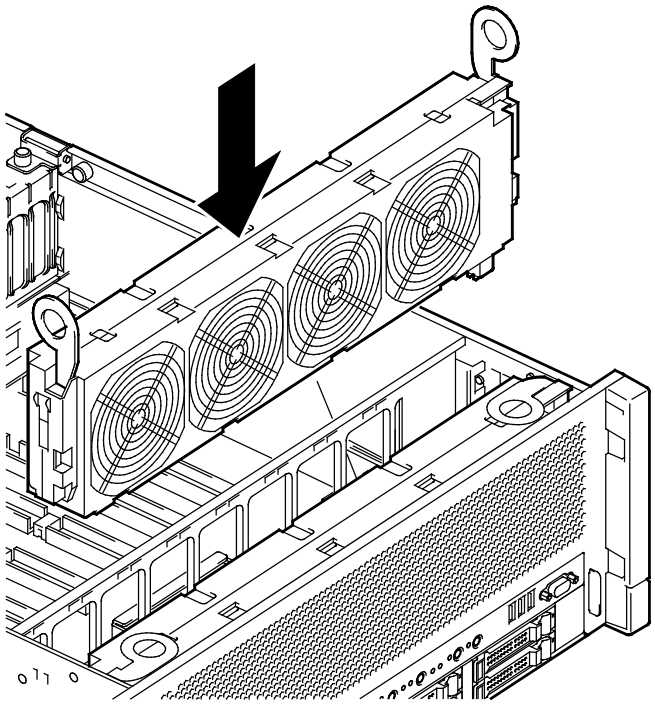
1. Check the direction of the cooling fan.

   There are connecters on the bottom right end seen from the front of the server.

   The cooling fan is configured not to be inserted with the rear and front sides reversed.

Important **Pay attention to the direction of a cooling fan when mounting the cooling fan. Check its front and rear sides as it is configured not to be inserted with the rear and front sides reversed.**

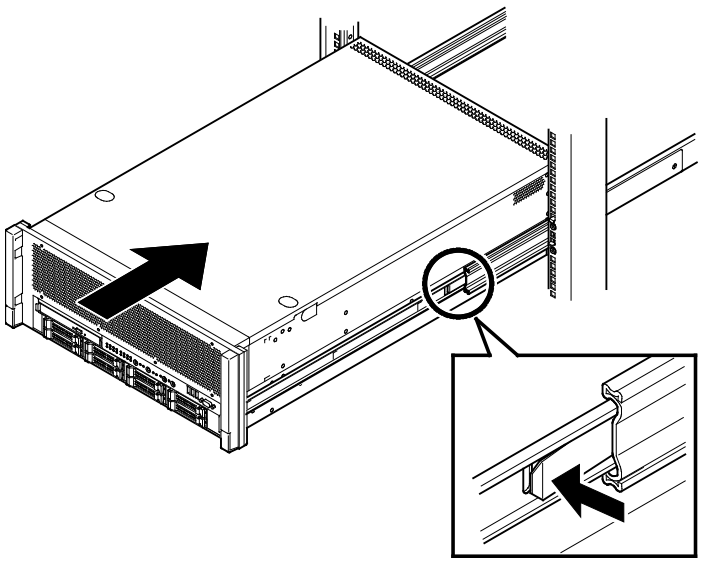
2. Hold openings on the top of a new cooling fan with forefingers and put it down slowly along its guide.



3. Push the cooling fan from the top until the lock levers are locked with a click sound.
4. Refer to Steps 6 to 10 in Chapter 2 (1.4 Overview of Installation and Removal) to check if work is successfully completed.
5. Close the top cover of the server.

(4) Installing the server in rack

1. Unlock the inner rails at both sides of server, and push the server into depths of rack.



2. Tighten the two screws that were loosened in Step 4 in (Pulling Out Server from Rack).
3. Cancel the maintenance mode. (See Chapter 3 (7.7.1 BMC – (7) Extended Functionality) for how to cancel the maintenance mode. If the UID LED is on, turn off the UID LED using UID switch.

1.11 Internal Flash Memory

An optional Internal Flash Memory is used to copy EXPRESSBUILDER in motherboard in the server. Using Internal Flash Memory allows you to launch EXPRESSBUILDER during POST. You do not need to use DVD, and can setup the server easily and maintain it quickly.

1.11.1 Installation

Ask your service representative who is authorized by NEC to install the component. The service representative will install the component, and transfer the server to you after making sure that the server can operate normally.

1.12 Processor (CPU)

Your server can have up to four processors.

Important **Make sure to use the processor authorized by NEC. Installing a third-party processor may cause a failure of the processor as well as the motherboard. Repair of the server due to failures or damage resulted from installing such a processor will be charged.**

1.12.1 Installation

Ask your service representative who is authorized by NEC to install the component. The service representative will install the component, and transfer the server to you after making sure that the server can operate normally.

1.12.2 Setting Required after installation

Run BIOS Setup Utility (SETUP) to confirm the settings related to CPU. Refer to *Chapter 2 (1. System BIOS)* in "*Maintenance Guide*".

Advanced → Processor Configuration → Processor Information

- CPU ID
- L2 Cache RAM
- L3 Cache RAM

1.13 Memory Riser (MR)

Install the memory riser (MR) on motherboard. One or two per CPU (up to 8 in 4-CPU configuration) can be installed.

1.13.1 Installation

Ask your service representative who is authorized by NEC to install the component. The service representative will install the component, and transfer the server to you after making sure that the server can operate normally.

1.14 DIMM

Install a DIMM (Dual Inline Memory Module) to a DIMM slot on Memory Riser. Up to eight DIMMs can be installed on each Memory Riser.

Important **Use only the specified DIMMs. Installing a DIMM from a third party may damage not only the DIMM but the Memory Riser. You will be charged to repair failures or damages caused by the use of such products even within the warranty period.**

Tips Up to 4TB can be installed in 4-CPU configuration

1.14.1 Maximum supported memory size

The maximum available memory size depends on the architecture and OS specs.

List of maximum memory sizes

OS	The maximum memory size supported on each OS	The maximum memory size supported on the server
Windows Server 2012 Standard Windows Server 2012 Datacenter	4TB	4TB
Windows Server 2012 R2 Standard Windows Server 2012 R2 Datacenter	4TB	4TB
RedHat Enterprise Linux 6 (x86_64)	6TB	2TB
Oracle Linux 6/UEK R2 (x86_64)	4TB	2TB
VMware ESXi 5.5 update2	4TB	4TB
VMware ESXi 6.0	6TB	4TB

1.14.2 Memory Clock

The server supports the memory clock speed of DDR4-1333/1600/1866MHz. However, the actual memory clock speed depends on memory configuration and supported memory RAS feature. (The all of DIMMs operate at the same clock speed.)

Note See Chapter 2 (1.14.3 Memory RAS Feature) and (1.14.6 Using Memory RAS Feature) for details of Memory RAS feature.

(1) DIMM type: RDIMM

N code of 1Rank DIMM: NE3302- H040F/H050F/H060F

N code of 2Rank DIMM: NE3302- H041F/H042F/H051F/H061F

Far End Slot (DIMM 1/2/3/4)	Near End Slot (DIMM 5/6/7/8)	Supported clock speed (MHz) (Normal Voltage 1.2 V)	
		Independent	LockStep
Number of DIMMs = 1			
1Rank DIMM	absent or disable	1333, 1600	1600, 1866
2Rank DIMM	absent or disable	1333, 1600	1600, 1866
Number of DIMMs = 2			
1Rank DIMM	1Rank DIMM	1333, 1600	1600, 1866
2Rank DIMM	1Rank DIMM	1333, 1600	1600, 1866
2Rank DIMM	2Rank DIMM	1333, 1600	1600, 1866

(2) DIMM type: LRDIMM

N code of 4Rank DIMM: NE3302- H043F/H044F

Far End Slot (DIMM 1/2/3/4)	Near End Slot (DIMM 5/6/7/8)	Supported clock speed (MHz) (Normal Voltage 1.2 V)	
		Independent	LockStep
Number of DIMMs = 1			
4Rank DIMM	absent or disable	1333, 1600	1600, 1866
Number of DIMMs = 2			
4Rank DIMM	4Rank DIMM	1333, 1600	1600, 1866

1.14.3 Memory RAS Feature

The server supports the following RAS features.

Some restrictions are imposed on using the memory RAS feature. See *Chapter 2 (1.14.6 Using Memory RAS Feature*) for conditions appropriate to your requirements.

Note Use BIOS SETUP menu to configure memory RAS feature. Refer to Chapter 2 (1.2.2 (2) Memory Configuration Submenu) in Maintenance Guide for details.

- Independent mode
- Independent + Rank Sparing mode
- Independent + Mirroring mode
- Independent + Addr Mirroring mode
- Lock Step mode
- Lock Step + Rank Sparing mode
- Lock Step + Mirroring mode
- Lock Step + Addr Mirroring mode
- Memory scrubbing mode

The supported memory RAS feature depends on additional memory board installed.

See the table below to confirm the features supported by additional memory board.

List of features supported by additional memory board

N code Product name	Independent or Lock Step	Independent or Lock Step + Rank Sparing	Independent or Lock Step + Mirroring or Addr Mirroring
NE3302-H040F 16GB additional memory (8GB DIMMx2)	Supported	Not supported	Not supported
NE3302-H041F 32GB additional memory (16GB DIMMx2)	Supported	Not supported	Not supported
NE3302-H042F 64GB additional memory (32GB DIMMx2)	Supported	Not supported	Not supported
NE3302-H043F 64GB additional memory (32GB DIMMx2)	Supported	Not supported	Not supported
NE3302-H044F 128GB additional memory (64GB DIMMx2)	Supported	Not supported	Not supported
NE3302-H050F 32GB additional memory for memory sparing (8GB DIMMx4)	Not supported	Supported	Not supported
NE3302-H051F 64GB additional memory for memory sparing (16GB DIMMx4)	Not supported	Supported	Not supported
NE3302-H060F 32GB additional memory for memory mirroring (8GB DIMMx4)	Not supported	Not supported	Supported
NE3302-H061F 64GB additional memory for memory mirroring (16GB DIMMx4)	Not supported	Not supported	Supported

1.14.4 Installation

Ask your service representative who is authorized by NEC to install the component. The service representative will install the component, and transfer the server to you after making sure that the server can operate normally.

1.14.5 Setting Required after Installation

When you receive the server from maintenance personnel, confirm the settings as shown below.

Run BIOS SETUP Utility and select **Advanced → Memory Configuration → Memory Information** in order. Make sure the capacity of added DIMM is displayed properly.
Refer to *Chapter 2 (1. System BIOS) in "Maintenance Guide"*.

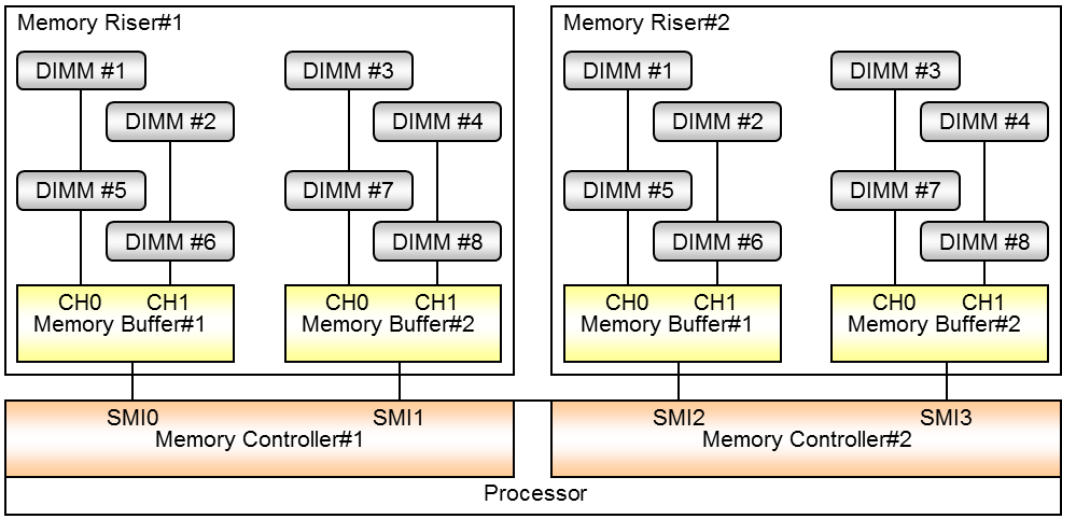
1.14.6 Using Memory RAS Feature

The server has RAS feature including "Independent", "Independent + Rank Sparing", "Independent + Mirroring", "Lock Step, "Lock Step + Rand Sparing", "Lock Step + Mirroring", and "Memory Scrubbing" modes.

Note

- Refer to *List of features supported by additional memory board* in *1.14.3 Memory RAS Feature* before using memory RAS feature.
- Only the features that additional memory board support can be used.

The server has two memory controllers per a processor. A memory controller and a memory riser are connected one-to-one. The memory riser has eight DIMMs and two memory buffers, and 4 memory channels for controlling memory.



Notes when using the Rank Sparing mode

When using the “Independent + Rank Sparing mode” and “Lock Step + Rank Sparing mode” as the memory RAS function, note that the restrictions in the table below apply to selection of the number of spare ranks in the BIOS setup utility. (For the setting procedure in the BIOS setup utility, refer to *Chapter 2 (1.2.2 Advanced (2) Memory Configuration submenu) in the “Maintenance Guide.”*

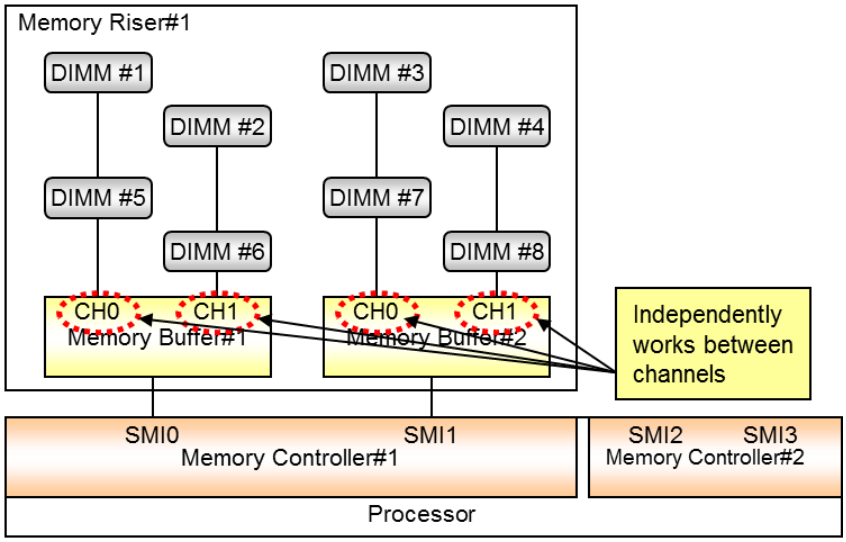
Memory	Number of spare ranks and configurability		System operation when an unsupported number of spare ranks are selected
NE3302-H050F RDIMM 8GB 1 Rank DIMM	No. of DIMMs in the channel = 1		- The Rank Sparing function is set to “Disabled” in the relevant channel. - The following activity log is registered to indicate that the Rank Sparing function is set to “Disabled” and system activation continues. [Activity Log] This Channel could not be setup Rank Sparing because rank number was not enough for sparing. (MR#/MEMBUFFER#/CH# = %d/%d/%d)
	1 spare rank	Unsupported	
	2 spare ranks	Unsupported	
	3 spare ranks	Unsupported	
	4 spare ranks	Unsupported	
	No. of DIMMs in the channel = 2		- The number of spare ranks is set to “1” in the relevant channel. - The following activity log is registered to indicate that the number of spare ranks selected in the BIOS setup utility is unsupported and system activation continues. [Activity Log] The number of spare ranks selected in BIOS setup is too large. (MR#/MEMBUFFER#/CH# = %d/%d/%d)
	1 spare rank	Supported	
	2 spare ranks	Unsupported	
	3 spare ranks	Unsupported	
	4 spare ranks	Unsupported	
NE3302-H051F RDIMM 16GB 2 Rank DIMM	No. of DIMMs in the channel = 1		- The number of spare ranks is set to “1” in the relevant channel. - The following activity log is registered to indicate that the number of spare ranks selected in the BIOS setup utility is unsupported and system activation continues. [Activity Log] The number of spare ranks selected in BIOS setup is too large. (MR#/MEMBUFFER#/CH# = %d/%d/%d)
	1 spare rank	Supported	
	2 spare ranks	Unsupported	
	3 spare ranks	Unsupported	
	4 spare ranks	Unsupported	
	No. of DIMMs in the channel = 2		- The number of spare ranks is set to “2” in the relevant channel. - The following activity log is registered to indicate that the number of spare ranks selected in the BIOS setup utility is unsupported and system activation continues. [Activity Log] The number of spare ranks selected in BIOS setup is too large. (MR#/MEMBUFFER#/CH# = %d/%d/%d)
	1 spare rank	Supported	
	2 spare ranks	Supported	
	3 spare ranks	Unsupported	
	4 spare ranks	Unsupported	

(1) Independent mode

In this mode, the four memory channels operate independently. It supports ECC correction (64-Bit Data + 8-Bit ECC) and SDDC (Single Device Data Correction) that corrects an error to a single DRAM.

Memory performance is higher than LockStep mode (*1), however, RAS feature is rather poor.

Note Use NE3302-H040F/H041F/H042F/H043F/H044F additional memory for Independent mode.



There is no restriction specific to this feature.

*1 Performance is measured when DIMM works at the same memory clock speed in Independent mode and LockStep mode. There is a case that supported clock speed in LockStep mode is higher than in Independent mode in this server. Confirm the clock speed according to Chapter 2 (1.14.2 Memory Clock).

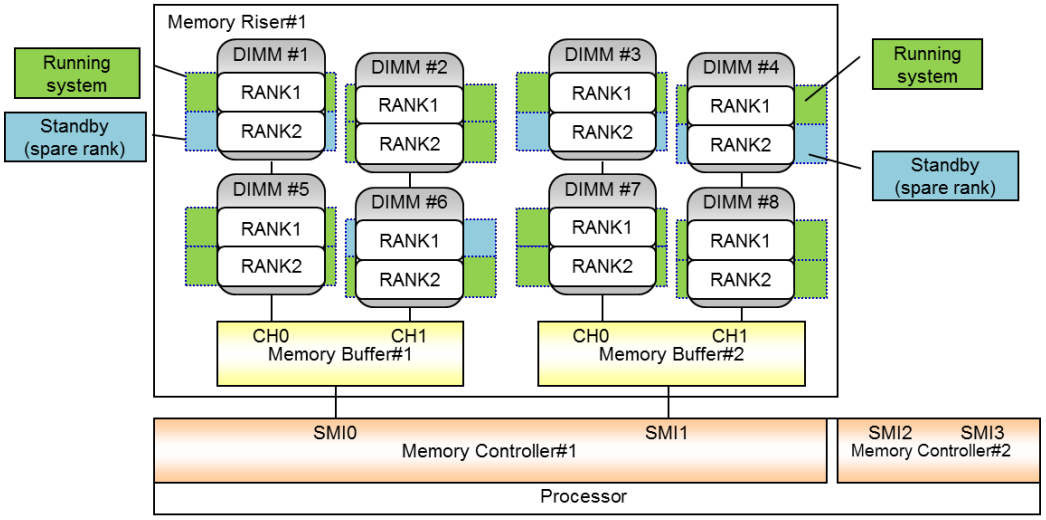
(2) Independent + Rank Sparing mode

In Independent + Rank Sparing mode, spare ranks are added to Independent mode. If the indication of failure is detected in running rank, replace the data by copying it onto spare rank on the same channel to continue processing.

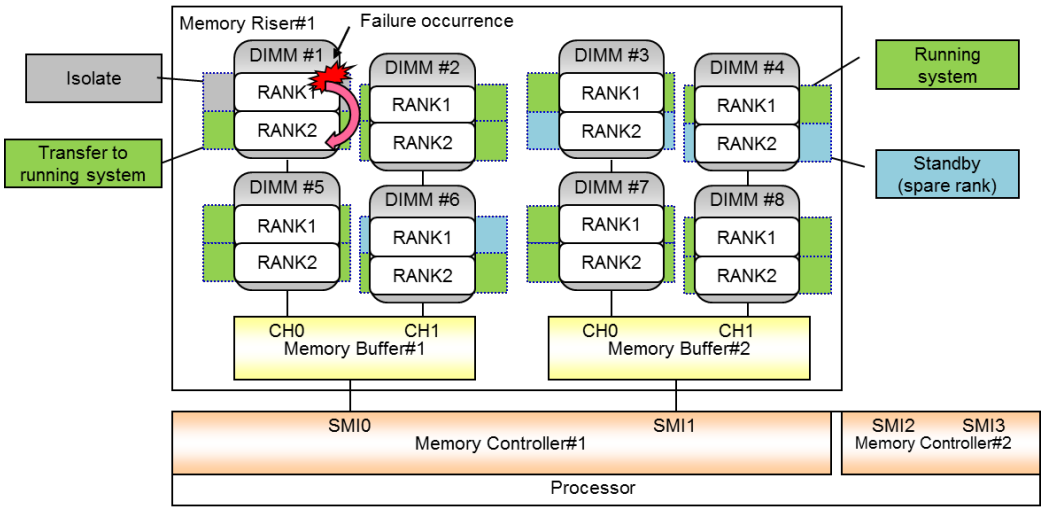
RAS feature is higher than Independent mode, however, the memory capacity available for OS is reduced by the amount of memory used for spare rank from the installed memory.

Note Use NE3302-H050F/H051F additional memory board for Independent + Rank Sparing mode.

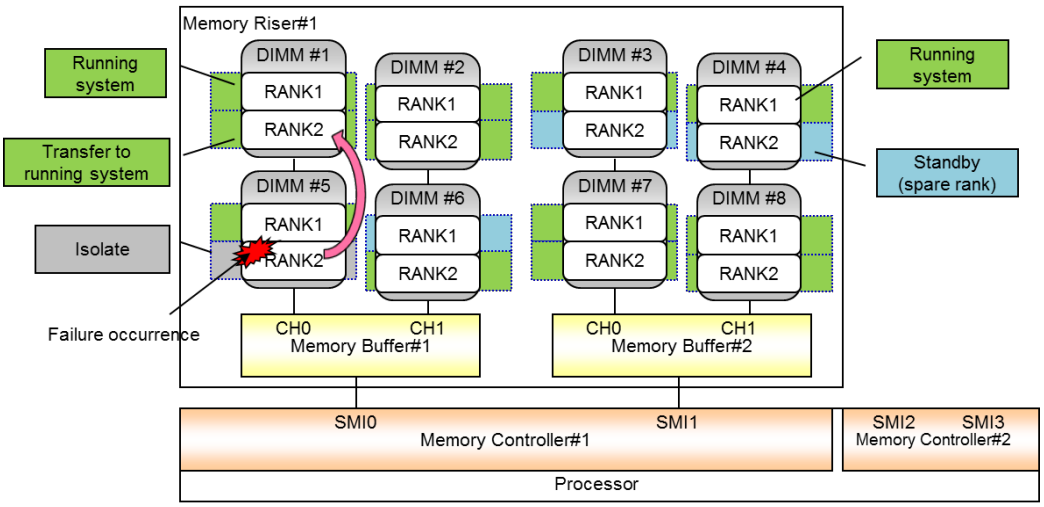
[Rank Spare (Number of spare ranks = 1)]



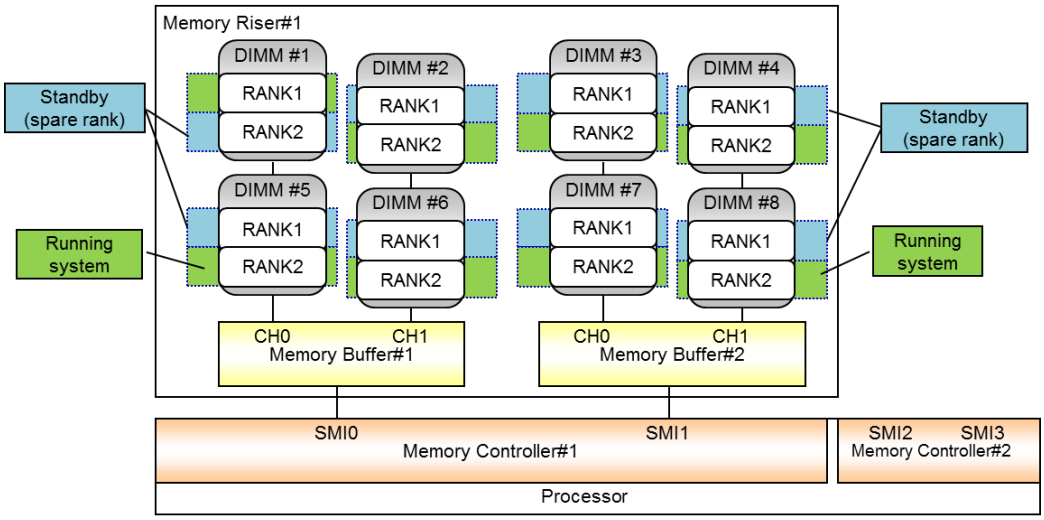
(a) If a failure occurs, the rank in the same DIMM as the failed rank is used as the spare rank



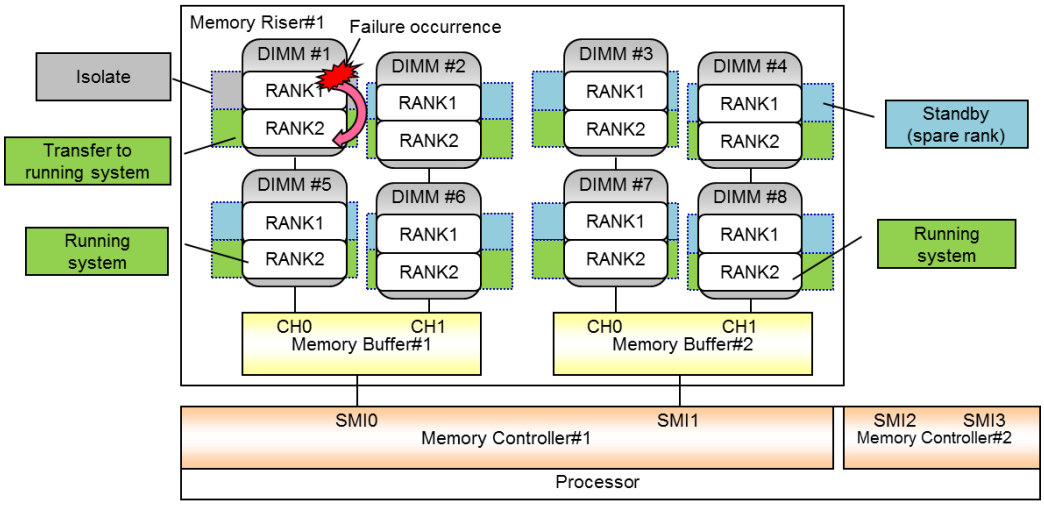
(b) If a failure occurs, a rank in a DIMM different from the one that includes the failed rank is used as the spare rank



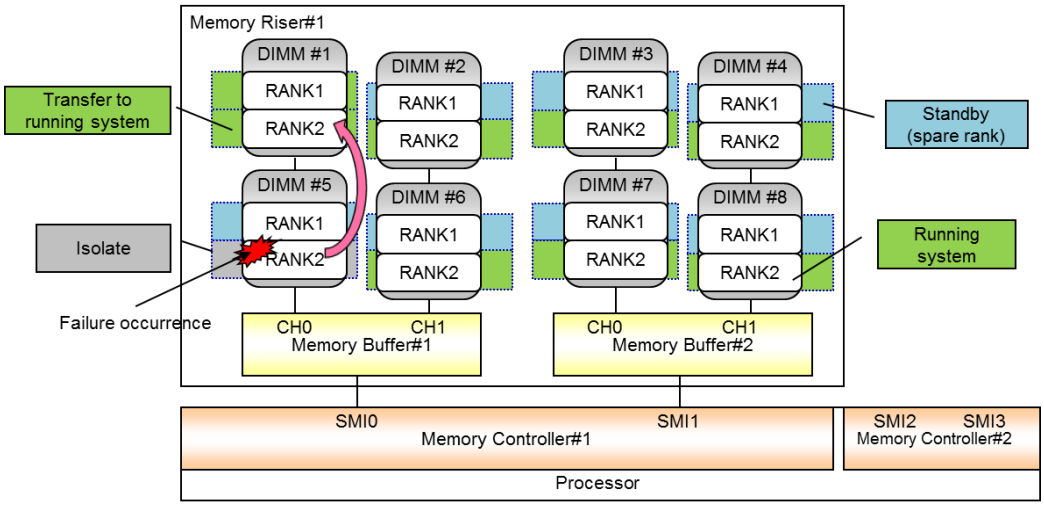
[Multi Rank Spare (Number of spare ranks = 2)]



(a) If a failure occurs, the rank in the same DIMM as the failed rank is used as the spare rank



(b) If a failure occurs, a rank in a DIMM different from the one that includes the failed rank is used as the spare rank



This feature can be used under the following conditions:

- Each memory channel must have two or more rank.
- The system determines which rank is used as the spare. The customer cannot specify this.

(3) Independent + Mirroring mode

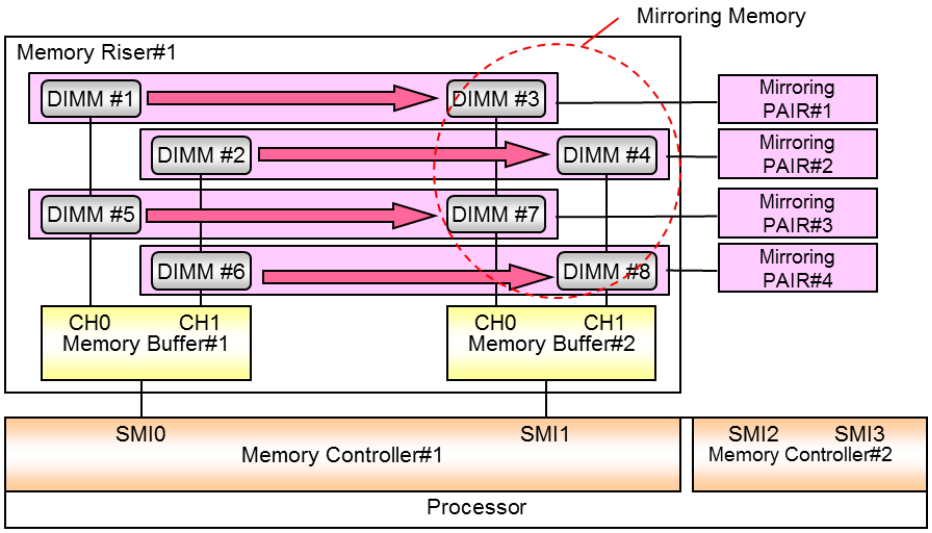
In Independent + Mirroring mode, mirroring memory is added to Independent mode, and regularly copies the contents of memory onto mirroring memory. If the memory error is detected, the mirroring memory takes over to continue processing.

Mirroring is performed between SMI channels in memory controller, as shown in the figure below. In principle, the SMI channel having younger number (SMI0) is defined as duplication origin.

RAS feature is higher than Independent mode and Independent + Rank Sparing mode, however, the memory capacity available for OS is reduced to half of installed memory capacity.

Note

- Use NE3302-H060F/H061F additional memory for Independent + Mirroring mode.
- Use the DIMMs of same model for Mirroring PAIR.



This feature can be used under the following conditions:

- The DIMMs used for Mirroring Pair (DIMM#1/3, DIMM#2/4, DIMM#5/7, DIMM#6/8) between SMI channel must be of the same model.

(4) Independent + Addr Mirroring mode

In Independent + Addr Mirroring mode, mirroring memory is added to Independent mode, and regularly copies the contents of Linux kernel area (less than 4GB) onto mirroring memory. If the memory error is detected, the server continues processing by correcting the memory error using the mirrored information.

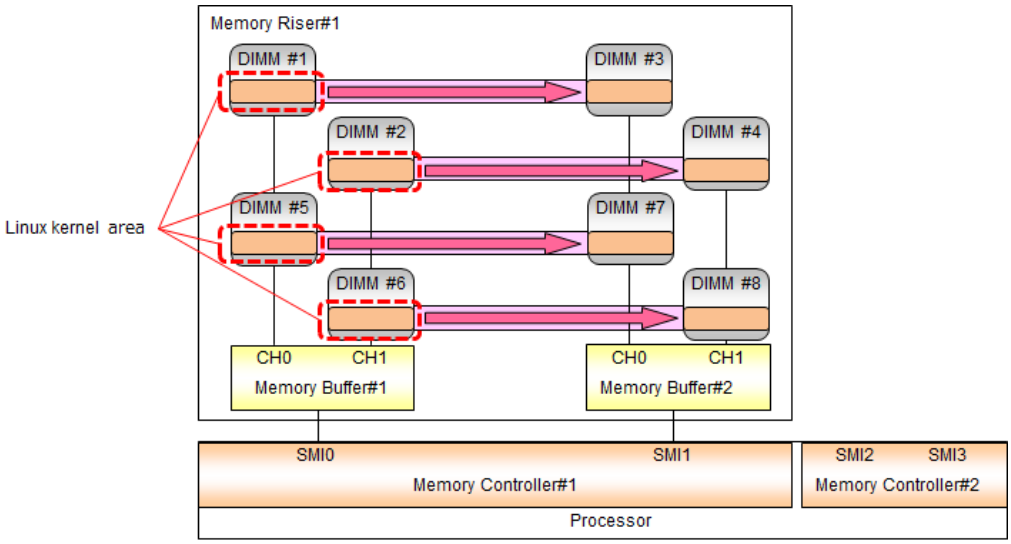
Mirroring is performed between SMI channels in memory controller, as shown in the figure below. In principle, the SMI channel having younger number (SMI0) is defined as duplication origin.

Memory efficiency is higher than Independent + Mirroring mode, however, RAS feature is rather poor.

Note

- This mode is supported by only Linux OS and setting by the dedicated tool (necmemras) is needed. For details, refer to *Express5800/A2040c, A2020c, A2010c, A1040c necmemras User's Guide for Linux*. This document is available on the following website.

  http://www.58support.nec.co.jp/global/download/index.html
- Use NE3302-H060F/H061F additional memory for Independent + Mirroring mode.
- Use the DIMMs of same model for Mirroring PAIR.



This feature can be used under the following conditions:

- The DIMMs used for Mirroring Pair (DIMM#1/3, DIMM#2/4, DIMM#5/7, DIMM#6/8) between SMI channel must be of the same model.

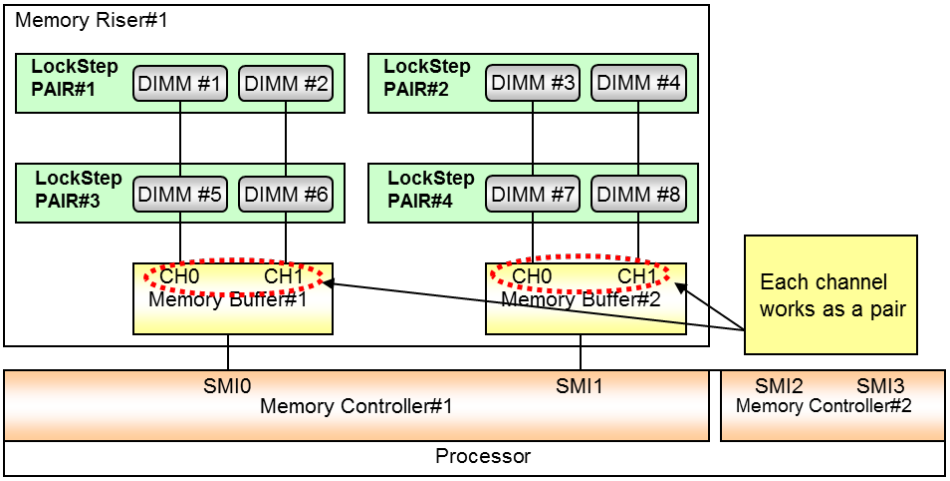
(5) Lock Step mode

In Lock Step mode, pairs of memory channel 0 and 1 or memory channel 2 and 3 are used to perform 128-bit data access. It supports ECC correction (128-bit Data + 16-Bit ECC) and DDDC (Double Device Data Correction) that can correct double DRAM errors.

Memory performance is lower than Independent mode (*1), however, RAS feature is higher than Independent mode.

Note

- Use NE3302-H040F/H041F/H042F/ H043F /H044F additional memory for Lock Step mode.
- Use the DIMMs of same model for Lock Step PAIR.



This feature can be used under the following conditions:

- Both DIMMs in Lock Step Pair (DIMM#1/2, DIMM#3/4, DIMM#5/6, DIMM#7/8) must be of same model.

*1 Performance is measured when DIMM works at the same memory clock speed in Independent mode and LockStep mode. There is a case that supported clock speed in LockStep mode is higher than in Independent mode in this server. Confirm the clock speed according to Chapter 2 (1.14.2 Memory Clock).

(6) Lock Step + Rank Sparing mode

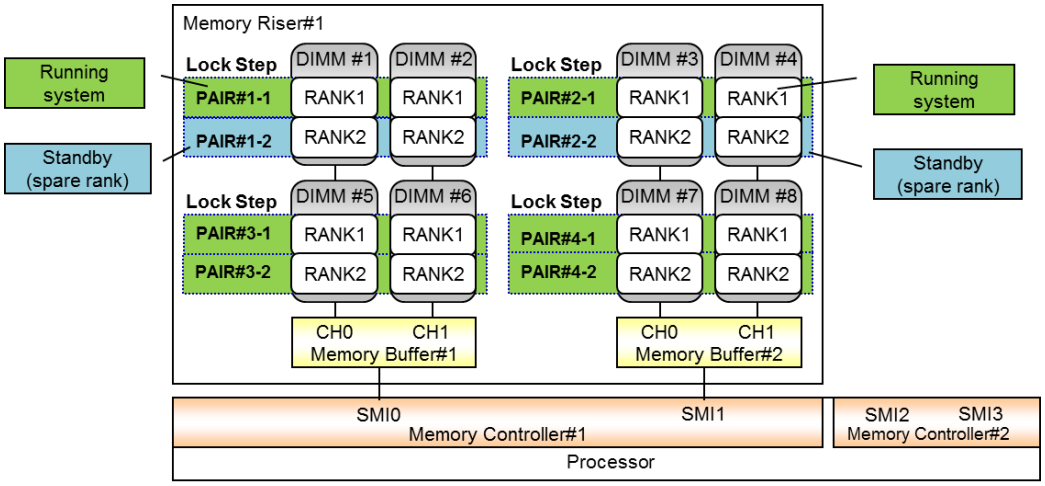
In Lock Step + Rank Sparing mode, spare ranks are added to Lock Step mode. If the indication of failure is detected in running rank, replace the data in unit of Lock Step PAIR by copying it onto spare rank on the same channel to continue processing.

RAS feature is higher than Lock Step mode, however, the memory capacity available for OS is reduced by the capacity of spare rank from the installed memory.

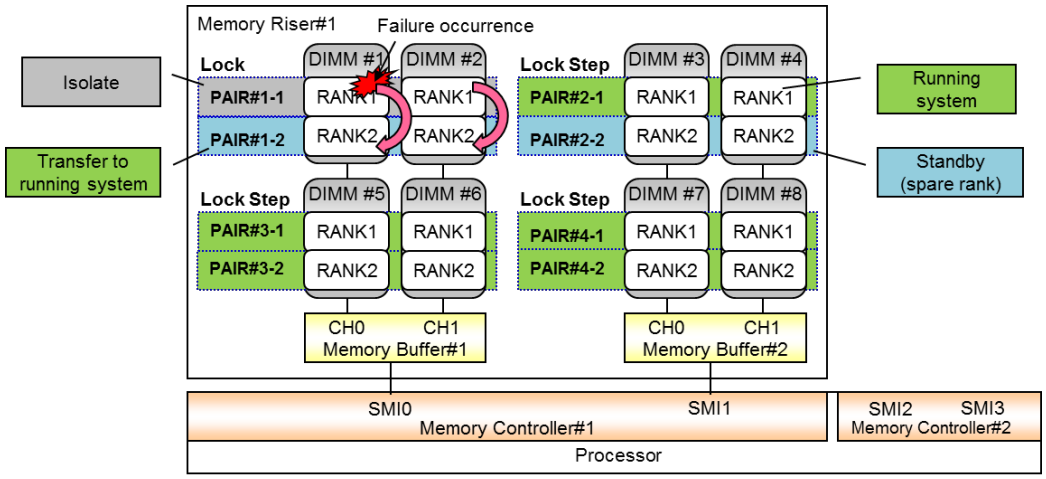
Note

- Use NE3302-H050F/H051F additional memory for Lock Step+RankSparing mode.
- Use the DIMMs of same model for Lock Step PAIR.

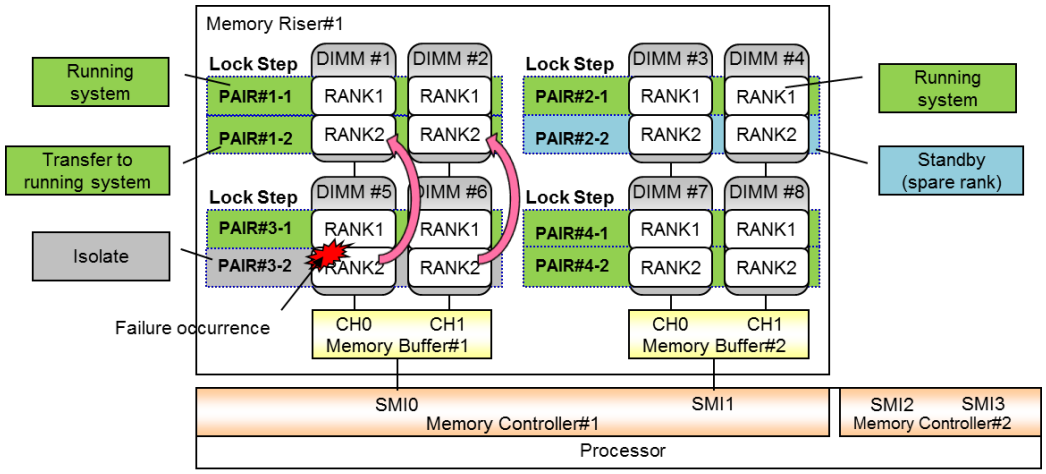
[Rank Spare (Number of spare ranks = 1)]



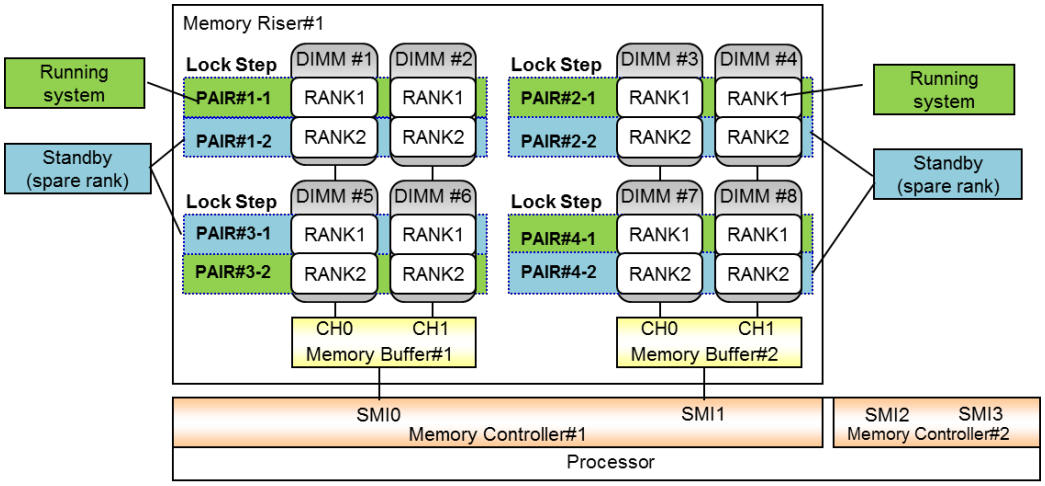
(a) If a failure occurs, the rank in the same DIMM as the failed rank is used as the spare rank



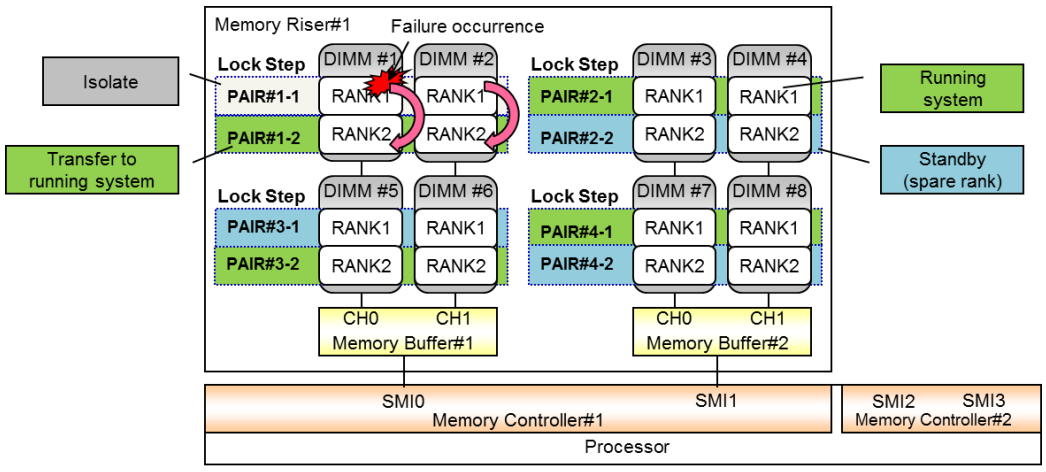
(b) If a failure occurs, a rank in a DIMM different from the one that includes the failed rank is used as the spare rank



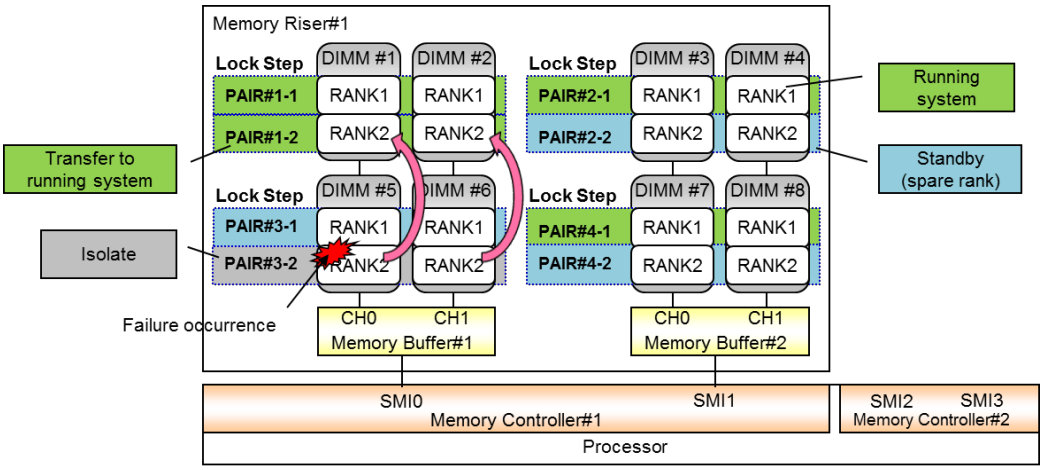
[Multi Rank Spare (Number of spare ranks = 2)]



(a) If a failure occurs, the rank in the same DIMM as the failed rank is used as the spare rank



(b) If a failure occurs, a rank in a DIMM different from the one that includes the failed rank is used as the spare rank



This feature can be used under the following conditions:

- Both DIMMs in Lock Step Pair (DIMM#1/2, DIMM#3/4, DIMM#5/6, DIMM#7/8) must be of same model.
- Each memory channel must have two or more rank.
- The system determines which rank is used as the spare. The customer cannot specify this.

(7) LockStep + Mirroring mode

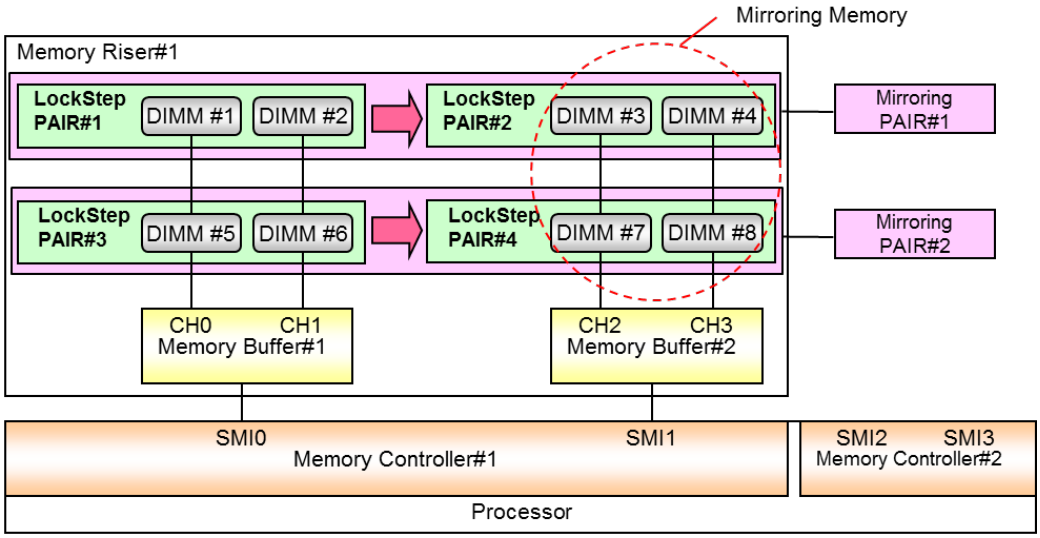
In LockStep + Mirroring mode, mirroring memory is added to Lock Step mode, and regularly copies the contents of memory onto mirroring memory. If the memory error is detected, the mirroring memory takes over to continue processing.

Mirroring is performed between SMI channels in memory controller, as shown in the figure below. In principle, the SMI channel having younger number (SMI0) is defined as duplication origin.

RAS feature is higher than LockStep mode and LockStep + Rank Sparing mode, however, the memory capacity available for OS is reduced to half of installed memory capacity.

Note

- Use NE3302-H060F/H061F additional memory for Step + Mirroring mode.
- Use the DIMMs of same model for Lock Step PAIR and Mirroring PAIR.



This feature can be used under the following conditions:

- The four DIMMs used for Lock Step Pair and Mirroring Pair between SMI channel must be of the same model.

(8) LockStep + Addr Mirroring mode

In LockStep + Addr Mirroring mode, mirroring memory is added to Lock Step mode, and regularly copies the contents of Linux kernel area (less than 4GB) onto mirroring memory. If the memory error is detected, the server continues processing by correcting the memory error using the mirrored information.

Mirroring is performed between SMI channels in memory controller, as shown in the figure below. In principle, the SMI channel having younger number (SMI0) is defined as duplication origin.

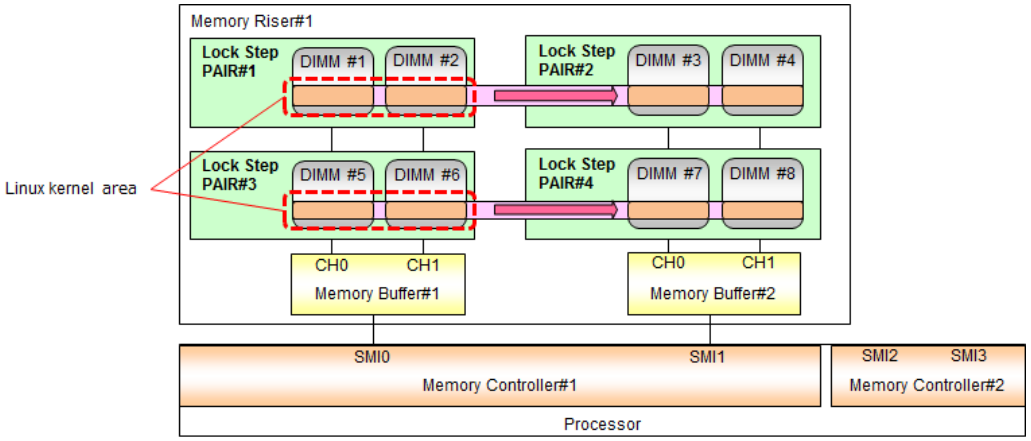
Memory efficiency is higher than LockStep + Mirroring mode, however, RAS feature is rather poor.

Note

- This mode is supported by only Linux OS and setting by the dedicated tool (necmemras) is needed. For details, refer to *Express5800/A2040c, A2020c, A2010c, A1040c necmemras User's Guide for Linux*. This document is available on the following website.

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

- Use NE3302-H060F/H061F additional memory for Step + Mirroring mode.
- Use the DIMMs of same model for Lock Step PAIR and Mirroring PAIR.



This feature can be used under the following conditions:

- The four DIMMs used for Lock Step Pair and Mirroring Pair between SMI channel must be of the same model.

(9) Memory Scrubbing mode

The server provides the patrol scrubbing and demand scrubbing features.

- Patrol scrubbing feature

  This feature checks system memory regularly. If a correctable error such as single-bit error is detected, correct it and write back that data to memory to keep the memory in errorless condition.

- Demand scrubbing feature

  This feature checks memory during operation. If a correctable error such as single-bit error is detected, correct it and write back that data to memory to keep the memory in errorless condition.

By correcting an error in advance can reduce the occurrence of uncorrectable error.

1.15 Flash Backup Unit for RAID Controller

If a RAID Controller (NE3303-177/178/H004) is installed with a flash backup unit, you can avoid data loss caused by accidents including temporary blackout during Write Back operation. The model of the flash backup unit to be used depends on RAID Controller.

- For NE3303-177, NE3303-178, use NE3303-H003 flash backup unit
- For NE3303-H004, use NE3303-H005 flash backup unit

1.15.1 Handling precautions

Observe the following when using flash backup unit. Ignoring these precautions may cause damage to your property (such as data or other devices).

- Use the flash backup unit dedicated to the RAID Controller you are using.
- The flash backup unit is a very delicate electronic device. Before installation, touch the metal frame part of the server to discharge the static electricity from your body.
- Do not drop or bump the flash backup unit.
- For recycling and disposing of the flash backup unit, refer to the User's Guide that comes with it.

1.15.2 Installation

Ask your service representative who is authorized by NEC to install the component. The service representative will install the component, and transfer the server to you after making sure that the server can operate normally.

1.16 PCI Card

The server has 16 slots for installing low-profile PCI card.

The internal RAID Controller must be installed in PCI slot 1 or 2. (PCI slots 1 and 2 can contain other PCI card than RAID Controller.)

Important **You must avoid static electricity to work with the procedure below. For details, refer to *Chapter 2 (1.2* Anti-Static Measures*)*.**

1.16.1 Notes

Read the following notes when installing or removing a PCI card.

- The search order for PCI bus slot on boot is as follows.

  [When PCH#1 is assigned as master (Express model)]

  Slot #1 → #3 → #4 → #5 → #2 → #6 → and remaining slots

  [When PCH#2 is assigned as master]

  Slot #2 → #6 → #7 → #8 → #9 → #1 → #3 → #4 → #5 → #10 → and remaining slots
- If an additional LAN card is installed, it is hard to push the catch of the connector with your finger that is connected to the LAN connector. Disconnect the connector pushing the catch with a standard screwdriver. At this time, be very careful for the screwdriver not to damage the LAN connector or other cards.
- For a RAID Controller, LAN card (network boot), or Fibre Channel controller, if no hard disk drive on which an OS is installed is connected, set the option ROM for that slot to **Disabled**. Refer to *Chapter 2 (1. Detail of System BIOS)* in "*Maintenance Guide*" for how to specify it.
- The WOL (Wake On LAN) of the LAN adapter can be used at PCI slot #5 or #9. PXE or iSCSI boot can be used at PCI slot #4, #5, #7, or #9. Note that this function cannot be used at other PCI slots.
- In the EXPRESS5800/A2040c, A2020c or A2010c model where Windows Server 2012 R2 or Windows Server 2012 is used as the server OS, when you add or remove the PCI card or change the mounted slot, you must specify settings including the configuration change according to each master BMC if failover occurs and is eliminated. For more information on the setting procedure, refer to “Chapter 4 (4. BMC Failover Setup Procedure).”

1.16.2 Installation

Ask your service representative who is authorized by NEC to install the component. The service representative will install the component, and transfer the server to you after making sure that the server can operate normally.

Note To install an flush backup unit for RAID Controller, see Chapter 2 (1.15 Flush Backup Unit for RAID Controller).

1.16.3 Installing RAID Controller

Ask your service representative who is authorized by NEC to install the component. The service representative will install the component, and transfer the server to you after making sure that the server can operate normally.

The server can have up to two RAID Controllers to connect with internal hard disk drives. The slot numbers available for RAID Controllers are assigned as follows:

- Slot to install the first RAID Controller card: Fixed to slot #1.
- Slot to install the second RAID Controller card: Fixed to slot #2.

(1) When using the optional RAID controller (NE3303-177/178/H004)

For details, refer to the manual that comes with optional RAID Controller (NE3303-177/178/H004).

Important

- **You must avoid static electricity to work with the procedure below. For details, refer to Chapter 2 (1.2 Anti-Static Measures).**
- **Do not let the system enter hibernate or standby state when RAID System is configured.**

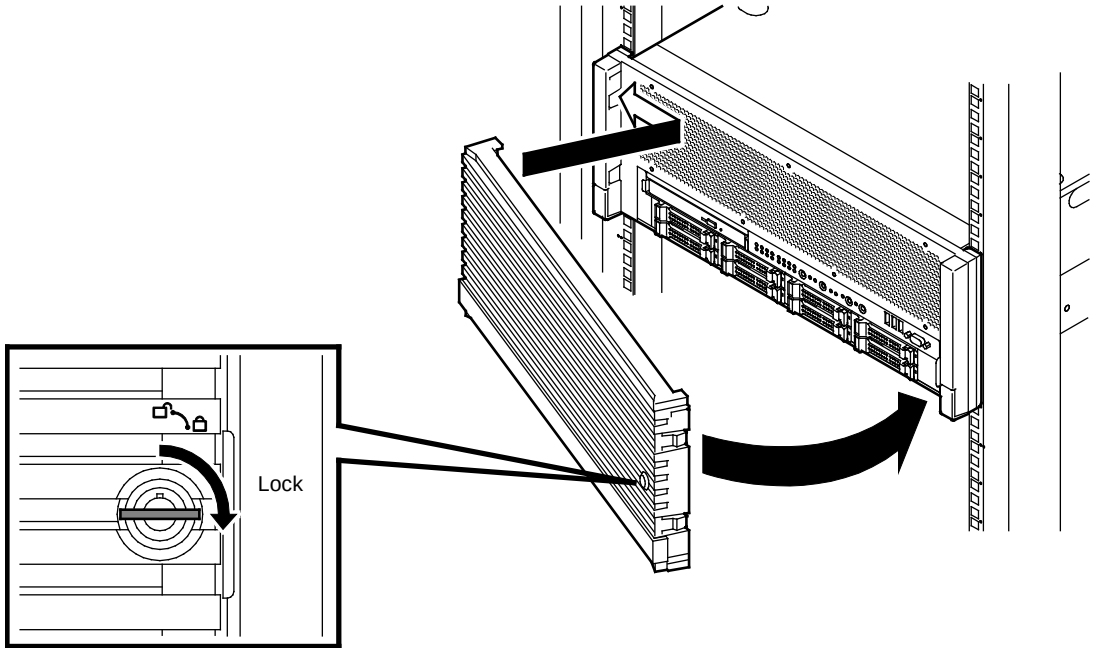
Note

- When installing an optional RAID Controller, run the BIOS SETUP utility, select **PCI Configuration** from the **Advanced** menu, and then make sure that the parameter of **PCI Slot *xx* ROM** (*xx* is PCI slot number) is set to **Enabled**.
- When connecting a RAID Controller, set the boot priority to 8th or higher in the Boot menu of the BIOS Setup utility. If the setting is 9th or lower, the configuration menu for RAID Controller cannot be launched.

1.17 Installing the Front Bezel

Note If your server has no front bezel, you can skip this step.

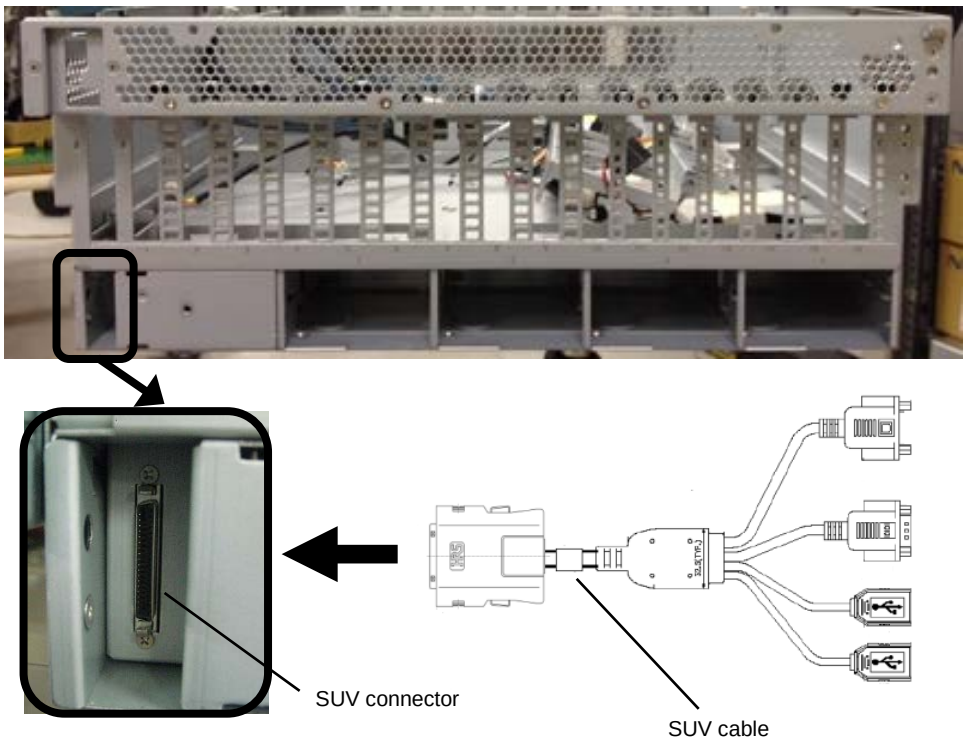
Install the front bezel while inserting the tab at left end of front bezel into the frame of server chassis. After installing Front Bezel, lock it with Bezel Lock Key.



Important **Be careful not to press the SYSTEM POWER Switch.**

1.18 SUV Cable

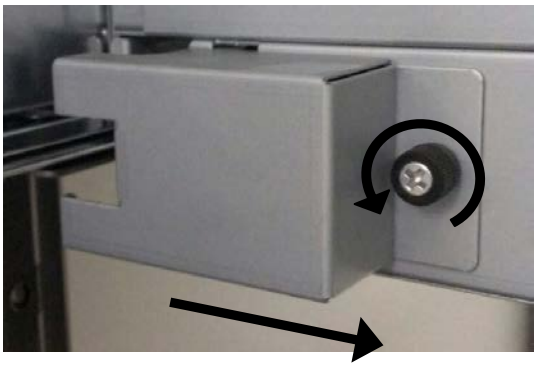
This section describes about procedures to connect SUV cable to the server.



1.18.1 Installation

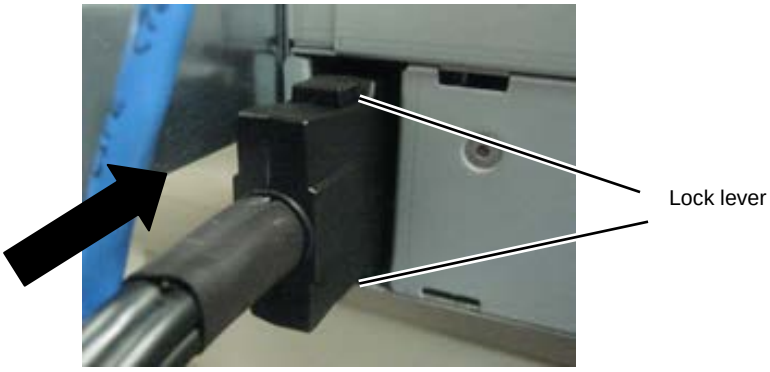
Take the steps below to connect SUV cable.

1. If the cover is attached, loosen the screw and remove the cover.



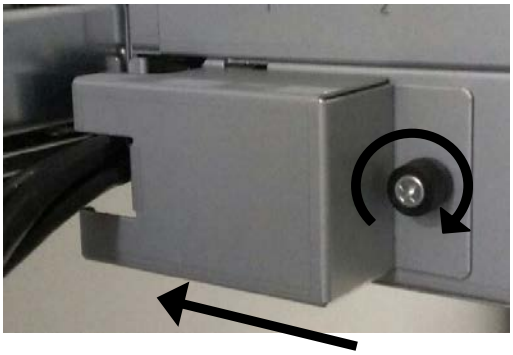
2. Confirm the orientation and shape of SUV connector on the server and SUV cable plug.

3. Insert SUV cable into connector and push it until it is locked with the clicking sound of lock levers at top and bottom .of connector is heard.



Important **Insert the SUV cable straight into the port. If the cable is inserted obliquely or applied excess force, the inlet of SUV cable and internal connector may be damaged.**

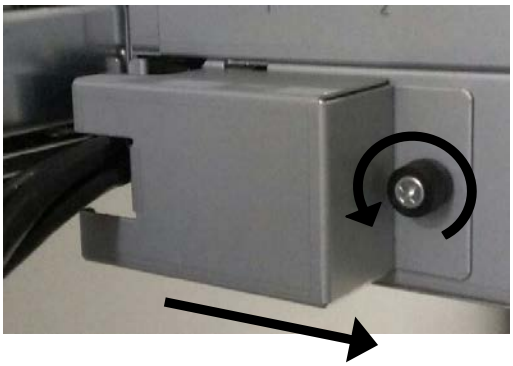
4. Mount the cover and secure it with a screw.



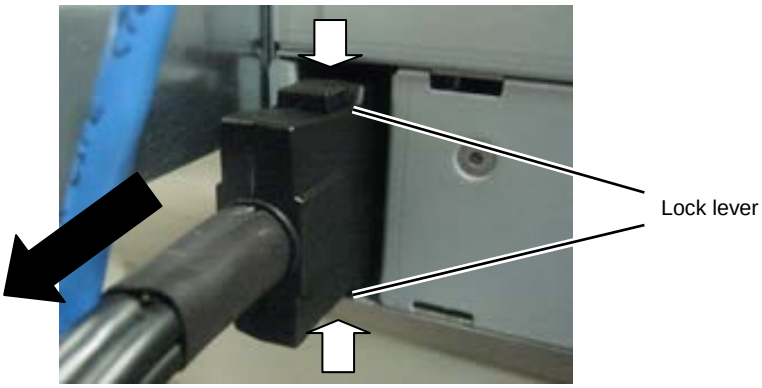
1.18.2 Removal

Take the steps below to remove SUV cable.

1. Loosen the screw and remove the cover.

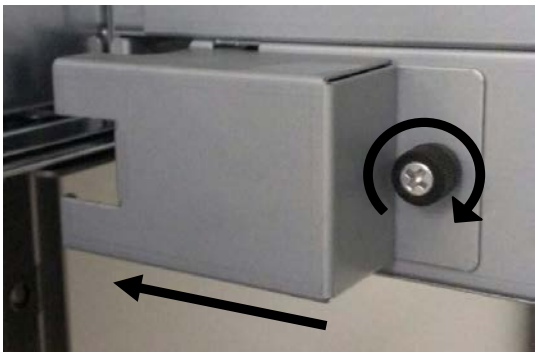


2. Pull the SUV cable out from the connector while pushing the lock levers at top and bottom of connector.



Important **Pull out the SUV cable straight from the port. If the cable is pulled out obliquely or applied excess force, the inlet of SUV cable and internal connector may be damaged.**

3. Mount the cover you have removed in Step 1.



1.19 TPM Kit

The optional TPM (Trusted Platform Module) kit can be used to exploit enhanced security functions such as encryption of hard disk drive. You must change BIOS settings to use this function. For details, refer to *Chapter 2 (1.2.3 Security (1) Trusted Computing submenu) in the Maintenance Guide*. In addition, note that the TPM function is not supported in the VMware ESXi environment.

The TPM kit is an option only available at shipment. This option cannot be purchased afterward.

2. Installation and Connection

This section describes how to install the server and connect peripheral devices.

2.1 Installation

This server must be mounted on a rack that conforms to EIA standards for use.

2.1.1 Installing Rack

Refer to the manual that comes with your rack for how to install the rack, or consult with your sales representative.

WARNING

Be sure to observe the following precautions to use the server safety. Failure to observe the precautions may cause death or serious injury. For details, refer to *Safety precautions* in *Precautions for Use*.

- **Use only in the specified environment.**
- **Do not connect the ground wire to a gas pipe.**

CAUTION

Be sure to observe the following precautions to use the server safely. Failure to observe the precautions may cause burns, injury, and property damage. For details, refer to *Safety precautions* in *Precautions for Use.*

- **Do not carry or install the server only by a single person.**
- **Do not install the server so that the load may be concentrated on a specific point.**
- **Do not install any components only by a single person. Confirm that hinge pins of the door are completely secured in place.**
- **Do not pull out the server from the rack when the rack is unstable.**
- **Do not leave more than one device being pulled out from the rack.**
- **Do not provide the wiring for the server to exceed the rating of the power supply.**
- **Do not use in the environment where corrosive gas is generated.**

AVERTISSEMENT

Conformez-vous aux instructions suivantes pour utiliser le serveur en toute sécurité. Le non-respect de ces instructions risque de vous blesser mortellement ou sérieusement. Pour plus de détails, consultez *Mesures de sécurité* dans *Précautions d'utilisation*.

- **N'utilisez pas le serveur dans un endroit interdit.**
- **Ne branchez pas le fil de terre sur un tuyau de gaz.**

ATTENTION

Conformez-vous aux instructions suivantes pour utiliser le serveur en toute sécurité. Le non-respect de ces instructions risque de provoquer un incendie, de vous blesser ou d'endommager votre équipement. Pour plus de détails, consultez *Mesures de sécurité* dans *Précautions d'utilisation*.

- **Ne portez pas et n'installez pas le serveur seul.**
- **N'installez pas le serveur dans un endroit lorsque la charge risque d'être concentrée sur un point spécifique.**
- **N'installez pas les composants du serveur seul. Confirmez que les gonds de la porte sont complètement fixés.**
- **Ne sortez pas un périphérique du rack si ce dernier est instable.**
- **Ne laissez pas plus d'un périphérique hors du rack.**
- **Ne dépassez pas la puissance du câblage.**
- **Ne pas utiliser dans des endroits contenant des gaz corrosifs.**

⚠ AVVERTIMENTO

Accertarsi di osservare le seguenti precauzioni per utilizzare il server in modo sicuro. La mancata osservanza delle precauzioni può provocare lesioni gravi o mortali. Per maggiori dettagli, consultare *Precauzioni di sicurezza* in *Precauzioni per l'uso*.

- **Utilizzare solo nell'ambiente specificato.**
- **Non collegare il filo di terra a un tubo del gas.**

⚠ ATTENZIONE

Accertarsi di osservare le seguenti precauzioni per utilizzare il server in modo sicuro. La mancata osservanza delle precauzioni può provocare ustioni, lesioni e danni materiali. Per maggiori dettagli, consultare *Precauzioni di sicurezza* in *Precauzioni per l'uso*.

- **Non trasportare né installare il server da soli.**
- **Non installare il server in modo che il carico possa essere concentrato su un punto specifico.**
- **Non installare alcun componente da soli. Verificare che i perni delle cerniere dello sportello siano fissati del tutto nella loro posizione.**
- **Non estrarre il server dal rack quando il rack è instabile.**
- **Non lasciare più di un dispositivo estratto dal rack.**
- **Non fornire cablaggi per il server che superino la portata dell'alimentatore.**
- **Non utilizzare in un ambiente in cui viene generato gas corrosivo.**

WARNUNG

Achten Sie darauf, die folgenden Vorsichtsmaßnahmen zu beachten, um den Server sicher zu verwenden. Werden diese Vorsichtsmaßnahmen nicht beachtet, kann es zum Tod oder zu ernsthaften Verletzungen kommen. Einzelheiten finden Sie auf *Sicherheitsmaßnahmen* in *Vorsichtsmaßnahmen beim Gebrauch*.

- **Nur in der festgelegten Umgebung nutzen.**
- **Schließen Sie das Erdungskabel nicht an das Gasrohr an.**

ACHTUNG

Achten Sie darauf, die folgenden Vorsichtsmaßnahmen zu beachten, um den Server sicher zu verwenden. Werden diese Vorsichtsmaßnahmen nicht beachtet, kann es zu Verbrennungen, Verletzungen oder zu Schäden am Eigentum kommen. Einzelheiten finden Sie auf *Sicherheitsmaßnahmen* in *Vorsichtsmaßnahmen beim Gebrauch.*

- **Lassen Sie den Server nicht von einer einzelnen Person tragen oder installieren.**
- **Installieren Sie den Server nicht so, dass die Last sich auf einen speziellen Punkt konzentriert.**
- **Lassen Sie keine Komponenten von einer einzelnen Person installieren. Überprüfen Sie, dass die Scharnierstifte der Tür vollständig vor Ort gesichert sind.**
- **Ziehen Sie den Server nicht aus dem Gestell, wenn das Gestell instabil ist.**
- **Lassen Sie nicht zu, dass mehr als ein Gerät aus dem Gestell gezogen wird.**
- **Lassen Sie nicht zu, dass die Verkabelung des Servers die Nennleistung der Stromversorgung überschreitet.**
- **Nicht in einer Umgebung verwenden, in der korrosives Gas generiert wird.**

⚠ ADVERTENCIA

Asegúrese de respetar las precauciones que figuran a continuación para utilizar el servidor de forma segura. De lo contrario, pueden producirse lesiones graves e, incluso, la muerte. Para obtener información detallada, consulte la Sección *Precauciones de seguridad* de las *Precauciones de uso*.

- **Utilice únicamente en el entorno especificado.**
- **No conectar el cable de tierra a una tubería de gas.**

⚠ CUIDADO

Asegúrese de respetar las precauciones que figuran a continuación para utilizar el servidor de forma segura. De lo contrario, pueden producirse quemaduras, lesiones y daños a la propiedad. Para obtener información detallada, consulte la Sección *Precauciones de seguridad* de las *Precauciones de uso*.

- **El servidor no debe ser trasladado o instalado por una única persona.**
- **No instalar el servidor de forma que la carga quede concentrada sobre un punto específico.**
- **Los componentes no deben ser instalados por una única persona. Confirmar que los pasadores de la bisagra de la puerta estén completamente asegurados en su lugar.**
- **No extraer el servidor del rack cuando este se encuentre en condiciones inestables.**
- **No dejar más de un dispositivo extraído del rack.**
- **El cableado del servidor no debe sobrepasar la clasificación nominal de la fuente de alimentación.**
- **No utilizar en un entorno en el que se genere gas corrosivo.**

⚠警告

为了安全使用本设备，请务必遵守以下的注意事项。否则有导致人员死亡或者重伤的危险。详情请参照本书【使用注意事项】的【安全注意事项】。

- 请勿在指定以外的场所使用
- 请勿将地线连接至煤气管道

⚠注意

为了安全使用本设备，请务必遵守以下的注意事项。否则有导致烧伤、其它伤害或财产损失的危险。详情请参照本书【使用注意事项】的【安全注意事项】。

- 请勿试图一个人搬运或安装
- 设置时请避免重量分配过于集中
- 请勿独自安装组件，并请检查机架门上合页的轴
- 请勿从不稳定状态的机架中抽取设备
- 请勿一次性从机架中抽取一台以上的本设备
- 连接设备时请勿超过电源的额定容量
- 请勿在产生腐蚀性气体的环境中使用

⚠警告

為了安全使用本設備，請務必遵守以下注意事項。否則有導致人員死亡或者重傷之危險。詳情請參閱本書【使用注意事項】之【安全注意事項】。

- 請勿在指定以外之場所使用
- 請勿將地線連接至煤氣管道

⚠注意

為了安全使用本設備，請務必遵守以下注意事項。否則有導致燒傷、其他傷害或財產損失之危險。

詳情請參照本書【使用注意事項】之【安全注意事項】。

- 請勿試圖一個人搬運或安裝
- 設置時請避免重量分配過於集中
- 請勿獨自安裝組件，並請檢查機架門上合頁的軸
- 請勿從不穩定狀態之機架中抽取設備
- 請勿一次性從機架中抽取一台以上的本設備
- 連接設備時請勿超過電源之額定容量
- 請勿在產生产生腐蝕性氣體的環境中使用

Do not install the rack or server under the following environment. Doing so may cause malfunction of the server.

- Narrow space from which devices cannot be pulled out from the rack completely
- Place that cannot bear the total weights of the rack and devices mounted on the rack
- Place where stabilizers cannot be installed or where the rack can be installed only after the practice of proper earthquake-resistant construction
- Place of uneven or slanting floor
- Place of drastic temperature change (near a heater, air conditioner, or refrigerator)
- Place where intense vibration may be generated
- Place where corrosive gases (sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia, ozone, etc) exist
  Place where the air (or dust) includes components accelerating corrosion (ex. sulfur, sodium chloride) or conductive metals
- Place where chemicals may be accidentally sprayed over
- Place where a carpet not subject to anti-static process is laid
- Place where some objects may be fallen on the rack
- Place near a device generating intense magnetic field (such as TVs, radios, broadcast/communication antennas, power transmission wires, and electromagnetic cranes) is placed.
- Place where the power cord of the server must be connected to an AC outlet that shares the outlet of another device with large power consumption
- Place near equipment that generates power noise (e.g., contact spark at power-on/power-off of commercial power supply through a relay). If you must install the server close to such equipment, request your service representative for separate power cabling or noise filter installation.
- Environment where operation of the server is not guaranteed

2.1.2 Installing the server to the rack or removing it from the rack

Mount the server to the rack. (This section also describes the removal procedure.)

WARNING

Be sure to observe the following precautions to use the server safety. Failure to observe the precautions may cause death or serious injury. For details, refer to *Safety precautions* in *Precautions for Use*.

- **Do not use any racks out of standards.**
- **Use only under the specified environment.**

CAUTION

Be sure to observe the following precautions to use the server safely. Failure to observe the precautions may cause burns, injury, and property damage. For details, refer to *Safety precautions* in *Precautions for Use.*

- **Do not drop the server.**
- **Do not leave the server being pulled out.**
- **Do not install the server with its cover removed.**
- **Do not get your fingers caught.**

Important

Temperature increases and airflow in the rack

If multiple devices are installed, or if the inside of the rack is not sufficiently ventilated, the internal temperature rises due to the heat emitted from each device, which may result in a malfunction. Review airflow in the rack and room and take sufficient measures so that the internal temperature will not exceed the operational temperature during operation.
Air enters the server from the front and exits from the rear.

AVERTISSEMENT

Conformez-vous aux instructions suivantes pour utiliser le serveur en toute sécurité. Le non-respect de ces instructions risque de vous blesser mortellement ou sérieusement. Pour plus de détails, consultez *Mesures de sécurité* dans *Précautions d'utilisation*.

- **N'utilisez aucun rack hors des normes.**
- **N'utilisez pas le serveur dans un environnement interdit.**

ATTENTION

Conformez-vous aux instructions suivantes pour utiliser le serveur en toute sécurité. Le non-respect de ces instructions risque de provoquer un incendie, de vous blesser ou d'endommager votre équipement. Pour plus de détails, consultez *Mesures de sécurité* dans *Précautions d'utilisation*.

- **Ne laissez pas tomber le serveur.**
- **Ne laissez pas le serveur pendant son retrait.**
- **N'installez pas le serveur avec son couvercle retiré.**
- **Faite attention à ne pas coincer vos doigts.**

Important

Augmentations de la température et courant d'air dans le rack

Si plusieurs appareils sont installés, ou si l'intérieur du rack n'est pas suffisamment aéré, la température interne augmente à cause de la chaleur émise par chaque appareil, ce qui peut entrainer un dysfonctionnement. Vérifiez le flux d'air dans le rack et la pièce et prenez des mesures suffisantes de sorte que la température interne ne dépasse pas la température opérationnelle lors du fonctionnement.
L'air entre dans le serveur par l'avant et en sort par l'arrière.

AVVERTIMENTO

Accertarsi di osservare le seguenti precauzioni per utilizzare il server in modo sicuro. La mancata osservanza delle precauzioni può provocare lesioni gravi o mortali. Per maggiori dettagli, consultare *Precauzioni di sicurezza* in *Precauzioni per l'uso*.

- **Non utilizzare rack non conformi agli standard.**
- **Utilizzare solo nell'ambiente specificato.**

ATTENZIONE

Accertarsi di osservare le seguenti precauzioni per utilizzare il server in modo sicuro. La mancata osservanza delle precauzioni può provocare ustioni, lesioni e danni materiali. Per maggiori dettagli, consultare *Precauzioni di sicurezza* in *Precauzioni per l'uso*.

- **Non far cadere il server.**
- **Non lasciare il server estratto.**
- **Non installare il server mentre il suo coperchio è rimosso.**
- **Prestare attenzione a non schiacciarsi le dita.**

Importante

Aumenti di temperatura e flusso d'aria nel rack

Se sono installati più dispositivi o se l'interno del rack non è sufficientemente ventilato, la temperatura interna aumenta a causa del calore emesso da ciascun dispositivo, il che può provocare un malfunzionamento. Osservare il flusso d'aria nel rack e nella stanza e prendere le misure sufficienti in modo che la temperatura interna non superi la temperatura di esercizio durante il funzionamento.
L'aria entra nel server dalla parte anteriore ed esce dalla parte posteriore.

WARNUNG

Achten Sie darauf, die folgenden Vorsichtsmaßnahmen zu beachten, um den Server sicher zu verwenden. Werden diese Vorsichtsmaßnahmen nicht beachtet, kann es zum Tod oder zu ernsthaften Verletzungen kommen. Einzelheiten finden Sie auf *Sicherheitsmaßnahmen* in *Vorsichtsmaßnahmen beim Gebrauch*.

- **Verwenden Sie keine Gestelle, die nicht Standard sind.**
- **Nur in der festgelegten Umgebung benutzen.**

ACHTUNG

Achten Sie darauf, die folgenden Vorsichtsmaßnahmen zu beachten, um den Server sicher zu verwenden. Werden diese Vorsichtsmaßnahmen nicht beachtet, kann es zu Verbrennungen, Verletzungen oder zu Schäden am Eigentum kommen. Einzelheiten finden Sie auf *Sicherheitsmaßnahmen* in *Vorsichtsmaßnahmen beim Gebrauch.*

- **Nicht den Server fallen lassen.**
- **Lassen Sie den Server nicht herausgezogen.**
- **Installieren Sie den Server nicht bei entfernter Abdeckung.**
- **Klemmen Sie Ihre Finger nicht ein.**

Wichtig

Temperaturanstiege und Luftzug im Gestell

Wenn mehrere Geräte installiert sind oder das Innere des Gestells nicht ausreichend belüftet wird, steigt die Temperatur im Inneren aufgrund der von jedem Gerät abgegebenen Wärme an, was zu einer Fehlfunktion führen kann. Überprüfen Sie den Luftfluss im Gestell und Raum und treffen Sie ausreichende Maßnahmen, sodass die Temperatur im Inneren nicht die Betriebstemperatur während des Betriebs übersteigt.
Luft dringt von vorne in den Server ein und tritt hinten aus.

⚠ ADVERTENCIA

Asegúrese de respetar las precauciones que figuran a continuación para utilizar el servidor de forma segura. De lo contrario, pueden producirse lesiones graves e, incluso, la muerte. Para obtener información detallada, consulte la Sección *Precauciones de seguridad* de las *Precauciones de uso*.

- **No utilizar ningún rack que incumpla las normas.**
- **Utilizar únicamente en el entorno especificado.**

⚠ CUIDADO

Asegúrese de respetar las precauciones que figuran a continuación para utilizar el servidor de forma segura. De lo contrario, pueden producirse quemaduras, lesiones y daños a la propiedad. Para obtener información detallada, consulte la Sección *Precauciones de seguridad* de las *Precauciones de uso*.

- **No permita que caiga el servidor.**
- **No dejar el servidor extraído.**
- **No instale el servidor con la cubierta extraída.**
- **Evitar que sus dedos queden atrapados.**

Importante

Incrementos de temperatura y caudal de aire en el rack

Si existen múltiples dispositivos instalados, o si el interior del rack no está suficientemente ventilado, la temperatura interna incrementa debido al calor emitido por cada dispositivo, lo que podría ocasionar un funcionamiento incorrecto. Verifique el caudal de aire en el rack y la sala y tome las medidas adecuadas para que la temperatura interna no supere la temperatura operativa durante el funcionamiento.
El aire entra en el servidor desde la parte frontal y sale por la parte posterior.

⚠警告

为了安全使用本设备，请务必遵守以下的注意事项。否则有导致人员死亡或者重伤的危险。详情请参照【使用注意事项】的【安全注意事项】。

- 请勿使用规格外的机架
- 请勿在指定以外的场所使用

⚠注意

为了安全使用本设备，请务必遵守以下的注意事项。否则有导致烧伤、其它伤害或财产损失的危险。详情请参照【使用注意事项】的【安全注意事项】。

- 注意掉落
- 将设备抽取出来后请及时放回原处
- 请勿在拆掉盖板的状态下进行安装
- 请注意不要夹伤手指

重要

关于机架内部的温度上升和空气流通

当安装了多台设备或机架内部的空气流通不充分等情况下，由于各个设备发出的热量，机架内部的温度上升，有可能引起功能异常。为了防止运行过程中机架内部的温度超过保证范围，请充分考虑机架内部以及室内的空气流通并采取对策。

本设备采用正面吸气背面排气的方式。

⚠警告

為了安全使用本設備，請務必遵守以下注意事項。否則有導致人員死亡或者重傷之危險。詳情請參照本書【使用注意事項】之【安全注意事項】。

- 請勿使用規格外的機架
- 請勿在指定以外之場所使用

⚠注意

為了安全使用本設備，請務必遵守以下注意事項。否則有導致燒傷、其他傷害或財產損失之危險。詳情請參照本書【使用注意事項】之【安全注意事項】。

- 請注意掉落
- 將設備抽取出來後請給及時放回原處
- 請勿在在拆掉蓋板之狀態下進行安裝
- 請注意不要夾傷手指

重要

關於機架內部之溫度上升和空氣流動

檔安裝了多台設備或機架內部空氣流通不充分等情況下，由於各個設備發出之熱量，機架內部溫度上升，有可能引起功能異常。為了繁殖運行過程中機架內部之溫度超過保證範圍，請充分考慮機架內部以及室內之空氣流動並採取對策。

本設備採用正面吸氣背面排氣方式。

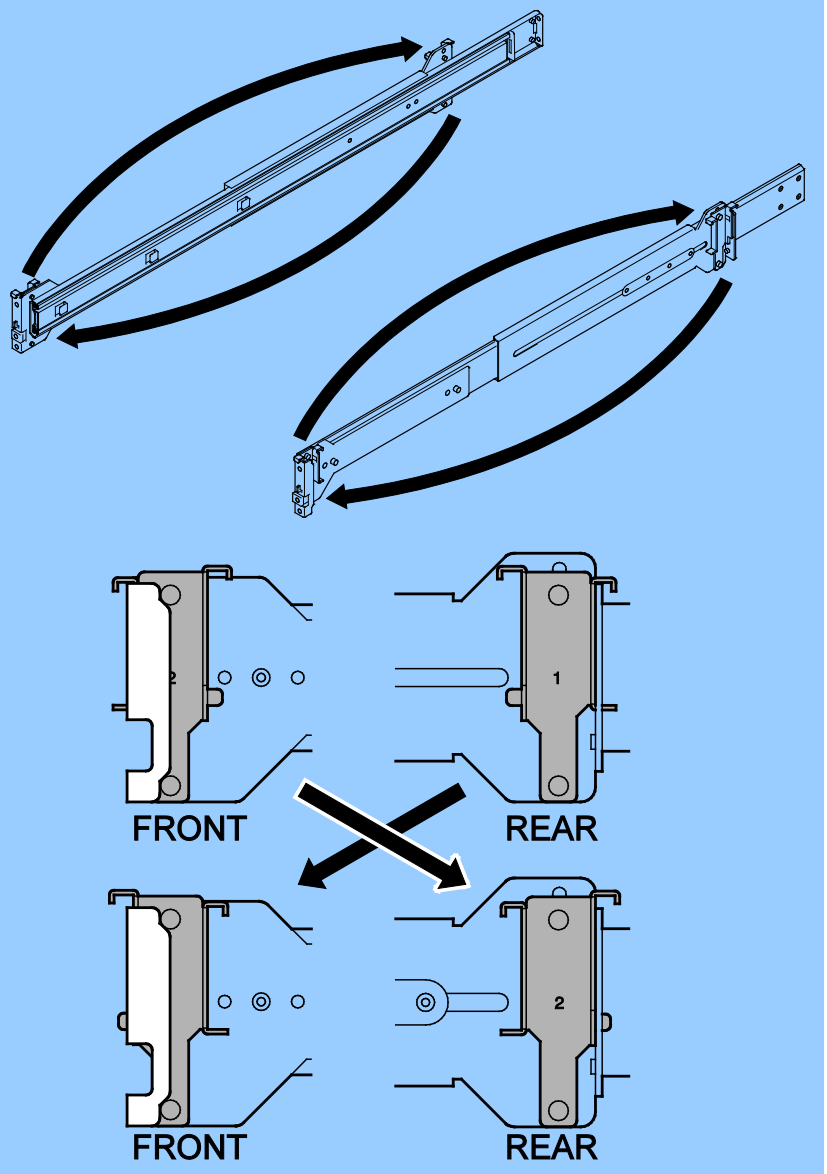
(1) Installation

This server can be mounted to a rack made by NEC or other companies. Mount the server to a rack in the following procedure.

Preparation

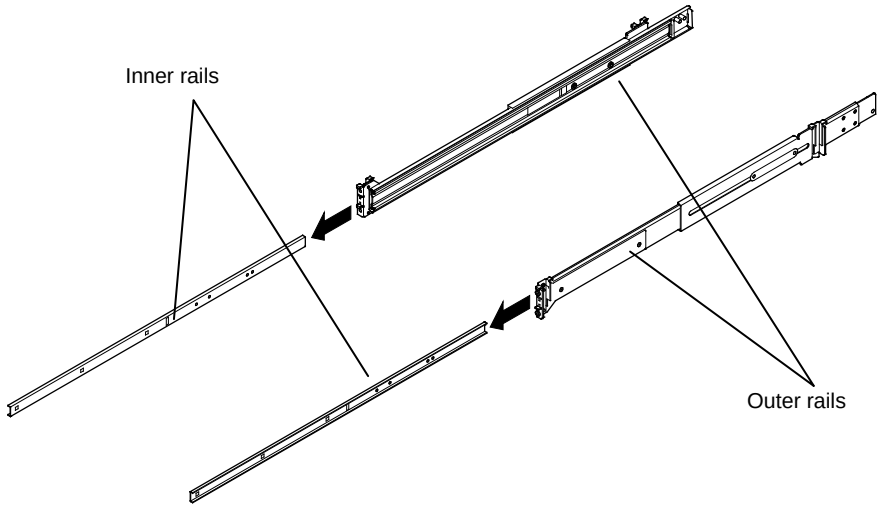
The left and right rails are fixed with tapes at factory to prevent them from falling during transportation. Peel off tapes before mounting them on the rack.

Important **If you install the mount kit to a circular hole type rack, replace the metal fittings of the front side, and the metal fittings of the rear side of a mount kit. Refer to the following figures.**

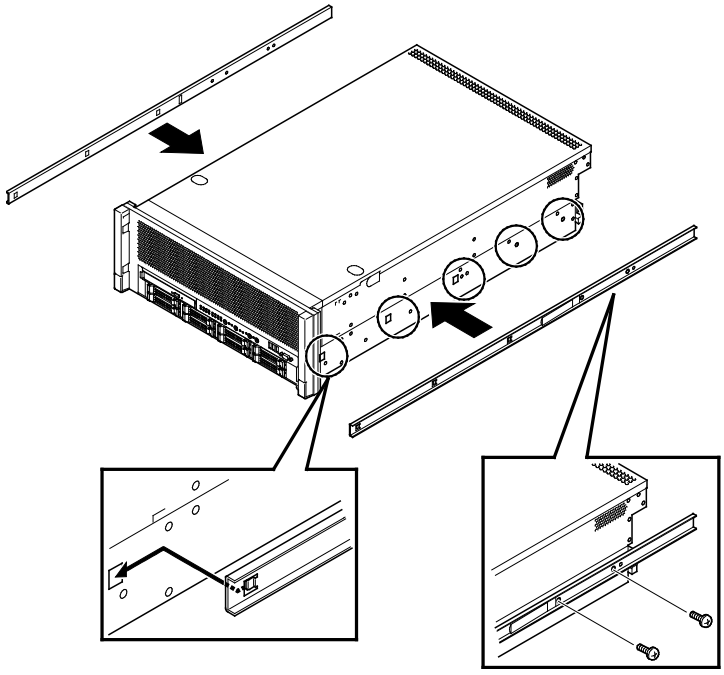


Installing the mount kit to the rack

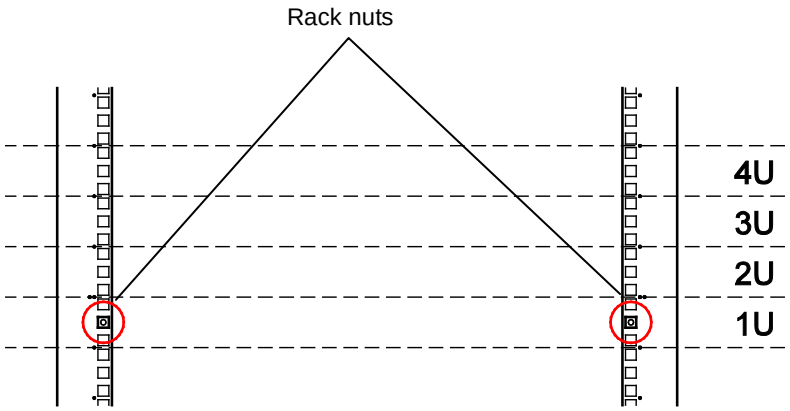
1. Remove inner rails from mount kit.



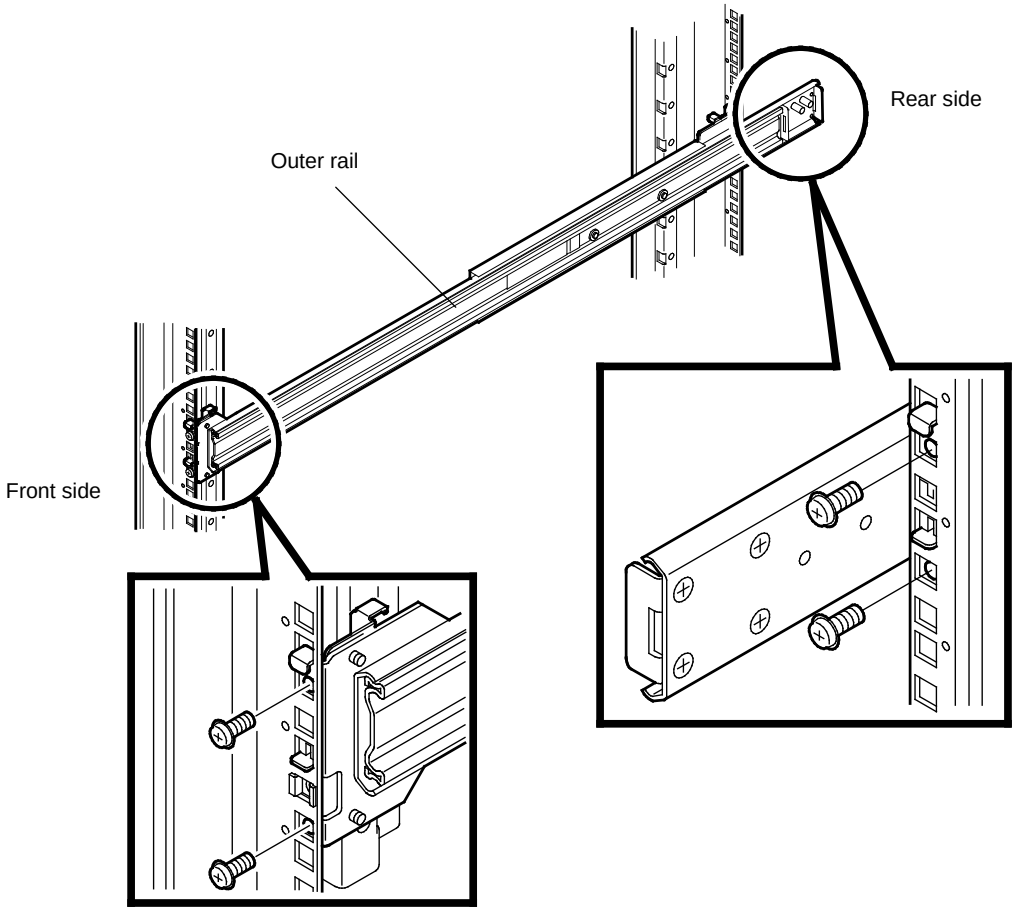
2. Mount the inner rails to the server chassis. Engage the 3 positions at front side with tabs on chassis, and secure 2 positions at rear side with a screw.

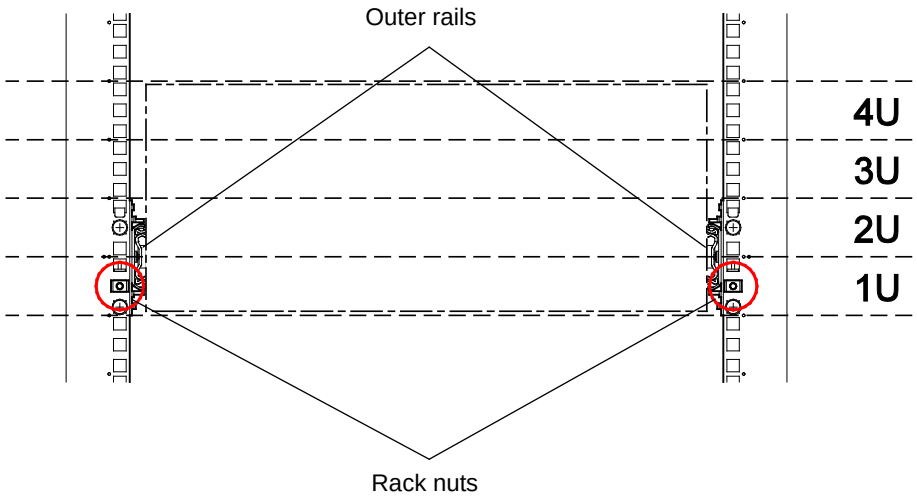


3. Mount the rack nut to secure the server to rack (2 positions at front side).



4. Install the outer rail to the rack. Fix the outer rail with screws (2 positions at front side, and 2 positions at rear side).

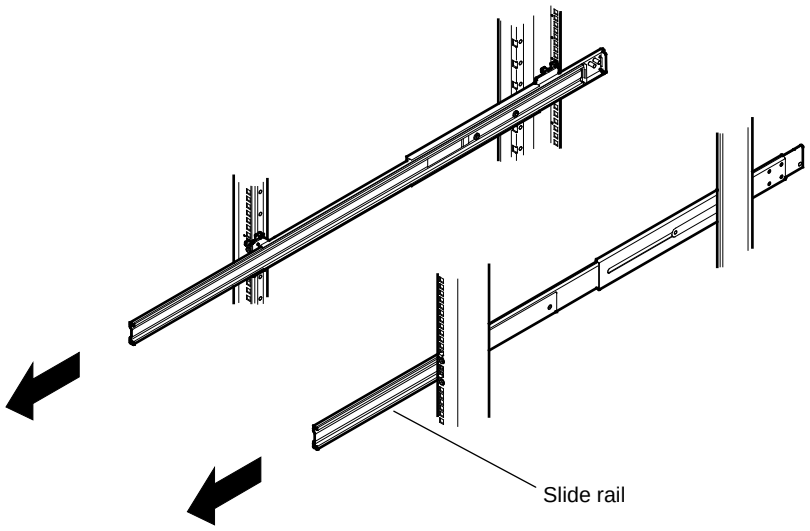




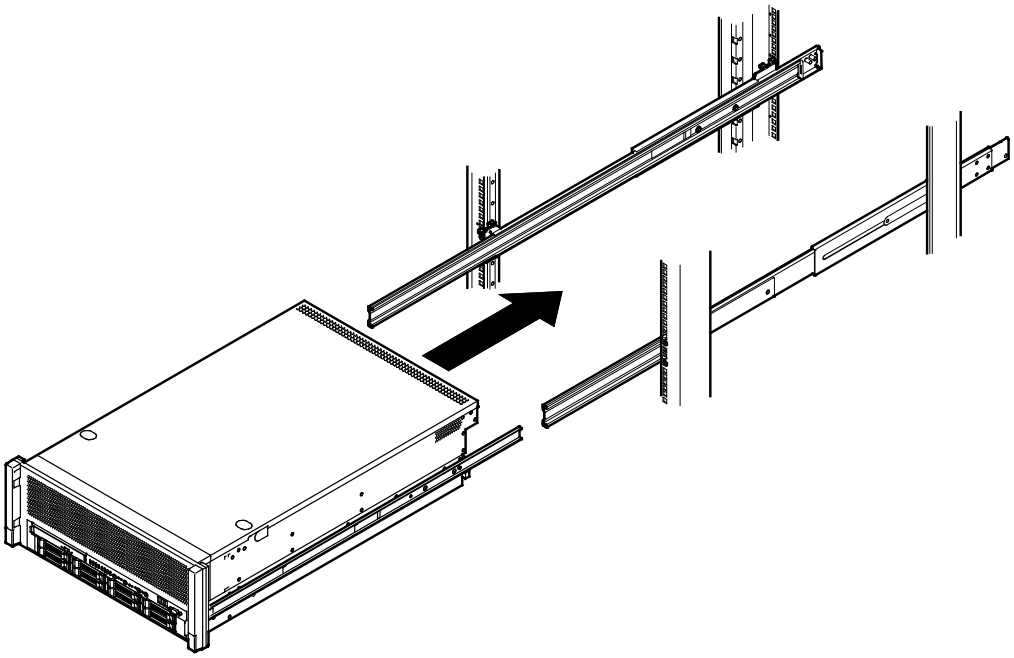
5. Install the outer rail for opposite side in similar way as Step 4.

Installing server in rack

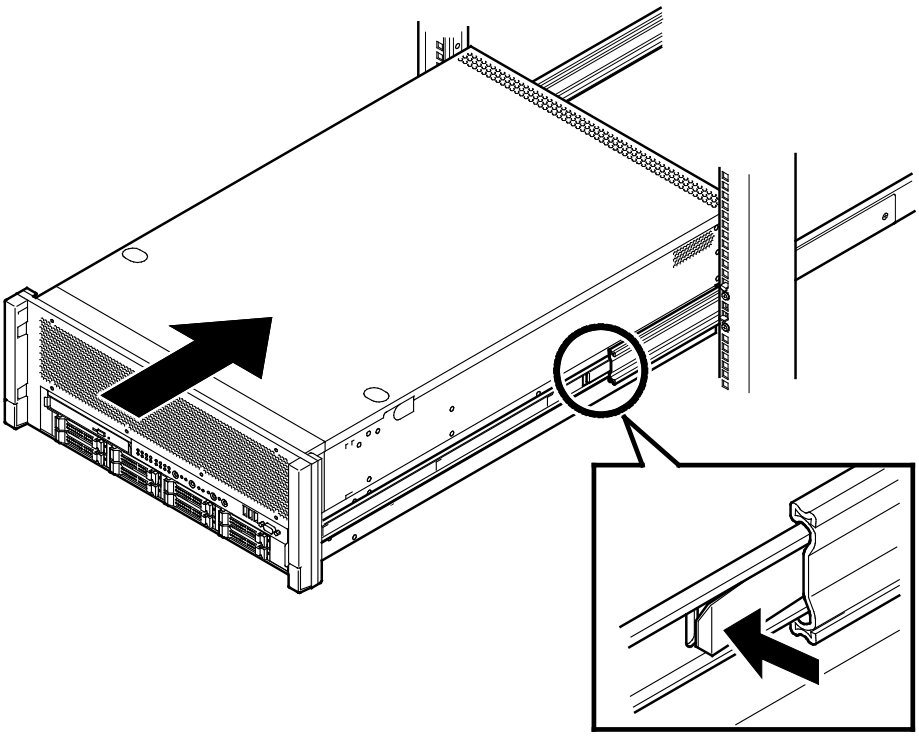
1. Pull out the slide rail from outer rail until it is locked.



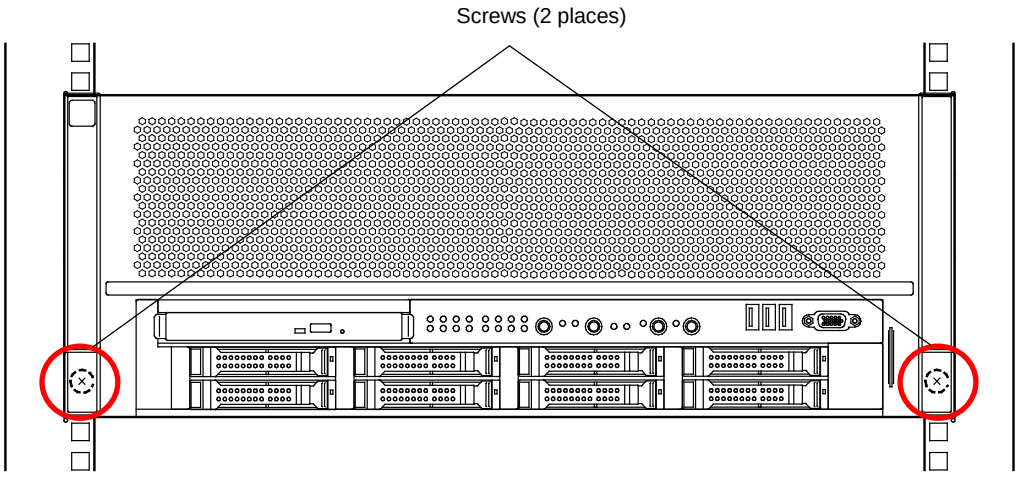
2. Insert the server along the slide rail.



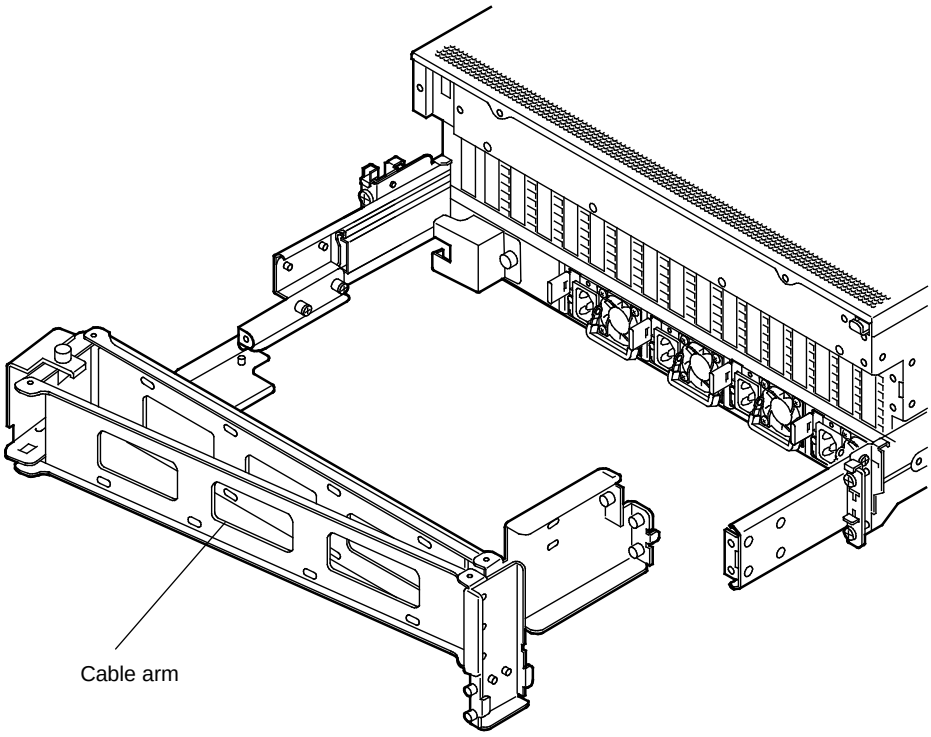
3. Release the locking mechanism of inner rail at both sides of server, and push the server into the depths of rack.



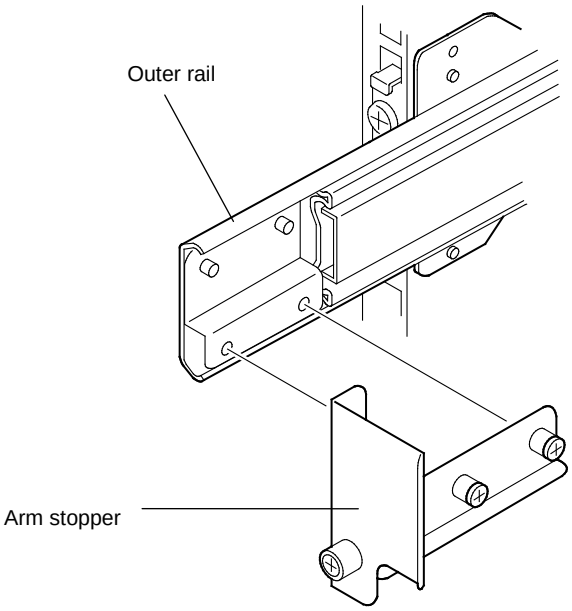
4. Secure the server to the rack by two screws at front of the server. Secure the server to the rack nut installed in Step 3 of "Installing the mount kit to the rack"



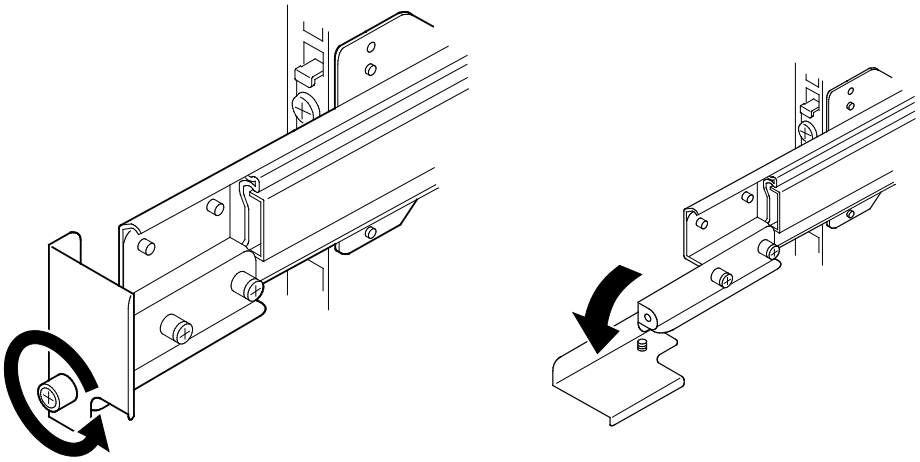
Installing cable arm



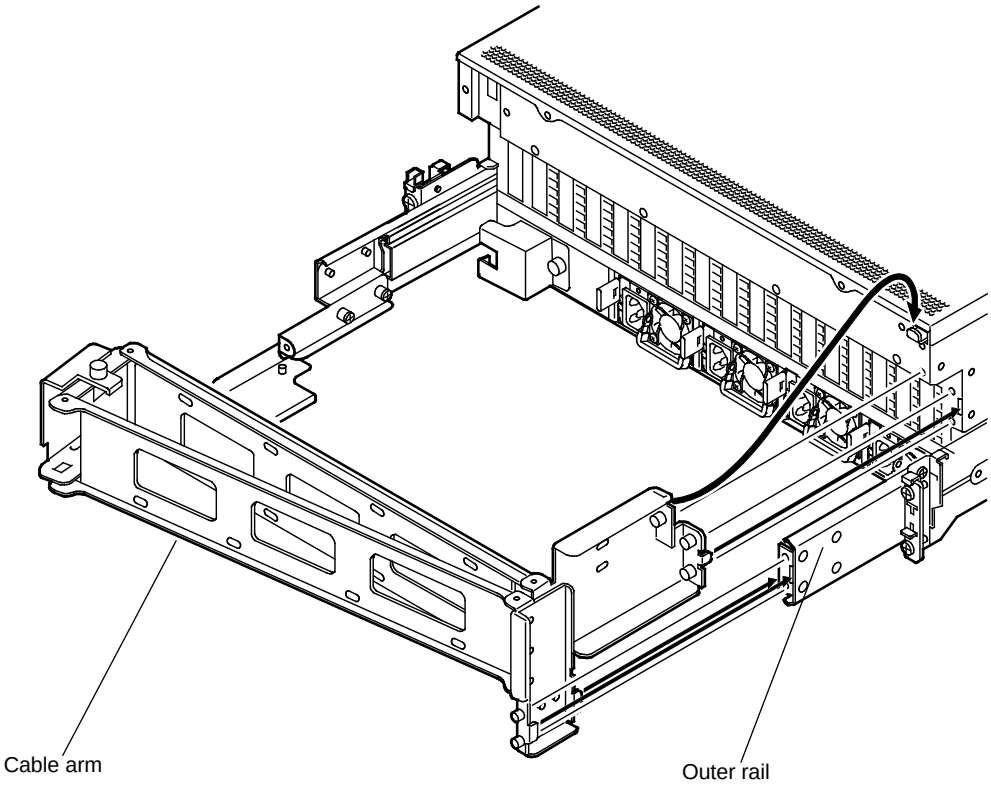
1. Mount the stopper to outer rail.



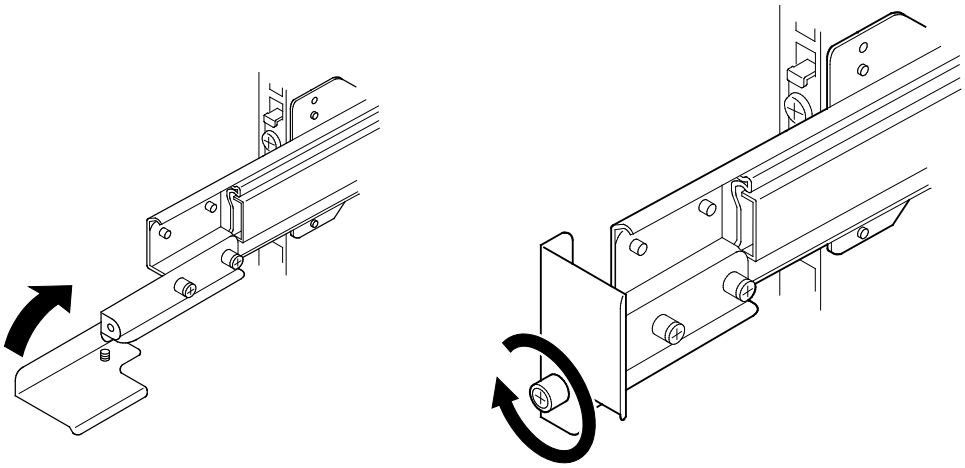
2. Loosen the screw of arm stopper, and push down the arm stopper.



3. Mount the cable arm to server chassis and outer rail. When mounting to server chassis, engage 2 positions to the chassis, and secure 3 positions with screws. When mounting to outer rail, engage 2 positions, and secure 2 positions with screws.



4. Push up the arm stopper and tighten the screen loosened in Step 2.

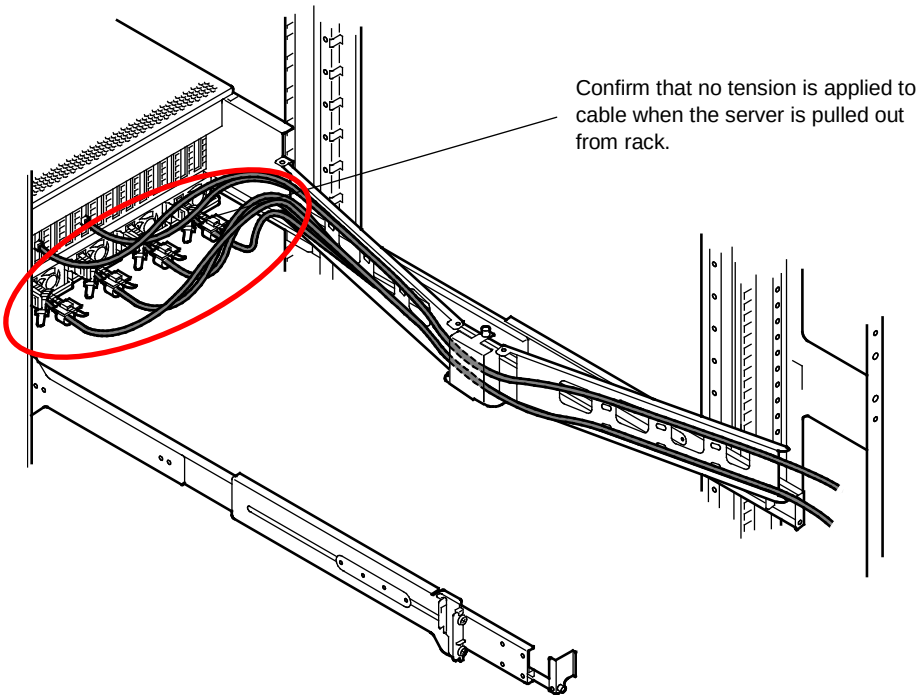


Now the server is installed in the rack.

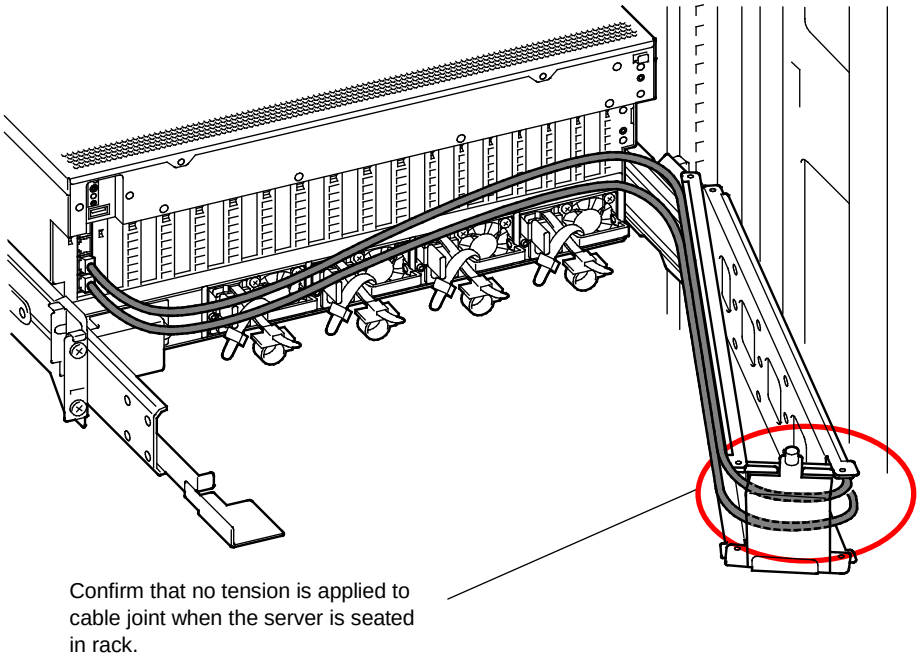
The following shows how to connect cables to cable arm. Confirm that no tension is applied to cable. See the figures below.

Image of cable routing

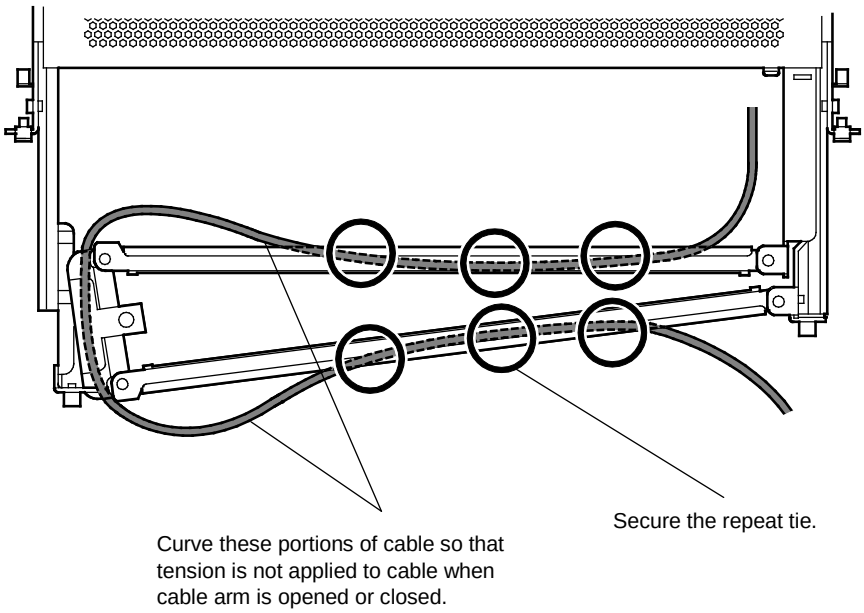
(1) When the server is pulled out from rack



(2) When the server is seated in rack (1)



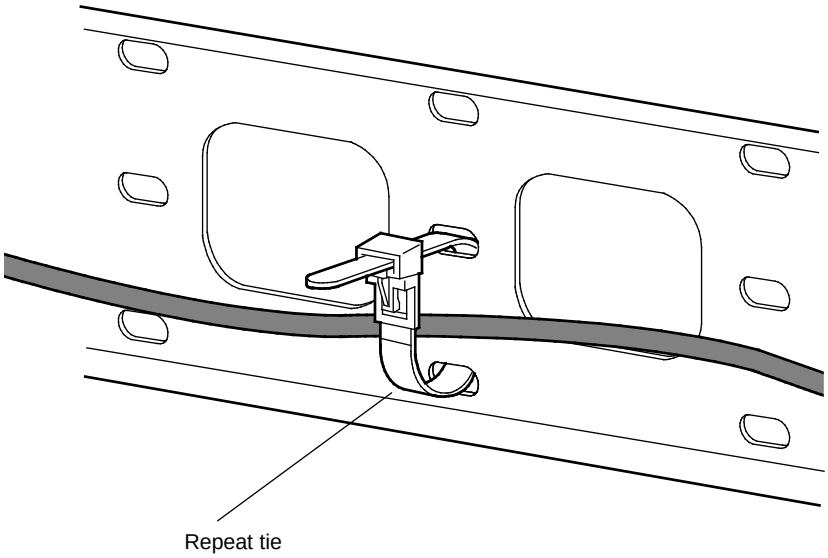
(3) When the server is seated in rack (2)



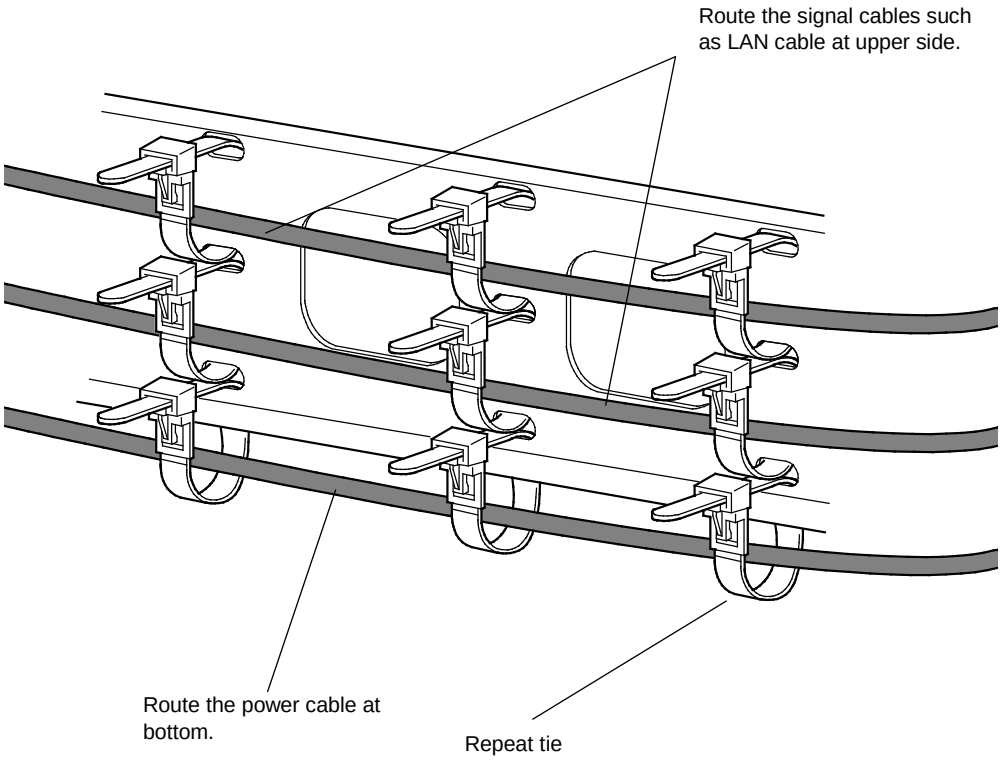
Fixing cable with repeat tie

(1) Mounting repeat tie

Mount the repeat tie to cable arm as shown in the figure below.



(2) Mounting position of repeat tie and cable routing



(2) Removal procedure

Remove the server from the rack in the following procedure. At least four persons are required to remove the server from rack.

⚠ CAUTION

Be sure to observe the following precautions to use the server safely. Failure to observe the precautions may cause burns, injury, and property damage. For details, refer to Safety precautions in Precautions for Use.

- **Do not drop the server.**
- **Do not leave the server being pulled out.**
- **Do not install the server with its cover removed.**
- **Do not get your fingers caught.**

⚠ ATTENTION

Conformez-vous aux instructions suivantes pour utiliser le serveur en toute sécurité. Le non-respect de ces instructions risque de provoquer un incendie, de vous blesser ou d'endommager votre équipement. Pour plus de détails, consultez Mesures de sécurité dans Précautions d'utilisation.

- **Ne laissez pas tomber le serveur.**
- **Ne laissez pas le serveur pendant son retrait.**
- **N'installez pas le serveur avec son couvercle retiré.**
- **Faite attention à ne pas coincer vos doigts.**

⚠ ATTENZIONE

Accertarsi di osservare le seguenti precauzioni per utilizzare il server in modo sicuro. La mancata osservanza delle precauzioni può provocare ustioni, lesioni e danni materiali. Per maggiori dettagli, consultare Precauzioni di sicurezza in Precauzioni per l'uso.

- **Non far cadere il server.**
- **Non lasciare il server estratto.**
- **Non installare il server mentre il suo coperchio è rimosso.**
- **Prestare attenzione a non schiacciarsi le dita.**

ACHTUNG

Achten Sie darauf, die folgenden Vorsichtsmaßnahmen zu beachten, um den Server sicher zu verwenden. Werden diese Vorsichtsmaßnahmen nicht beachtet, kann es zu Verbrennungen, Verletzungen oder zu Schäden am Eigentum kommen. Einzelheiten finden Sie auf Sicherheitsmaßnahmen in Vorsichtsmaßnahmen beim Gebrauch.

- **Nicht den Server fallen lassen.**
- **Lassen Sie den Server nicht herausgezogen.**
- **Installieren Sie den Server nicht bei entfernter Abdeckung.**
- **Klemmen Sie Ihre Finger nicht ein.**

CUIDADO

Asegúrese de respetar las precauciones que figuran a continuación para utilizar el servidor de forma segura. De lo contrario, pueden producirse quemaduras, lesiones y daños a la propiedad. Para obtener información detallada, consulte la Sección Precauciones de seguridad de las Precauciones de uso.

- **No permita que caiga el servidor.**
- **No deje el servidor extraído.**
- **No instale el servidor con la cubierta extraída.**
- **Evite que sus dedos queden atrapados.**

注意

为了安全使用本设备，请务必遵守以下的注意事项。否则有导致烧伤、其它伤害或财产损失的危险。详情请参照【使用注意事项】的【安全注意事项】。

- **注意掉落**
- **将设备抽取出来后请及时放回原处**
- **请勿在拆掉盖板的状态下进行安装**
- **请注意不要夹伤手指**

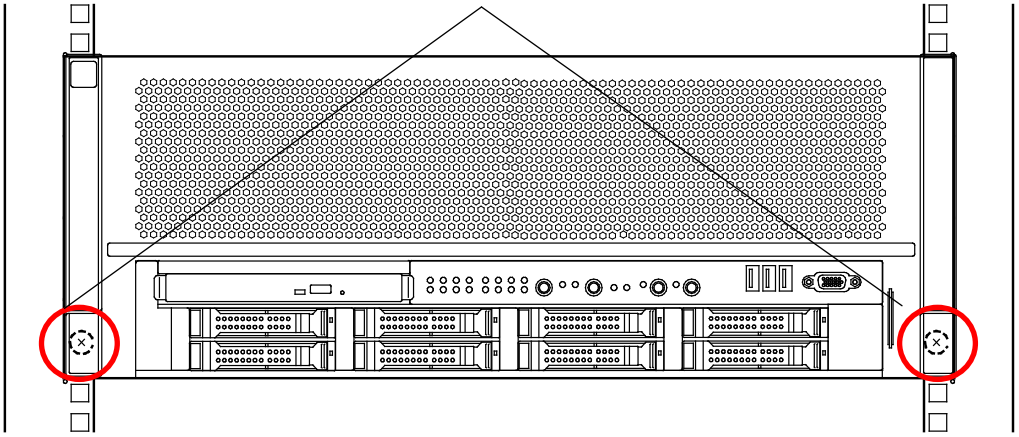
⚠注意

為了安全使用本設備，請務必遵守以下注意事項。否則導致燒傷、其他傷害或財產損失之危險。詳情請參照【使用注意事項】之【安全注意事項】。

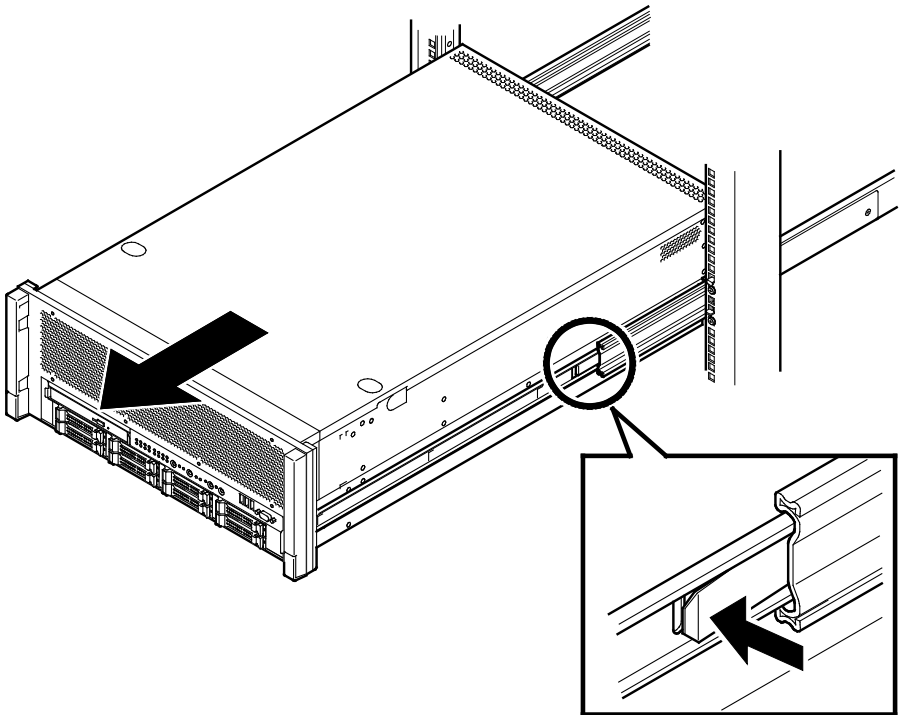
- 請注意掉落
- 將設備抽取出來**抽取出来**後請及時放回原處
- 請勿在拆掉蓋板的狀態下進行安裝
- 請注意不要夾傷手指

1. Make sure that the server is powered off and then disconnect the power cable or all interface cables from the server. (If cable arm is mounted, remove it also.)
2. Make sure that proper earthquake-resistant construction is executed or stabilizers are mounted at front bottom of rack to prevent from falling.
3. Remove the two screws at front of server.

Screws (2 places)



4. Slowly pull out the server from rack until it is latched with clicks.
5. Slowly pull out the server from rails while unlocking the inner rails at both sides.



Important **Be careful not to get your fingers caught in the rails or lever.**

6. Hold the server firmly and remove it from the rack.

Important

- **While more than one person is supporting the bottom part of the server, slowly pull out the server.**
- **Do not apply pressure on the server from top when it is being pulled out. Doing so cause the server to drop.**

2.2 Connection

Connect peripheral devices to the server.

Connectors for peripheral devices are provided at the front and rear of the server. Images on the following pages show the peripheral devices that can be connected in their standard state and their respective connector positions.

WARNING

Be sure to observe the following precautions to use the server safety. Failure to observe the precautions may cause death or serious injury. For details, refer to *Safety precautions* in *Precautions for Use*.

- **Do not hold the power plug with wet hands**
- **Do not connect the ground wire to a gas pipe**

CAUTION

Be sure to observe the following precautions to use the server safely. Failure to observe the precautions may cause burns, injury, and property damage. For details, refer to *Safety precautions* in *Precautions for Use.*

- **Use only the specified outlet to insert.**
- **Do not connect the power cord to an outlet that has an illegal number of connections.**
- **Insert the power plug into the outlet as far as it goes.**
- **Use only the specified power cable.**
- **Do not connect or disconnect the interface cable with the power plugged in the outlet.**
- **Use only the specified interface cable**

AVERTISSEMENT

Conformez-vous aux instructions suivantes pour utiliser le serveur en toute sécurité. Le non-respect de ces instructions risque de vous blesser mortellement ou sérieusement. Pour plus de détails, consultez *Mesures de sécurité* dans *Précautions d'utilisation*.

- **Ne touchez pas la fiche d'alimentation si vous avez les mains mouillées**
- **Ne branchez pas le fil de terre sur un tuyau de gaz**

ATTENTION

Conformez-vous aux instructions suivantes pour utiliser le serveur en toute sécurité. Le non-respect de ces instructions risque de provoquer un incendie, de vous blesser ou d'endommager votre équipement. Pour plus de détails, consultez *Mesures de sécurité* dans *Précautions d'utilisation*.

- **Ne branchez pas le cordon d'alimentation sur une source d'alimentation inappropriée.**
- **Ne branchez pas le cordon d'alimentation dans une prise électrique disposant d'un nombre de fiches non autorisé.**
- **Insérez la fiche d'alimentation dans la prise électrique.**
- **N'utilisez que le cordon d'alimentation approprié.**
- **Ne connectez aucun câble d'interface sans avoir au préalable débranché le cordon d'alimentation du serveur de la source d'alimentation.**
- **N'utilisez pas de câbles d'interface autres que ceux agréés**

AVVERTIMENTO

Accertarsi di osservare le seguenti precauzioni per utilizzare il server in modo sicuro. La mancata osservanza delle precauzioni può provocare lesioni gravi o mortali. Per maggiori dettagli, consultare *Precauzioni di sicurezza* in *Precauzioni per l'uso*.

- **Non mantenere la presa dell'alimentazione con le mani bagnate**
- **Non collegare il filo di terra a un tubo del gas**

ATTENZIONE

Accertarsi di osservare le seguenti precauzioni per utilizzare il server in modo sicuro. La mancata osservanza delle precauzioni può provocare ustioni, lesioni e danni materiali. Per maggiori dettagli, consultare *Precauzioni di sicurezza* in *Precauzioni per l'uso*.

- **Utilizzare solo la presa specificata per l'inserimento.**
- **Non collegare il cavo dell'alimentazione a una presa che ha un numero non conforme di collegamenti.**
- **Inserire completamente la presa dell'alimentazione.**
- **Utilizzare solo il cavo dell'alimentazione specificato.**
- **Non collegare né scollegare il cavo di interfaccia mentre l'alimentazione è inserita nella presa.**
- **Utilizzare solo il cavo di interfaccia specificato.**

WARNUNG

Achten Sie darauf, die folgenden Vorsichtsmaßnahmen zu beachten, um den Server sicher zu verwenden. Werden diese Vorsichtsmaßnahmen nicht beachtet, kann es zum Tod oder zu ernsthaften Verletzungen kommen. Einzelheiten finden Sie auf *Sicherheitsmaßnahmen* in *Vorsichtsmaßnahmen beim Gebrauch*.

- **Halten Sie den Stromstecker nicht mit feuchten Händen fest**
- **Schließen Sie das Erdungskabel nicht an das Gasrohr an**

ACHTUNG

Achten Sie darauf, die folgenden Vorsichtsmaßnahmen zu beachten, um den Server sicher zu verwenden. Werden diese Vorsichtsmaßnahmen nicht beachtet, kann es zu Verbrennungen, Verletzungen oder zu Schäden am Eigentum kommen. Einzelheiten finden Sie auf *Sicherheitsmaßnahmen* in *Vorsichtsmaßnahmen beim Gebrauch.*

- **Verwenden Sie nur die festgelegte Steckdose zum Einstecken**
- **Schließen Sie den Netzstecker nicht an einen Steckdose an, der eine illegale Anzahl an Verbindungen hat.**
- **Stecken Sie den Stromstecker soweit es geht in der Steckdose.**
- **Verwenden Sie nur das festgelegte Stromkabel.**
- **Schließen Sie nicht das Schnittstellenkabel an und trennen Sie es nicht, wenn der Stecker in der Steckdose steckt.**
- **Verwenden Sie nur das festgelegte Schnittstellenkabel**

⚠ ADVERTENCIA

Asegúrese de respetar las precauciones que figuran a continuación para utilizar el servidor de forma segura. De lo contrario, pueden producirse lesiones graves e, incluso, la muerte. Para obtener información detallada, consulte la Sección *Precauciones de seguridad* de las *Precauciones de uso*.

- **No sujete el enchufe con las manos mojadas.**
- **No conecte el cable de tierra a una tubería de gas.**

⚠ CUIDADO

Asegúrese de respetar las precauciones que figuran a continuación para utilizar el servidor de forma segura. De lo contrario, pueden producirse quemaduras, lesiones y daños a la propiedad. Para obtener información detallada, consulte la Sección *Precauciones de seguridad* de las *Precauciones de uso*.

- **Utilice únicamente la toma de corriente especificada para introducir el enchufe.**
- **No conecte el cable de alimentación a una toma de corriente que tenga un número permitido de conexiones.**
- **Introduzca firmemente el enchufe de alimentación en la toma de corriente.**
- **Utilice únicamente el cable de alimentación especificado.**
- **No conecte o desconecte el cable de interfaz con el cable de alimentación enchufado en la toma de corriente.**
- **Utilice únicamente el cable de interfaz especificado.**

⚠警告

为了安全使用本设备，请务必遵守以下的注意事项。否则有导致人员死亡或者重伤的危险。详情请参照【使用注意事项】的【安全注意事项】。

- 请勿湿手触摸电源插头
- 请勿将地线连接至煤气管道

⚠注意

为了安全使用本设备，请务必遵守以下的注意事项。否则有导致烧伤、其它伤害或财产损失的危险。详情请参照【使用注意事项】的【安全注意事项】。

- 请勿使用非指定的插座
- 请勿采用将多条电线连接至一个插座的布线方式
- 请勿只将插头的一部分插入插座
- 请勿使用规定外的电源线
- 请勿在插着电源插头的状态下插拔接口线缆
- 请勿使用非指定的接口线缆

⚠警告

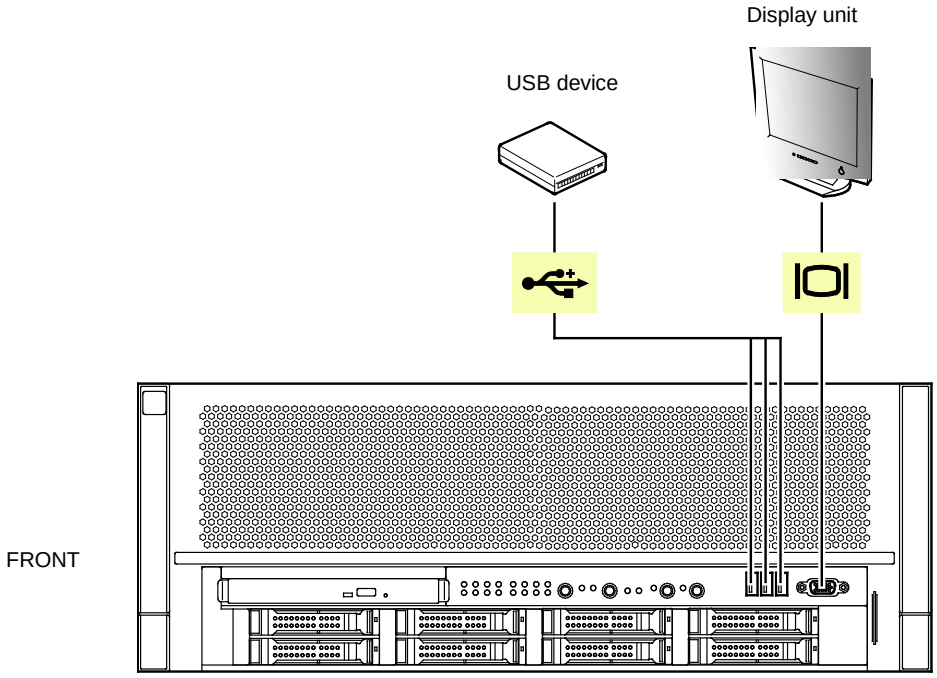
為了安全使用本設備，請務必遵守以下注意事項。否則有導致人員死亡或者重傷之危險。詳情請參閱本書【使用注意事項】之【安全注意事項】。

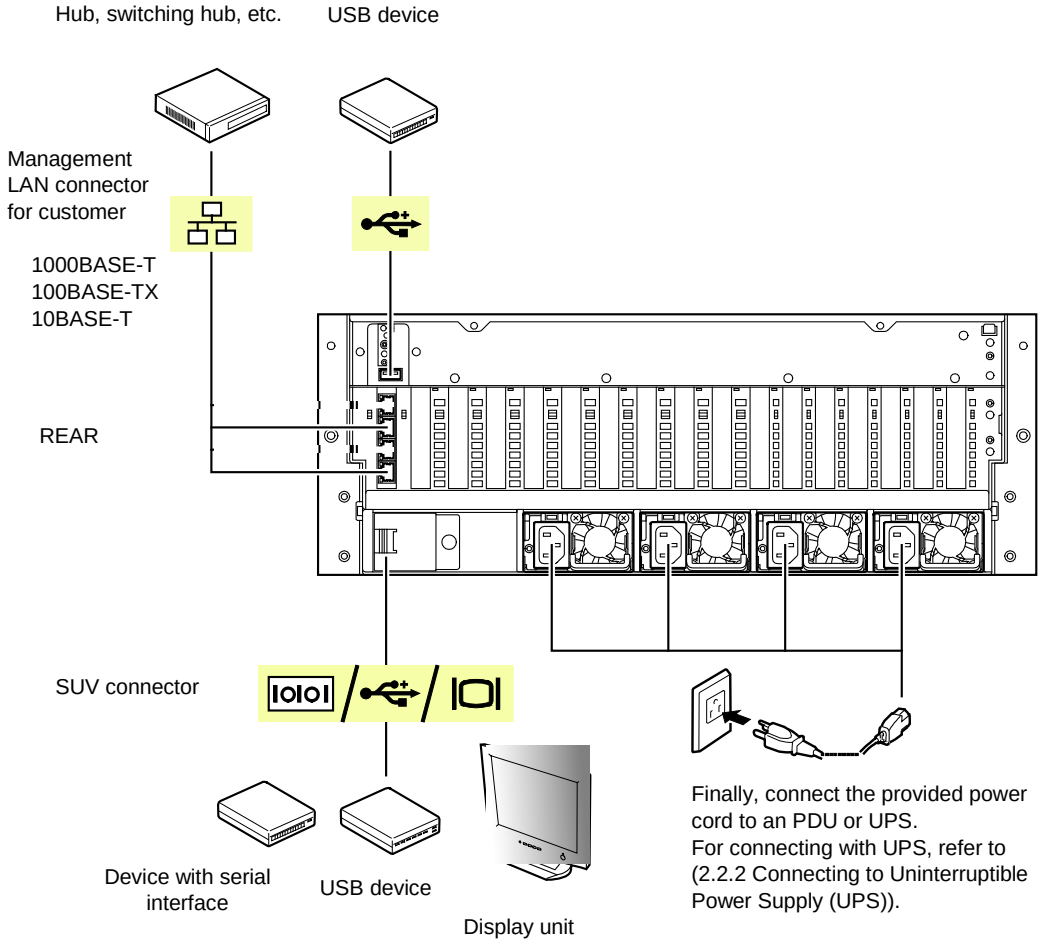
- 請勿濕手觸摸電源插頭
- 請勿將地線連接至煤氣管道

⚠注意

為了安全使用本設備，請務必遵守以下注意事項。否則導致燒傷、其他傷害或財產損失之危險。詳情請參照【使用注意事項】之【安全注意事項】。

- 請勿使用非指定之插座
- 請勿採用將多條電線連接至一個插座之佈線方式
- 請勿只將插頭一部分插入插座
- 請勿使用規定外之電源線
- 請勿在插著電源插頭的狀態下拔接口線纜
- 請勿使用非指定的接口線纜


Display unit
USB device
FRONT


Hub, switching hub, etc.
USB device
Management
LAN connector
for customer
1000BASE-T
100BASE-TX
10BASE-T
REAR
SUV connector
Device with serial
interface
USB device
Display unit
Finally, connect the provided power
cord to an PDU or UPS.
For connecting with UPS, refer to
(2.2.2 Connecting to Uninterruptible
Power Supply (UPS)).

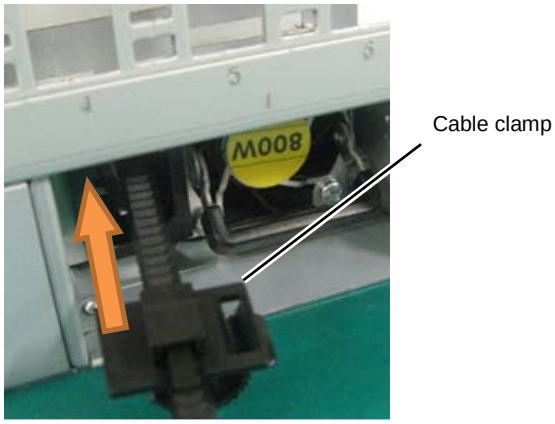
Note the following precautions to connect peripheral devices and cables.

- When the device is not Plug and Play device, turn off the server and devices to be connected before connecting.
- If connecting any peripheral device and its interface cable made by other companies (a third party), contact your sales representative to check if they can be used with the server beforehand.
- Fix the power cord or interface cable with cable ties.
- Make sure that no pressure is applied on the plug of power cord.

2.2.1 Connecting power cable

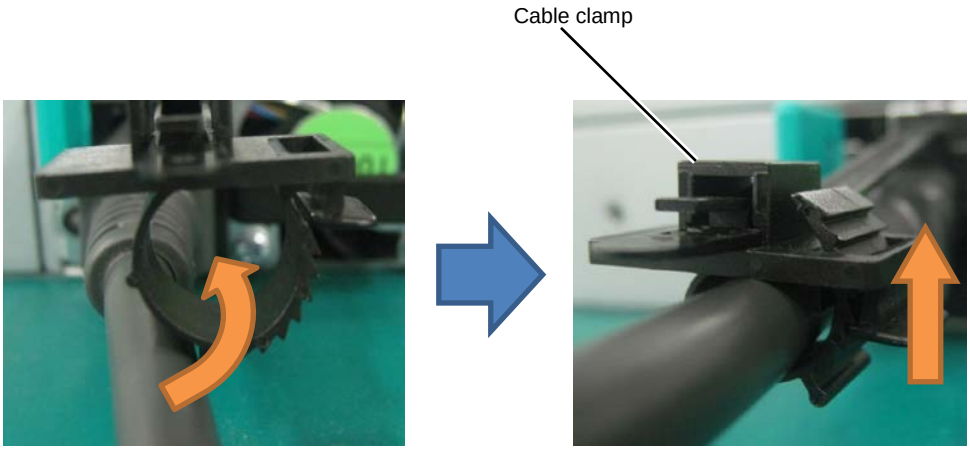
Take the steps below to connect power cable.

1. Insert the cable clamp (provided with power supply unit) into the power supply unit, as shown in the figure below.



2. Insert the power cable into AC inlet of power supply unit.

3. Secure the power cable with cable clamp to prevent the cable from disconnecting.



4. Turn the AC power on.

   a) If PDU (Power Distribution Unit) is used, turn on the PDU.

   b) If UPS (Uninterruptible Power Supply) is used, turn on UPS.

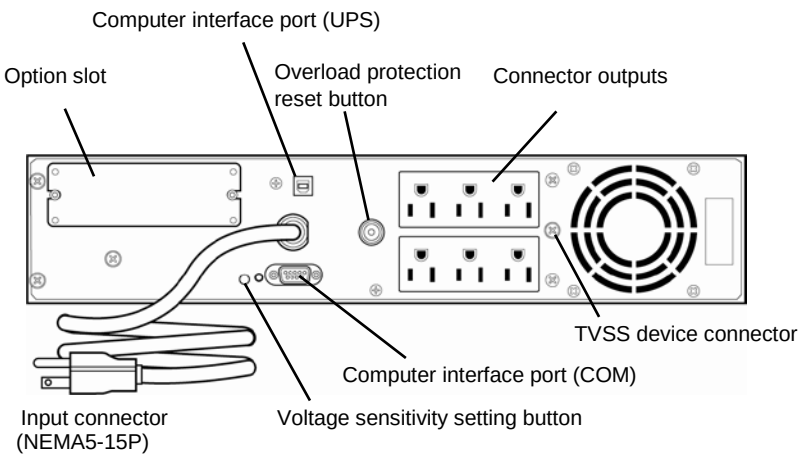
   Other than above, turn on the breaker of AC power supply, if it is off.

5. Make sure that Power Unit LED blinks green.

2.2.2 Connecting to Uninterruptible Power Supply (UPS)

To connect the power cord of the server to a UPS, use the connector output on the rear of the UPS. For details, refer to the manual supplied with the UPS.

<Example>



To link power supply of the server with that of UPS, change BMC configuration using web console menu.

Select [Configuration] - [BMC] - [Power Option] - [AC LINK] parameter, and set it to [Power On].

See Chapter 3 (7.7.1 BMC (6) Miscellaneous) for details.

NEC Express5800 Series

Express5800/A1040c, A2040c, A2020c, A1020c

3

Setup

This chapter describes how to set up the server.

1. **Before Starting Setup**
   Describes about points to be checked before starting setup.

2. **Setup**
   Describes about setup sequence.

3. **Turning on the Server**
   Describes how to turn on the server.

4. **System BIOS Setup**
   Describes how to configure system BIOS.

5. **EXPRESSSCOPE Engine SP3**
   Describes about EXPRESSSCOPE Engine SP3 installed in the server.

6. **EXPRESSBUILDER**
   Describes about EXPRESSBUILDER.

7. **Using Remote Management**
   Describes how to use remote management feature.

8. **SMASH-CLP**

   Describes about SMASH-CLP.

9. **WS-Management**

   Describes about WS-Management.

10. **Installing Software Components**
    Describes about installation of OS and bundled software.

11. **Turning off the Server**
    Describes how to turn off the server.

1. Before Starting Setup

Confirm the followings before starting setup.
You should setup the server hardware first.

1.1 Service Pack Support

EXPRESSBUILDER supports the following combination of operating system installation media and Service Packs.

- Windows Server 2012 R2
  - OS Installation Media (No Service Pack)
- Windows Server 2012
  - OS Installation Media (No Service Pack)

1.2 Option Boards Supported by EXPRESSBUILDER

EXPRESSBUILDER supports the following option boards.

To connect any other option board than described below, refer to the instructions supplied with the board.

- Option boards that EXPRESSBUILDER supports installation of OS
  - NE3303-177 RAID Controller (12Gbps/1GB, RAID 0/1/5/6) (Internal)
  - NE3303-178 RAID Controller (12Gbps/2GB, RAID 0/1/5/6) (Internal)
- Other option boards
  - NE3303-142 SAS Controller (6Gbps)
  - NE3303-184 SAS Controller (12Gbps)
  - NE3303-H004 RAID Controller (12Gbps/ 2GB) (External)
  - NE3390-159 Fibre Channel Controller (1 port/ 8Gbps)
  - NE3390-160 Fibre Channel Controller (2 ports/ 8Gbps)
  - NE3390-157A Fibre Channel Controller (1 port/ 16Gbps)
  - NE3390-158A Fibre Channel Controller (2 ports/ 16Gbps)

Important **When using NE3303-184 SAS Controller on Windows Server 2012 or Windows Server 2012 R2, please install OS and apply Starter Pack and the following correction program before mounting NE3303-184 SAS controller, and then mount the controller (the driver is installed automatically).**

https://support.microsoft.com/en-us/kb/3018489

2. Setup

Use the following procedure to setup the server efficiently.

2.1 Setup of Management PC

The management PC is used to control the system from the Web browser remotely, and view the configuration information or log information. You need to prepare at least one unit of PC. For the requirements for management PC, see Chapter 3 (5.5.4 Settings on remote terminal).

The management PC is used not only in daily operation but also in setup of the server. Preparing the management PC before setting up, you can smoothly setup the server.

2.2 Setup of Hardware

Setup the server hardware in the following procedure

1. Install the rack

   See Chapter 2 (2.1.1 Installing Rack).
2. Install the optional devices (If you bought separately)

   See Chapter 2 (1. Installing / Removing Internal Options).
3. Install the server in the rack

   See Chapter 2 (2.1.2 Installing the server to the rack or removing it from the rack).
4. Connect peripheral devices such as display unit, keyboard, and network devices to the server.

   See Chapter 2 (2.2 Connection).

Important **Do not connect the LAN cable to the management LAN port. Connect the LAN cable after the management LAN port has been configured.**

5. Connect the power cord to the server and the PDU (Power Distribution Unit) or power outlet.

   See Chapter 2 (2.2 Connection - 2.2.1 Connecting power cable) for details.
6. Configure the management LAN port on the server and connect LAN cable.

   See Chapter 3 (5. EXPRESSSCOPE Engine SP3).

Important **As for A2040c/A2020c/A2010c model, be sure to connect a LAN cable to the LAN port for management of both MGB#1 and MGB#2. As for A1040c model, connect a LAN cable to the management LAN port of MGB#1.**

Tips When configuring management LAN port using Off-line TOOL, performing DC ON and then DC OFF after configuration are needed.

7. Connect with the web console to make provide various settings.

   See Chapter 3 (7. Using Remote Management).

8. Power on the server.

   See Chapter 3 (3. Turning On the Server).

9. Change BIOS settings according to configuration and purpose of the system.

   Refer to Appendix (Setting for each OS) in User's Guide and Chapter 2 (1. System BIOS) in Maintenance Guide.

   Important **Be sure to confirm the setting of BIOS that the system date and time are correct.**

10. Run Off-line Utility and create virtual disks.

    For Off-line Utility (Ctrl-R or HII), refer to the manual that comes with optional RAID Controller (NE3303-177/178/H004).

    Important **Use Off-line Utility only for creating a Virtual Disk to install OS.**

    Tips

    Virtual Disk

    RAID can configure several hard disk drives as a single array (disk group). RAID Controller has a feature to divide a single disk group into several logical drives. These logical drives are called as virtual disks on Off-line Utility.

    Operating system recognizes these virtual drives as if it were a single physical drive.

11. Prepare the OS installation.

    (1) Depending on the OS, BIOS settings are needed to be changed from the default settings. Referring to Appendix "3. Settings for each OS", change the BIOS settings so that it is suitable for the OS which is being installed.

    * If the setting is changed, be sure to reboot the system.

    (2) Insert the OS install disk into the optical disk drive and reboot the system.

    * If conforming the appropriate OS install disk or installing the OS actually, refer to Chapter 3 (2.3 Setup of Operating System).

    (3) You can install an OS using EFI Shell or by DVD.
    To install an OS from EFI Shell, run BIOS SETUP, select **Boot** menu, and specify **EFI Shell** for **Boot Option #1**. Then select **Save&Exit** on **Save&Exit** menu to reboot the system.
    To install an OS from DVD, specify **DVD** for **Boot Option #1**. Then select **Save&Exit** on **Save&Exit** menu to reboot the system.

Go on to the next OS setting-up operations.

2.3 Setup of Operating System

After completing the hardware setup, proceed to set up the OS.

2.3.1 Setting up Windows Server 2012 R2/ Windows Server 2012

Setup Windows Server 2012 R2/ Windows Server 2012 operating system.

Refer to the following document stored in EXPRESSBUILDER for how to setup Windows Server 2012 R2 / Windows Server 2012

- Installation Guide (Windows)

Important

When you install Windows Server 2012 or Windows Server 2012 R2 on the Express5800/A2040c, A2020c, and A2010c, be sure to read the following restrictions on specification and operation.

For Express5800/A2040c, A2020c and A2010c, the standby BMC is factory installed. When the master BMC fails, the system ensures continued operation by switching to the standby BMC at next boot.

In this case, when restarting the OS, the hardware ID numbers of PCI cards should be changed appropriately. However, on the Windows OS, the following matters might occur.

- **When the master BMC is switched, since boot path is not succeeded appropriately, you cannot startup the system.**
- **When the master BMC is switched, since the part of IO relevant information is not succeeded appropriately, you cannot use network and the virtual switch and hard disk drives on the Hyper-V.**

■IO-related settings are to be reconfigured

- ✓ **Network Adopter: Adaptor information (e.g. MTU)**
- ✓ **Network Adopter: IP setting information (e.g. IP address, Gateway)**
- ✓ **Network Adopter: Teaming settings**

If you use Hyper-V, the following settings are also to be reconfigured

- ✓ **Hyper-V virtual switch setting (set on Hyper-V Manager)**
- ✓ **Hyper-V storage setting: physical hard disk direct connection (set on Hyper-V Manager, w/o virtual hard disk image connection)**

Restrictions on specification and operation are described below. In addition, for the restriction on operation, the tool which performs a required setup automatically is due to be released.

■Restrictions on specification

- **iSCSI boot is not supported.**
- **Core mode is not supported.**
- **Graphical mode is not supported**

■Restrictions on system operation (refer to Chapter 4 (4. BMC Failover Setup Procedure))

① After you install the OS, only once, switching to the standby BMC and restarting the OS are required. Write down which of BMC#1 and BMC#2 is the current active BMC.

< Overview of the procedure for setting up BMC failover>

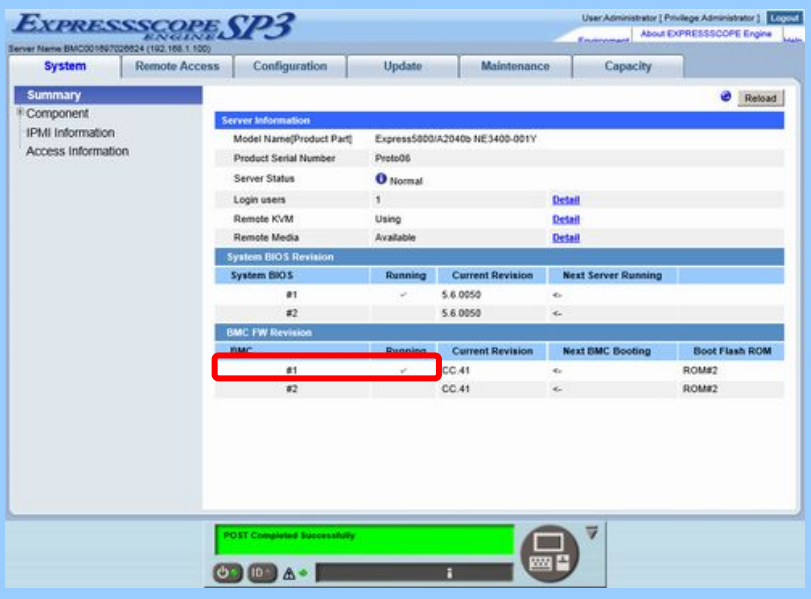
1. After you install the OS with BMC#1 serving as the master, change the setting to enable starting the OS in safe mode.
2. Execute BMC failover to promote the standby BMC to the master BMC, and then start the OS.
3. Clear the setting to enable starting the OS in safe mode, and then shut down the OS.
4. Execute BMC failover to return BMC#1 to the master BMC, and then start the OS.
⇒ The system is running.

② When the master BMC is switched as a result of the maser BMC failure, you need to reconfigure the IO-related settings on the OS.

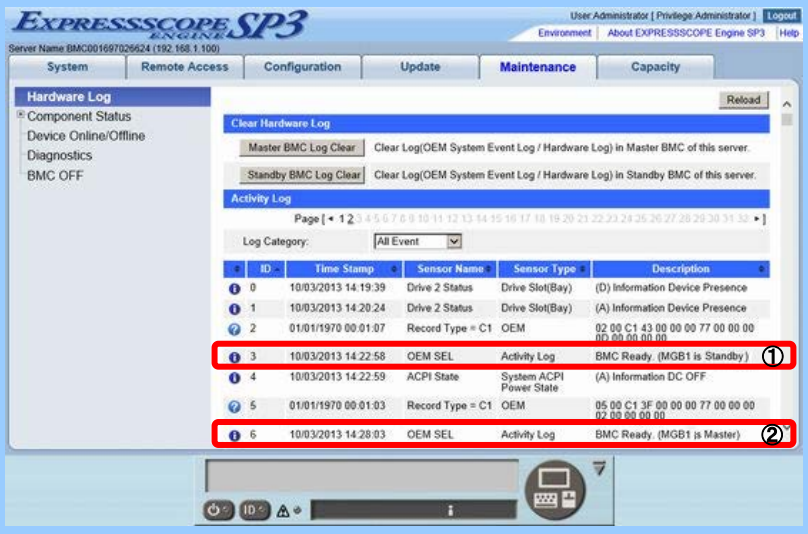
For how to check which of BMC#1 and BMC#2 is the master BMC (a.) and how to check the logs which indicate occurrence of BMC switching (b.) are described below. You need to log on to Windows by using an account with administrator privileges for performing check work.

a. Checking which of BMC#1 and BMC#2 is the master BMC

At the shipment, the master BMC is BMC#1 and the standby BMC is BMC#2. Basically, the system is running with BMC#1 serving as the master. Thus, when the master BMC is switched to the BMC#2 as a result of the BMC#1 failure, the master BMC is returned to the BMC#1 after being performed maintenance work. The example of the following figure shows that BMC#1 is running as the master BMC.



b. Checking the logs which indicate occurrence of BMC switching



[Activity Log]

① Indicates the master BMC has been switched from BMC#1 to BMC#2.

② Indicates the master BMC has been switched from BMC#2 to BMC#1.

[Note]

When the following matters occur, BMC might be switched at the next boot-up. In this case, be sure to check whether BMC switching has occurred.

- **When you recognize the failure occurrence by using alert notification (See Chapter 1 (4.1.2 Operation Status/Failure Monitoring and Maintenance)).**
- **When the SYSTEM STATUS LED is on.**

Even though it is other than above-mentioned matters, when a matter such as network connection error occurs after restarting the system, be sure to check whether BMC switching has occurred. In addition, when the occurrence of BMC switching has been recognized, you need to perform the suitable procedure by referring to this section and Chapter 4 (4. BMC Failover Setup Procedure).

2.3.2 Setting up RedHat Enterprise Linux version6

Setup RedHat Enterprise Linux version6 operating system.

Refer to the following document stored in EXPRESSBUILDER for how to setup RedHat Enterprise Linux version6.

- Installation Guide (Linux)

2.3.3 Setting up Other Type of OS

Refer to the installation guide separately provided for each OS for the setup procedure.

2.4 Setup for Solving Problems

Perform the following setup procedure preliminarily to recover from a failure quickly and reliably when a failure occurs.

2.4.1 Setup for Memory Dump (Debug Information)

This setup is required for collecting a memory dump (debug information) in the server. The memory dump (debug information) is used for fault analysis when a system failure occurs.

Refer to Installation Guide (Windows) or Installation Guide (Linux) stored in EXPRESSBUILDER for details.

2.4.2 Acquiring User-Mode Process Dump

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

Refer to Installation Guide (Windows) or Installation Guide (Linux) stored in EXPRESSBUILDER for details.

2.4.3 Installing Network Monitor

Install the network monitor to investigate and manage network troubles.

Refer to Installation Guide (Windows) or Installation Guide (Linux) stored in EXPRESSBUILDER for details.

2.4.4 Installing NEC CMC Provider

NEC CMC Provider is a module that provides the ability to identify fault component of Express5800 server's hardware and to notify the EXPRESSSCOPE Engine SP3 of the fault component.

Supported users : All users who use the Express5800 servers with VMware ESX below installed.

- VMware ESXi 6.0 Update 1 or later

Refer to following URL about installation method of NEC CMC Provider and details.

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

[Scalable HA Server] – [Express5800/A2040c, A2020c, A2010c, A1040c] – [Advanced RAS Module] – [For VMware 6.0]

2.4.5 Setup for Alert Notification

The server provides two types of alert notification methods, SNMP Trap and Email.

(1) Mail Alert

Alert is sent via Email. Up to six destinations can be specified. To use Email alert, settings for **Destination** and **SMTP Server** are required.

See Chapter 3 (7.7.1 BMC – (3) (a) Email Alert) for details.

(2) SNMP Alert

Alert is sent via SNMP.

See Chapter 3 (7.7.1 BMC – (3) (b) SNMP Alert) for details.

2.5 Advanced Setup

2.5.1 Reinstallation When Multiple Logical Drives Exist

Refer to Installation Guide (Windows) or Installation Guide (Linux) stored in EXPRESSBUILDER for details.

Make sure to make a backup copy of the data to prepare for a failure before starting the setup.

3. Turning On the Server

Pressing the SYSTEM POWER Switch at the front of the server turns on the server.

Turn on the server by using the following procedure.

Important

- **Do not power on the server before amber SYSTEM POWER LED is unlit.**
- **Wait for at least 30 seconds before pressing the SYSTEM POWER switch on the server after turning off the server.**
- **The default value of power supply unit configuration in this server is 2N (Redundancy). If you select N (Non-redundant) or N+1 (Redundancy) as power supply unit configuration, change Operation Mode [PSU Redundancy] to an appropriate setting before the first power on. See Chapter 4 (2 Operation Mode (2) Remote Management) for details.**

1. Turn on the peripheral devices and display unit.

Note

If the power cord is connected to power control system such as an Uninterruptible Power Supply (UPS), make sure that the power control system is turned on.

2. Remove Front Bezel, if mounted.

3. Press SYSTEM POWER switch at the front of the server.

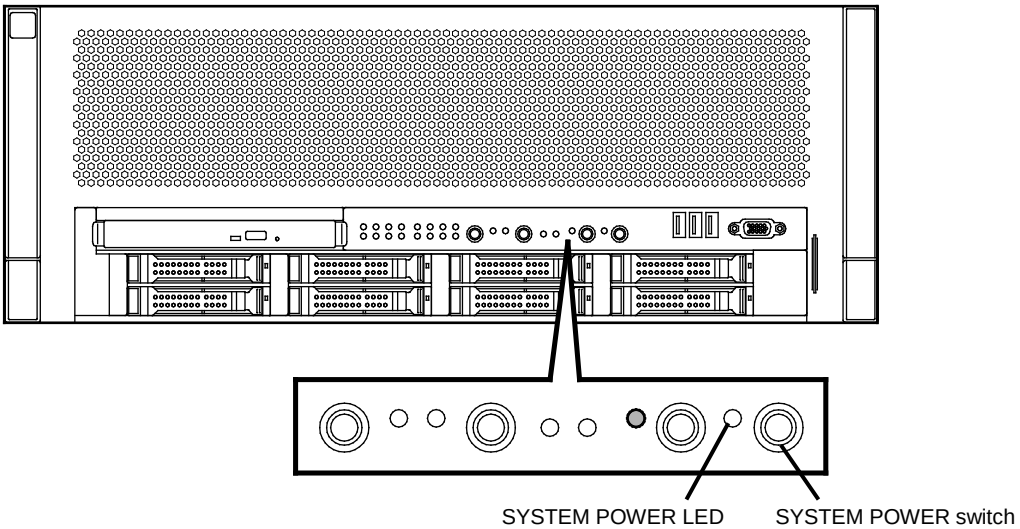
   SYSTEM POWER LED is lit green and after a while, POST appears on the display.

Important

Do not connect or disconnect USB device while POST is running. In addition, do not connect or disconnect remote media.

Tips

- If BIOS Redirection Port is Disabled on Advanced menu and Quiet Boot is Enabled on Boot menu in BIOS SETUP, the NEC logo is displayed instead of details of POST.
- The time before the logo is displayed is approximately from 3 minutes to 17 minutes.This is changed depending on the server configuration.
- When "Reset Param BIOS" is enabled on [Remote Access] tab of the Web Console or System BIOS settings are changed on [Configuration] tab of the Web Console, the time before the logo is displayed may become longer.



The self-diagnostic program (POST) runs and diagnoses the hardware. For details, refer to *Chapter 3 (3.1 POST).*

3.1 POST

POST (Power-On Self-Test) is a self-diagnostic program stored in the server as standard. POST automatically runs immediately after the server is turned on and checks the motherboard, DIMM, and processor (CPU). POST also displays the start-up messages of various utilities during the operation.

Usually, you do not need to check the contents of POST. However, check messages displayed on POST in the following cases.

- When introducing a server
- When you suspect a failure
- When any error message is displayed

3.1.1 POST flow

Explains how POST runs in order.

1. When the server is turned on, POST starts running.

   Note Keyboard becomes operable after the POST screen appears.

2. If **Enabled** is specified for **Password On Boot** in **Security** menu of SETUP, you will be prompted to enter password after the POST is displayed. If you enter the incorrect password three times consecutively, POST aborts. (You can no longer proceed.) In this case, power off the server, and power it on.

   Important **Do not set a password before OS is installed.**

3. If **BIOS Redirection Port** is **Disabled** on **Advanced** menu and **Quiet Boot** is **Enabled** on **Boot** menu in BIOS SETUP, the NEC logo is displayed during POST.

   Tips By the shipping default, the logo is not displayed.

4. POST displays several types of message. These messages let you knowSystem BIOS and BMC information.

5. After a while, the following message is displayed on the screen.

   `Press <F2> SETUP, ...` (The rest of message depends on system environment.)

   By pressing the designated function key following messages, you can call the functions below upon completion of POST.

   <F2> key: Run BIOS Setup Utility (SETUP). For information on the SETUP, refer to *Chapter 2 (1. System BIOS)* in "*Maintenance Guide*".

<F3> key: Run EXPRESSBUILDER from Internal Flash Memory (optional). For information on EXPRESSBUILDER, refer to *Chapter 3 (*6. EXPRESSBUILDER*)*.

<F4> key: Run Offline Tools. For information on Offline Tools, refer to *Chapter 1 (9. Offline Tools) in "Maintenance Guide*".

Note

- If the optional Internal Flash Memory is not installed in the system, <F3> key message will not be displayed.
- Function key must be pressed within several seconds while the message being displayed. You can change the waiting time for keyboard entry on BIOS setup utility (SETUP).
- If Maintenance Mode is enabled, pressing the function key does not launch the feature. The boot device selection screen is displayed automatically. <F2> key message is not displayed, and a message "The system is in Maintenance Mode." is displayed instead.

6. If a controller which has its dedicated BIOS is installed, a message that prompts you to start the dedicated utility to set each board is displayed.

   For details on the utility, refer to the manual supplied with each optional board.

   Depending on the configuration, the message "Press Any Key" might appear to prompt a key entry. This is a behavior of the BIOS of the optional board. Continue to operate after checking the manual of the optional board.

7. The OS starts when POST is completed.

3.1.2 POST error messages

When POST detects an error, it displays an error message on the screen. For descriptions of error messages, causes, and countermeasures, refer to *Chapter 3 (1. POST Error Message) in* "*Maintenance Guide*".

Note

Take notes on the indication displayed on display unit before consulting with your sales representative. Alarm messages are useful information for maintenance.

4. BIOS Setup Utility (SETUP)

This section describes how to configure Basic Input Output System (BIOS).

Before you install the server and add or remove optional devices, make sure you have read and understood this section to configure properly.

Important

- **BIOS Setup Utility and EFI shell supports only 104-key keyborad. On another layout keyboard, input character is different from button that is entered.**

  Exsample of 109 keyboard:
  <shift>+0 =>)
  <shift>+9 => (
  <shift>+8 => *
  <shift>+7 => &
  <shift>+6 => ^
  <shift>+2 => @
  <shift>+ー => _
  <shift>+@ => {
  <shift>+[=>]
  <shift>+] => |
  <shift>+^ => +
  <shift>+: => ”
  @ => [
  [=>]
  ] => ¥
  ^ => =
  : => ‘

4.1 Overview

BIOS Setup Utility (SETUP) is a utility to configure BIOS of the server. This utility is installed in a flash memory in the server as standard and can be run without requiring a media for boot.

Use SETUP only when the case applies to any of cases described in Chapter 3 (4.4 Cases that Require Configuration).

4.2 Starting and Exiting SETUP Utility

4.2.1 Starting SETUP

Run POST following *Chapter 3 (3.1.1 POST flow)*.

After a while, the following message will be displayed on the lower left of the screen.

```
Press <F2> SETUP, ...
```
(The rest of message depends on system environment.)

If you press <F2> key at this time, SETUP runs and displays **Main** menu upon completion of POST.

Note

If Maintenance Mode is enabled, pressing the function key does not launch the feature. The boot device selection screen is displayed automatically. <F2> key message is not displayed, and a message "The system is in Maintenance Mode." is displayed instead.

Password

If you have set a password, a message prompt you to enter password will be displayed.

Enter password [ ]

You can attempt password entry up to 3 times. **If you entered an incorrect password 3 times, operation stops.** (You cannot operate further.) Turn off the power.

4.2.2 Exiting SETUP

To exit SETUP after saving parameters, select **Save & Exit** → **Save Changes and Exit**.

To exit SETUP without saving parameters, select **Save & Exit** → **Discard Changes and Exit**.

4.3 Description on On-Screen Items and Key Usage

This section shows display examples and how to control the key. Use the keyboard to work with SETUP.

- Cursor keys (<↑>, <↓>)
  Select an item displayed on the screen. If characters of an item are highlighted, that means the item is currently selected.

- Cursor keys (<←>, <→>)
  Select menus including **Main**, **Advanced**, **Security**, **Server**, **Boot**, and **Save & Exit**.

- <–> key/<+> key
  Change the value (parameter) of the selected item. You cannot use this key when a menu which has ▶ on the left is selected.

- <Enter> key
  Press this key to confirm the selected parameter.

- <Esc> key
  Pressing this key takes you to the previous screen. If you keep pressing the key, the following window is displayed. If you select **Yes**, SETUP closes without saving the changed parameters.

Quit without saving?
[Yes] No

- <F1> key

  Press this key to display help information. If you need help using SETUP, press this key. Press <Esc> key to go back to the original screen.

- <F2> key
  If you press this key, the following window appears. If you select **Yes**, the previous parameter(s) are restored.

Load Previous Values?
[Yes] No

- <F3> key
  If you press this key, the following window appears. If you select **Yes**, restore the parameters of the currently selected item to the default setting. (**This might be different from the parameters configured before shipment.**)

Load Setup Defaults?
[Yes] No

- <F4> key
  If you press this key, the following window appears. If you select **Yes**, the parameter you configured is saved and SETUP closes.

Save configuration and exit?
[Yes] No

4.4 Cases that Require Configuration

Only if a case applies to any of following cases, use SETUP to change a parameter which was configured as factory setting. Other than cases described below, do not change the settings. A list of SETUP parameters and factory settings are described in ***Chapter 2 (1. System BIOS)*** **in "*Maintenance Guide*".**

Category	Description	To be changed	Remark
Basic	Change date and time	**[Main] → [System Date]** **[Main] → [System Time]**	Configurable on OS
	On NumLock at power ON	**[Boot] → [Bootup Numlock State] → [ON]**	
Memory	Use Memory RAS feature	**[Advanced] → [Memory Configuration]** → [**Memory RAS Mode]**	Select **[Independent**, **Independent + Rank Sparing]**, **[Independent + Mirroring]**, **[Lock Step**, **Lock Step + Sparing]**, or **[Lock Step + Mirroring]**.
	Set the number of spare ranks of each DDR channel.	**[Advanced] → [Memory Configuration] → [MRx/MEMBUFFERy/CHz]**	If you select **[Independent + Rank Sparing]** or **[Lock Step + Rank Sparing]** for Memory RAS Mode, this menu appears. x : the number of MR y : the number of Memory Buffer z : the number of channel
	Enable/Disalbe Mirroring of each MR feature	**[Advanced] → [Memory Configuration] →[Memory Mirroring MRx]**	If you select **[Independent + Mirroring]** or **[Lock Step + Mirroring]** for Memory RAS Mode, this menu appears. x : the number of MR
Option board	Install RAID Controller	**[Advanced] → [PCI Configuration] → [PCI Device Controller and Option ROM Settings] → [PCIn Slot Option ROM] → Enabled**	n: PCI slot number for RAID Controller
	SCSI boot from LAN adaptor	**[Advanced] → [PCI Configuration] → [PCI Device Controller and Option ROM Settings] → [PCIn Slot Option ROM] → Enabled** **[Advanced] →[iSCSI Configuration submenu]** Change setting appropriately.	n: PCI slot number for LAN adaptor
	PXE boot from LAN adaptor	**[Advanced] → [PCI Configuration] → [PCI Device Controller and Option ROM Settings] → [PCIn Slot Option ROM] → Enabled**	n: PCI slot number for LAN adaptor If you want to specify the LAN adaptor port for PXE boot, you can specify it on Network BBS Priorities of Boot menu after rebooting the system.

Category	Description	To be changed	Remark
Boot	Change the boot order of devices	**[Boot]** → **[Boot Option Priorities]** Change the boot priority	When you use EXPRESSBUILDER CD/DVD, set CD/DVD to the highest priority.
	Remotely control from HW console	**[Advanced]** → [**Serial Port Configuration]** Change setting appropriately.	
Security	Set a password	**[Security]** → **[Administrator Password]** Enter a password **[Security]** → **[User Password]** Enter a password (Set a password for Administrator first and then User)	There are two types of password; Administrator and User. Settings for User password is limited compared to for Administrator.
	Restrict bootup by entering password	**[Security]** → **[Password on Boot]** → **Enabled**	Can be selected when password is set.

Saving changes

If you finish configuration, select **Save & Exit** and then **Save Changes and Exit** to save changes and exit.

If you wish to exit without saving the changed parameters, select **Save & Exit** and then **Discard Changes and Exit**.

Or if you wish to restore the setting to default values, select **Save & Exit** and then **Load Setup Defaults**.

(**The default value might be different from the factory setting.**)

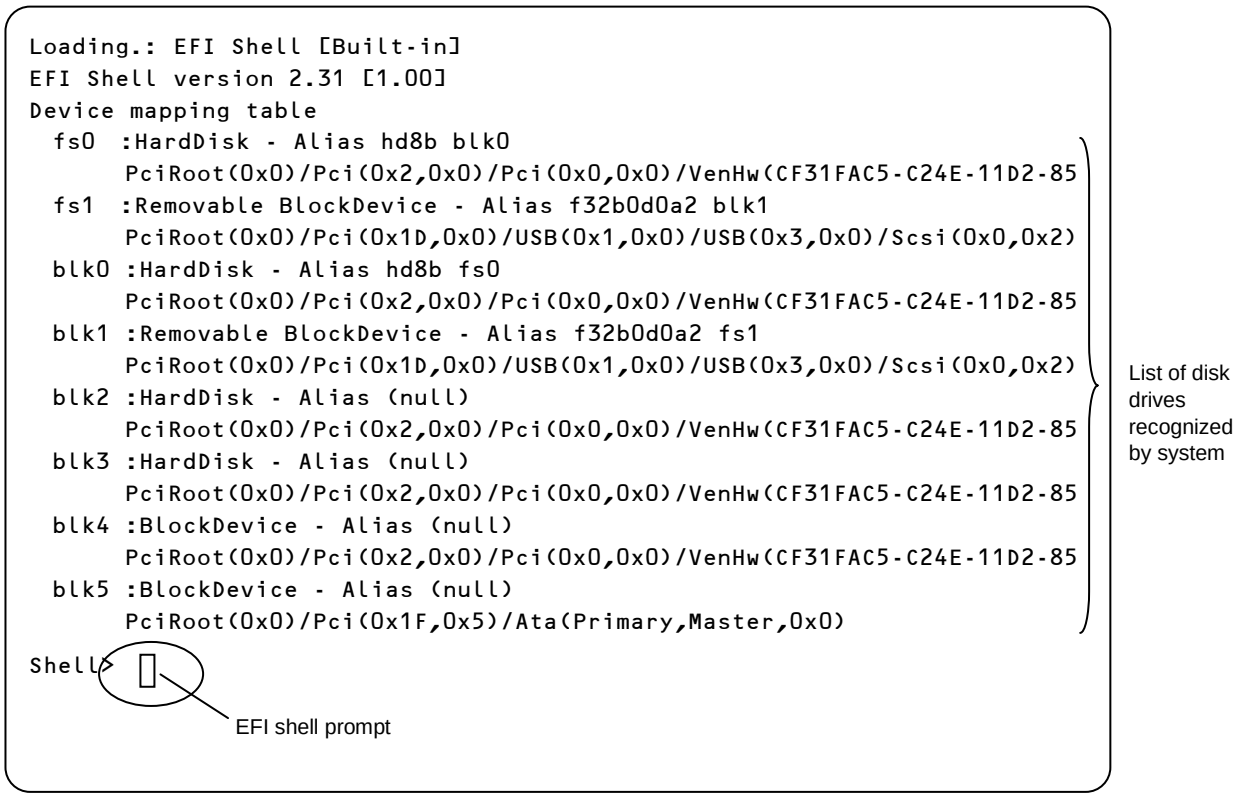
Note

You can also restore the setting to default values by using "Reset Param BIOS" feature of Remote Management. If this feature is used, not only BIOS settings but also OS boot entry is cleared. BIOS makes OS boot entry information during POST. But sometimes this OS Boot entry is different from that made by OS. To recover OS boot entry, restore the configuration file backed up by using Backup/Restore feature of Remote Management or set it again with the tool on OS.

4.5 EFI Shell

If you select "UEFI: Built-in EFI Shell" is for "Boot Option #1" in Boot menu and restart the system, EFI Shell starts.

The following screen appears when EFI Shell starts.



"fsX"(X=0,1,2…)" indicates the file system. When you input "fs0:", the current file system is changed to the first file system.

For the file system on the internal HDD, it is displayed with "HardDisk" following "fsX:". For the file system on the external HDD, it is displayed with "Removable HardDisk" following "fsX:".

For the file system on the CD/DVD media installed to internal drive, it is displayed with "CDRom" following "fsX:". For the file system on the CD/DVD media installed to external drive, it is displayed with "Removable CDRom" following "fsX:".

4.5.1 EFI Shell Command

The list of Shell commands executable on EFI Shell and their functions are as follows. When entering EFI shell command and pressing <Enter> key, Shell command is executed.

Command	Options	Description
alias	alias [-d|-v|-b] [sname] [value]	Display/create/delete alias definition under EFI Shell environment.
attrib	attrib [+a|-a] [+s|-s] [+h|-h] [+r|-r] [-b] [file ...] [directory ...]	Change attribute of file/directory.
cd	cd [path]	Display/change current directory.
cls	cls [color]	Clear the standard output.
comp	comp file1 file2	Compare the contents of the two files.
config	config [-v]	Display the settings of BIOS SETUP.
connect	connect [-r] handle# | deviceHandle# driverHandle#	Bind EFI driver to device and start the driver.
cp	cp [-r] src [src ...] [dst]	Copy file/directory.
date	date [mm/dd[yy]yy]	Display/set date.
dblk	dblk device [Lba] [blocks]	Dump block device.
devices	devices [-b] [-l language]	Display the list of devices managed by EFI driver.
devtree	devtree [-b] [-l language] [-d] [deviceHandle]	Display device tree.
dir	dir [-r] [-a[attrib]] [file]	Display the list of file/directory.
dh	dh [-l lang] [handle | -p prot_id] [-d] [-v]	Display EFI handle information.
dmem	dmem [Address] [Size] [;MMIO]	Dump memory.
dmpstore	dmpstore [-b] [-d] [variable]	Display NvRAM variable.
drivers	drivers [-l language]	Display driver information list.
drvcfg	drvcfg [-l language] [-c] [-f <type>|-v] [driverHandle [deviceHandle [childHandle]]]	Start EFI DriverConfigurationProtocol.
drvdiag	drvdiag [-c] [-l language] [-s|-e|-m] [driverHandle [deviceHandle [childHandle]]]	Start EFI DriverDiagnosticsProtocol.
echo	echo [-on | -off] echo [message]	Display message or switch echo on/off.
edit	edit [file]	Edit ASCII/UNICODE file.
err	err [ErrorLevel]	Display/change error level.
exit	exit	Close EFI Shell.
help	help [-b] | [cmd]	Display help information.
load	load file [file ...]	Load EFI driver.
ls	ls [-b] [-r] [-a [attrib]] [file]	Display directory/file list.
map	map [-r|-v|-d] [sname] [handle] [-b]	Display/define mapping information.
mem	mem [-b] [address] [size] [-MMIO]	Display memory contents of system or device.
memmap	memmap [-b]	Display memory map.
mkdir	mkdir dir [dir ...]	Create directory.
mm	mm Address [Width 1|2|4|8] [;MMIO| ; MEM| ; IO | ;PCI] [:Value] [-n]	Display/change MEM/IO/PCI.

Command	Options	Description
mode	mode [row col]	Display/change console output device mode.
mv	mv src [src ...] [dst]	Move file/directory.
openinfo	openInfo Handle	Display handle/agent protocol.
pci	pci [Bus Dev [Func] [-i] [-s [Seg]]]	Display configuration space for PCI device.
reset	reset [-w|-s [string]]	Reset or shut down system.
rm	rm [-q] file [file ...]	Delete file/directory.
set	set [-d|-v|-b] [sname [value]]	Display/create/change/delete EFI environment variable.
smbiosview	smbiosview [-t smbiosType]|[-h smbios handle]|[-s]|[-a]	Display SMBIOS information.
time	time [hh:mm[:ss]]	Display current time or set time.
timezone	timezone [-s hh:mm | -l] [-b] [-f]	Display or set time zone.
type	type [-a|-u] [-b] file [file ...]	Display file contents.
unload	unload [-n] [-v] handleIndex	Unload protocol image.
ver	ver [-s]	Display version information.
vol	vol [fs] [-n <volume label>]	Display volume information of file system.

The standard options of the shell commands are as follows. You can use them for the command that correspond options are written in the "Options" column of above table. Please refer to the help of the command for the option peculiar to it.

Options	Description
-b (break)	Pause after each page.
-q (quiet)	The command will suppress all output.
-v (verbose)	Verbose Output. The shell command will output additional informative content.
-? (help)	Command help.

5. EXPRESSSCOPE Engine SP3

5.1 Overview

EXPRESSSCOPE Engine SP3 provides a variety of features using BMC (Baseboard Management Controller), which is a system management LSI.

EXPRESSSCOPE Engine SP3 monitors the power supply unit, fans, temperature, and voltage of the server. If you have the management LAN port connected to the network, you can remotely perform the following through a web browser or SSH client:

- Manage the server
- Remotely control the keyboard, video, and mouse (KVM)
- Remotely access a CD/DVD/floppy disk/ISO image/USB memory

5.2 Default Network Settings

Shown below are default values used when connecting the server to network.

5.2.1 A1040c

IPv4 address: 192.168.1.100,

IPv6 address: Link local address (*2), no global address

User name: Administrator

Password: Administrator

HTTP: Enabled

HTTPS: Enabled (*1)

SSH: Enabled

5.2.2 A2040c/A2020c/A2010c

IPv4 address: 192.168.1.100, 192.168.1.101,

IPv6 address: Link local address (*2), no global address

User name: Administrator

Password: Administrator

HTTP: Enabled

HTTPS: Enabled (*1)

SSH: Enabled

(*1) Disabled on standby BMC.

(*2) This address is added to network interface of BMC. This address is unique in a link (subnet) and automatically generated (FE80::/64). This address is always added even if IPv6 setting is invalid.

Important

- **If you do not use DHCP server for connecting with network, access the default IP address shown above from the local network where the default IP address is available. If the default IP address is unavailable in your environment, set an IP address for management LAN by using BMC Configuration of Off-line TOOL or maintenance LAN of the server. See "7.7.1 IPv4 Property (Master)" for how to set an IP address.**
- **For security reasons, set the user name, password, and IP address appropriate to your environment.**
- **IPv6 supports manual setting and RA (Router Advertisement) for setting an IP address, however, does not support DHCP and DNS. User interfaces that can be used on IPv6 are web console connection, SMASH-CLP connection, and mail alert only. For details, Chapter 3, (7. Using Remote Management).**
- **If you have forgotten Administrator password, restore the default setting by using [BMC Configuration] of Off-line TOOL.**
- **When BMC's administrator privilege account is "Administrator" only, if you modify to lower privilege than administrator, you will not be able to add new user account. In this case, you need to restore "Administrator" account privilege to administrator by using the Off-line TOOL (BMC Configuration) or you need to add new account.**

5.3 HTTP/HTTPS

User is authenticated at login by HTTPS. Accordingly, you cannot enable HTTP only. If HTTP is enabled, HTTPS is also enabled.

On web console of standby BMC, you can enable HTTP only at login.

Important

When you access the web console via the maintenance LAN, you can use the HTTP protocol only.

5.4 Login using LDAP/Active Directory

When you login with an account of LDAP or Active Directory, you can use HTTP or HTTPS for login.

5.5 EXPRESSSCOPE Engine SP3 Network Configuration

To enable EXPRESSSCOPE Engine SP3 to be used via network, network configuration is required.

You can change network configuration by the following three ways:

(a) Configure network from web console and SMASH-CLP through the maintenance LAN.

(b) Configure network from web console and SMASH-CLP through the management LAN.

(c) Configure network using BMC Configuration of Off-line TOOL of BIOS.

Important

The following IP address cannot be used because it is reserved internally.

- **169.254.0.0/16(169.254.0.0 to 169.254.255.255)**

With Express5800/A2040c, A2020c, A2010c model, assign IP addresses of the same subnet to both BMCs. If different subnet is set and failover occurs, connections to the master Web console may be disconnected, and sending SNMP alerts to the registered destinations may fails.

When the IP address of the master BMC and the standby BMC competes, it may be unable to connect with management LAN. Re-set up an IP address using Maintenance LAN or ROM Utility.

The following sections describe how to configure network.

5.5.1 Configuring from Web Console or SMASH-CLP via Maintenance LAN

You can configure the network from web console and SMASH-CLP by connecting BMC with remote terminal via maintenance LAN. As behavior same as connection via the management LAN, connection between remote terminal and BMC may be disconnected by configuration change.

Take the steps below to configure network.

1. Connect BMC with remote terminal via maintenance LAN.
2. Login to web console and SMASH-CLP from remote terminal using an IP address "169.254.255.254".
3. Configure network from web console and SMASH-CLP.

For details how to connect with maintenance LAN, refer to Chapter 10 (1.2 Connection of Maintenance LAN Exclusively Used by Maintenance Engineers) in Maintenance Manual.

5.5.2 Configuring from Web Console or SMASH-CLP via Management LAN

You can configure the network from web console and SMASH-CLP by connecting BMC with remote terminal via management LAN. Network configuration of BMC is for management LAN, accordingly, connection between remote terminal and BMC may be disturbed by configuration change.

Take the steps below to configure network.

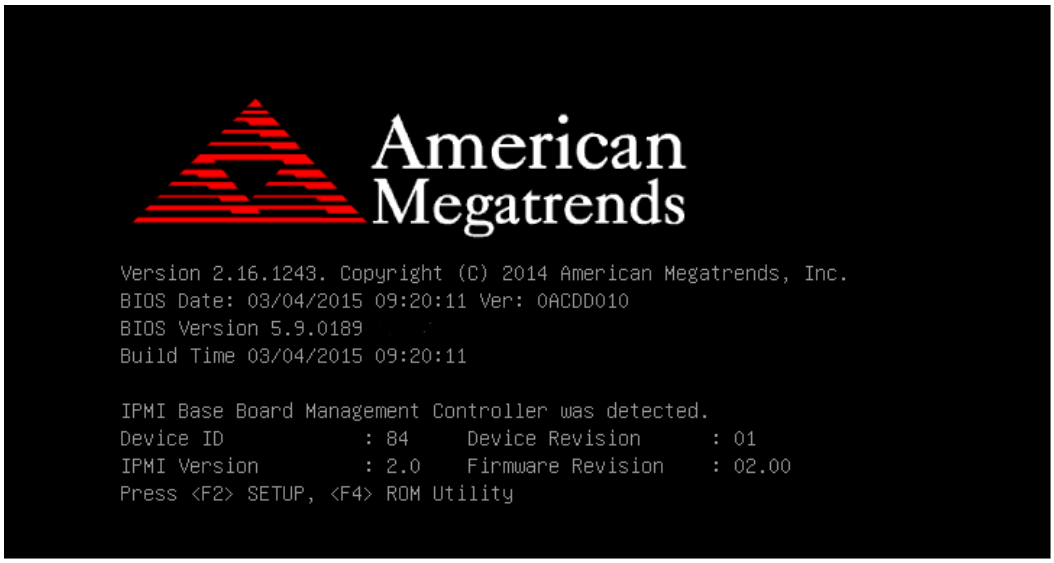
1. Connect BMC with remote terminal via management LAN.
2. Login to web console and SMASH-CLP from remote terminal using the default IP address.
3. Configure network from web console and SMASH-CLP.

5.5.3 Configuring using BMC Configuration in Off-line TOOL of BIOS

Take the steps below to configure network using BMC Configuration of Off-line TOOL.

1. Run POST according to Chapter 3 (3.1.1 POST Flow). After the logo display, the following message appears on screen.

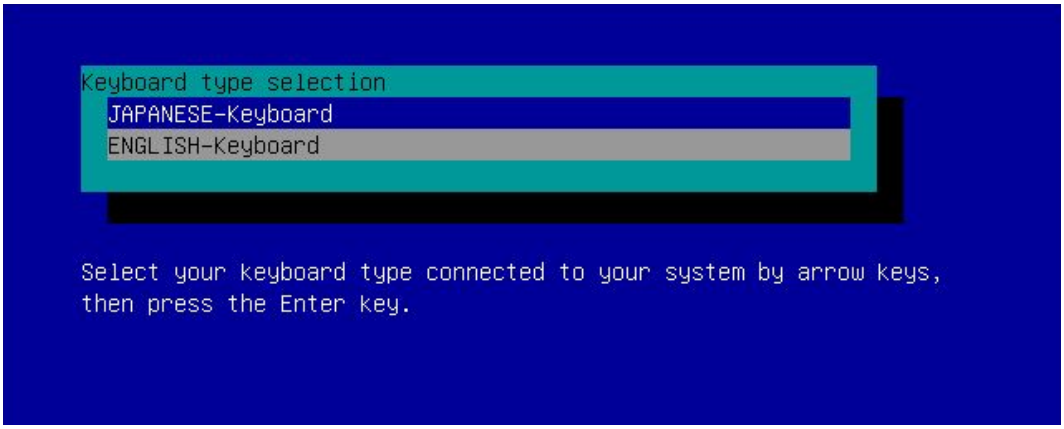
   ```
   Press <F2> SETUP, <F4> ROM Utility
   ```



2. If you press the <F4> key, the following message appears. Upon completion of POST, the Off-line TOOL is launched. Pressing the <F4> key while the logo is on the screen also displays the BMC Configuration menu screen.

   ```
   Entering ROM Utility . . .
   ```

3. Select a keyboard type on Keyboard type selection menu. The BMC Configuration menu of Off-line TOOL is displayed. Use this menu to configure network for EXPRESSSCOPE Engine SP3.

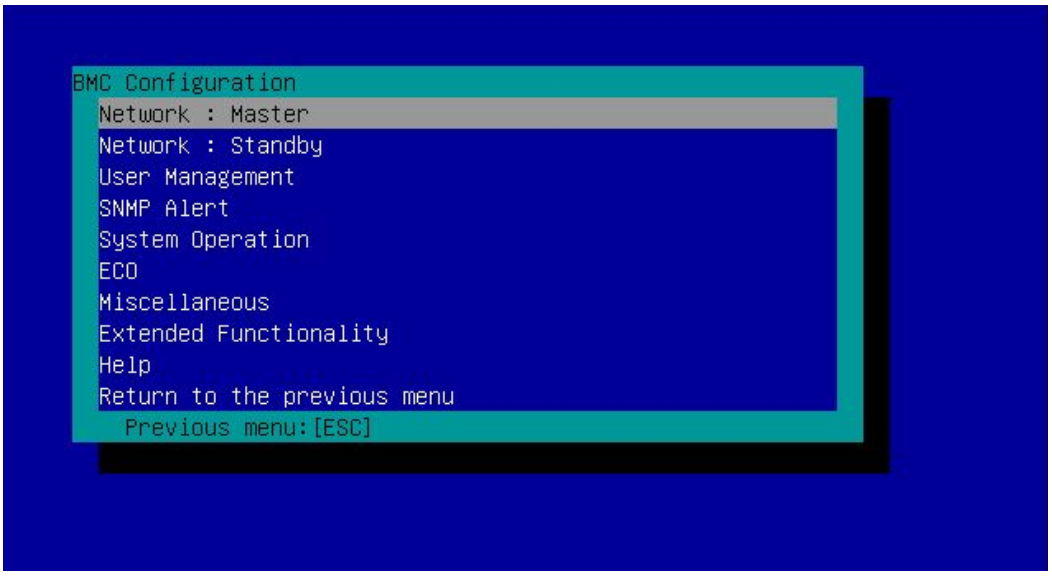


4. On BMC Configuration menu, select [BMC Configuration] → [BMC Configuration].

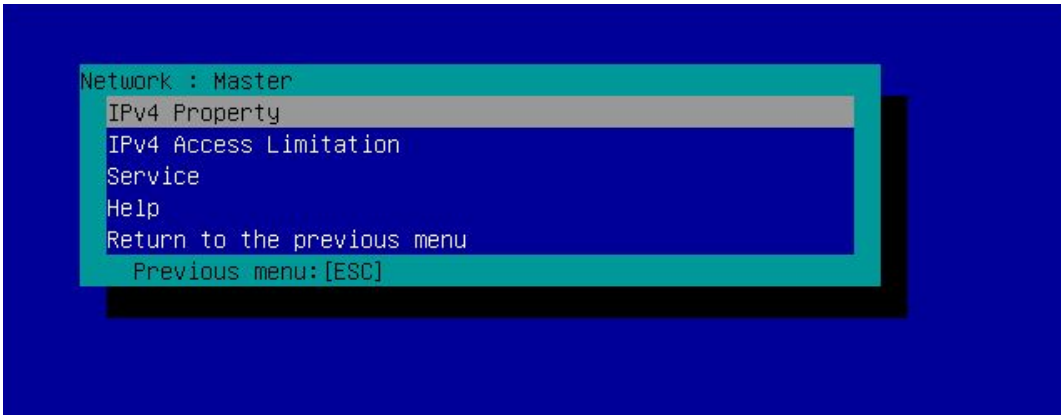
   With A1040c model, only [Network: Master] is displayed.

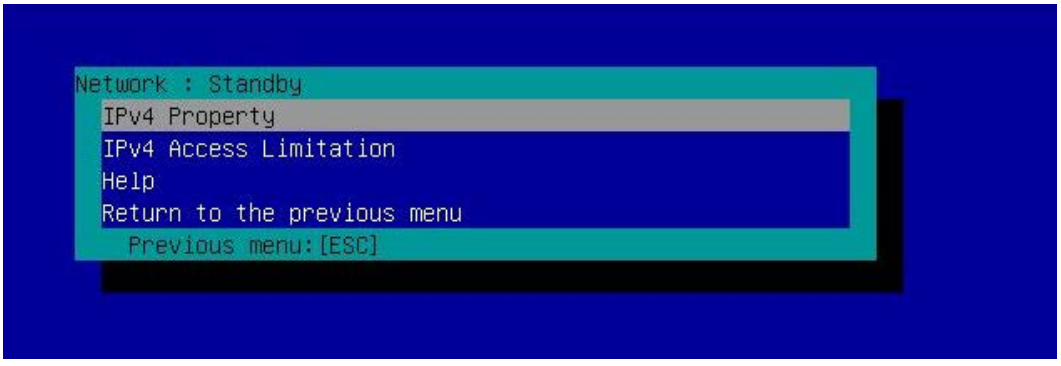
   With A2040c/A2020c/A2010c model that has two BMCs, [Network: Master] and [Network: Standby] are displayed.

   Configure network for each BMC according to your server model.



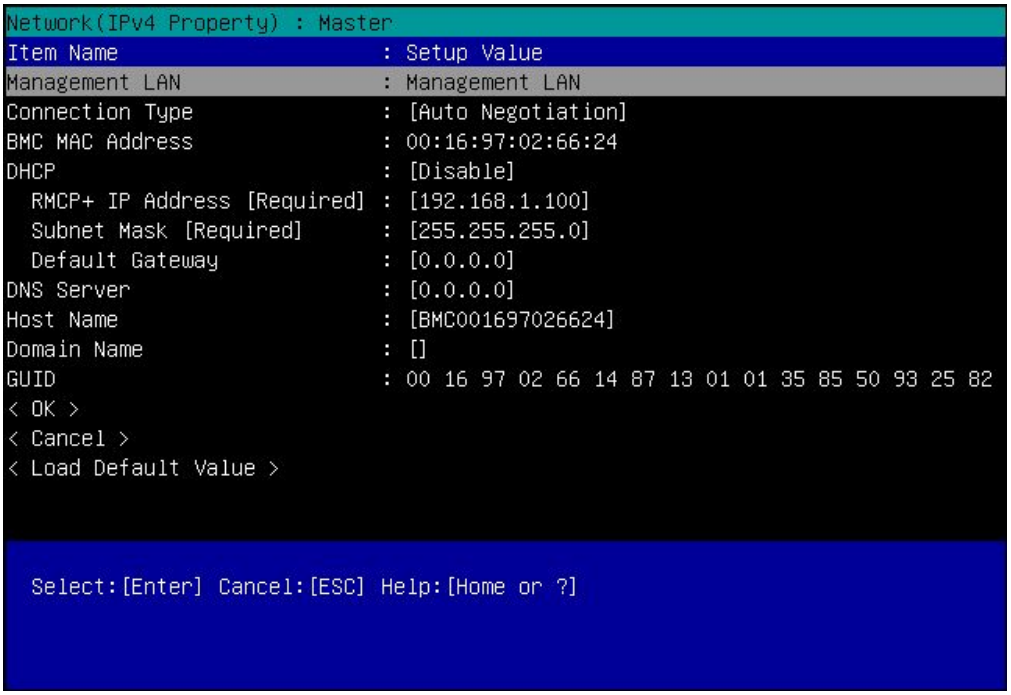
5. Then select [BMC Configuration] → [BMC Configuration] → [Network:Master or Standby] → [IPv4 Property].

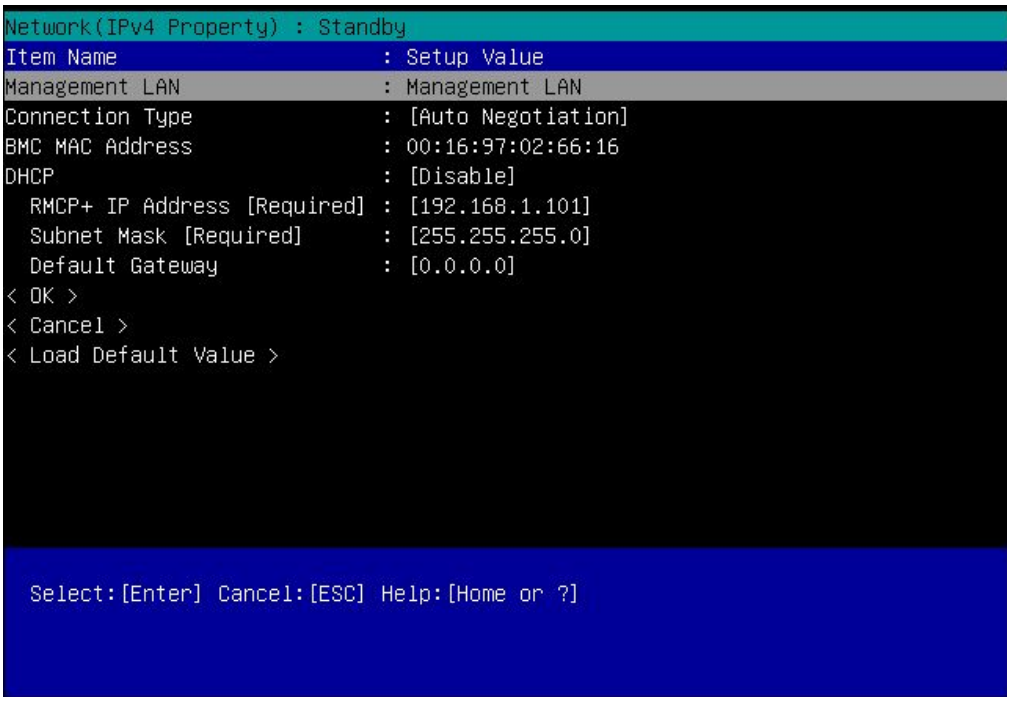




6. The screen as shown below appears when [IPv4 Property] is selected. Specify [Enable] when using DHCP server. Specify [Disable] when not using DHCP server. If you select [Disable] for DHCP, specify IP Address, Subnet Mask, and other items.

   If you select <OK>, the settings made here are applied to BMC.





7. Connect LAN cable to management LAN port to connect with network. Access the web console from web browser on remote terminal according to settings.

Important

When you run "BMC Configuration Initialization" by using Off-line TOOL, the following items are not initialized.

- **Each item of level settings described in Chapter 3 (7.7.1 BMC – (3) (b) SNMP Alert)**
- **Each item described in Chapter 3 (7.7.1 BMC – (7) Extended Functionality)**
- **Each property item described in Chapter 3 (8.15 Viewing and Modifying Server Configuration Information) (except for the settings which are not allowed to change by SMASH-CLP)**

If you want to reset the item above-mentioned to the default values, you need to apply default settings by web console.

5.5.4 Settings on remote terminal

This section describes considerations required for remote terminal before connecting with the server.

(1) Web Browser

Perform the following:

- See the following SSL configuration.
- Permit execution of JavaScript.
- Permit execution of Java.
- Permit execution of Cookie.
- Permit Popups.
- Enable style sheet.

The following settings are required when using Microsoft Internet Explorer:

- Register the BMC address to trusted site.
- Set the security level of trusted site to "Medium".
- When Security Enhancement is enabled, registration of "about:blank" to trusted site may be needed.
- You may need to uncheck to "Do not save encrypted page to disk" from [Internet Options] → [Advanced] → [Security].
- You may need to check to "Play animations in webpages" from [Internet Options] → [Advanced] → [Multimedia].
- If you are using Internet Explorer 9 in network environment that uses global IP address, select [Internet Options] → [Advanced] → [Security] and uncheck to "Use TLS1.0" and check to "Use TLS1.1" and "Use TLS1.2". (This is not necessary on Windows Vista because TLS1.1/1.2 is not supported.)
- Select the “Enable” radio button from [Internet Options] → [Security] → [Custom level…] → [Automatic prompting for file downloads].

The following settings are required when using Mozilla Firefox (Linux OS only):

- Enter "about:config" in URL, and specify "4" for "network.http.max-persistent-connections-per-server".
- When the SELinux is enabled on the Linux OS and the Firefox is used by the root user, the Java applet of the WEB console will be failed. So, please configure in the following:

  # setsebool -P unconfined_mozilla_plugin_transition 0

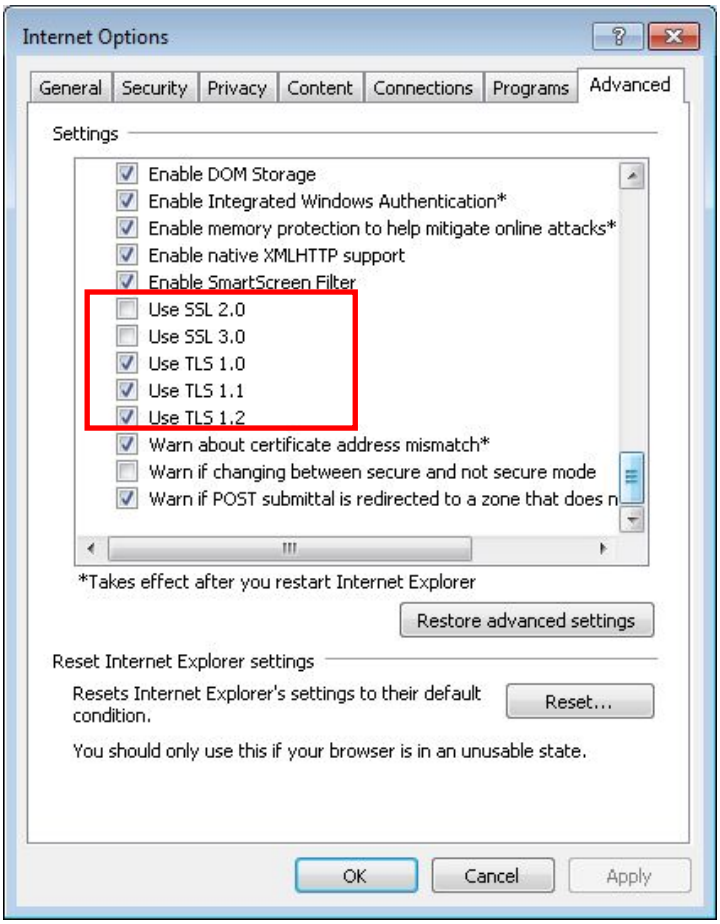
NOTE: If you cannot successfully operate from the browser, try initialization of browser settings or reinstall the browser or restart the management PC.

・SSL Configuration

Regarding the web browser and Java, the following settings are required to address the vulnerability of SSL3.0 (CVE-2014-3566):

- **When using Microsoft Internet Explorer**

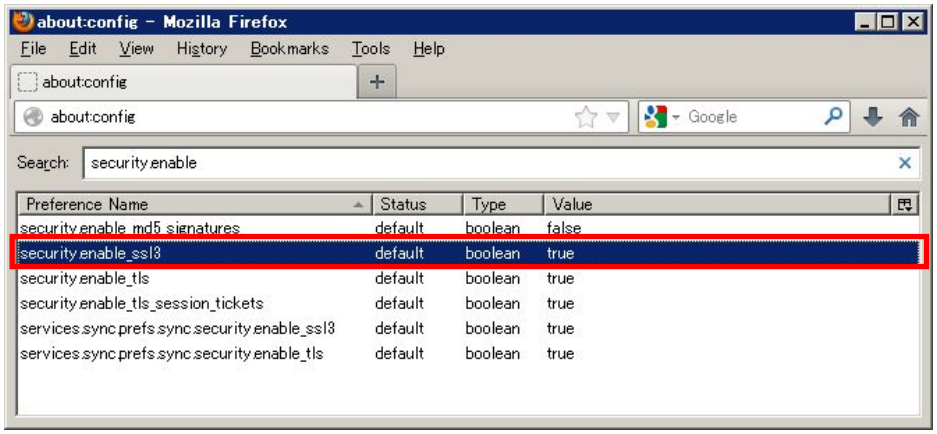
  Start the web browser of management PC, select [Internet Options], [Advanced], and [Security] sequentially, check "Use TLS1.0", “Use TLS1.1”, and “Use TLS1.2” (TLS1.0 or later) in the items related to SSL/TLS. And uncheck “Use SSL2.0” and “Use SSL3.0”.



- **When using Firefox ESR17**

  ① Input “about:config” to the address bar of Firefox.

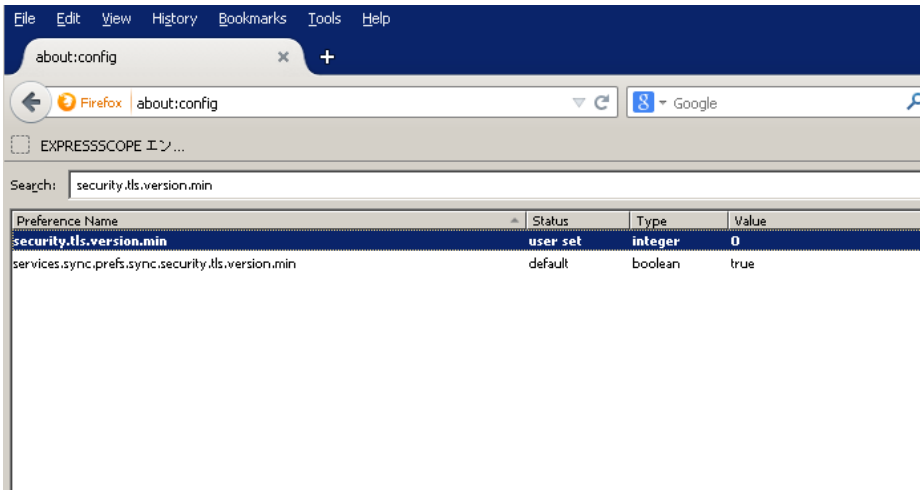
  ② Input “security.enable” to the search field, and then check the value of “security.enable_ssl3” row. If the value is “true”, double-click “security.enable_ssl3” row and change the value to “false”.



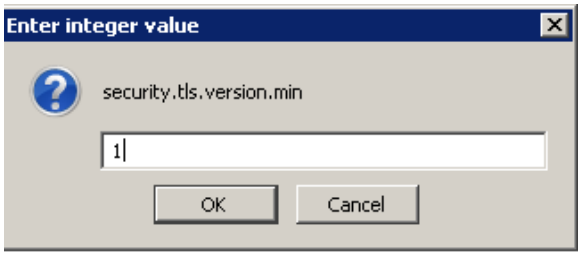
  ③ Restart the web browser.

- **When using Firefox ESR24 or later**

  ① Input “security.tls.version.min” to the search field, and then check the value.



② When the value is zero, click the “security.tls.version.min” entry and then input the “1” on the message box.

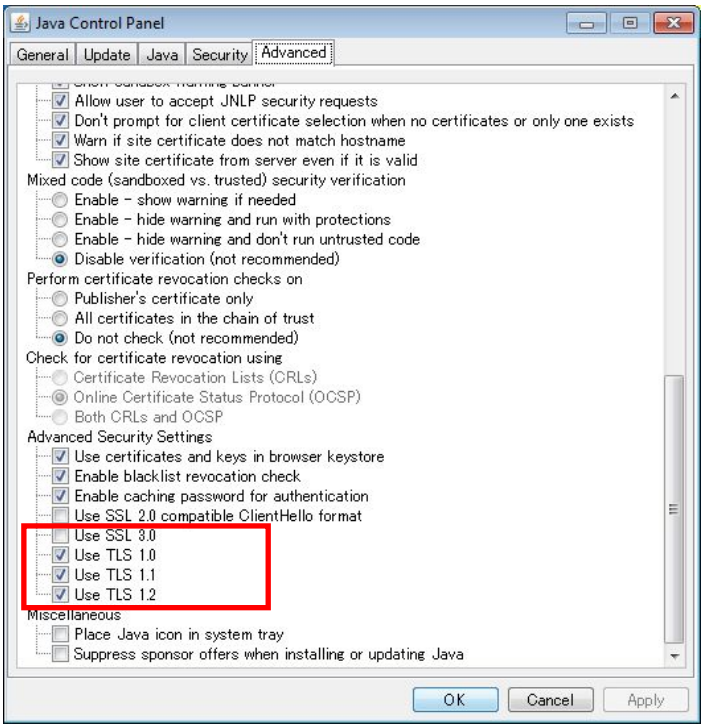


③ Restart the web browser.

- **Java settings**

① Open the Java control panel.

② Select [Advanced], uncheck “Use SSL 3.0” and check "Use TLS1.0", “Use TLS1.1”, and “Use TLS1.2” (TLS1.0 and later) in the items of “Advanced Security Settings” like the following figure. Check the "Use TLS1.0", “Use TLS1.1”, and “Use TLS1.2” (TLS1.0 and later) with the JAVA Version 8 Update 31(Java8u31) or later. Additionally, the “Use SSL 3.0” entry does not exist.



(2) Client OS

The following Client OSs on remote terminal side are supported.

Windows

- Windows Vista (SP2)
- Windows 7
- Windows 8
- Windows 8.1
- Windows Server 2008
- Windows Server 2008 R2 (SP1)
- Windows Server 2012
- Windows Server 2012 R2

Linux

- Red Hat Enterprise Linux (version 6)
- Red Hat Enterprise Linux (version 7)

The following OSs are supported when using IPv6:

- Windows 7
- Windows 8
- Windows 8.1
- Windows Server 2012
- Windows Server 2012 R2

(3) Validated browser

Windows

- Microsoft Internet Explorer 7.0
- Microsoft Internet Explorer 8.0
- Microsoft Internet Explorer 9.0
- Microsoft Internet Explorer 10.0
- Microsoft Internet Explorer 11.0

Linux

- Firefox ESR17, 24, 31

The following browser is supported when using IPv6:

- Microsoft Internet Explorer 10.0
- Microsoft Internet Explorer 11.0

(4) J2SE Runtime Environment

Version 7

Version 8

NOTE: Please use the 32-bit version Oracle J2SE Runtime Environment on the Windows platform.

NOTE: Please use the Java7u55 or later on the Windows 8.1.

- About Linux version Firefox

  1. Install the 64-bit version Oracle Java.
  2. Switch the java program path to the Oracle Java by using the alternatives command because the OpenJDK installed by default does not support the Java Web Start.
  3. Perform the “java –version” command and confirm the Oracle Java version.
  4. Add in the following entry in the ~/.mailcap file.
     application/x-java-jnlp-file; /usr/bin/javaws %s
  5. Enable the Java plug-in on the Firefox browser.
  6. Configure the Java security as needed.

(5) Operating environment

Display resolution

- 1024x768 pixel or more

Management PC specification

- CPU: Intel Pentium4 1.3GHz or more, or the compatible processor
- Memory: The memory size can be worked with OS and browser, JavaVM, and 1GB or more.
- Network: 100BASE-TX equal or more than(10Mbps or more is needed).

5.5.5 Port number

EXPRESSSCOPE Engine SP3 uses the following ports. If your network environment has a firewall, set it appropriately.

Module name	Port number	Protocol	Direction viewed from BMC	Module name	Port number
Remote media (Encryption disabled)	Unassigned	TCP	IN	BMC	5120 (CD/DVD) 5122 (USB MEM) 5123 (FD) (*1)
Remote media (Encryption enabled)	Unassigned	TCP	IN	BMC	5124 (CD/DVD) 5126 (USB MEM) 5127 (FD) (*1)
Web console (Encryption disabled)	Unassigned	TCP	IN	BMC	80 (*1)
Standby Web console (Encryption disabled)	Unassigned	TCP	IN	BMC	5080 (*1)
WEB console (Encryption enabled)	Unassigned	TCP	IN	BMC	443 (*1)
Remote KVM (Encryption disabled)	Unassigned	TCP	IN	BMC	7578 (*1)
Remote KVM (Encryption enabled)	Unassigned	TCP	IN	BMC	7582 (*1)
SSH	Unassigned	TCP	IN	BMC	22 (*1)
Standby SSH	Unassigned	TCP	IN	BMC	5022 (*1)
SMTP	25 (*1)	TCP	OUT	BMC	Unassigned
LDAP	389 (*1)	TCP	OUT	BMC	Unassigned
SNMP Trap	162	UDP	OUT	BMC	Unassigned
DHCP	68	UDP	OUT	BMC	Unassigned
RMCP+	Unassigned	UDP	IN	BMC	623
Link with CLUSTERPRO	162	UDP	OUT	BMC	Unassigned
Link with CLUSTERPRO	5570	UDP	OUT	BMC	Unassigned
DNS	53	TCP/UDP	OUT	BMC	Unassigned
WS-MAN (Encryption disabled)	Unassigned	TCP	IN	BMC	80 (*1)
WS-MAN (Encryption enabled)	Unassigned	TCP	IN	BMC	443 (*1)
RMCP+ for maintenance LAN	Unassigned	UDP	IN	BMC	52331 (*2)
Web console for maintenance LAN	Unassigned	TCP	IN	BMC	5080 (*3), 80(*1)
SSH for maintenance LAN	Unassigned	TCP	IN	BMC	5022 (*3), 22(*1)

(*1) Setting can be changed.
(*2) Valid only for maintenance LAN of master BMC (169.254.255.254). Setting cannot be changed.
(*3) Setting cannot be changed.

5.5.6 Notes

(1) Network environment

(a) Connection via proxy server

BMC does not support connection via HTTP proxy server.

(b) Shared LAN

The server does not support Shared LAN.

(c) Communication type

Be sure to use straight cable to use 10Mbps, 100Mbps, or 1Gbps interface.

(2) Remote management

(a) Buttons on Web browser

Do not use "Reload", "Go", and "Back" button (function) after logged in.

(b) Prohibition for multiple login

Do not login to one BMC doubly from the single remote terminal.

(c) Virtualized OS environment

If the server is running with virtualized OS, the mouse and remote media features of remote KVM console are not supported. Console and keyboard functionality is available.

(3) Remote KVM/media

(a) Privilege

To use remote KVM/media feature, you must login with the user having administrator right.

(b) License key

You do not need to register the license key to use this feature.

(c) Number of simultaneous KVM sessions

Remote KVM can be used from two remote terminals simultaneously. Third and the subsequent terminals cannot use the feature at the same time.

(d) Resolution supported by remote KVM

The remote KVM console supports the following six resolutions:

- 1600 x 1200 256 colors, 16-bit color, 24-bit color, 32-bit color
- 1280 x 1024 256 colors, 16-bit color, 24-bit color, 32-bit color
- 1152 x 864 256 colors, 16-bit color, 24-bit color, 32-bit color
- 1024 x 768 256 colors, 16-bit color, 24-bit color, 32-bit color
- 800 x 600 256 colors, 16-bit color, 24-bit color, 32-bit color
- 640 x 480 256 colors, 16-bit color, 24-bit color, 32-bit color

NOTE: Some resolution may not be supported depending on server model or OS. If the resolution specified for remote KVM is not supported by the display of server side, the display unit of server side may fail to

display.

(e) Using remote KVM on server side

If you login to own BMC from local console of the server, never open the remote KVM console. Otherwise, keyboard and mouse are disabled.

(f) Status of keyboard LED

While the remote KVM is used, the status of keyboard LED on remote terminal may not be identical to that on the server.

(g) Language

Before using web browser on remote terminal, the input language used for OS on the server must be identical to that on remote terminal.

Example: BIOS (EFI shell)

- Windows 7

  Select [Control Panel] → [Keyboard or input method] → [Keyboards and languages] → [Change keyboard type], add [English (US)] in General tab, and select it for Default Language.

- Windows XP

  Select [Control Panel] → [Language and Region] → [Language] → [Detail], add [English (US)] in General tab, and select it for Default Language.

(h) Device indication

The device being used by other software may not be connected depending on OS of remote terminal.

(i) USB Memory compliant to multi partition

A USB Memory compliant to multi-partition is not recognized as a device.

(j) Linux device

If the remote terminal uses Linux OS, it may not be detected by device search process. In this case, perform operation with root user.

(k) Connection pattern

You can register the following combination of remote media.

- FD + CD/DVD
- FD + USB Memory
- FD + CD image
- FD + USB image
- FD image + CD/DVD
- FD image + USB Memory
- FD image + CD image
- FD image + USB image
- CD/DVD + USB Memory
- CD/DVD + FD image
- CD/DVD + USB image
- CD/DVD image + USB Memory
- CD/DVD image + FD image

- CD/DVD image + USB image
- USB Memory + FD + CD/DVD
- USB Memory + FD + CD/DVD image
- USB Memory + FD image + CD/DVD
- USB Memory + FD image + CD/DVD image
- USB image + FD + CD/DVD
- USB image + FD image + CD/DVD image

[*1] automount command might fail to mount remote media on X Window System (GNOME) on Red Hat Enterprise Linux (GNOME) and Oracle Linux. In such a case, mount the media manually. You can access the remote media by manual mount instead of automount.

```
# mount /dev/sr1 /media/cdrom
```

Or you should select KDE instead of GNOME to access the remote media

[*2] If you disconnect only FD image while USB image + FD image + CD/DVD image are connected, USB Memory and CD/DVD may be disconnected momentarily.

(l) Time required for connection

It takes several seconds until remote media is detected by the server after [Connect] button was pressed.

Some OS may take several minutes to detect the USB floppy disk drive.

(m) Connect/Disconnect while drive is accessed

If [Connect] or [Disconnect] is performed while the CD/DVD-ROM is being accessed, the server will fail to detect the drive. Perform these operation after making sure that access LED on CD/DVD-ROM drive is unlit.

(n) Virtual drive

FD/CD/DVD or USB Memory of remote media are recognized by BIOS SETUP utility as shown below.

- "AMI Remote FD"
- "AMI Remote CD/DVD"
- "AMI Remote USB MEM"
- "AMI Virtual Flash" (for BIOS update)

When one of remote media is connected, the host OS recognizes above device as the “USB composite device”. The host OS cannot recognize the device after all remote media are disconnected.

To disable these devices, use BIOS SETUP (Security Menu → Remote KM and VMedia) menu.

(o) Linux device type

If Linux OS is running on the server, the drive of its Device Type is FDD is recognized as USB Disk of SCSI Device.

(p) Device search privilege

If the OS on remote terminal is Windows Vista or later, the web browser must be used with administrator privilege. There is a media that cannot be connected (USB Memory).

The network drive cannot be seen from remote KVM that is raised to administrator privilege. Place the image file used for connection in local drive.

(q) Power off and system reset during connection

Do not power off or reset the server and remote terminal while accessing the remote media.
The file being accessed might be damaged.

(r) Remote media FD access LED

The access LED may keep go on after the floppy disk drive is connected to remote terminal, depending on drive type.

(s) Use EXPRESSBUILDER via remote media

Once disconnect remote media when you need to replace CD/DVD-ROM media during remote media connected. Then replace the CD/DVD-ROM media with a new one and connect remote media again.

If you don't disconnect the remote media once, the new CD/DVD-ROM media might be recognized.

(t) Unsupported remote media

Unsupported remote media is as follows.

- DVD+R DL

NOTE: When using DVD+R DL media, use DVD drive built in the server instead of remote media feature.

(u) Remote media performance

When the remote media network is encrypted, the media access speed will become slow. If you want to increase of the media access speed, please turn off the encryption mode of the remote media network. But, note that security is off when you turn off the encryption mode.

(4) Web console

(a) When network configuration is changed (management LAN)

If network configuration is changed, the current connection is disconnected when you click [Update] to send new configuration to BMC. Close the Web browser once, and login again with the new setting value.

(b) Note on designating DNS host name

BMC uses LAN controller independent from the OS on the server. Accordingly, you cannot designate the same host name and domain name as those of OS. If BMC belongs to different network domain, the same host name can be used.

(c) Note on using DHCP

Communication with BMC is disabled if automatic acquisition from DHCP is enabled in an environment where DHCP is unavailable. To enable communication with BMC from that state, set IP address and others using BMC configuration tool. See (7.7.1 BMC (1) Network (a) IPv4 Property (Master)) for details.

If failover occurs, IP address of standby BMC will be changed.
Then, when ESMPRO/ServerManager is monitoring the standby BMC, ESMPRO/ServerManager cannot acquire state of this BMC.
In this case, check IP address of the standby BMC on the master web console.

(d) Web server feature

If HTTP Interface or HTTPS Interface is disabled on web server feature, the current connection is disconnected and the web server feature is no longer available. To enable the web server feature, use BMC Configuration Tool.

(e) Change of web server port

If HTTP port number or HTTPS (SSL) port number is changed, the current connection is disconnected. Close the Web browser, and login again with the new port number.

(f) Alert and Alert test

Alert test must be performed after completing alert mail setting. You may fail to use alert mail feature depending on setting of network or SMTP server of destination.

(g) BMC firmware update

Update BMC firmware only when instructed to use update feature by other document (e.g., Instructions for firmware update). Do not update the firmware in any other case.

If firmware is updated while the system is powered on, BMC starts with the new firmware when any of the following is performed.

- System is stopped by OS shutdown or forced power off.
- System is restarted by system reset or cycling power.

If "Immediate" is checked, BMC restarts automatically upon completion of update even while the system is powered on.

If firmware is updated while the system is powered off, BMC starts with the new firmware upon completion of update. The system can be restarted after BMC has been restarted.

Do not perform any other operation during firmware update.

(h) System BIOS firmware update

If System BIOS firmware is update again when the system is powered on and the update flag is displayed as 1, a message which means the update fails are displayed. If you encounter the situation, power on the system (or reboot the system if the power is already on). Then update the System BIOS again after updating by System bios itself.

(5) J2SE Runtime Environment

- **About setting method of JAVA exception site**

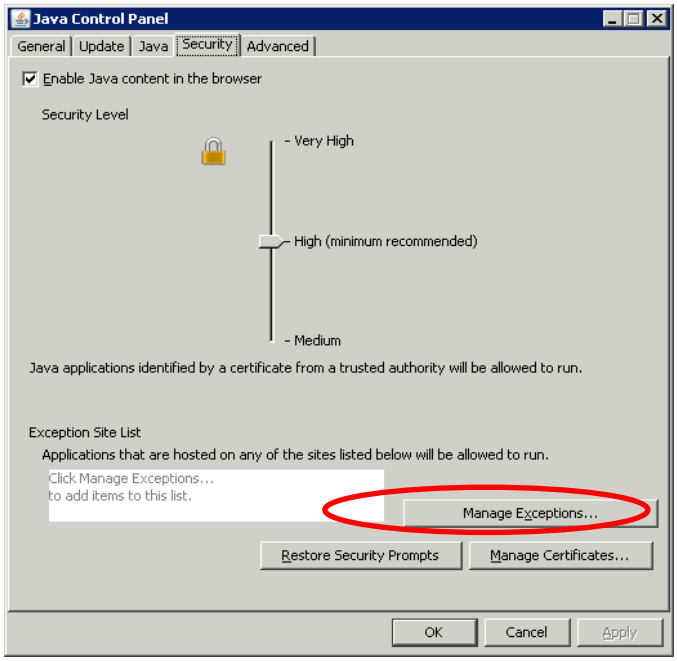
Web console use the JAVA applet or application for remote management.

Oracle Java 7 u51 will require that all JAR files used in applet or Java Web Start deployments have the permissions attribute set in the JAR manifest file.

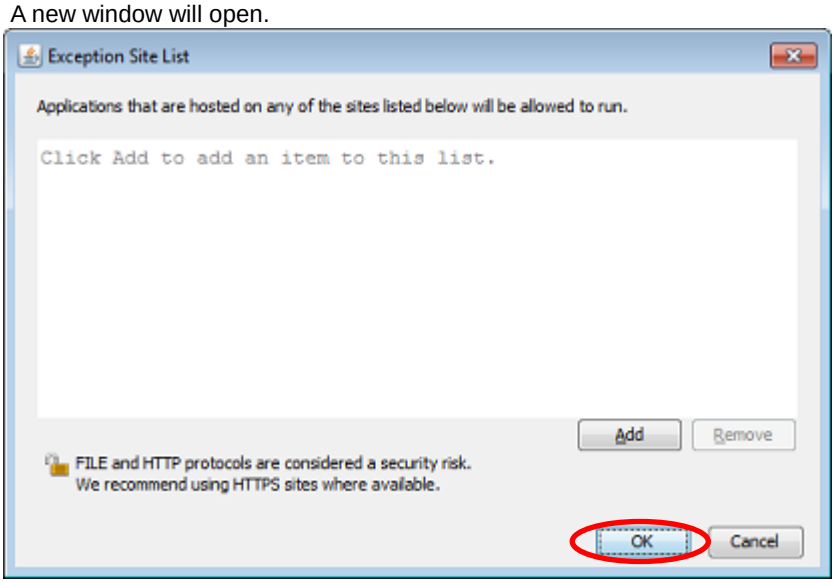
Applets or Java Web Start applications that do not meet these conditions will not run in the new default configuration. The following message is displayed when this problem is encountered:
"Application blocked by security settings. The Java security settings have prevented this application from running. You may change this behavior in the Java Control Panel."

1. Open the Java control panel.

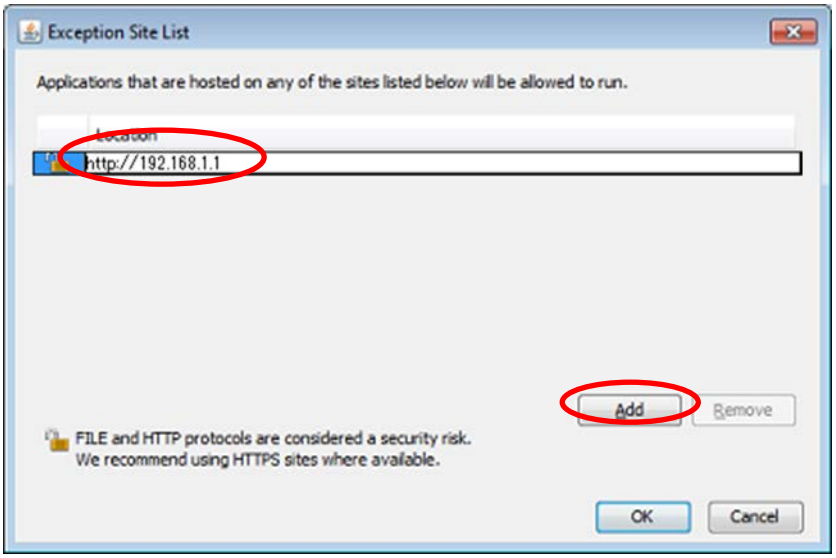
2. Choose the Security tab. And Click the "Manage Site List" button near the bottom.
NOTE: The Medium entry cannot be existed with the Java8.



3. A new window will open.



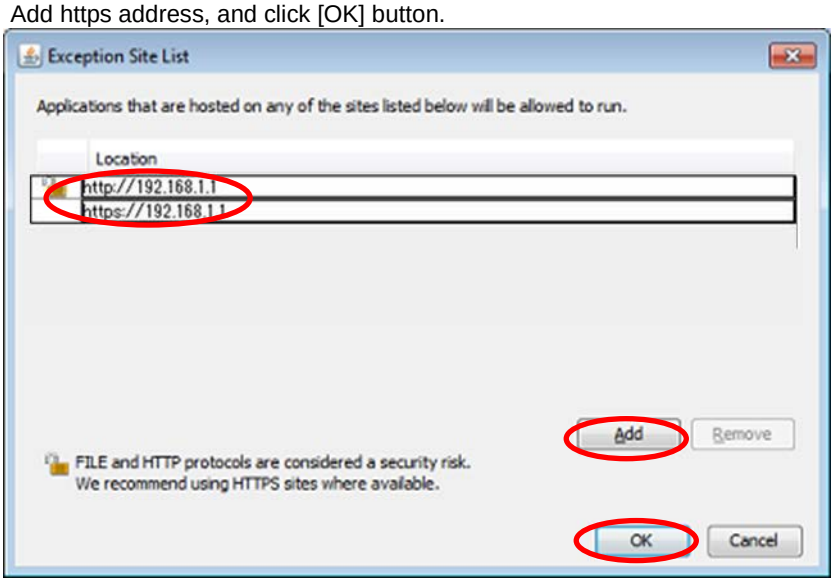
4. Click the Add button.



Important **If web console's port number is not 80, you need specify the port numbers like as followings.**
http://<IP Address>:<port numbers>

5. If you access to web console with http, the security warning pops up, and then click [OK] button.

6. Add https address, and click [OK] button.



Important **If web console's port number is not 443, you need specify the port numbers like as followings.**
https://<IP Address>:<port numbers>

- **Other important matters**

Important **If the following setting is unchecked, some features of the web console won't run normally.**

Check [Control Panel]-[Java]-[Advanced]-[Java Plug-in]-[Enable the next-generation Java Plug-in (requires browser reset)]. If this is unchecked, change it to "Enable".

Important

In BMC FW version 1.47 or later, the SSL server certificate supports the SHA-256, but cryptographic communication between the KVM console and the remote KVM or the media server use the SHA-128 algorithm if "Encryption" settings is set to "Enable" in the remote KVM or media setting page.

- **BMC FW version 1.47 or later**

category	encryption algorithm
SSL server certificate	SHA-256
SSL/TLS	SHA-256/SHA-128
JAVA code signing	SHA-128

- **BMC FW version before 1.46**

category	encryption algorithm
SSL server certificate	SHA-128
SSL/TLS	SHA-128
JAVA code signing	SHA-128

5.5.7 Troubleshooting

(1) Fail to open web page, or login prompt of command line interface does not appear

→ Check if LAN cable is properly connected.

→ Check if connection is restricted by setting of firewall or gateway.

→ Check if LAN Connection Type (link speed and duplex mode) of management LAN is same as those on switch (hub) of destination.

→ Confirm settings in "Network" - "Property".

→ Clear cache of the Web browser. Then restart the Web browser and login to it.

If Microsoft Internet Explorer 8.0 or later is used, it is necessary to select [Internet Options], [general], [browsing history] and [delete] sequentially, uncheck "Preserve Favorites website data".

→ With Express5800/A2040c/A2020c/A2010c model, since there is possibility which BMC failover is occurring, connect again in 3 minutes.

(2) Remote KVM does not start

→ Check if Java Runtime Environment (JRE) is installed on remote terminal.

→ Check if logged in user has an administrator privilege.

→ If an error message "Error: JAR resources in JNLP file are not signed by the same certificate" is displayed, open Java Control Panel on remote terminal and remove temporary Internet files.

→ If the network address including IP address of destination BMC is specified for exception of setting of browser, Java may fail to interpret this exception of setting depending on syntax of setting. In this case, open [Network proxy settings] in Java Control Panel and select any other setting than "Use browser settings".

If Remote KVM does not start yet though you tried them above, it might be caused by security functions of OS or Web browser. When you face the symptom, Remote Console (SOL) can be used instead of Remote KVM console. However, Remote console has some limitations as following;

The way to start BIOS setup menu
F2 key might be not available depending on sort of terminal software for Remote Console. In that case, boot the server in maintenance mode. The Remote Console stops at menu for boot device selection, and you can enter the BIOS setup menu.

The way to start Off-line TOOL (ROM Utility)
F4 key might be not available on Remote Console. In that case, push the F4 key on local VGA.

The way to start Off-line Utility
Off-line Utility is not available on Remote Console. Use the Off-line Utility on local VGA.

(3) Console screen of server does not appear on remote KVM console

→ Check if resolution specified for the server is correct.

→ Refresh the screen of remote KVM console.

(4) Mouse pointer does not synchronize

The mouse pointer displayed on remote KVM console does not synchronize with that on remote terminal.

→ Change coordinate mode of mouse. (Select [Configuration] → [System Operation] → [Mouse], and select [Absolute] or [Relative]). Exit remote KVM, and launch it again.

→ Try synchronization of mouse pointer ([Remote KVM] → [Mouse] → [Synchronize]).

Note that Mouse pointer does not synchronize on Off-line Utility. Use keyboard (TAB: move, SPACE: select).

(5) Drive is connected via remote media, but not detected by the server

→ Try [Disconnect] and [Connect] again.

→ Reboot the server.

(6) Fail to eject remote media

→ Perform [Disconnect] in proper procedure.

→ Restart the remote terminal.

(7) Forgotten the login name/password

→ Restore the factory-set BMC configuration.
Use BMC Configuration Tool to restore the factory-set value.

(8) Device is not detected by remote terminal

→ Apply the latest Service Pack.
When Windows OS is used for remote terminal, device may not be detected by remote media if the latest Service Pack is not applied. Be sure to apply the latest Service Pack.

→ Check if any process of software that uses the device of remote terminal is running.
When Windows OS is used for remote terminal, the device may not be detected by remote media if process of software that uses the device of remote terminal (e.g., Windows Media Player) is running. On the [Process] tab in [Task Manager], check that such a process (wmplayer.exe and others) is not running, and search again.

(9) Special key is disabled

The [CapsLock], [Scroll Lock], and [Num Lock] features may be disabled on remote KVM console.

Keyboard shortcut using the Alt key may be disabled on remote KVM console.

→ Perform the key entry while pressing the Alt button in hotkey area of remote KVM console.

→ Use the software keyboard.

(10) Mouse pointer of the server does not appear on remote KVM console

If Linux OS is used for the server, mouse pointer of the server may not appear on remote KVM console. In this case, disable the hardware cursor.

(Example) Procedure in MIRACLE LINUX V4.0

1. Use editor to open /etc/X11/xorg.conf file and check if the following is described in Section "Device" (indicating graphic device). If it is not found, add the description.

   Option "HWCursor" "off"

   (Reference)

```
Section "Device"
  Identifier "Matrox Millennium G200"
  Driver "mga"
  VendorName "Videocard vendor"
  BoardName "Matrox G200e"
  Option "HWCursor" "off"
EndSection
```

2. Save and exit the editor, and restart OS of the server.

(11) Window operation is unable

Access from remote media window fails, or window does not open even when features such as IPMI information and Remote KVM/Media is selected.

→ Restart the browser.

→ If the same error persists, delete temporary Internet file on Java Control Panel.

(12) Browser terminates abnormally

→ Confirm operating environment of remote terminal.

(13) Remote KVM/media is launched doubly

When remote KVM/media is automatically launched doubly on Internet Explorer, close the latter one. Then the former one can work normally. To avoid double launch, disable the SmartScreen Filter feature.

(14) Remote KVM is disconnected

If the resolution of server side is frequently changed while the remote KVM is running, connection may be lost in rare cases. In such as case, restart the remote KVM.

(15) IPMI information is not displayed on RHEL

When using https login on RHEL Firefox, IPMI information (SEL, SDR, FRU, MC, and Backup) is not displayed immediately after the login. Wait for 60 seconds or longer, and try again.

(16) "Network" menu on Internet Explorer 8

If you leave the "Network" menu opened with the Auto Refresh being enabled, memory utilization of browser keeps increasing. Thus the browser does not work smoothly or forcedly logged out. In this case, restart the browser after logout, and login again.

(17) Java applet does not be launched after log-in in web console by using IPv6 address

At remote terminal where the following JAVA was installed in, when you access to web console specifying the IPv6 address (e.g. https: //[2001:1::3])) with HTTPS, the java applet cannot launch.

Please use Java8 Update45 or later.

- Java7 Update71, Java7 Update72, Java7 Update75, Java7 Update76
- Java8 Update25, Java8 Update31

(18) USB memory device connected via the remote media cannot be recognized on the EFI Shell

There is case that the USB memory device connected via the remote media cannot be recognized on the EFI shell.
If you want to access to the USB memory device on EFI shell, you need to insert USB memory device to the USB port in the chassis.

Important **When BMC FW version 2.23 or later has been applied to the system, this issue doesn't occur.**

(19) Java applet loading failure window appears frequently

When the loading failure window of the Java applet appears frequently even if the procedure indicated on the important part in "7.1.1 Login screen" is put into effect, please execute the following procedure.

1. Check the “Enable logging” of "Debugging" and “Show console” of “Java console” in "Advanced" tab.

2. Don't click [X] button soon when the Java applet loading failure window appears after web console login and wait until the Java application confirmation pop-up window for IPMI Viewer appears. If you have checked "Do not show this again for apps from the publisher and location above" once in Java application launch confirmation pop-up for IPMI Viewer, please wait until "IPMI Viewer is loaded successfully!!" is displayed on the Java console.

3. Click [x] button of the Java applet loading failure window after clicking [Run] button of the Java application confirmation pop-up window. After that, log in the web console again.

6. EXPRESSBUILDER

EXPRESSBUILDER helps you to install operating system or maintain the server.

6.1 Features of EXPRESSBUILDER

EXPRESSBUILDER provides the following features.

Features	Descriptions
Setup (OS reinstallation)	Installs Windows on your server. Easily completes the process from RAID configuration to installation of applications. To use this feature, select **Os installation** in the menu which appears after boot.
Bundled software *	Stores various bundled software (such as NEC ESMPRO ServerAgentService).
Maintenance	Diagnoses your server system. To use this feature, select **Tool menu** in the menu which appears after boot.
Documents *	Stores various documents including this guide.

* Documents and some software components are not stored in Internal Flash Memory (option).

6.2 Starting EXPRESSBUILDER

If you want to build RAID system or install OS, start EXPRESSBUILDER by using any of the following.

EXPRESSBUILDER DVD:

Set the DVD on the drive and either turn on the server or restart the server by pressing <Ctrl> + <Alt> + <Delete>. EXPRESSBUILDER is booted from DVD.

If you want to install any bundled software or read documents, set the DVD to a computer on which Windows is running. Autorun menu appears automatically.

Internal Flash Memory (option):

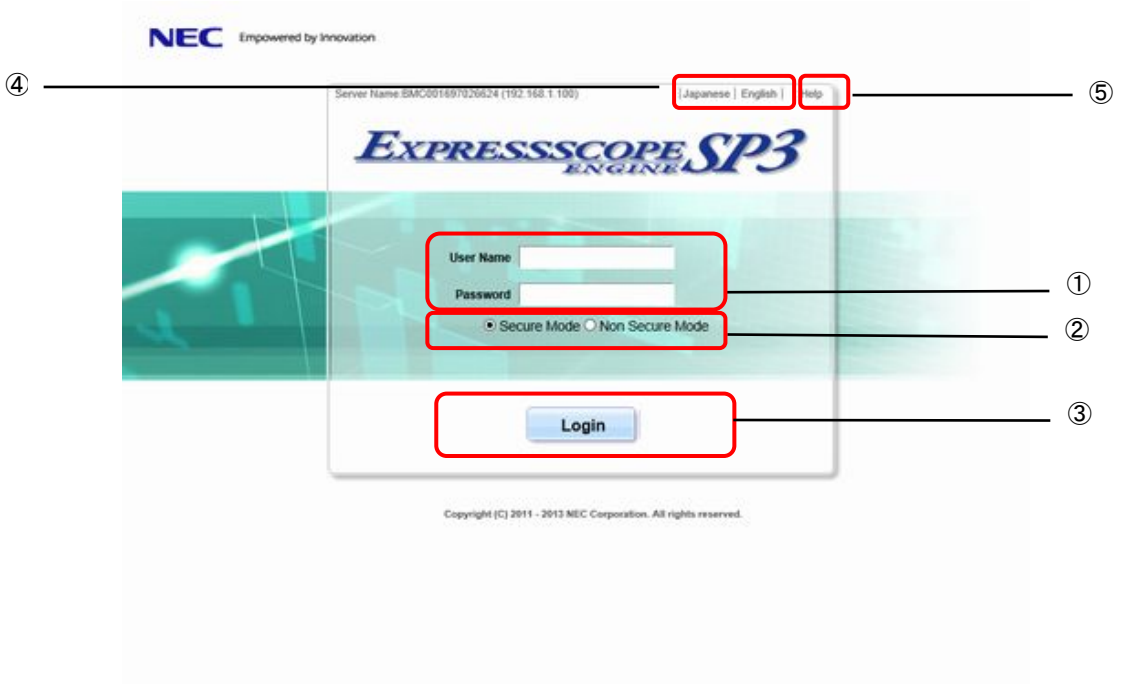
During POST, press <F3>. If you start with this option, **make sure that the media was removed from the drive.**

7. Using Remote Management

Before using remote management, read thoroughly Chapter 3 (5. EXPRESSSCOPE ENGINE SP3).

7.1 Login and Logout

7.1.1 Login



① User Name / Password

Enter the user name and password.

At shipment (initial state), use the default user name and password to login.

- Default IP address: 192.168.1.100(*1)
  (*1) Default IP address for standby BMC is 192.168.1.101.
- Default user name: Administrator
- Default password: Administrator

② Secure Mode / Non Secure Mode

Select Secure Mode (https) or Non Secure Mode (http). Secure mode is recommended.

③ [Login] button

Click the [Login] button after entering your user name and password.

④ Language

You can select the display language on this page. The login language depends on browser and is stored in coolie for 30 days.

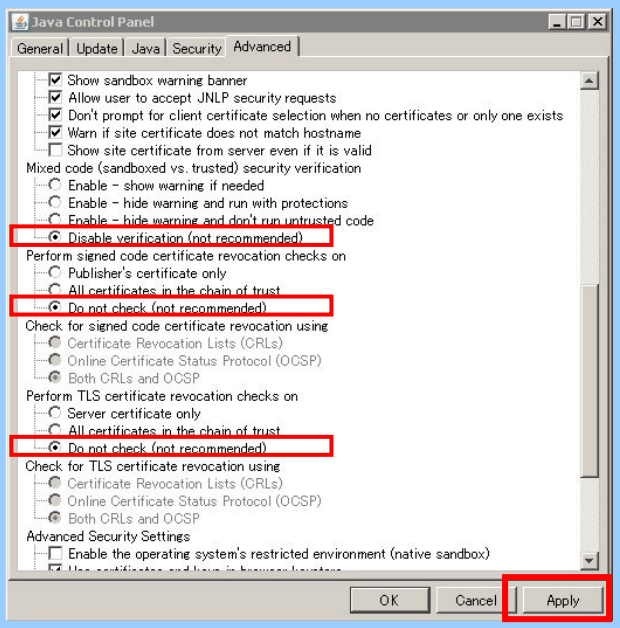
⑤ Help

The online help is displayed.

Important

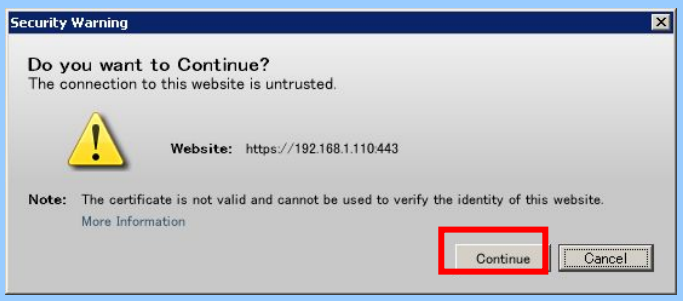
If the proxy server is not configured, JAVA application startup may fail. Please confirm if following settings are selected in [Control Panel]-[Java]-[Advanced] tab. If these settings are not selected, change their settings and apply the changes by clicking "Apply" button.

- **[Mixed code(sandboxed vs. trusted) security verification]**
  Select "Disable verification (not recommended)"
- **[Perform signed code certificate checks on]**
  Select "Do not check (not recommended)"
- **[Perform TLS certificate revocation checks on]**
  Select "Do not check (not recommended)"



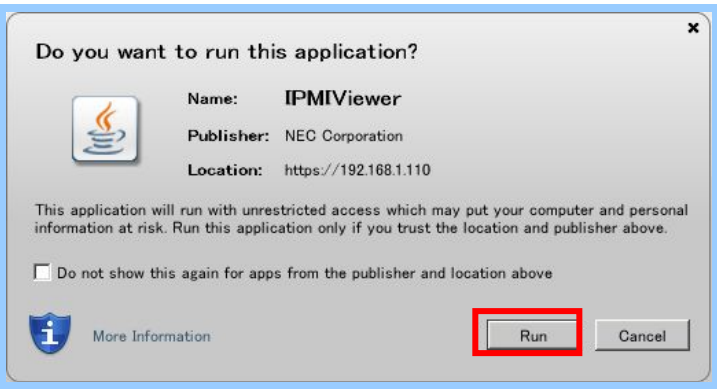
Important

JAVA Security Warning pop-up may be shown after you logged in the web console. At that time, please select [Continue] button and click it. If you click [Cancel] button, you fail login. To hide this pop-up message, select "[Control Panel]-[Java]-[Advanced]-[Mixed Code (sandbox vs. trusted) security verification]", and check "Enable - hide warning and run with protections" check box.



Important

- **When you logged in the web console, following confirmation pop-up may be shown. Please click "Run" button to continue. If you selected the check box like the following image and clicked on "Run" button, this confirmation pop-up is never shown from the next time**



- If you click [Cancel] button or close the window by clicking [x] button on popup window without performing the above operation, the following operations are disabled. In this case, logout once, and login again. Since this pop-up will be shown again, click [Run] button.
  1. All operations are disabled on [IPMI Information] page.
  2. Update operation on [Update] page is disabled.
  3. [OS Version] and [JRE Information] are not displayed on [Environment] page.

Important

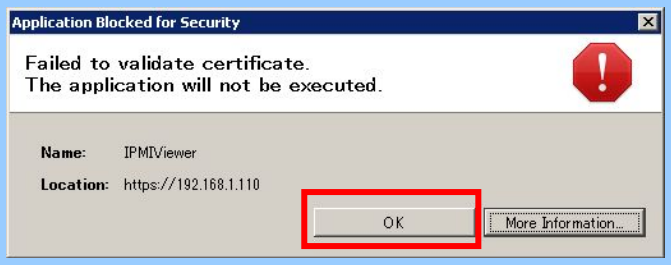
During the JAVA applet startup after login, please do not close the JAVA security alert popup window (with "X" button clicks), even if it is evoked while BMC is waiting for JAVA start. If the JAVA applet does not start 30 seconds later, the following message will be displayed. If the following popup window is displayed, please push down "X" button of this window. Then the Web browser is closed automatically. And if the Web browser does not close it automatically, please click "X" button of the browser, or please reboot the Web browser manually.

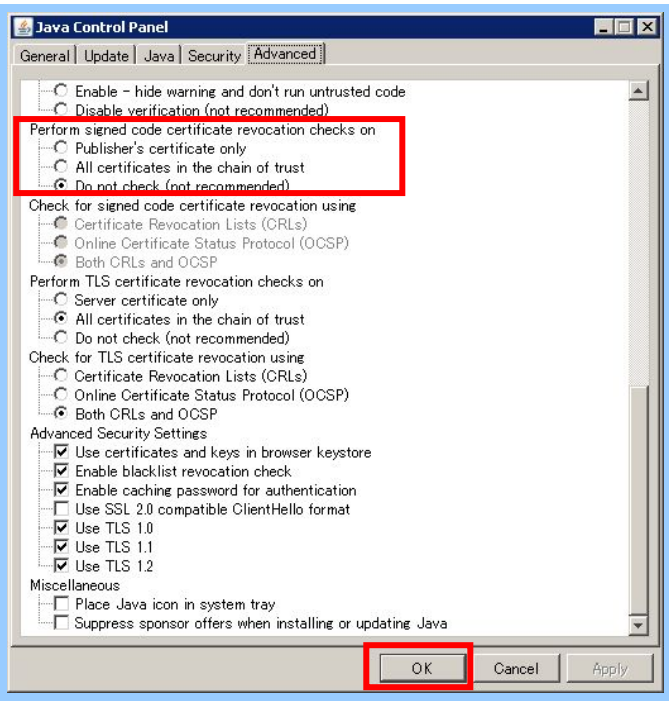
Failed to load Java Applet. Close the browser, so please close if you do not close the security warning pop-up window of JAVA. If you can not close the browser, it may return to the login page. In this case, please press your browser's Close button and then login again after restarting the browser.

When above popup is displayed though the above procedure was carried out, please refer to "5.5.7 (18) Java applet loading failure window appears frequently" in chapter 3.

Important

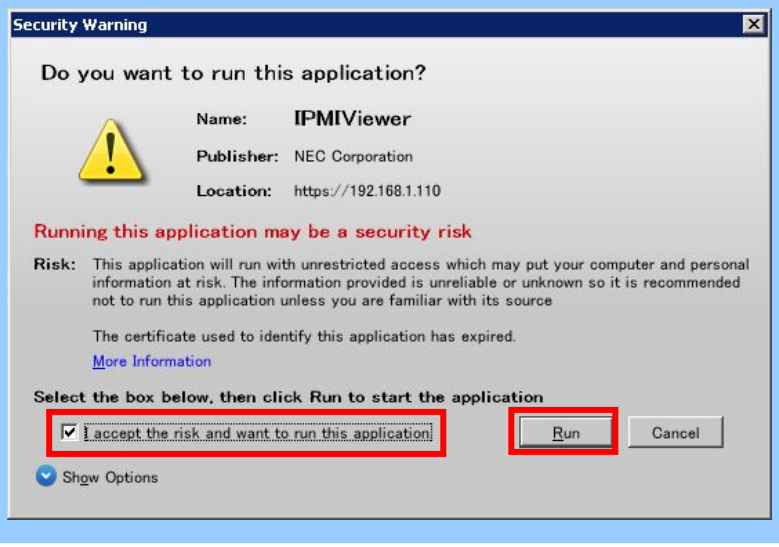
- If JAVA application certification has expired, following pop-up may be shown. And then, please click [OK] button.



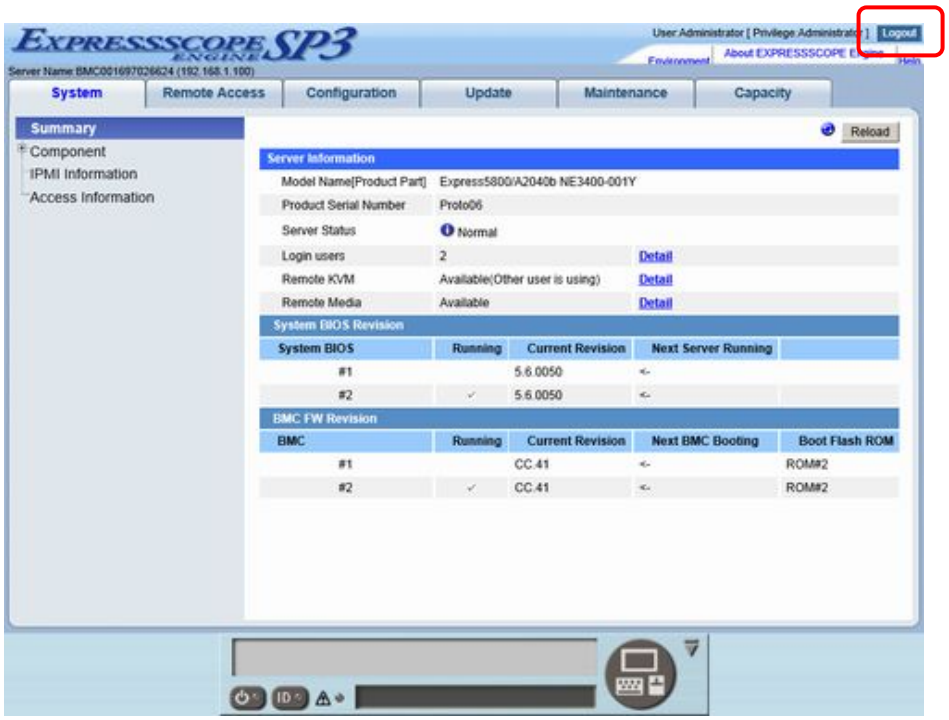


※JAVA Version 8 Update 31(Java8u31) or later does not support "Use SSL 3.0".

- **If the following popup is shown, please select "I accept this risk and want to run this application", and click on "Run" button.**



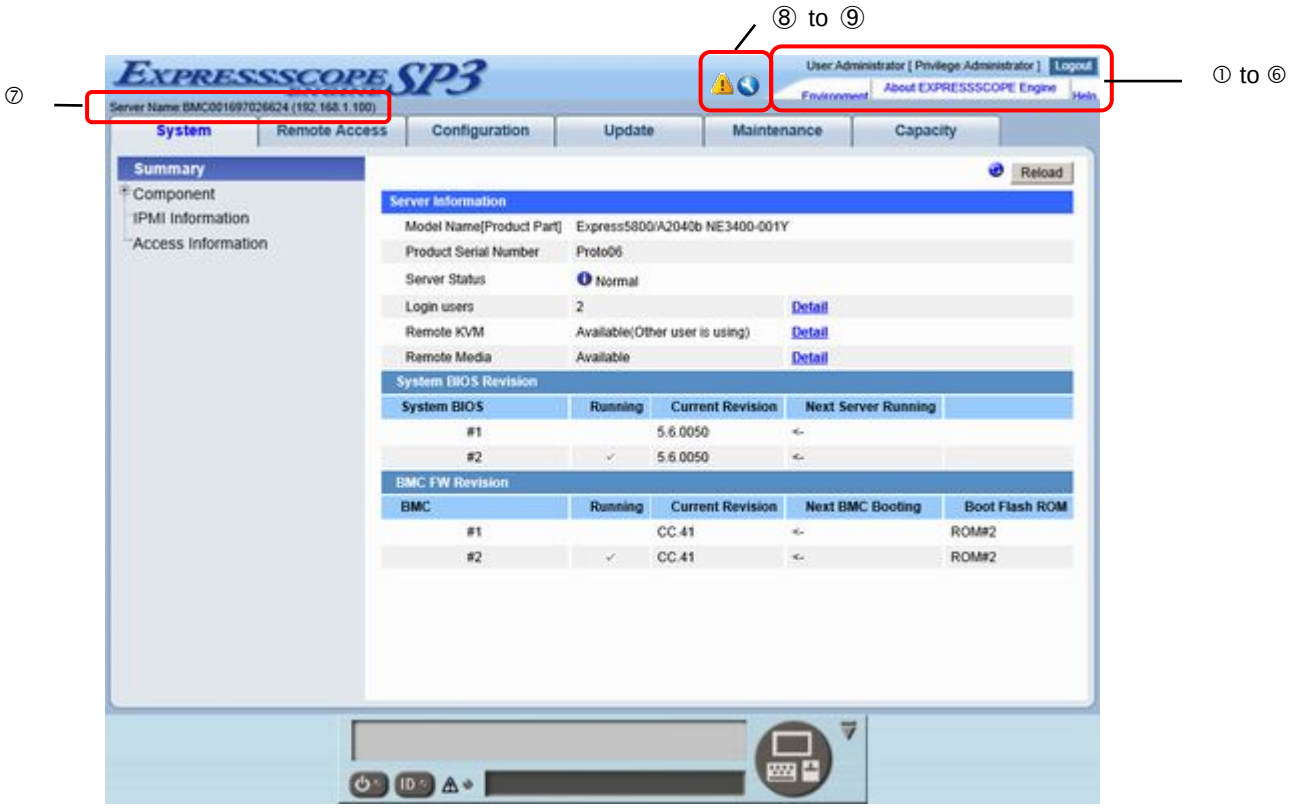
7.1.2 Logout



Click "Logout" at the upper right corner of the window.

After you logged out, you return to the login page. Besides, all the remote device windows such as Remote KVM/Remote Media that were opened during login will be closed.

7.2 Header Menu



① User

Displays login user name.

② Privilege

Displays login user's privilege.

See "User Account" for details of privilege.

③ Logout

Click here to logout.

④ Environment

Displays the environment of management PC (client).

⑤ About EXPRESSSCOPE ENGINE SP3

Displays overview of EXPRESSSCOPE ENGINE SP3.

⑥ Help

Displays online help.

⑦ Server name

Displays the server name and its IP address currently logged in.

⑧ Maintenance Icon

Icon is displayed while Maintenance Mode is available, when maintenance personnel enables Maintenance Mode ([Maintenance]-[BMC]-[Advanced]-[Maintenance Mode]) The icon will disappear after the period of time of Maintenance Mode available.

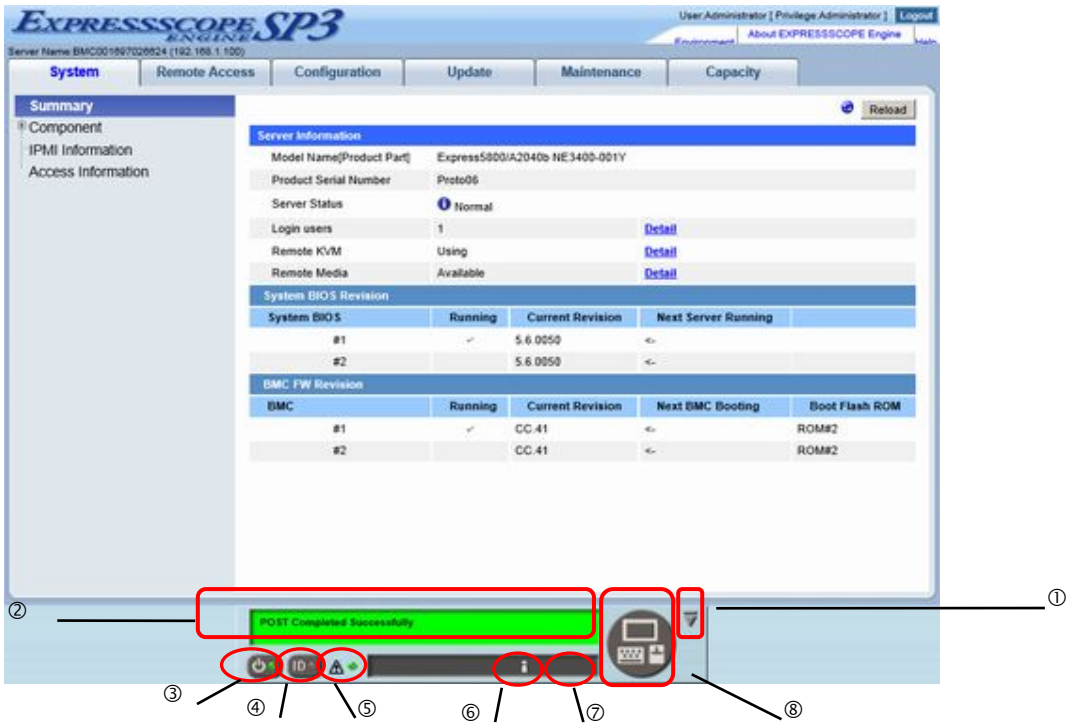
⑨ BMCFW versions inconsistent Alert Icon

Icon is displayed and blinks when BMC firmware versions on the two BMCs are not the same on the specific models which are mounted two BMCs.

7.3 Server Panel

The server panel appears at the bottom of browser.

The server panel automatically updates information. Thus, it displays the latest information.



① Server panel minimize/maximize button

Click ▽ or △ button to minimize or maximize the server panel.

② Virtual LCD message display area

A message from BMC and system is displayed in this area. The background color reflects the color of STATUS LED.

Color	Status
	Normal operation
	Warning or alarm was detected.
	Warning or alarm was detected. (Power Off)
	POST in progress
	STATUS LED is unlit.

③ POWER LED, POWER button

This button has same effect as POWER switch on the server.

Color	Status	Possible operation
Off	System power is off.	Power on
On (green)	System power is on.	Forces power off

④ UID (Unit ID) LED, UID button

Press this button to turn on or off the UID LED. UID LED blinks when IPMI command is received.

Color	Status
On (blue)	UID LED on the server is lit.
Off	UID LED on the server is unlit.
Blinking (blue)	UID LED on the server is blinking

⑤ STATUS LED

Shows status of STATUS LED on the server.

Color	Status
On (green)	System is operating normally.
Off	System power is off, POST is in progress, or an error was detected.
On (amber)	An error was detected.
Blinking (amber)	A warning event was detected.

⑥ Number of logged in users

Shows the number of users currently logged in web console.

Icon	Status
	Only one user is logged in.
	Several users (including oneself) are logged in simultaneously.

⑦ Remote media connection status

Shows connection status of remote media.

Icon	Status
	Remote FD is being connected.
	Remote USB memory is being connected.
	Remote CD/DVD is being connected.

⑧ Remote KVM/Media Start button

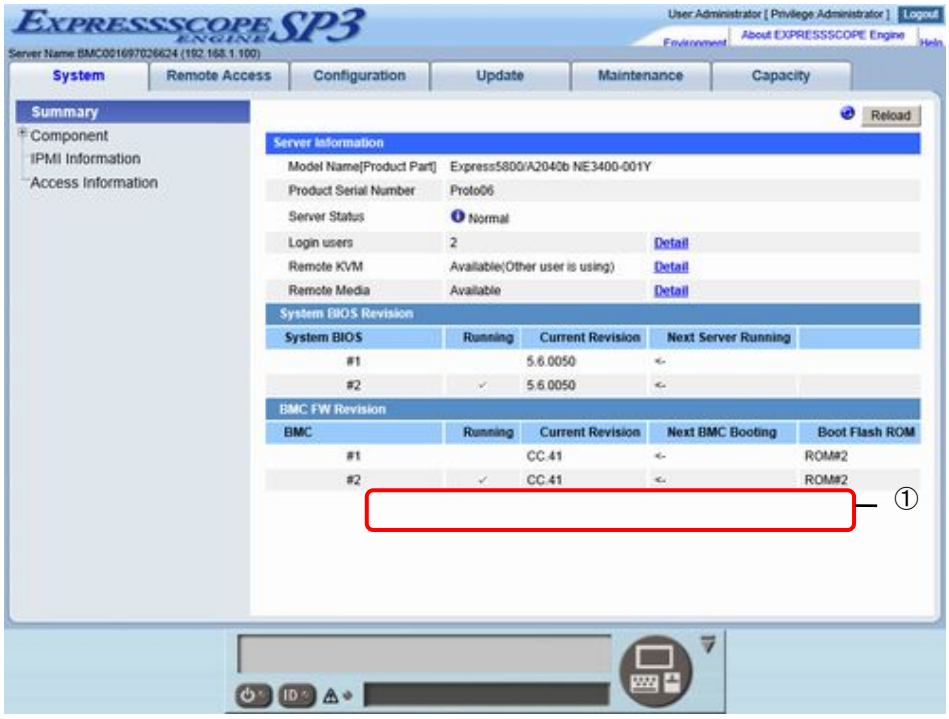
Press this button to start Remote KVM/Media.

7.4 System

7.4.1 Overview

The System page shows server information, system BIOS revision, and BMC FW revision.

- Click the [System] tab to display available menus.
- Select [Summary] from menu tree in left pane to display server information.



Tips The model name and the part / model number depend on product.

Tips You can confirm at which side of management board (#1 or #2) the master BMC is running by viewing checkmark in Running column of System BIOS Revision and BMC FW Revision.

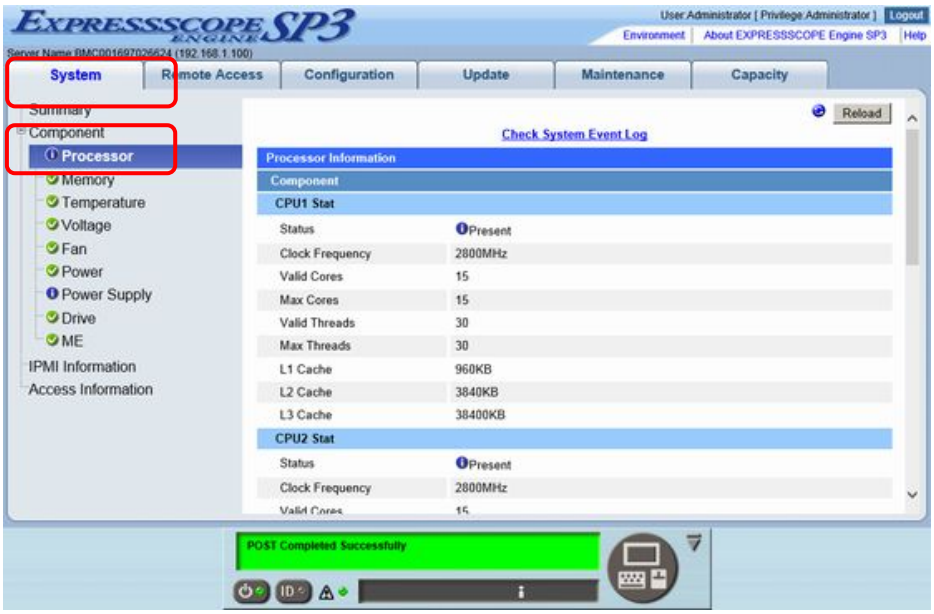
① BMCFW versions inconsistent Alert Message

[Inconsistent BMC FW Revision Data] is displayed when BMC firmware versions on the two BMCs are not the same on the specific models which are mounted two BMCs.

7.4.2 Component

This page displays presence of system components and their status.

- Click the [System] tab to display available menus.
- Selecting [Component] from menu tree in left pane displays system components that can be viewed. Select a component you want to view to display its detail information. Shown below is an example when [Processor] is selected.



Status of each component is indicated by an icon.

Icon	Status
	Information event
	Normal operation
	Non Critical event
	Critical event
	Unknown event

(1) Processor

Displays clock speed, number of cores and threads, and cache size for each processor.

Information for up to 4 sockets is displayed.

(2) Memory

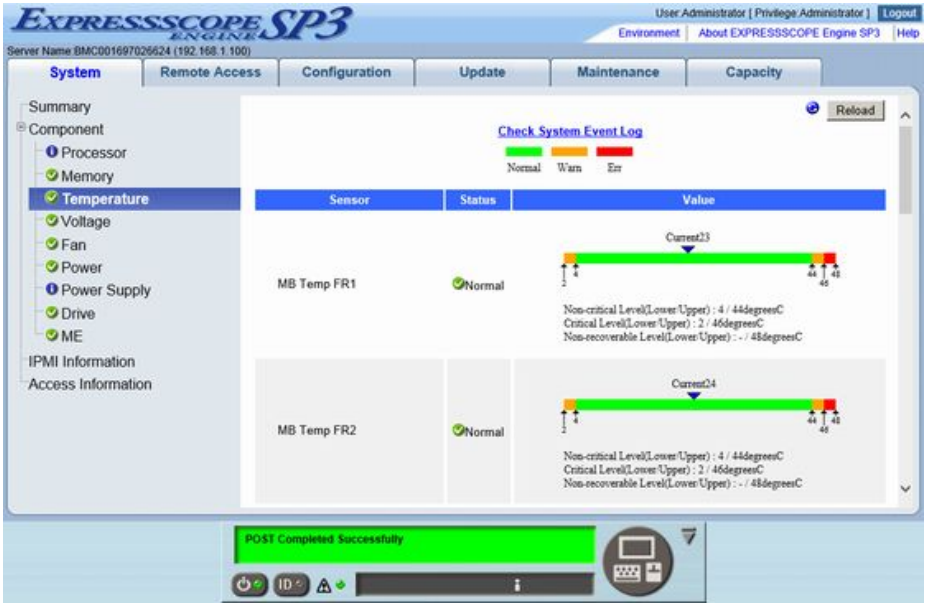
Displays installation status, size, and clock speed for each DIMM.

MR (Memory Riser) can be mounted up to 8 slots. 8 DIMMs can be mounted on one MR, thus DIMM information of up to 64 slots is displayed.

Tips Refer to Chapter 2 [1.14.6 (2) Independent + Rank Sparing] for Spare Rank enabled.

(3) Temperature

Displays the current reading of threshold sensors for temperature.



Tips

Sensor reading of CPUx Therm Ctrl (x:1-4) indicates percentage (%) of time when thermal throttling feature works on each CPU. This sensor is not subject to monitoring target of lower limit value, thus "-" is shown for the lower limit of Warning, Danger, and Uncorrectable level.

(4) Voltage

Displays the current reading of threshold sensors for voltage.

(5) Fan

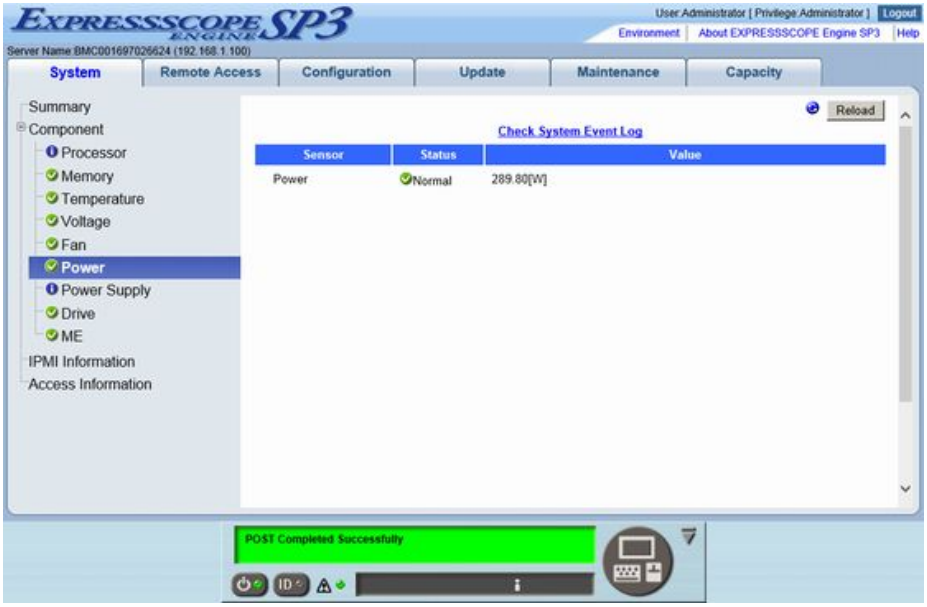
Displays the current reading of sensors for fan rotational speed.

Tips

When the observation of the sensors for fan rotational speed is not enabled, ranges of danger in red bars are not temporally displayed. When the observation becomes enabled, they are displayed.

(6) Power

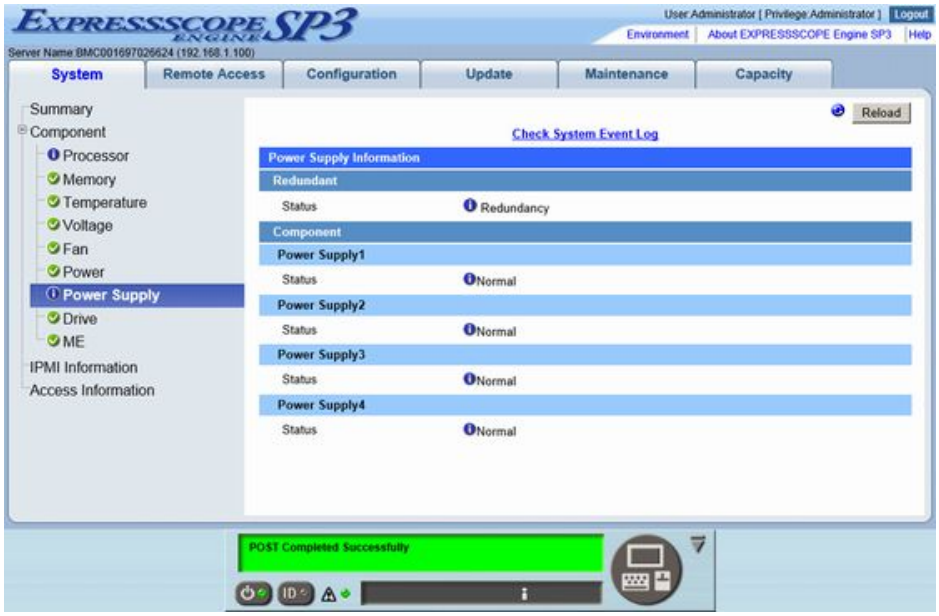
Displays the status of power sensors and its power consumption.



(7) Power Supply

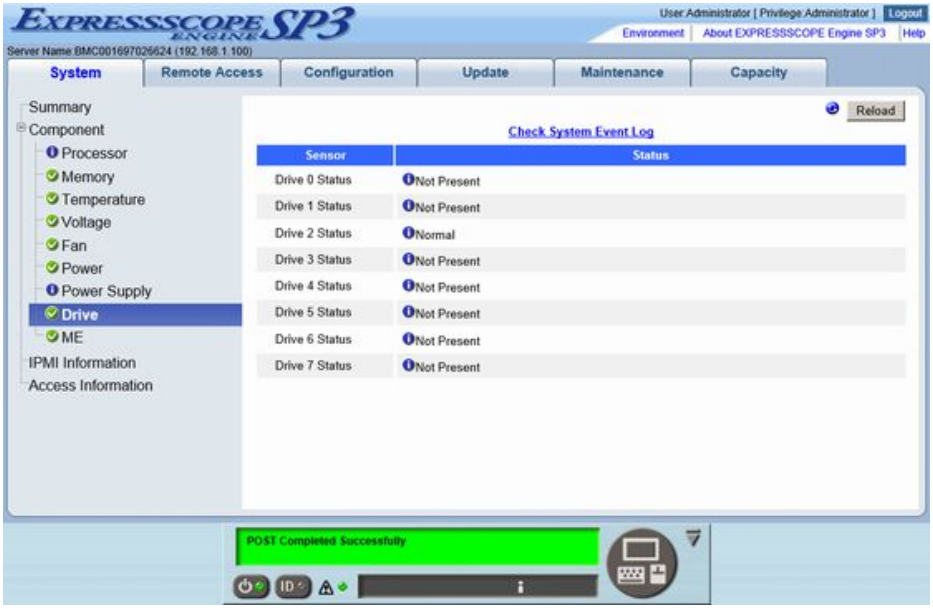
Displays status of power supply unit installed on the managed server.

When several power supply units are installed, redundancy and status for each power supply unit are displayed.



(8) Drive

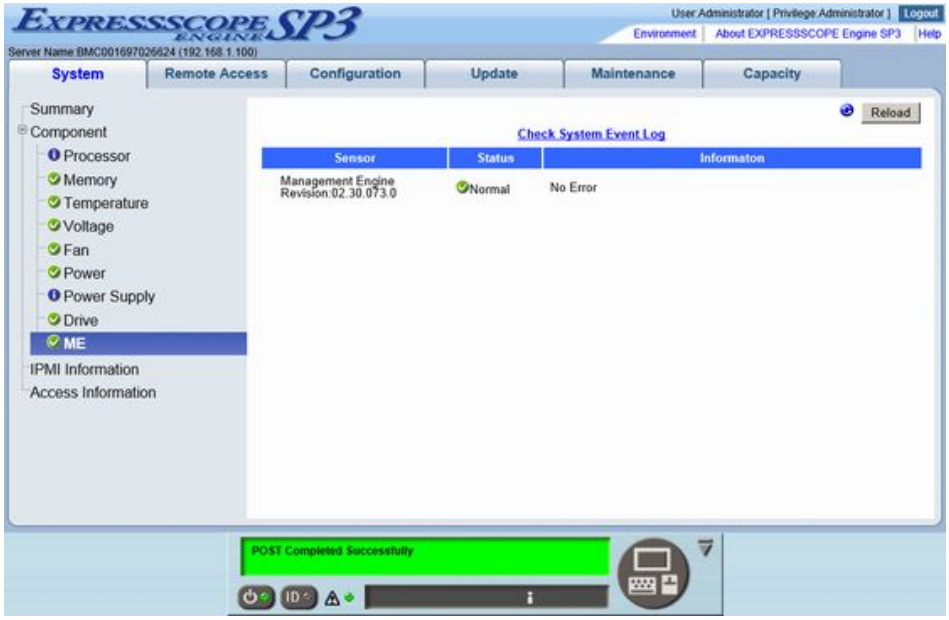
Displays disk drive status for up to 8 slots.



(9) ME

Displays revision of Management Engine on management board (master BMC side).

With A2040c/A2020c/A2010c, the Management Engine revision of standby BMC side can be confirmed by failing over the standby BMC.



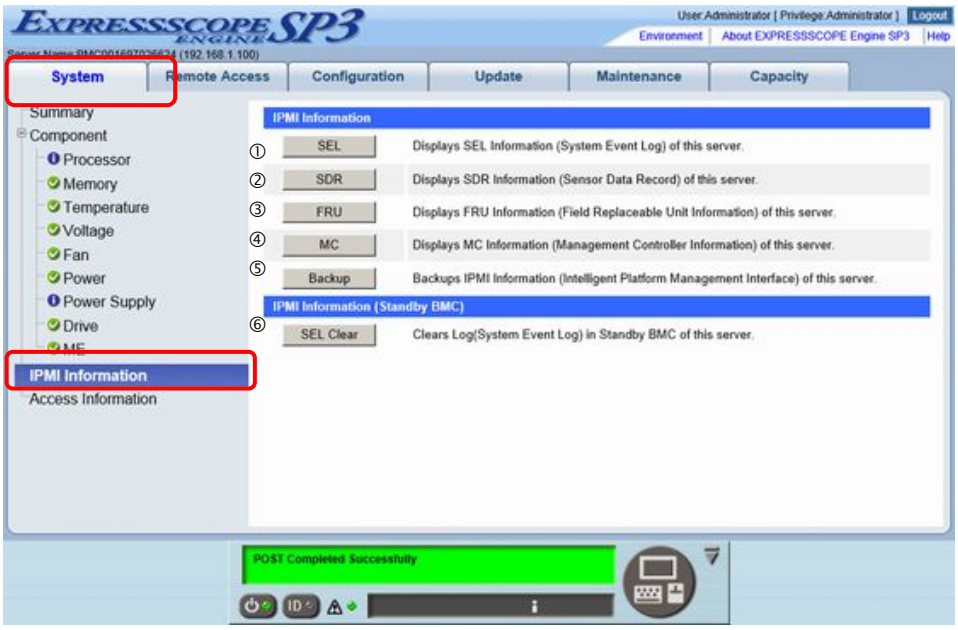
Tips

The revision of management engine is indicated by the format <Major number>.<Minor number>.<Build number>.<Patch number>.

7.4.3 IPMI Information

Use this page to display information (SEL, SDR, FRU, and Management Controller), backup IPMI information, and clear SEL on standby BMC (A2040c/A2020c /A2010c only).

- Click the [System] tab to display available menus.
- Select [IPMI Information] from menu tree in left pane.



Buttons

① [SEL] button

See [SEL] for details.

② [SDR] button

See [SDR] for details.

③ [FRU] button

See [FRU] for details.

④ [MC] button

See [MC] for details.

⑤ [Backup] button

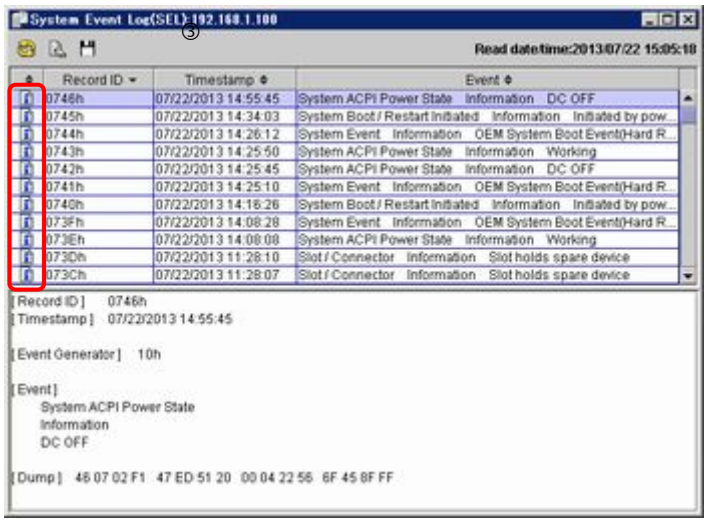
See [Backup] for details.

⑥ [SEL Clear] button

See [SEL Clear] for details.

(1) SEL

Displays System Event Log.

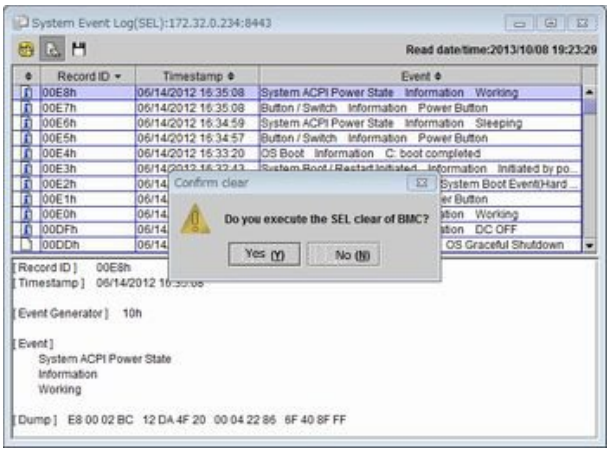


Buttons

① Display the latest information.

② Clear SEL.

Press this button to clear SEL stored in master BMC. Pressing the [Yes] button on confirmation popup message clears SEL. After the event logs are cleared, only one log that indicates that all logs have been cleared is registered. However, some SELs that are registered after pressing the [Yes] button also could be shown at once.



Tips Activity Logs are not cleared by this operation.

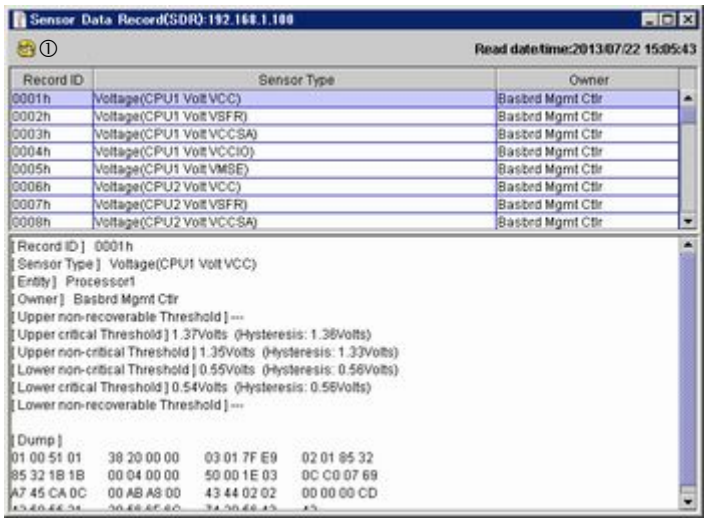
③ Save SEL in text format.

④ The following icons show the severity of SEL.

	Information / OK
	Non Critical
	Critical (Non-Recoverable)
	Information event (e.g., OS-specific SEL)

(2) SDR

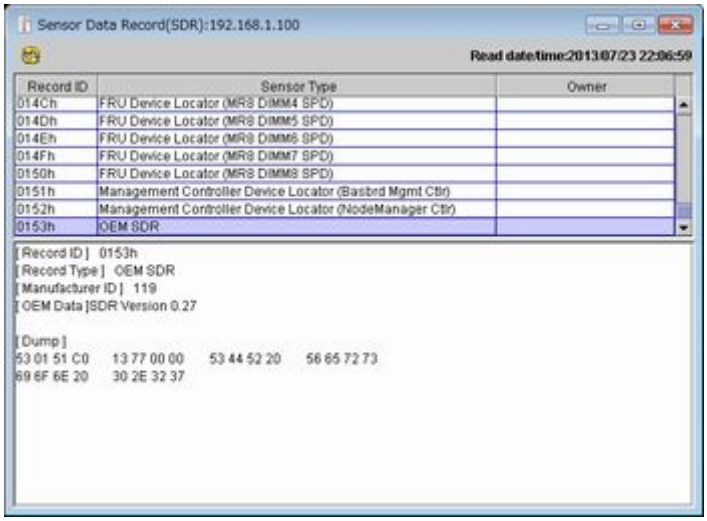
Displays information of Sensor Data Record.



Buttons

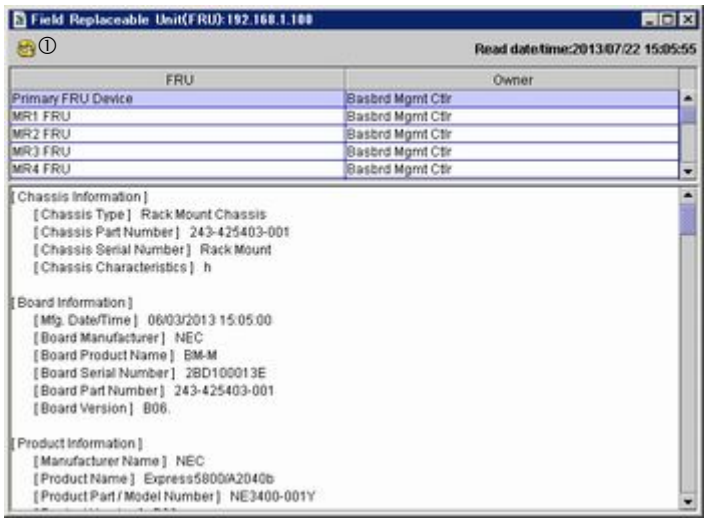
① Display the latest information.

You can view the SDR revision in [OEM Data] at the bottom line.



(3) FRU

Displays information of FRU (Field Replaceable Unit).



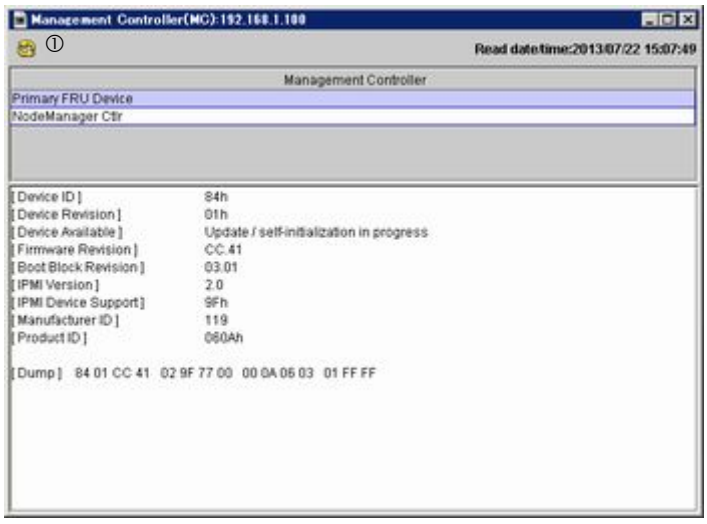
Buttons

① Displays the latest information.

Tips The model name and the part / model number depend on product.

(4) MC

Displays the information of Management Controller.



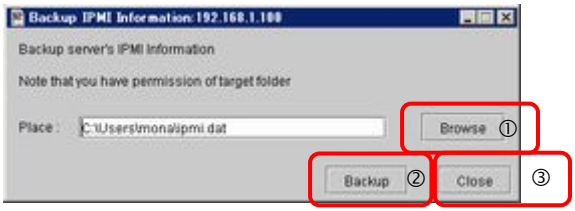
Buttons

① Displays the latest information

Tips Basbrd Mgmt Ctlr shows version of BMC firmware. NodeManager Ctlr shows version of management engine. The revision of management engine is indicated by the format <Major number>.<Minor number>.

(5) Backup

Stores backup file of IPMI information. The backup file contains SEL, SDR, FRU, and MC information and can be viewed from ESRAS utility tool. ESRAS utility tool (rasutil.exe) is contained in NEC ESMPRO. Refer to documentation of NEC ESMPRO for more information.



Buttons

① Browse button

Press this button to change save destination.

② Backup

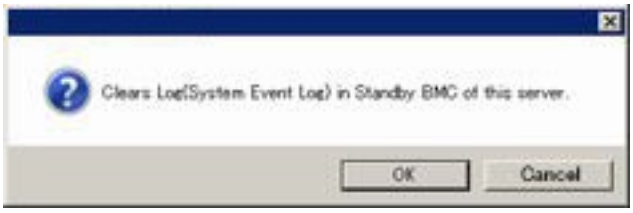
Press this button to save backup file.

③ Close

Press this button to close popup window.

(6) SEL Clear

Clears SEL (System Event Log) in standby BMC (A2040c/A2020c/A2010c model only). After the SEL is cleared, only one SEL which indicates all SELs are cleared.



Pressing the [SEL Clear] button clears SELs stored in standby BMC. When [Confirmation] popup message is displayed, press the [OK] button to clear SEL. After the SEL is cleared, only one SEL which indicates all SELs are cleared.

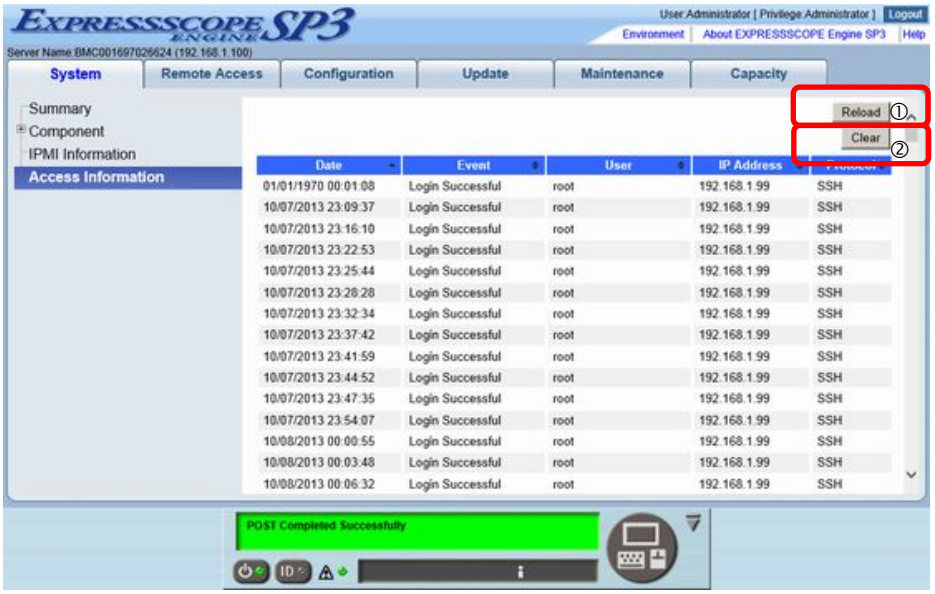
Tips This operation does not clear Activity Log. For Activity Log, see Chapter 3 (7.9.1 Hardware Log).

7.4.4 Access Information

This page displays access log to web console.

This page is hidden by default, you need select [Configuration] - [Miscellaneous] - [Access Log] to view this page.

- Click the [System] tab to display available menus.
- Select [Access Information] from menu tree in left pane.



The following events are logged in Access Log.

Event type	Description
Event related to session	Login with password succeeded
	Login with key authentication succeeded
	Normal logout
	Auto logout
	Authentication error
	Blocked IP address
Event related to operation	Power off
	Power on
	Cycle power
	System reset
	NMI
	OS shutdown
	Start remote KVM
	Quit remote KVM
	Change boot device
	BMC reset
	Disconnect other user
	SEL clear
	Access log clear
	Collect BMC Dump
	Master Activity log clear
	Standby Activity log clear
	Clear All Faults
	Enable/Disable component
	Device Online/Offline
	Execute diagnostics
	BMC OFF
	Reset Param BIOS configuration
	BIOS PASSWORD Clear configuration
	BIOS Recovery configuration
	Backup
	Restore

Event type	Description
Event related to configuration	Miscellaneous setting
	User account
	Network configuration (IPv4 master property)
	Network configuration (master service)
	CSR creation succeeded
	CSR creation failed
	Mail alert configuration
	SNMP alert configuration
	Operation configuration
	ECO configuration
	LDAP configuration
	Active Directory property configuration
	Active Directory group configuration
	BIOS configuration
	Network configuration (IPv4 standby property)
	Network configuration (IPv6 master property)
	Service configuration (standby)
	Extended Functionality
	Codeword configuration
	Mode setting/Disable core count
Event related to update	BMC FW update succeeded
	BMC FW update failed
	BIOS update succeeded
	BIOS update failed
	Server certificate update succeeded
	Server certificate update failed
	SSH public key update succeeded
	SSH public key update failed

Buttons

① [Reload] button

Press the [Reload] button to display the latest information.

② [Clear] button

Press the [Clear] button to erase access logs.

Important

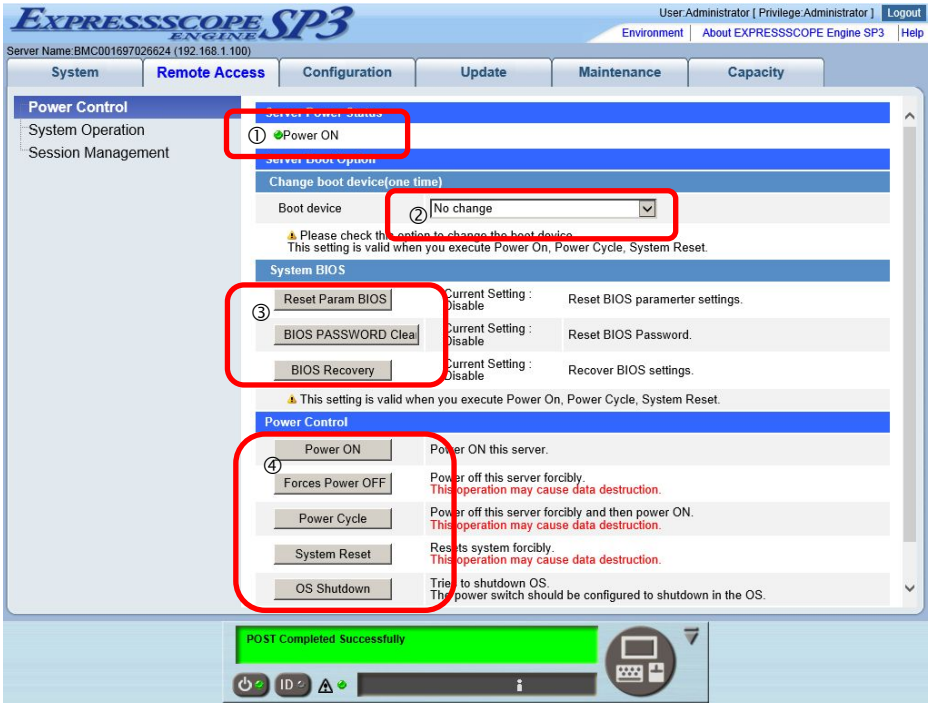
- **As for the IP address of login to the WEB console, logout, and an operation event via IPv6, 4 bytes of low side of the address (decimal number) is displayed.**
- **As for the display of the IP address of login to SMASH-CLP, logout, and an operation event via IPv6, and disconnect operation have not been supported.**

7.5 Remote Access

7.5.1 Power Control

Use this page to confirm power status of the server, configure BIOS, and perform power control of the server.

- Click the [Remote Access] tab to display available menus.
- Select [Power Control] from menu tree in left pane.



Buttons

① Displays power status of the server (Power ON or Power OFF).
② You can change boot device.
③ You can change settings of system BIOS at startup.
④ You can control the system power.

(1) Change one time boot device

If you need to change boot device, select other than "No change". This setting is made valid when you execute Power ONSystem Reset, Power Cycle on the Web browser, not by the power button on the server or the virtual power button.

Setting	Boot device
No change	Boot according to the settings of System BIOS.
Preboot eXecution Environment(PXE)	Perform a PXE boot.
Hard Drive	Boot from the hard disk drive connected with the managed server. When there are no entries for hard disk drive, boot from removable media (1GB or more).
FD/Primary removable media	Boot from removable (less than 1GB).
CD/DVD Drive	Boot from the internal optical disk drive. When there are no boot entries for the internal optical disk drive, boot from the external optical disk drive (connected a USB port) or the remote CD/DVD.
Remote media (FD)	Boot from the remote FD.
Remote media (CD/DVD)	Boot from the remote CD/DVD.
Remote media (USB Memory)	Boot from the remote USB memory.

Tips

- The feature of change boot device (one time) is supported when Boot Mode of BIOS Setup Utility is only UEFI Mode. Not supported in Legacy Mode.
- When there are multiple boot entries in a one-time boot device, the highest priority boot entry for this device is only selected to boot. For information on how to change the priority, refer to Chapter 2 (1.2.5 Boot) in Maintenance Guide.

(2) System BIOS

Press this button to change settings of BIOS at next bootup. This setting is made valid when you execute power ON, reset, cycle power, or OS shutdown reboot next time.

To perform [BIOS Recovery], you need the dedicated CD-ROM media separately. For details, refer to Chapter 10 (6.4 BIOS Recovery) in Maintenance Manual.

Setup item	Current setting
Reset Param BIOS	Enable/Disable When enabled, reset BIOS parameter setting.
BIOS PASSWORD Clear	Enable/Disable When enabled, reset BIOS password.
BIOS Recovery	Enable/Disable When enabled, recover BIOS settings. BIOS Recovery is a function which is for recovering BIOS update using CD/DVD with SATA DVD drive when BIOS update has failed. Note: BIOS Recovery is dedicated for maintenance personnel, not for users. Ask your service representative who is authorized by NEC to use it.

(3) Power Control

Administrator or Operator privilege is required to use this feature.

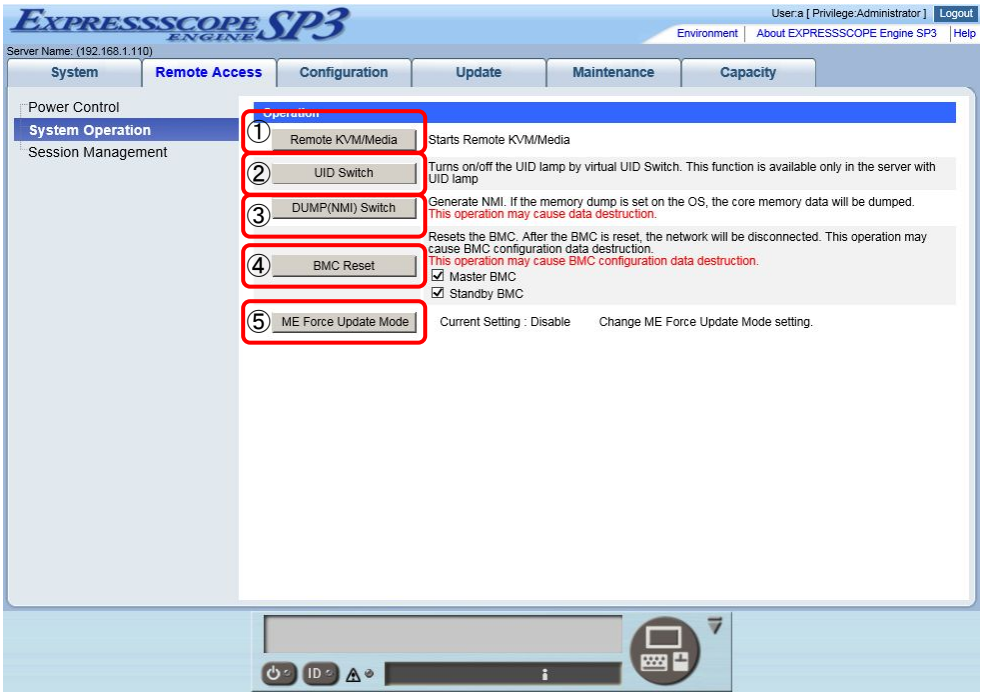
Button	When pressed
Power ON	Power on the managed server. If the server is already powered on, this button has no effect.
Forces Power OFF	Forcibly power off the managed server. If the server is already powered off, this button has no effect. Data may be lost by this operation.
Power Cycle	Forcibly power off the managed server, and then on. If the server is already powered off, this button has no effect. Data may be lost by this operation.
System Reset	Reset the managed server. If the server is already powered off, this button has no

	effect. Data may be lost by this operation.
OS Shutdown	Try OS shutdown. OS must be configured so that pressing the power button of the server causes shutdown. If the server is already powered off, this button has no effect.

7.5.2 System Operation

Use this page to control remote KVM, UID LED, forcibly dump OS memory, switch to the ME force update mode, and reset BMC.

- Click the [Remote Access] tab to display available menus.
- Select [System Operation] from menu tree in left pane.



Buttons

① [Remote KVM/Media] button

Press this button to launch Remote KVM/Media.

② [UID Switch] button

Press this button to turn on/off UID LED on Server Panel.

③ [DUMP (NMI) Switch] button

Press this button to collect OS dump memory forcibly.

④ [BMC Reset] button

Press this button to reset BMC.

With A1040c model: Reset master BMC.

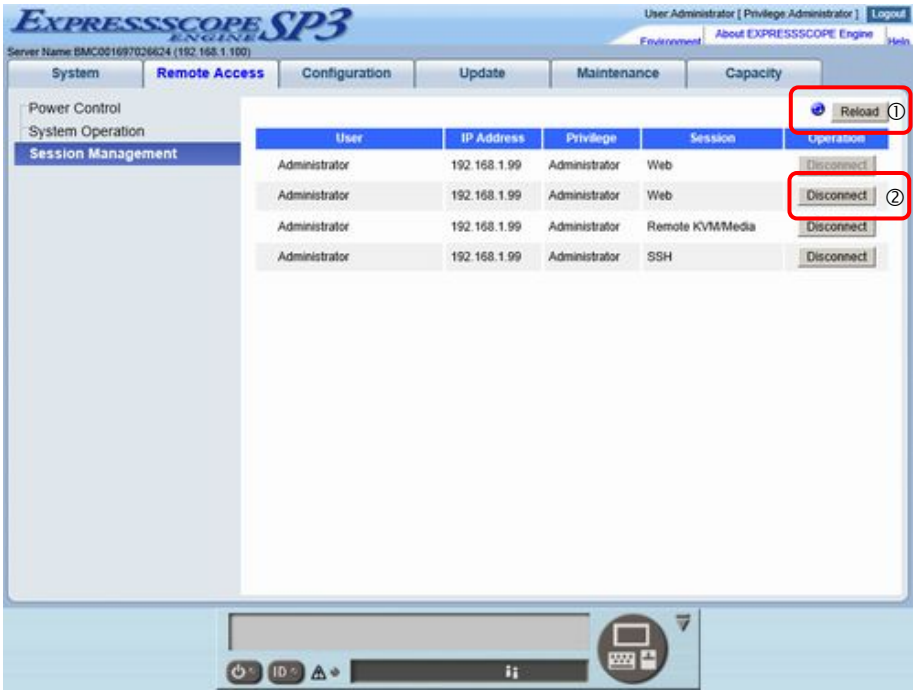
With any other model than above: You can select both or either of master and standby BMCs to reset.

⑤「ME Force Update Mode」 button

Press this button to switch to the ME force update mode. This operation is used only by the maintenance engineer. General users need not this operation.

7.5.3 Session Management

Use this page to manage session connected with BMC. You can view session information and disconnect the session forcibly. Administrator privilege is required to use this feature.



Buttons

① [Reload] button

Press the [Reload] button to display the latest information.

② [Disconnect] button

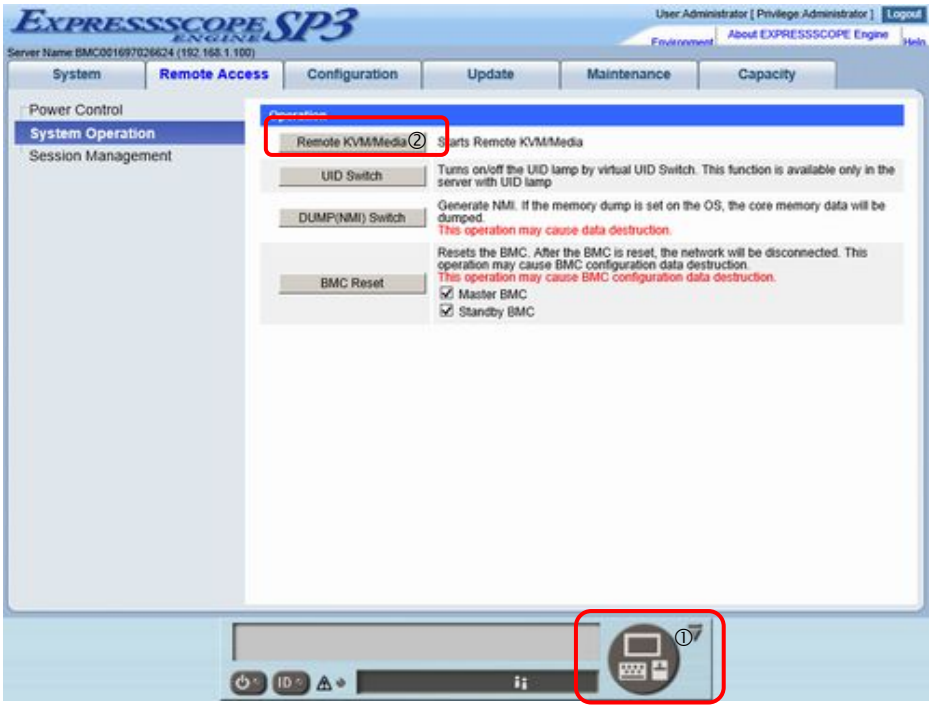
Press the [Disconnect] button to forcibly disconnect the session.

Important

- **As for the IP address of login to the WEB console, logout, and an operation event via IPv6, 4 bytes of low side of the address (decimal number) is displayed.**
- **As for the display of the IP address of login to SMASH-CLP, logout, and an operation event via IPv6, and disconnect operation have not been supported.**

7.6 Remote KVM

User this page to display host OS screen, operate keyboard and mouse, and mount/demount remote media (USB, CD/DVD) from remote console. The remote KVM console screen displays OS or BIOS menu.



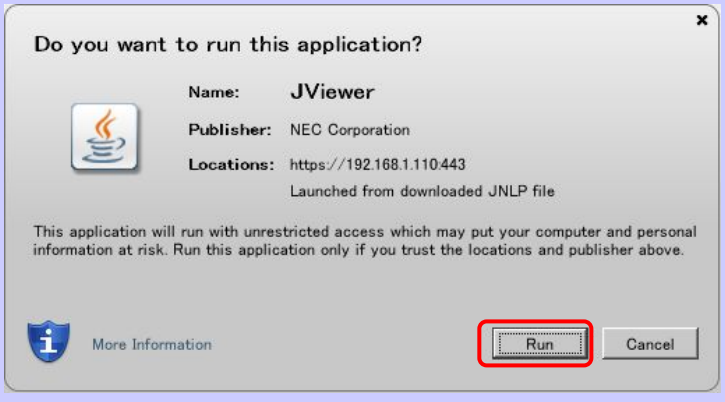
Buttons

① Press the [Remote KVM] icon button to open the screen of Remote KVM console.

② Press the [Remote KVM/Media] button on [System Operation] menu to open the screen of Remote KVM console.

Tips

The following confirmation pop-up may be shown after clicking “Remote KVM/Media” button or “Remote KVM/Media Start” button. Please click "Run" button to continue.



Remote KVM Screen

Displays BIOS or VGA screen of OS. If no signal is sent from VGA, the screen displays "No Signal".

Tips Click Help at upper right corner of the screen for information about available options.

Important **On Internet Explorer 10, a message "Failed to download jviewer.jnlp" may be displayed after KVM start button is pressed. In this case, press the [Retry] button to retry operation.**

Special keybutton

Button	Discription
Ctrl	Equivalent to Ctrl key input operation.
Alt	Equivalent to Alt key input operation
Win	Equivalent to Windows key input operation
Context	Display the context menu which is selected. Equivalent to right-click operation.
Ctrl+Alt+Del	Equivalent to Ctrl+Alt+Del key input operation

Virtual Keyboard

When virtual keyboard selected from keyboard, virtual keyboard is displayed.

Button	Discription
Lock	Hold the key. The background and character color of the Lock key are highlighted in HOLD status. Not highlighted by any keys other than a special key (Shift, Ctrl, Alt, PSC, Slk, and Windows-key).
Others	The same as the key in a hardware keyboard.

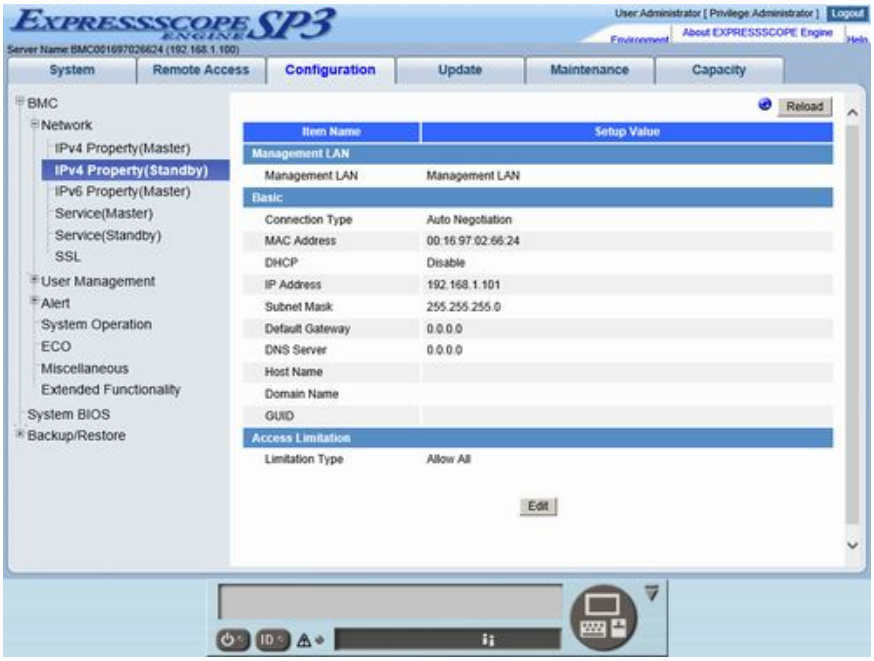
Important

- **In the state of Lock key is in pushed, reboot a KVM screen, when a virtual keyboard is ended by the [X] button click of a virtual keyboard window, or the "keyboard" - "finish".**
- **When the special key (Shift, Ctrl, Alt, PSC, Slk, Windows-key) is pressed, it does not depend on depression of the Lock button, but a special key will be in the state where it was locked, and will be highlighted.**

7.7 Configuration

Use this page to configure or modify the various settings on server.

- Click the [Configuration] tab to display available menus.
- Select an item you want to modify from menu tree in left pane. Shown below is an example when [IPv4 Property (Master)] is selected.



Menus

- Network

  Set an IP address and services of BMC, and create SSL public key.

- User Management

  Create, edit, and delete the user permitted to login to BMC. Register SSH public key. Provide settings for Active Directory and LDAP.

- Alert

  Configure BMC to send an alarm via Email or SNMP trap.

- System Operation

  Configure Remote KVM/Media.

- ECO

  Display power consumption and throttling status, or set maximum power consumption management.

- Miscellaneous

  Provide various settings for BMC including SEL, Access Log, AC-LINK, PEF, and management software.

- Extended Functionality

  Provide settings for power supply, maintenance, cooling, and fault handling.

- System BIOS

  Can configure System BIOS partially.

- Backup/Restore

  Perform backup or restore the set items.

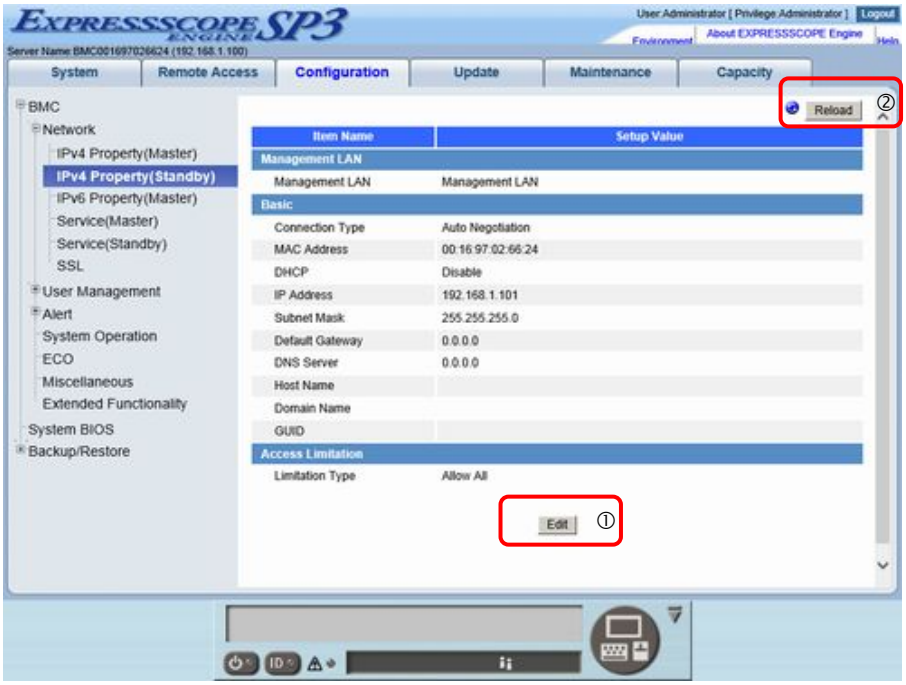
7.7.1 BMC

(1) Network

(a) IPv4 Property (Master)

Overview

Use this page to configure IPv4 network of master BMC. Administrator privilege is required to modify settings.



Buttons

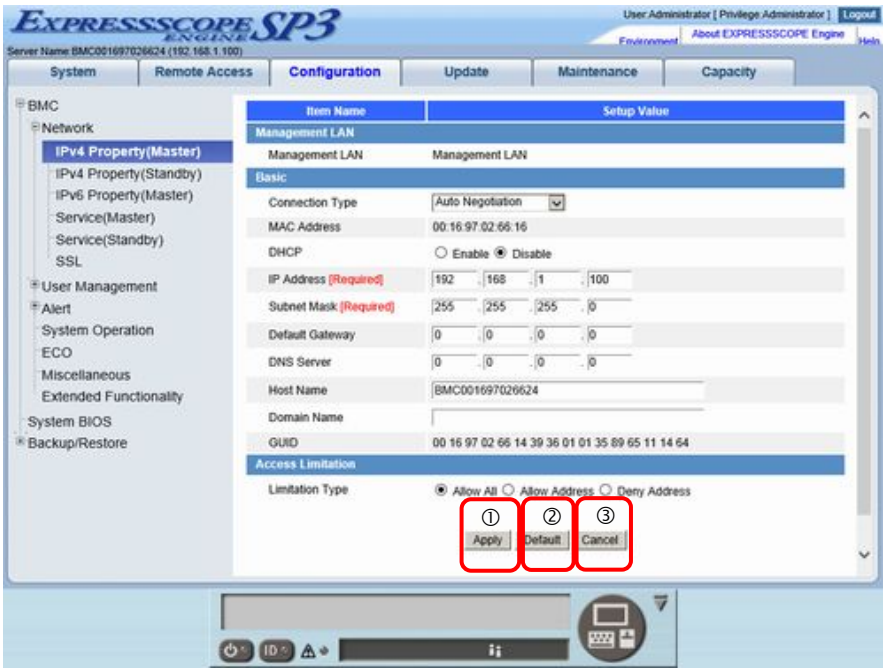
① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

Edit page



Setting range and default value

Item name	Setup value (*1)	Default setting (*2)
Management LAN		
Management LAN	Show LAN port to communicate with BMC. Management LAN(*3) Shared BMC LAN(*4)	Management LAN
Basic		
Connection Type (*5)	Specify a connection type. Auto Negotiation 1Gbps Full Duplex 1Gbps Half Duplex 100Mbps Full Duplex 100Mbps Half Duplex 10Mbps Full Duplex 10Mbps Half Duplex	Auto Negotiation
MAC Address	Show MAC address of BMC Management LAN.	
DHCP	Enable or disable DHCP. Enabled Disabled	Disabled
IP Address	Specify IP address.	192.168.1.100(*9)
Subnet mask	Specify subnet mask address.	255.255.255.0
Default gateway	Specify default gateway address.	0.0.0.0
Dynamic DNS (*6)	Enable or disable dynamic DHCP. Enabled Disabled	Disabled
DNS Server	Specify address of DNS server.	0.0.0.0
Host Name	Specify host name.	Blank

Item name	Setup value (*1)	Default setting (*2)
Domain Name	Specify domain name.	Blank
GUID (*10)	Show System GUID.	
Access Limitation (*7)		
Limitation Type	Specify the type of access limitation. Allow All Permitted address Blocked address	Allow All
IP Address (*8)	Specify the IP addresses to be permitted or blocked by delimiting them with "," (comma). "*" (asterisk) can be used as a wildcard. Ex.) 192.168.1.*,192.168.2.1,192.168.2.254	Blank

(*1) Addresses and character strings are example.
(*2) Factory-set value.
(*3) Use Management LAN port to access to BMC.
(*4) Share system LAN port to access to BMC. This setting is valid only on the server that supports Shared LAN. This server does not support Shared LAN.
(*5) This item can be changed when "Management LAN" is selected. Be sure to use straight cable to use the communication type of 10Mbps, 100Mbps, or 1Gbps. If Auto Negotiation is used on the destination (such as hub), the management LAN must use the same setting. To use any other setting than Auto Negotiation, first change setting on destination, then the management LAN.
(*6) Displayed when DHCP is enabled.
(*7) Specify whether the IP address used for accessing BMC is permitted or blocked.
(*8) Displayed when limitation type is "Permitted Address" or "Blocked Address".
(*9) The default IP address of standby BMC is 192.168.1.101.
(*10) Not displayed on standby BMC. When DHCP is enabled, this is used as DHCP client ID of master BMC.

Buttons

① [Apply] button

Apply the edited value and return to List page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

Return to List page without applying the edited value.

Important

- **If "Failed to apply configuration" message is shown after “Apply” button is clicked, there is case the subnet mask was changed. Please check the "Subnet mask" if it is correct.**

Tips

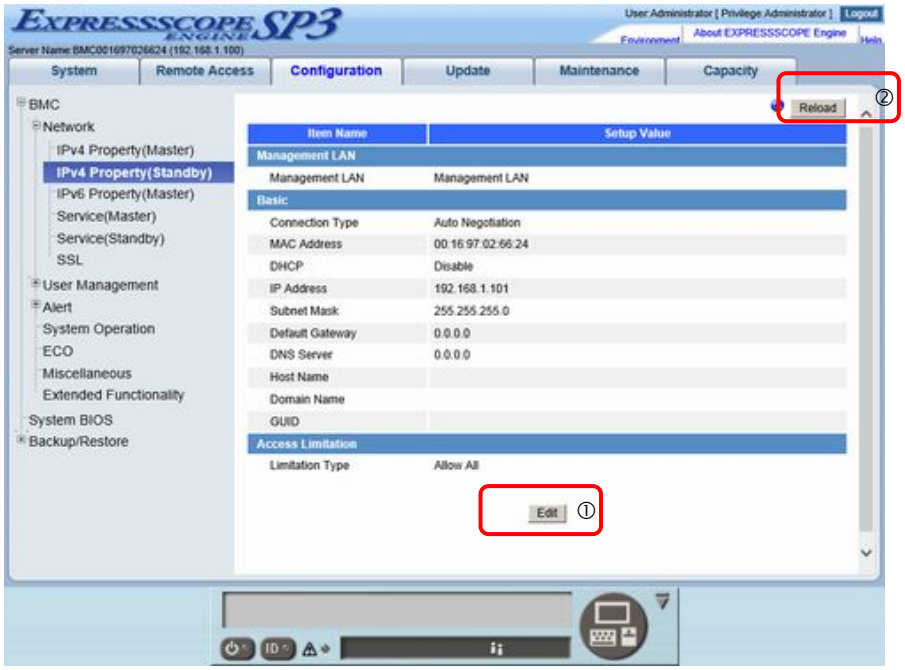
- Setting of "Permitted Address" and "Blocked Address" are common to IPv4 Property (Standby).
- While editing "Permitted Address" or "Blocked Address" on IPv4 Property (Master), do not edit them on IPv4 Property (Standby) on web console of another session, and vice versa.
- If you set or modified the "Host Name", reset the standby BMC to change the "Host Name" on the standby web console.

(b) IPv4 Property (Standby)

Overview

Use this page to configure IPv4 network for standby BMC. Administrator privilege is required to refer or modify settings. This page is not displayed on A1040c model.

Browse page



Buttons

① [Edit] button

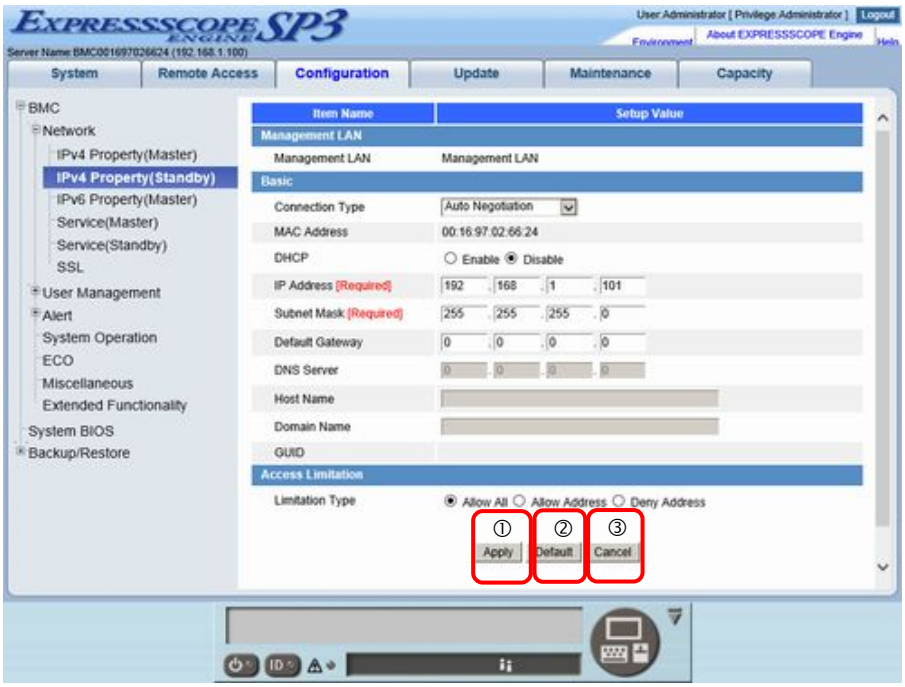
Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

Important **When the operator privilege user moves to this page, 'Failed to access BMC.' diag pops up, and nothing is displayed on the settings value. Administrator privilege is required to refer or modify settings.**

Edit page



Setting range and default value

See Section 7.7.1 BMC (1) Network (a) .

Tips

- Setting of "Permitted Address" and "Blocked Address" are common to IPv4 Property (Standby).
- While editing "Permitted Address" or "Blocked Address" on IPv4 Property (Master), do not edit them on IPv4 Property (Standby) on web console of another session, and vice versa.
- “DNS Server”, “Host Name”, and “Domain Name” are not modifiable.

Buttons

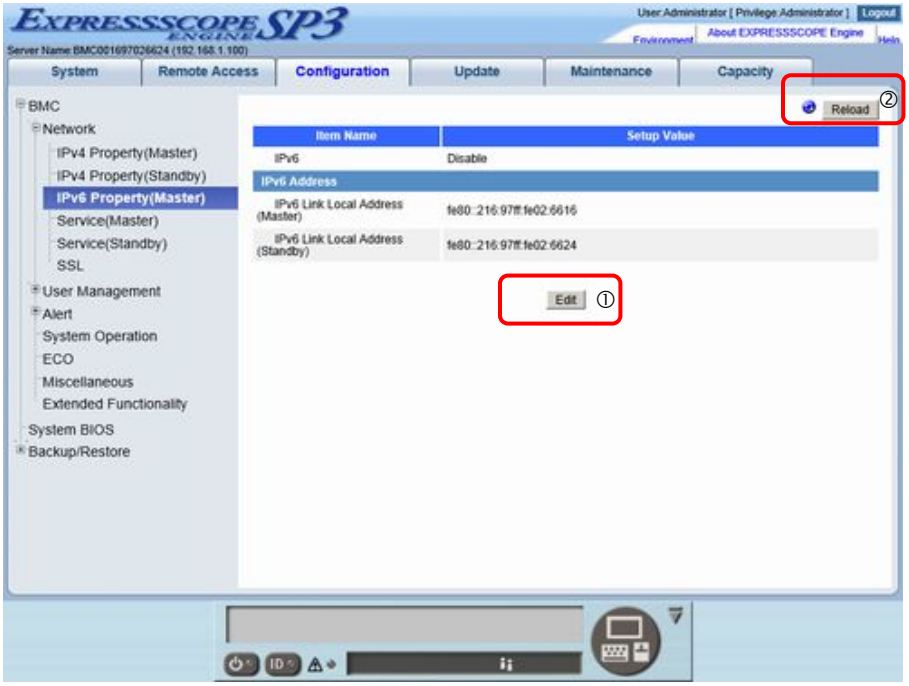
See Section 7.7.1 BMC (1) Network (a) .

(c) IPv6 Property (Master)

Overview

Use this page to configure IPv6 network for BMC. Administrator privilege is required to refer or modify settings.

With A2040c, A2020c, A2010c models, you can configure IPv6 network on this page for both master and standby BMCs.



Buttons

① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

The different Edit page will be displayed depending on the current IPv6 setting.

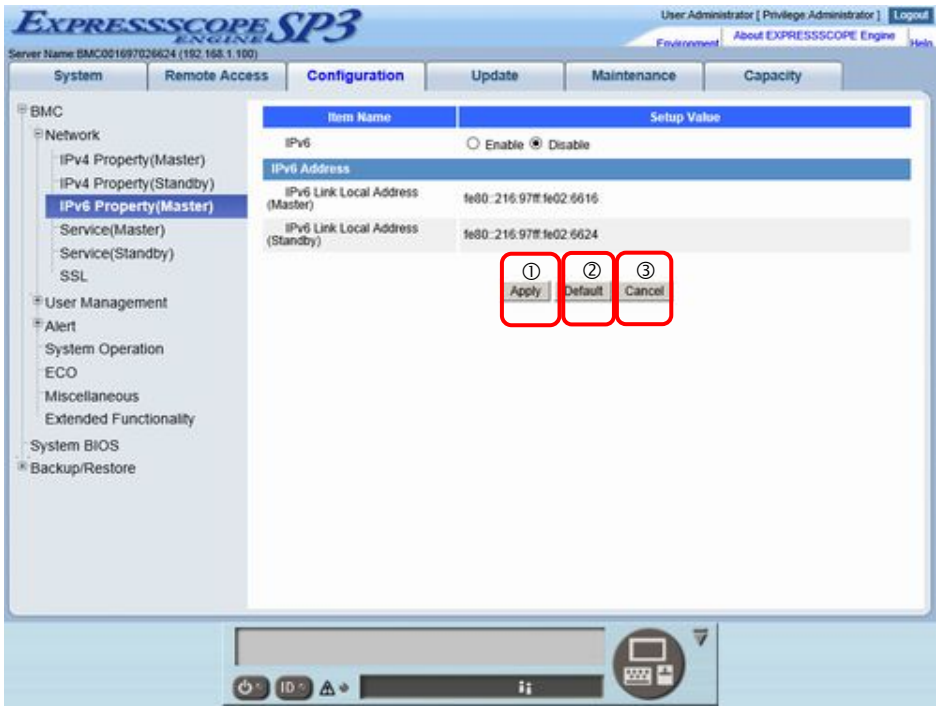
- Select Enable or disable IPv6 when IPv6 is disabled.
- Select Static or Dynamic for IPv6 Address Assign Mode when IPv6 is enabled.
- Specify static address when IPv6 is enabled.

Important **When the operator privilege user moves to this page, 'Failed to access BMC.' diag pops up, and nothing is displayed on the settings value. Administrator privilege is required to refer or modify settings.**

Edit page (when IPv6 is disabled)

On the Edit page as shown below, you can configure the following function. You cannot specify IPv6 link local address.

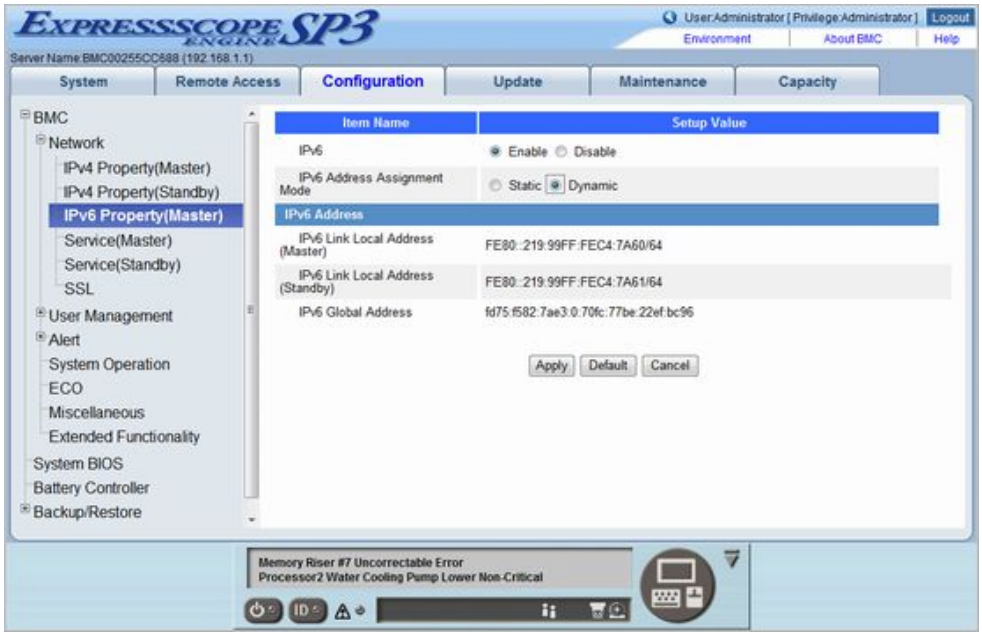
- Select Enable or disable IPv6.



Edit page (when IPv6 is enabled and Dynamic is specified for IPv6 address assign mode)

On the Edit page as shown below, you can configure the following function. You cannot specify IPv6 link local address.

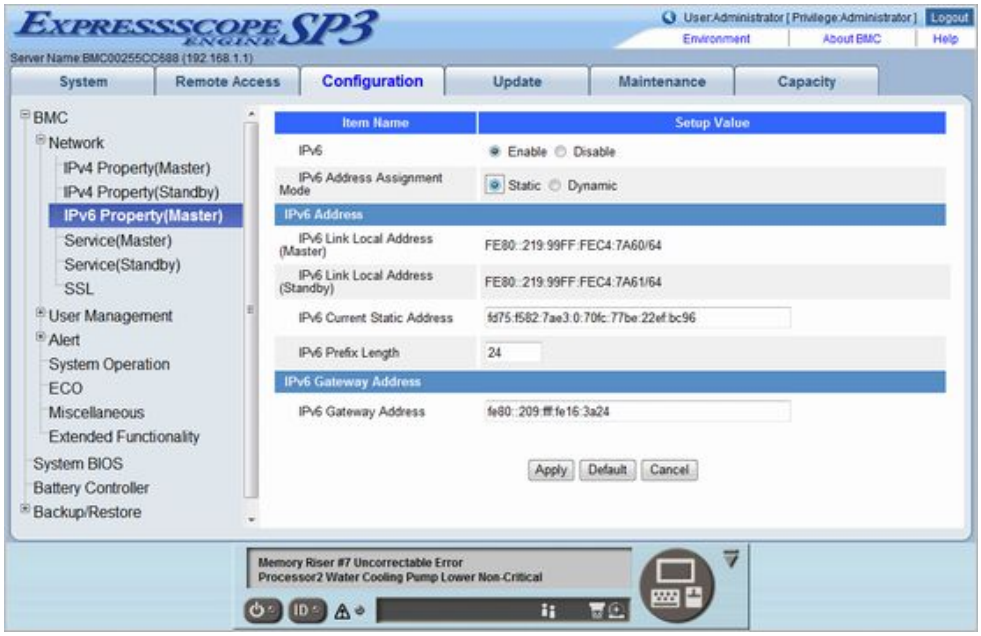
- Select Enable or disable IPv6.
- Select Static or Dynamic for IPv6 Address Assign Mode.



Edit page (when IPv6 is enabled and Static is specified for IPv6 address assign mode)

On the Edit page as shown below, you can configure the following function. You cannot specify IPv6 link local address.

- Select Enable or disable IPv6.
- Select Static or Dynamic for IPv6 Address Assign Mode.
- Specify static address (IPv6 current static address, IPv6 prefix length, and IPv6 gateway address)



Setting range and default value

Item name	Setup value(*1)	Default setting(*2)
IPv6	Enable or disable IPv6. Enable/Disable	Disable
IPv6 Address Assign Mode (*3)	Specify IPv6 Address Assign Mode. Dynamic/Static	Dynamic
IPv6 Address		
IPv6 Link Local Address (Master)	Display IPv6 Link Local Address. (*5)	
IPv6 Link Local Address (Standby)	Display IPv6 Link Local Address.(*5) Not displayed with A1040c model.	
IPv6 Current Statis Address (*3)	Specify the current static address. (*8) Ex.: 2012:629:1409:ABCD::2	0::0
IPv6 Prefix Length (*3)(*4)	Specify the IPv6 prefix length in the range between 0 and 64 (*9).	64
IPv6 Global Address (*6)(*7)	Display Ipv6 global address that is appended by RA.	
IPv6 Gateway Address (*3)		
IPv6 Gateway Address (*3)	Specify IPv6 Gateway address.(*8) Ex.: 2012:629:1409:ABCD::4	0::0

(*1) Addresses and character strings are example.
(*2) Factory-set value.
(*3) Displayed when IPv6 is set to "Enable" and "Static" is specified for IPv6 Address Assign Mode.
RA (Router Advertisement) is supported in Dynamic mode. DHCP is not supported.
(*4) Displayed when IPv6 Address Assign Mode is set to "Static".
(*5) Even if IPv6 is set to "Disable", Link Local Address is always assigned.
(*6) IPv6 Global Address is assigned to master BMC, not standby BMC.
(*7) Displayed when IPv6 Address Assign Mode is set to "Dynamic".
(*8) Up to 39 ASCII characters (A to F, a to f, 0 to 9, and colon ":" can be accepted.
(*9) ASCII numeric characters (0 to 9) between 0 and 64 digits can be accepted.

Buttons

① [Apply] button

Apply the edited value and return to List page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

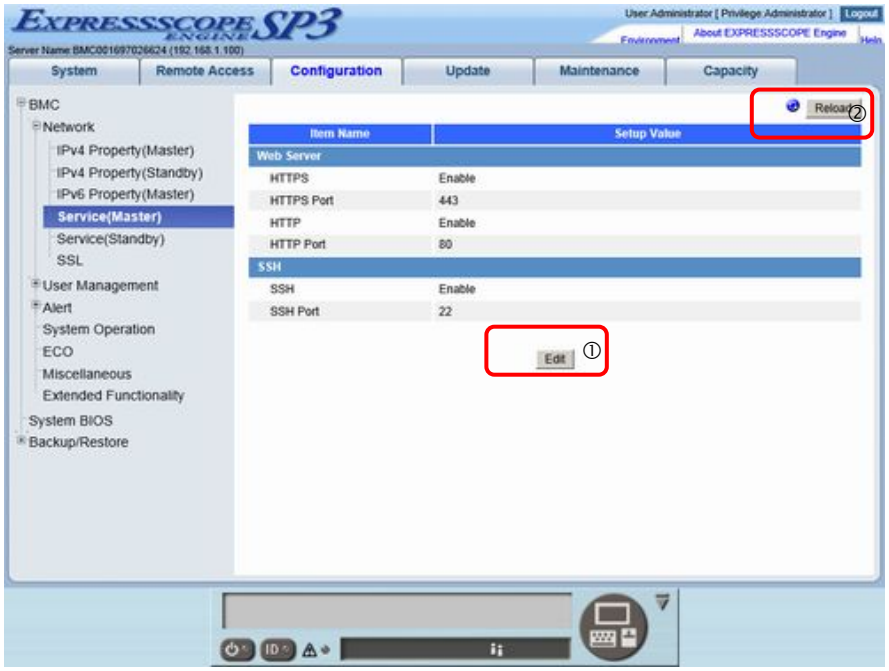
③ [Cancel] button

Return to List page without applying the edited value.

(d) Service (Master)

Overview

Specify the port number that service of master BMC uses. Administrator privilege is required to modify settings.



Buttons

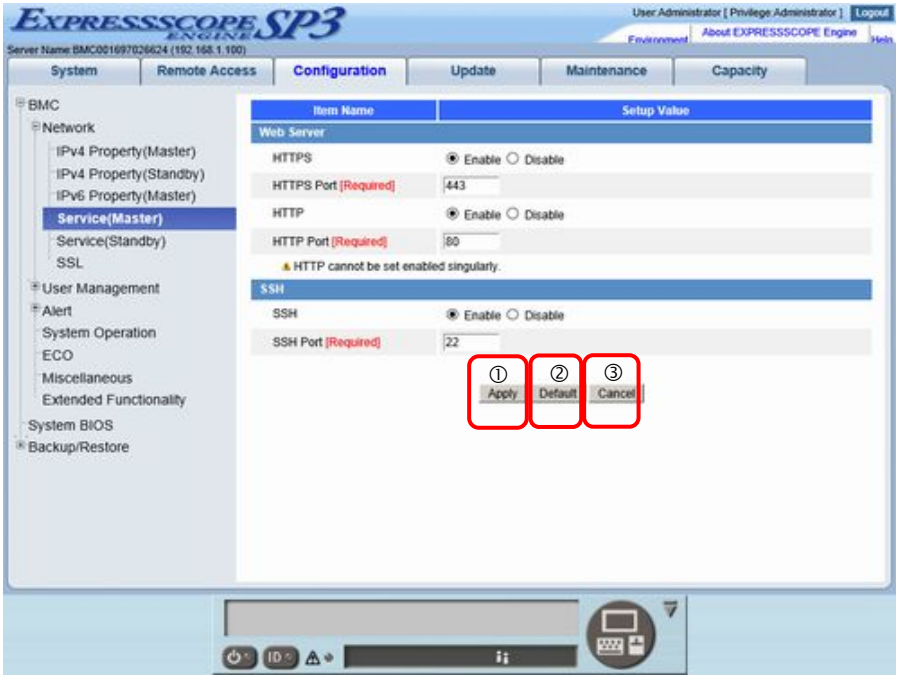
① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

Edit page



Setting range and default value

Item name	Setup value	Default setting(*1)
Web Server		
HTTPS	Enable or disable HTTPS. Enable/Disable	Enable
HTTPS Port	Specify port number for HTTPS. 1 to 65535	443
HTTP (*2)	Enable or disable HTTP. Enable/Disable	Enable
HTTP Port	Specify port number for HTTP. 1 to 65535	80
SSH		
SSH	Enable or disable SSH. Enable/Disable	Enable
SSH Port	Specify port number for SSH. 1 to 65535	22

(*1) Factory-set value.
(*2) Cannot enable HTTP only.

Important **You cannot enable HTTP only. If HTTPS is disabled, HTTP is also disabled automatically. Accordingly, HTTP access (http://<web console address>) is unavailable while HTTPS is disabled. HTTP access is available only while HTTPS is enabled.**

Buttons

① [Apply] button

Apply the edited value and return to List page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

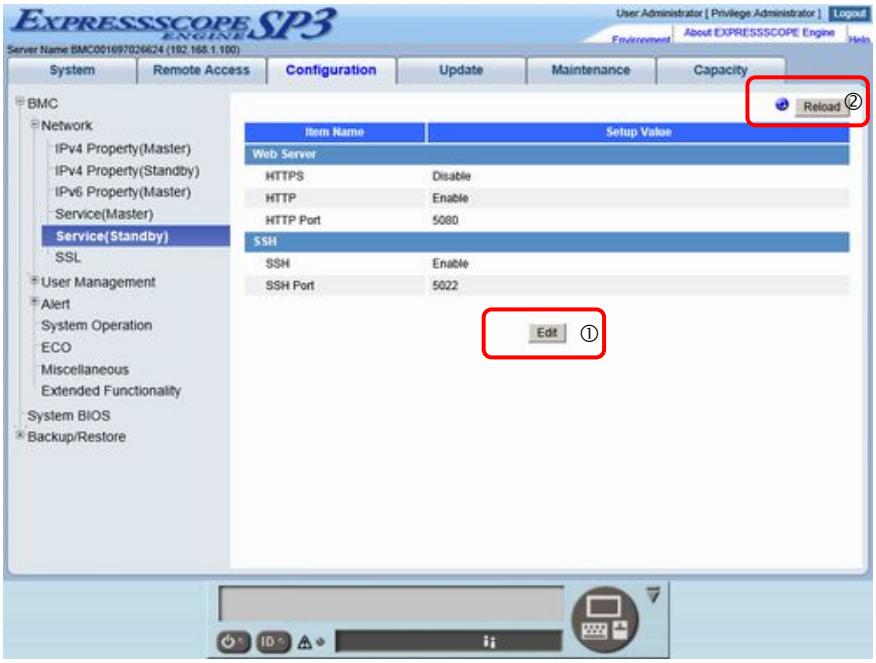
Return to List page without applying the edited value.

(e) Service (Standby)

Overview

Specify the port number that service of standby BMC uses. Administrator privilege is required to modify settings. This page is not displayed on A1040c model.

Browse page



Buttons

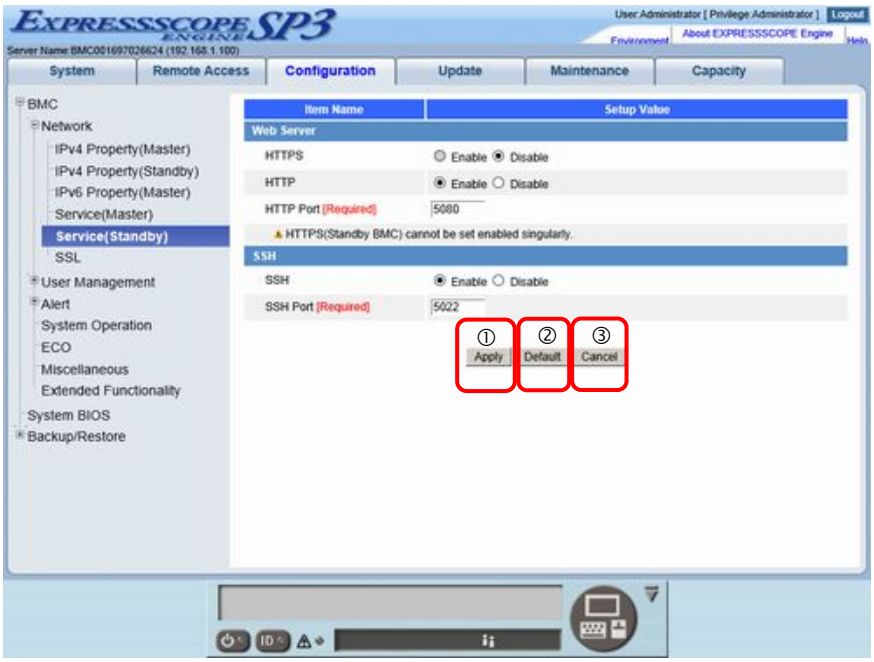
① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

Edit page



Setting range and default value

Item name	Setup value	Default setting(*1)
Web Server		
HTTPS	Cannot change.	Cannot change.
HTTPS Port	Can not change.	Cannot change.
HTTP(*2)	Enable or disable HTTP. Enable/Disable	Enable
HTTP Port (*3)	Specify port number for HTTP. 1 to 65535	5080
SSH		
SSH	Enable or disable SSH. Enable/Disable	Enable
SSH Port (*3)	Specify port number for SSH. 1 to 65535	5022

(*1) Factory-set value.
(*2) Cannot enable HTTP only.
(*3) Be sure to specify the number different from that of master BMC. The same port number cannot be used.

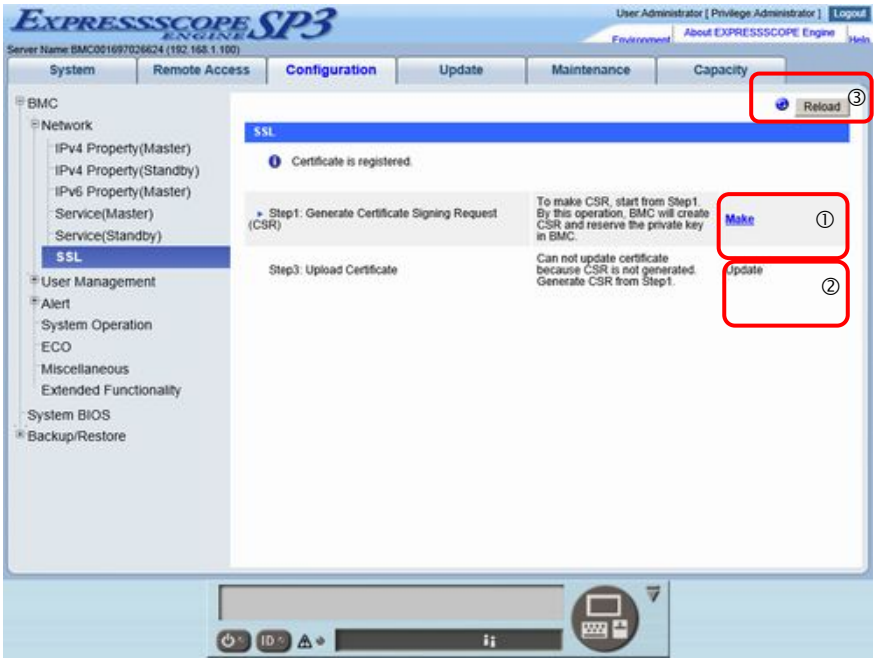
Buttons

See Section 7.7.1 BMC (1) Network (d).

(f) SSL

Overview

Use this page to view information related to SSL (Secure Socket Layer) and to create certificate. Administrator privilege is required to use this feature.



Buttons

① [Make]

Move to [Step1: Generate Certificate Signing Request (CSR)] page where you can create CSR and certificate.

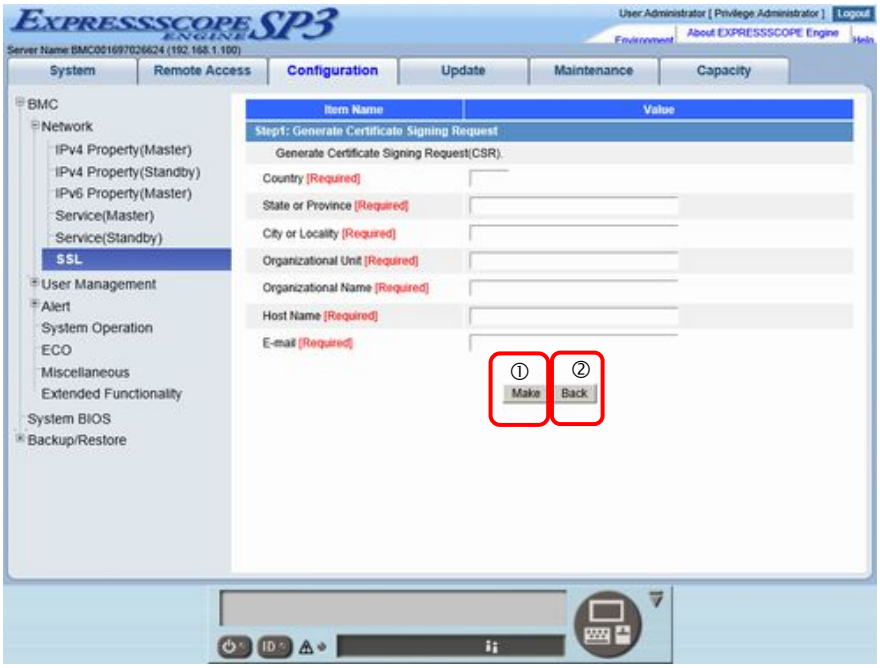
② [Update]

Move to [Step3: Upload Certificate] page where you can create CSR and certificate.

③ [Reload] button

Press the [Reload] button to display the latest information.

Step1: Generate Certificate Signing Request (CSR)



To create CSR, begin with Step 1. If you click the [Make] button, the private key is generated and stored in BMC. Fill all of the required items by referring to example.

Item name (*1)	Value	Example
Country	2 characters (*2)	JP
State or Province	Up to 64 characters (*3)	Tokyo
City or Locality	Up to 64 characters (*3)	Minato-ku
Organizational Unit	Up to 64 characters (*3)	NEC
Organizational Name	Up to 64 characters (*3)	Server
Host Name (FQDN)	Up to 64 characters (*4)	example
E-mail (Administrator)	Up to 64 characters (*4)	test@example.com

(*1) Required
(*2) 1-byte alphanumeric only
(*3) 1-byte alphanumeric, [.], [-](hyphen), [_](underscore), and [ ](space) only
(*4) 1-byte alphanumeric, [-], [_], [.], and [@] only

Buttons

① [Make] button

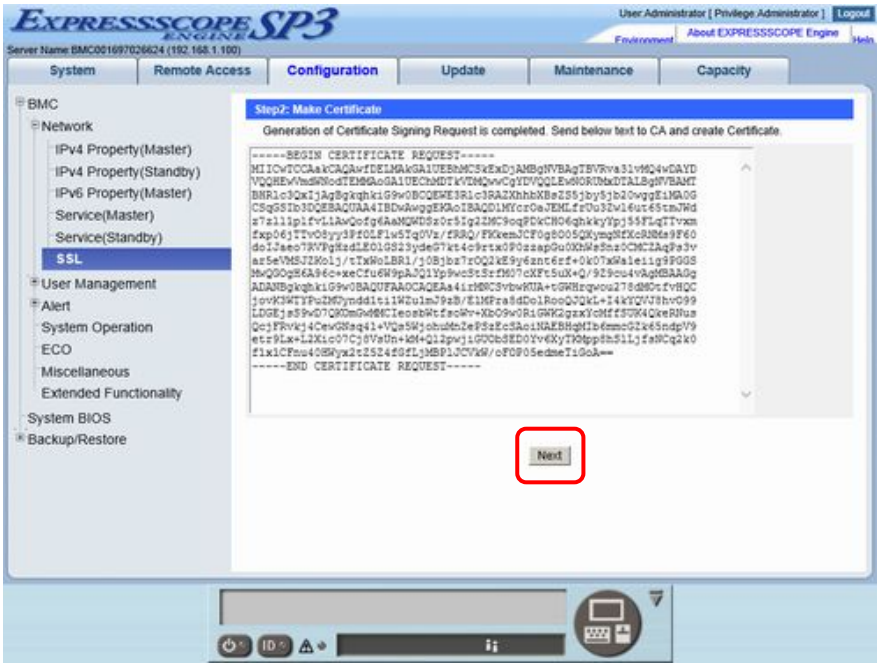
If you press the [Make] button, the Certificate Signing Request (CSR) is created, and go to Step 2.

② [Back] button

Return to previous page without creating certificate.

Step2: Make Certificate

Send the character string displayed on this page to CA (Certificate Authority) to receive certificate, then press the [Next] button. The screen changes to "Step 3: Upload Certificate" page.

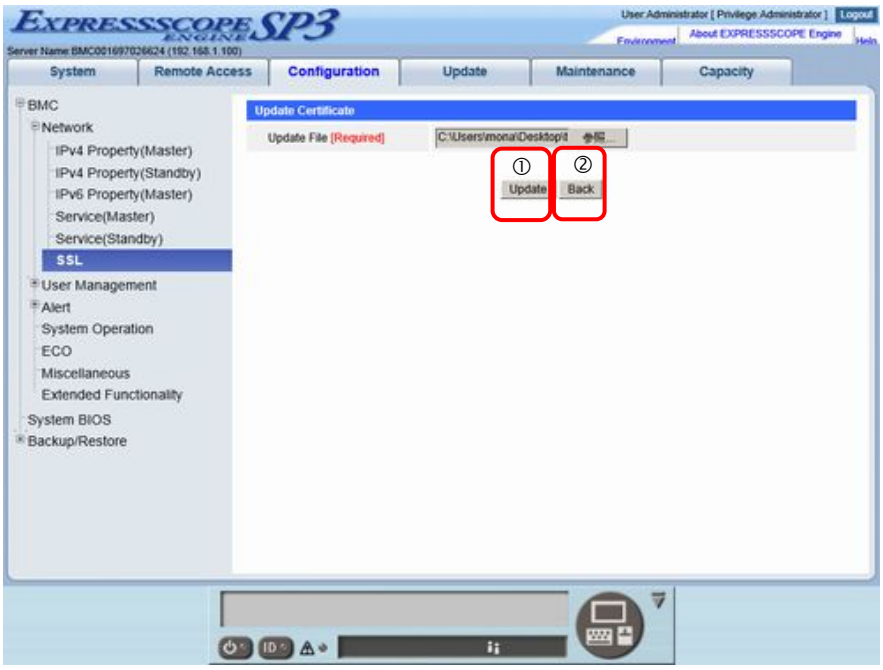


Buttons

① [Next] button

Press the [Next] button to update certificate.

Step3: Upload Certificate



Press the [Browse] button to select a file you have received in Step 2, and press the [Update] button. The certificate or private key is updated, and the screen shows progress. When update completes, a message "The certificate was updated" is displayed.

Pressing the [Back] button returns to previous page.

Buttons

① [Update] button

Press the [Update] button to update certificate.

② [Back] button

Return to previous page without updating certificate.

Important

- **Server certificate must be of PEM format.**
- **After uploading certificate, BMC needs to be reset.**

(2) User Management

(a) User Account

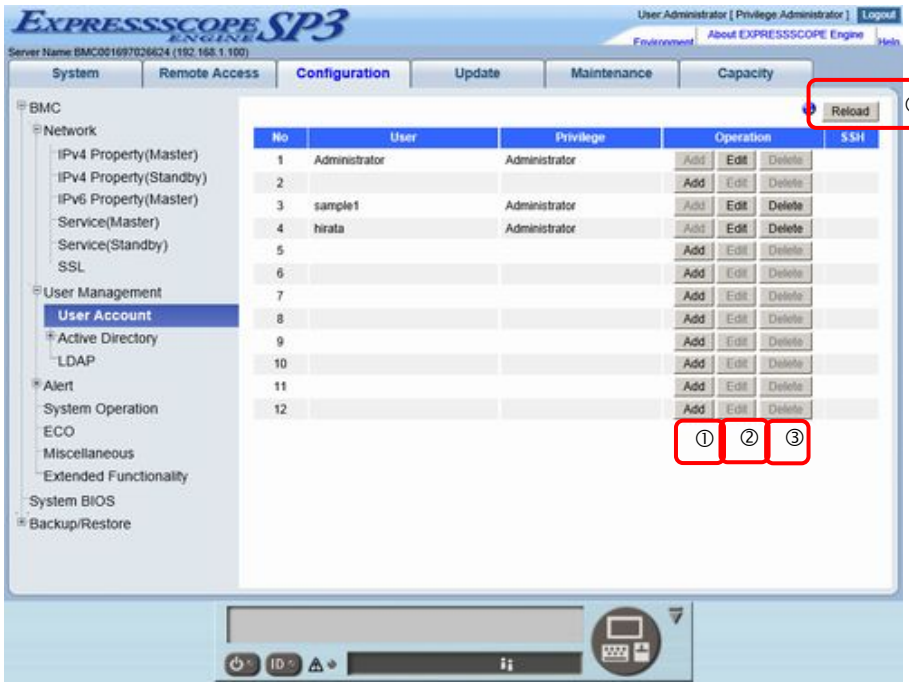
Overview

This page appears when you select [Configuration] tab and then select [User Account].

Use the User Account page to add or delete user name and change password used for logging in BMC through web console, IPMI (RMCP+), or SMASH-CLP.

Manage the user who uses BMC. Up to 12 entries can be registered.

Administrator privilege is required to modify settings.



Buttons

① [Add] button

Press this button to add new user entry.

② [Edit] button

Press this button to edit existing user entry.

③ [Delete] button

Press this button to delete existing user entry. When you press this button, a popup menu shown below appears. Click the [OK] button to delete.

④ [Reload] button

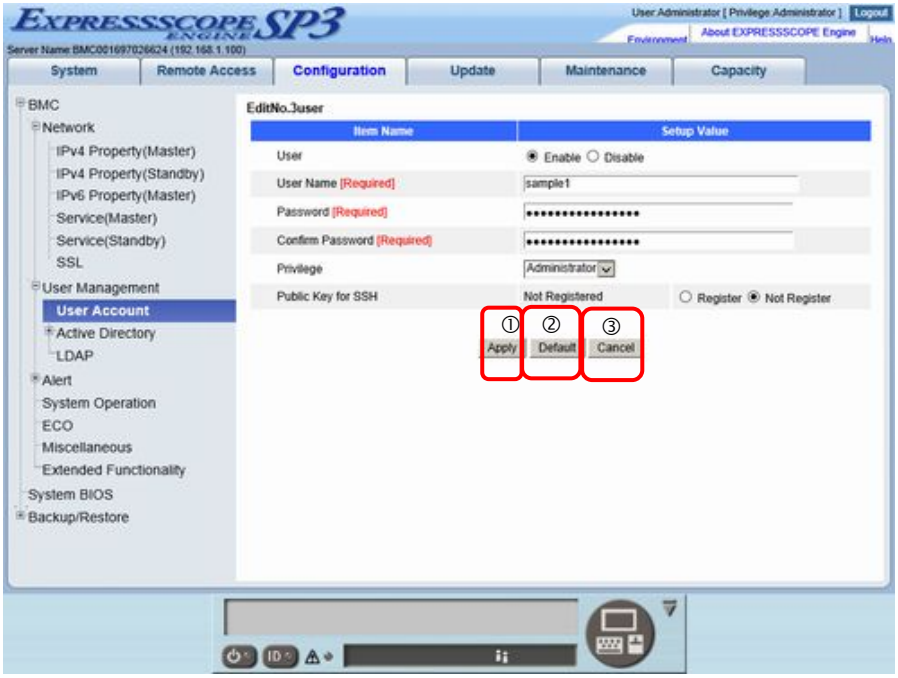
Press the [Reload] button to display the latest information.

Important **Confirm whether the user who you want to delete is currently logging in the webconsole or not. If that user has been already logged in, log out by this user or disconnect this user by the session management page before you delete this user.**

User List page

Item	Description	
No.	Shows number assigned to the user.	
User	Shows login user name. The invalid user name is grayed out.	
Privilege	Shows privilege.	
	Administrator	A user having administrator privilege who is allowed to perform all operations.
	Operator	A user who is allowed to operate the server. Session management, license registration, Remote KVM/Media, configuration, and update are not allowed.
	User	General user who can view IPMI information only.
Operation	Displays buttons to access user account. Only the user having administrator privilege can use these buttons.	
SSH	Shows whether SSH public key is registered or not by an icon.	

Edit page



Pressing the [Edit] button opens the User Edit page. Setting items are shown below.

Item name	Setup value
User	Select Enable/Disable for the user.
User Name	Specify user name. Up to 15 characters can be accepted. (*1)
Password	Set password. Up to 19 characters can be accepted. (*2)
Confirm Password	Enter the same character string as password. (*2)
Privilege	Specify privilege of the user. Administrator, Operator, or User can be selected.
Public Key for SSH	Select whether SSH public key is registered or not.

	[Register] must be selected to perform public key authentication in SSH.
Registration of Public Key for SSH	To register SSH public key, select a file and register the key. This item is indispensable if you select [Register].

(*1) 1-byte alphanumeric, [-], and [_] can be accepted. Note that [-] cannot be placed at the top of user name.

(*2) ASCII characters excluding [(space)], ["], [&], [?], [=], [\](backslash), and [#] can be accepted. At least one character is needed. This password is used for user authentication on web console, SMASH-CLP (SSH password authentication), and IPMI RMCP+. A password to be set for private key (generated for SSH public key) can be different from this password.

Buttons

① [Apply] button

Press the [Apply] button to edit user, then return to User List page.

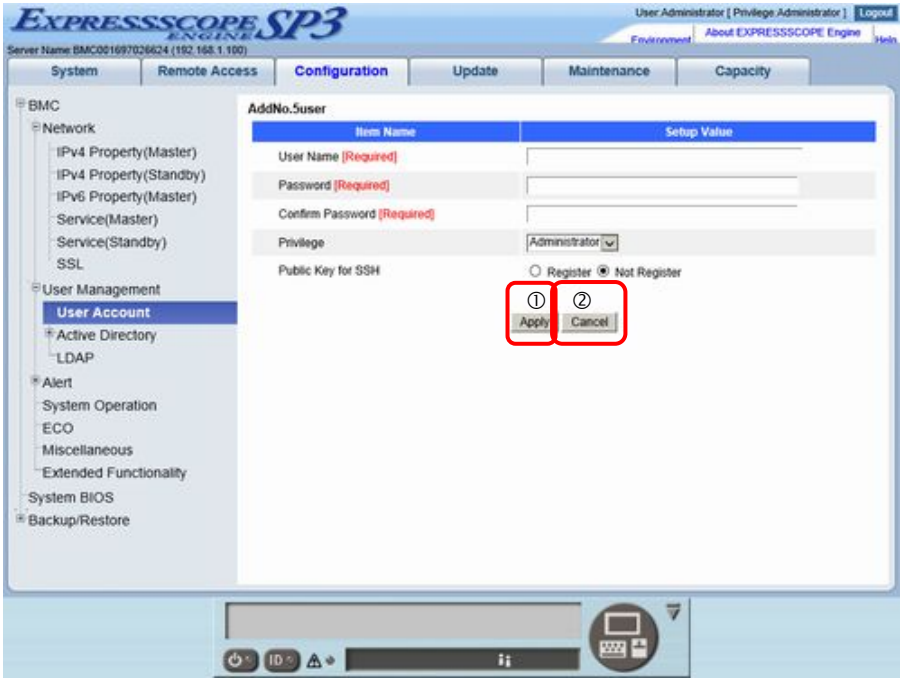
② [Default] button

Press the [Default] button to clear "User Name", "Password", and "Confirm Password" fields. Then “User” is enabled.

③ [Cancel] button

Press the [Cancel] button to return to User List page.

Add User page



Pressing the [Add] button opens the Add User page. Setting items are shown below.

Item name	Setup value
User Name	Specify user name. Up to 15 characters can be accepted. (*1)
Password	Set password. Up to 19 characters can be accepted. (*2)
Confirm Password	Enter the same character string as password. (*2)
Privilege	Specify privilege of the user. Administrator, Operator, or User can be selected.
Public Key for SSH	Select whether SSH public key is registered or not. [Register] must be selected to perform public key authentication in SSH.
Registration of Public Key for SSH	To register SSH public key, select a file and register the key. This item is indispensable if you select [Register].

(*1) 1-byte alphanumeric, [-], and [_] can be accepted. Note that [-] cannot be placed at the top of user name. The character strings "root", "MWA", "Maintenance", and "Administrator" are reserved by BMC. Do not

add or delete these character strings.

(*2) ASCII characters excluding [(space)], ["], [&], [?], [=], [\](backslash), and [#] can be accepted. At least one character is needed.

Buttons

① [Apply] button

Press the [Apply] button to add user then return to User List page.

② [Cancel] button

Press the [Cancel] button to return to User List page.

Important

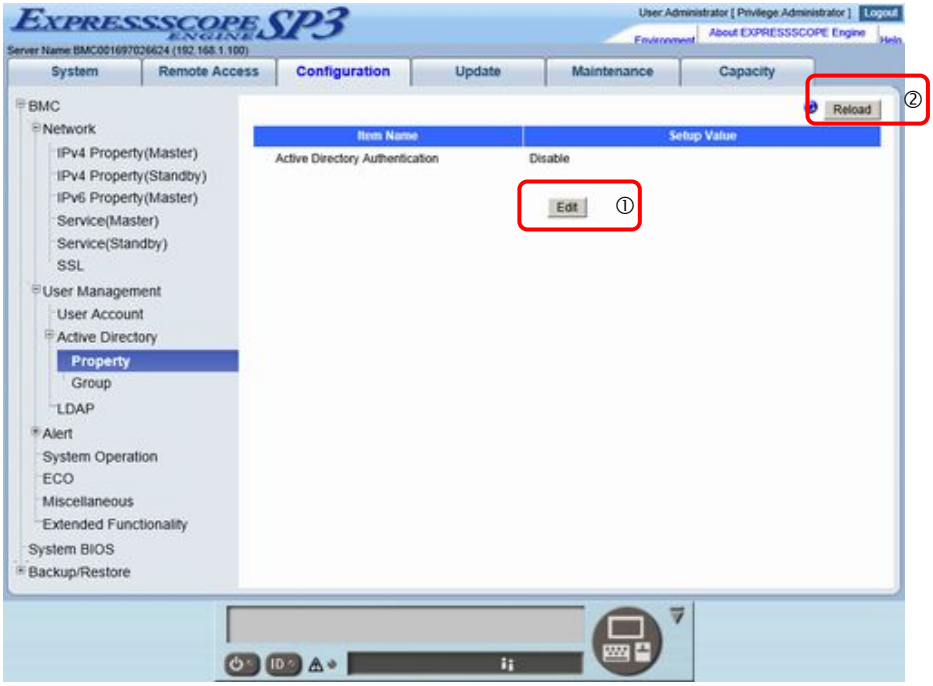
- **The user accounts "root", "MWA", and "Maintenance" are reserved by BMC. Do not add or delete these character strings as a user name. The user account is synchronized with the user account of IPMI. If you add or delete a user by IPMI command tool, you can use User ID 5 through 16. “Administrator”**
- **You cannot delete a user account. The user account does not allow you to change user name and privilege on Edit page.**

(b) ActiveDirectory Property

Overview

Use this property to view information related to Active Directory and change settings. You are allowed to view or configure when Active Directory authentication is enabled. Enable Active Directory authentication on this page to use Active Directory authentication. Administrator privilege is required to modify settings.

Browse page when Active Directory authentication is disabled



Buttons

① [Edit] button

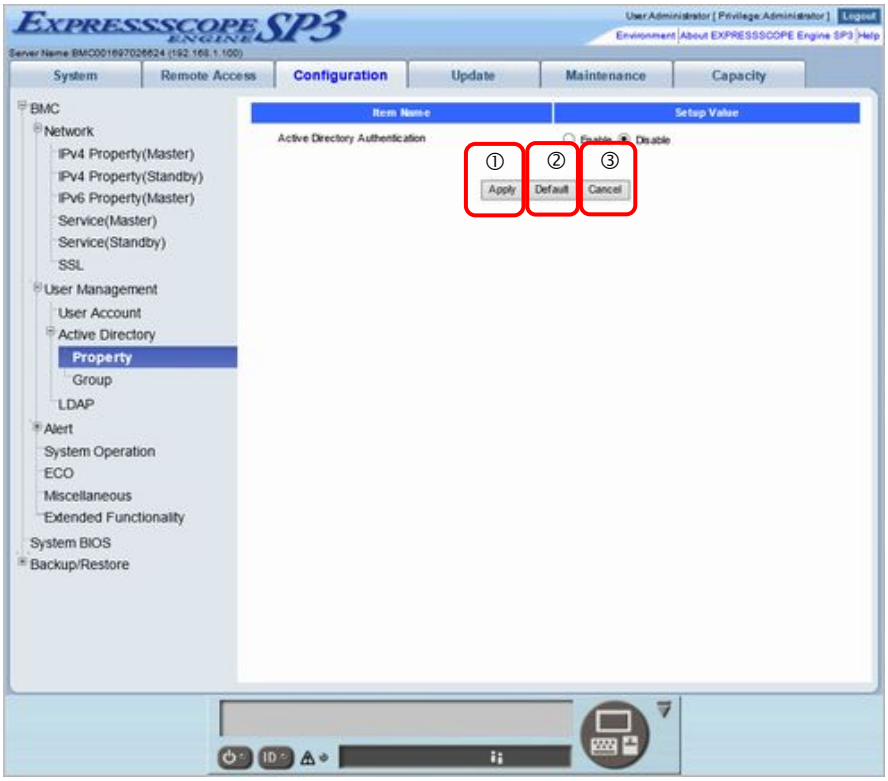
Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

Edit page when Active Directory authentication is disabled

You can enable or disable Active Directory authentication on this page.



Buttons

① [Apply] button

Apply the edited value and return to List page.

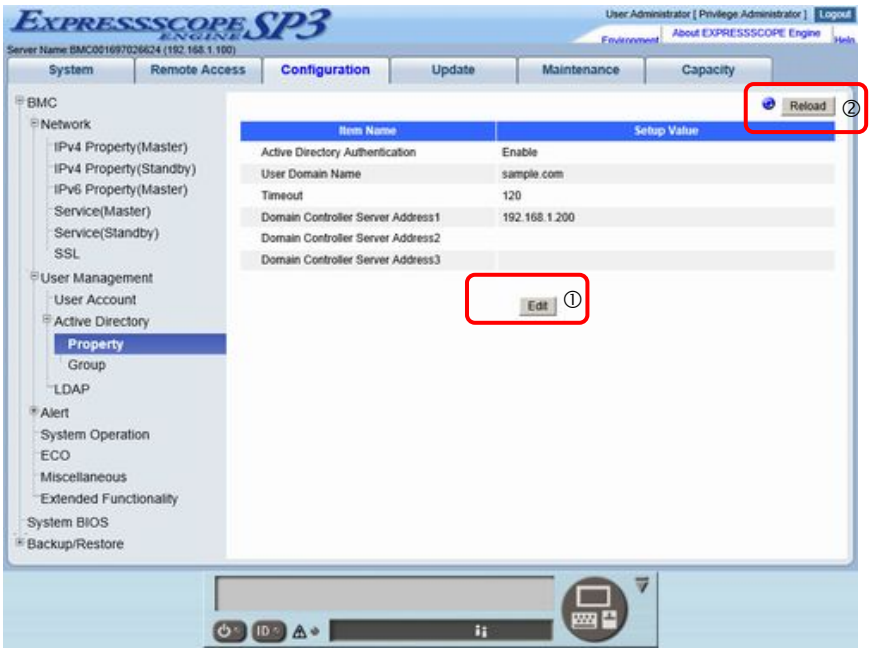
② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

Return to List page without applying the edited value.

Property page



Buttons

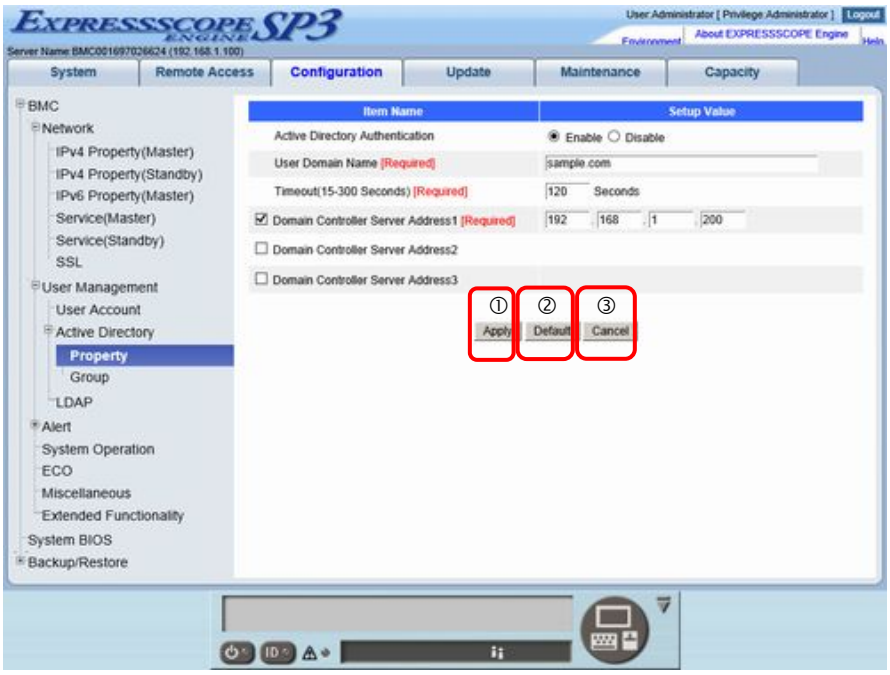
① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

Edit page



Buttons

① [Apply] button

Apply the edited value and return to List page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

Setting range and default value

Item name	Setup value	Default setting
Active Directory Authentication	Enable or disable Active Directory authentication.	Disable
User Domain Name(*1)	Specify user domain name. Ex.: sample.com	Blank
Timeout(*1) (*3)	Specify authentication timeout time. Allowable values are 15 to 300 (seconds).	120
Domain Controller Server Address 1(*1)	Specify address of the first domain controller server.	0.0.0.0
Domain Controller Server Address 2(*1)	Specify address of the second domain controller server.	Blank(*2)
Domain Controller Server Address 3(*1)	Specify address of the third domain controller server.	Blank(*2)

(*1) This item is displayed if Active Directory Authentication is set to “Enable”.

(*2) If Domain Controller Server Address is selected,”0.0.0.0” is displayed.

(*3) This item cannot function correctly. The authentication timeout time is always 15 seconds.

③ [Cancel] button

Return to List page without applying the edited value.

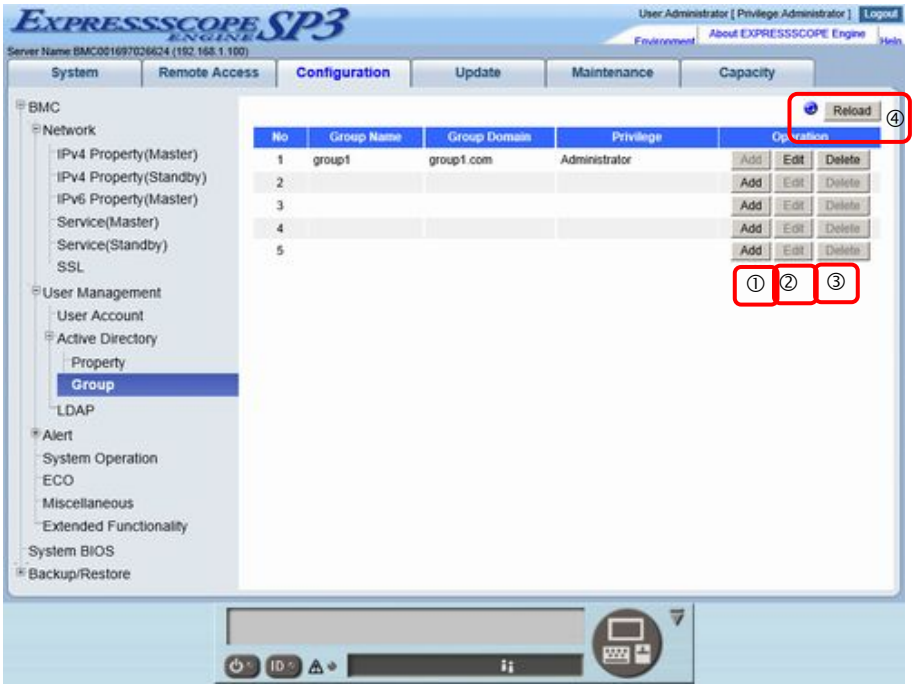
Important **You cannot use ActiveDirectory and LDAP authentication to login the standby web console.**

(c) ActiveDirectory Group

Overview

Use this page to view information related to Active Directory Group and change settings. Administrator privilege is required to modify settings.

You are allowed to view or configure when Active Directory authentication is enabled. Enable Active Directory authentication on this page to use Active Directory authentication.



Item	Description
No.	Shows number assigned to the group.
Group Name	Shows group name.
Group Domain	Shows domain name of ActiveDirectory.
Privilege	Shows privilege. Administrator/Operator/User
Operation	Displays buttons to access group. The grayed-out button shows that the operation is not allowed.

Tips Addition, deletion and edit of Active Directory Group are allowed to administrator privilege.

Buttons

① [Add] button

Press this button to add new group entry.

② [Edit] button

Press this button to edit each item.

③ [Delete] button

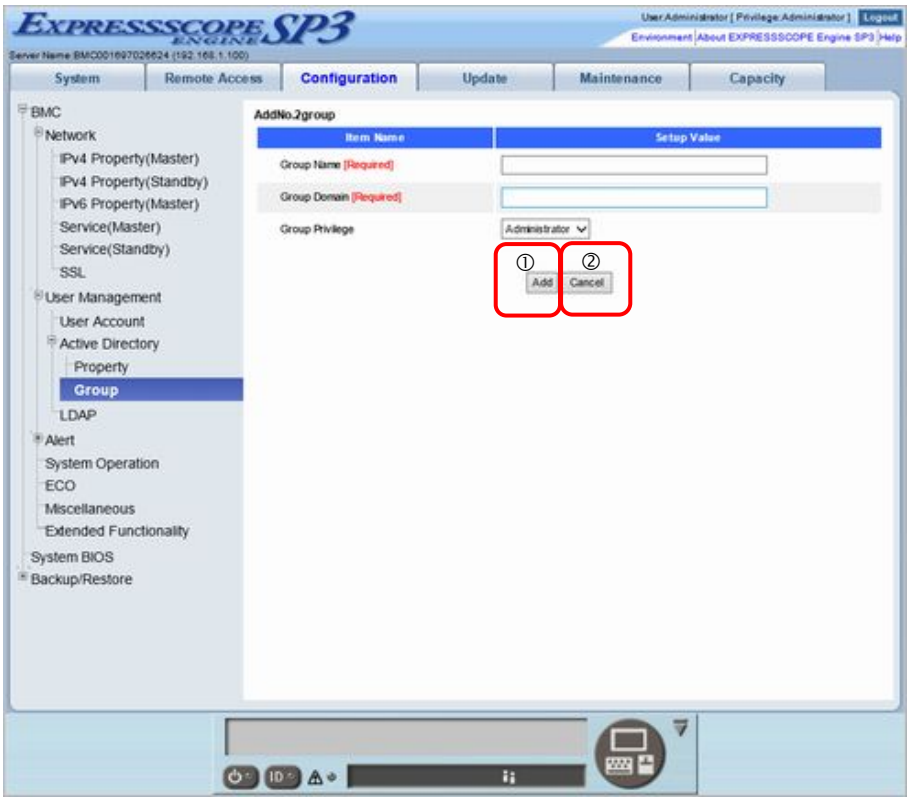
Press this button to delete existing group entry. When you press this button, the popup message as shown below appears. Press the [OK] button to delete entry.

④ [Reload] button

Press the [Reload] button to display the latest information.

Add group page

Use this page to edit group.



Setting range and default value

Item Name	Description
Group Name	Specify the group name.This item is indispensable.
Group Domain	Specify the group domain name. This item is indispensable.
Group Privilege	Shows privilege. Administrator/Operator/User

Buttons

① [Add] button

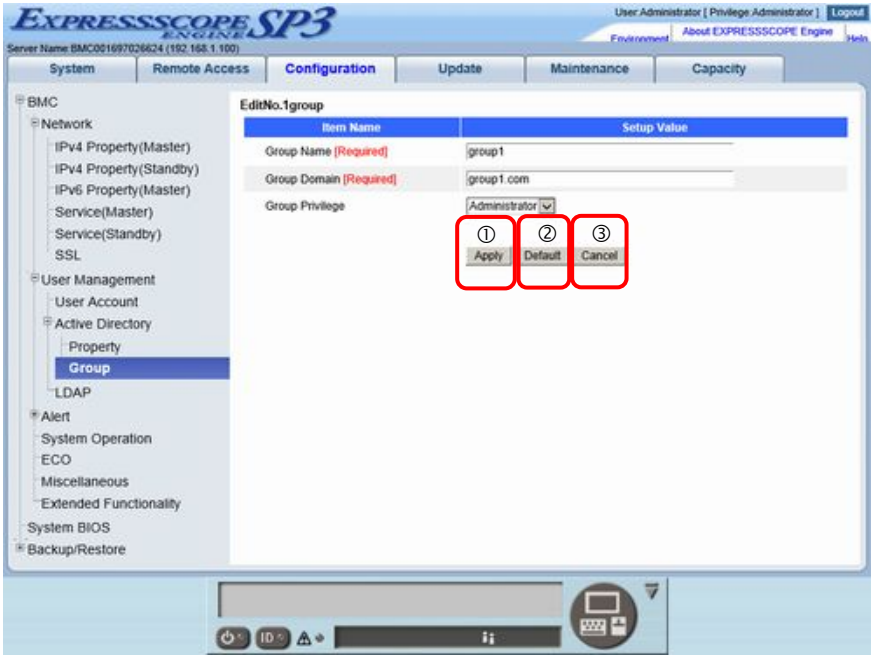
Press this button to add new group.

② [Cancel] button

Return to List page without applying the edited value.

Edit page

Use this page to edit group.



Setting range and default value

See "Add group page".

Buttons

① [Apply] button

Apply the edited value and return to List page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

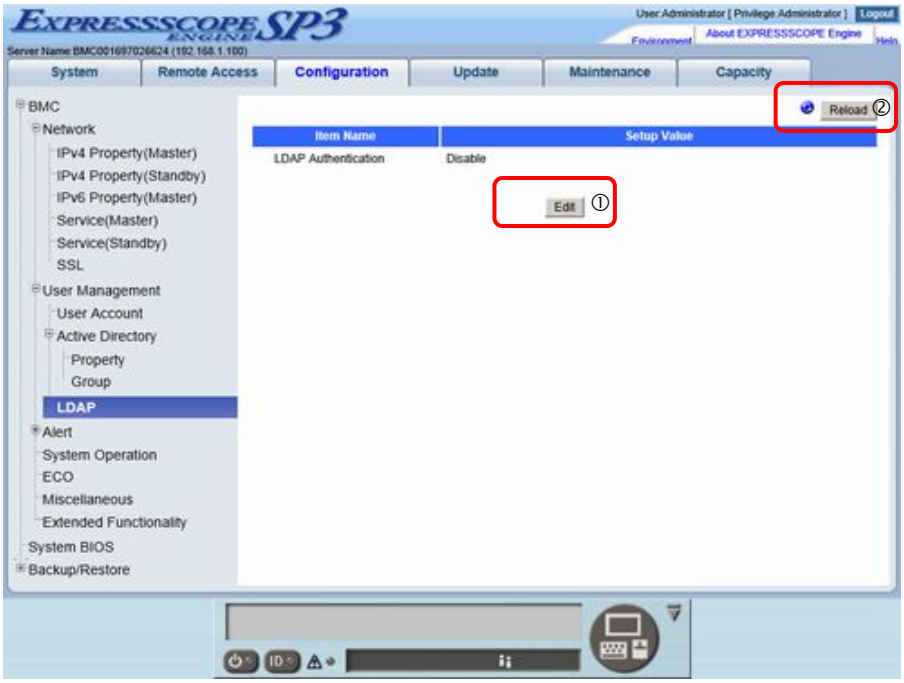
Return to List page without applying the edited value.

(d) LDAP

Overview

Use this page to view information related to LDAP and change settings. Administrator privilege is required to modify settings. You are allowed to view or configure when LDAP authentication is enabled. Enable LDAP authentication on this page to use LDAP authentication.

Browse page when LDAP Authentication is disabled



Buttons

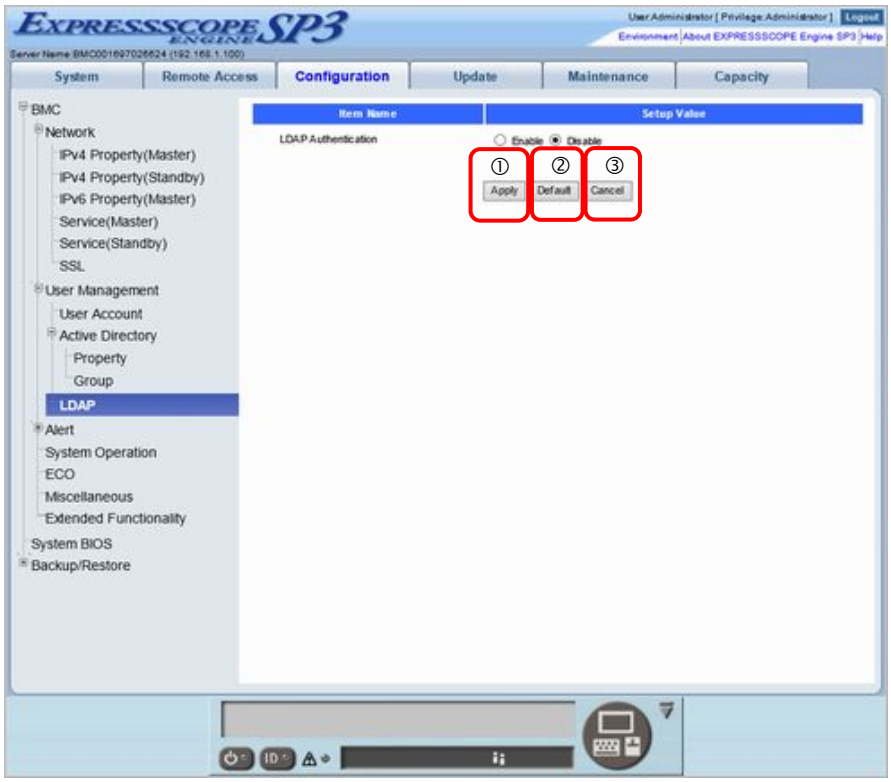
① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

Edit page when LDAP Authentication is disabled



Buttons

① [Apply] button

Apply the edited value and return to List page.

② [Default] button

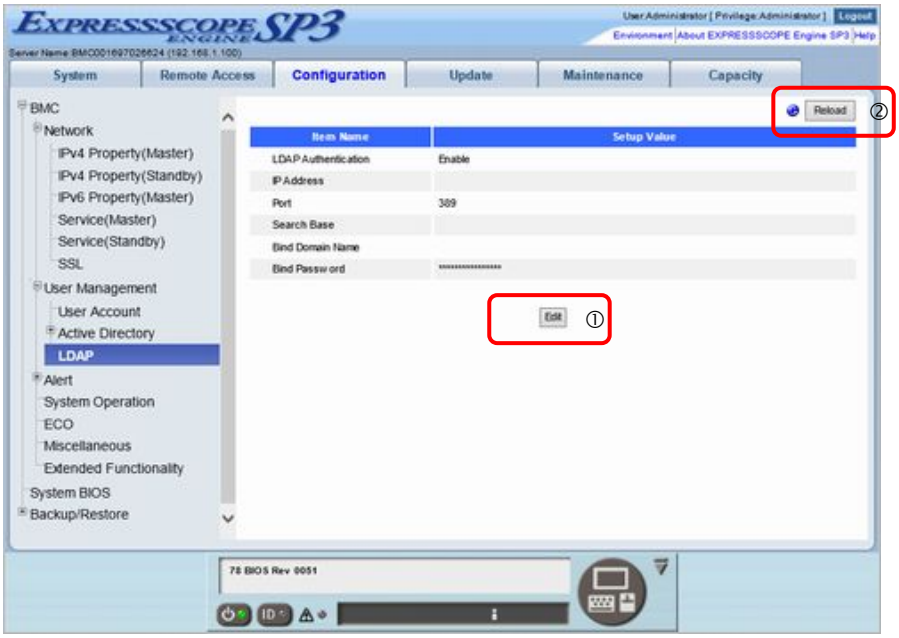
Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

Return to List page without applying the edited value.

Browse page when LDAP Authentication is enabled

Use this page to view authentication information for LDAP authentication.



Buttons

① [Edit] button

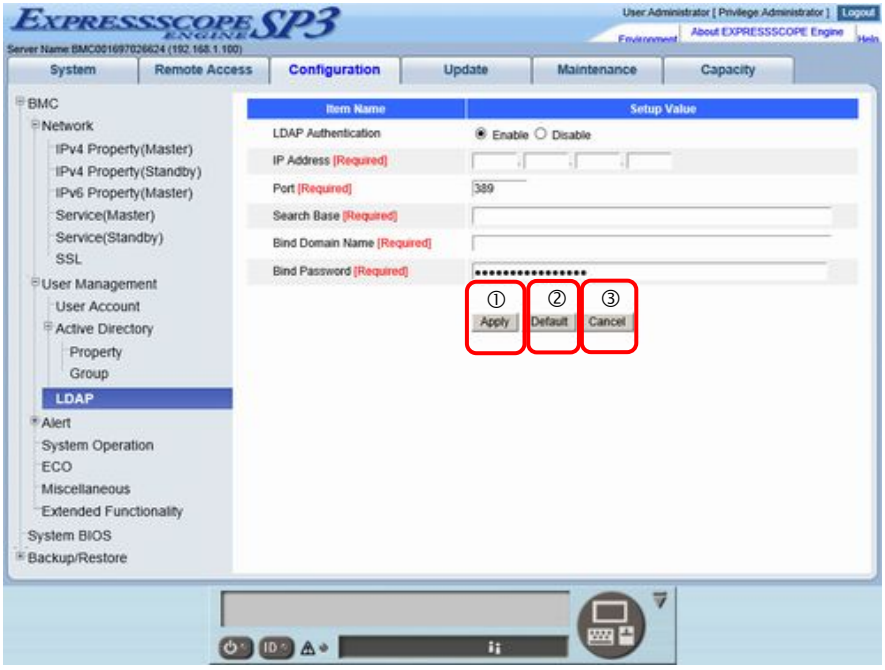
Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

Edit page when LDAP Authentication is enabled

Use this page to edit authentication information for LDAP authentication.



Setting range and default value

Item name	Setup value	Default setting
LDAP Authentication	Select Enable or Disable.	Disable
IP Address(*1)	Specify IP address.	0.0.0.0
Port(*1)	Specify port number. Allowable value range: 1 to 65535	389
Search Base(*1)	Specify Search Base (Base DN). Ex: dc=example,dc=com	Blank
Bind Domain Name(*1)	Specify Bind Domain Name. Ex: cn=root,dc=example,dc=com	Blank
Bind Password(*1)	Set Bind Password.	Blank

(*1) This item is displayed if LDAP Authentication is set to “Enable”,

Buttons

① [Apply] button

Apply the edited value and return to List page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

Return to List page without applying the edited value.

Important **You cannot use ActiveDirectory and LDAP authentication to login the standby web console.**

Important **LDAPS(LDAP over SSL/TLS) is not supported. Do not specify 636 to port number. If you authenticate by the LDAP user at the condition that 636 port numbers are set to the port number, the login error popup appears.**

Important

When you logged into the web console by LDAP certification, logged-in user privilege is administrator regardless of the LDAP user privilege.

For LDAP certification, you must register a bind user and a LDAP user beforehand in the LDAP server.

・bind user: an user to bind to the LDAP server

・LDAP user: an user who log into the Web console via LDAP certification

(3) Alert

Overview

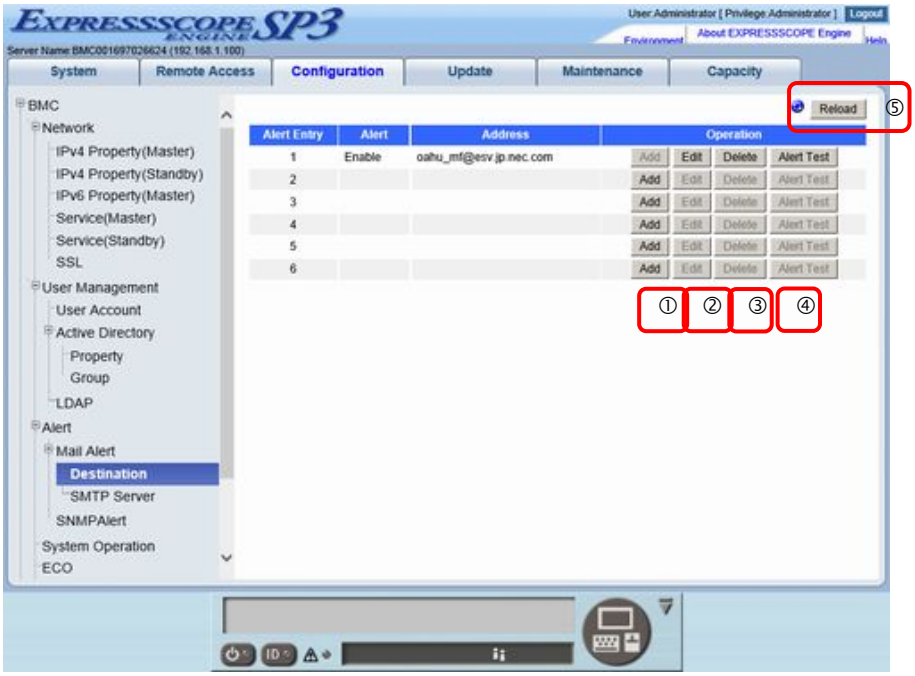
The server provides two alert features; mail alert and SNMP alert. The following describes settings items for these features.

(a) Email alert

Use this page to view and edit configuration of Email alert sent from BMC. Up to 6 destinations can be registered.

You need to configure [Destination] to specify the receiver, and [SMTP Server] to send mail Administrator privilege is required to use this feature.

To specify destination, select [Configuration] tab, and select [Alert] - [Mail Alert] - [Destination] from the tree in left pane. You can view or modify the current setting.



Item	Description
Alert	Shows Enabled or Disabled.
Address	Shows destination address.
Operation	Displays buttons for operation. Administrator privilege is required to use this feature.
Alert Test	Pressing the [Alert Test] button sends pseudo event to the specified destination.

Buttons

① [Add] button

Press this button to add a new group entry.

② [Edit] button

Press this button to edit each item.

③ [Delete] button

Press this button to delete existing destination. The popup message as shown below appears when this button is pressed. Pressing the [OK] button starts deletion.

④ [Alert Test] button

Press the [Alert Test] button to send test mail to destination.

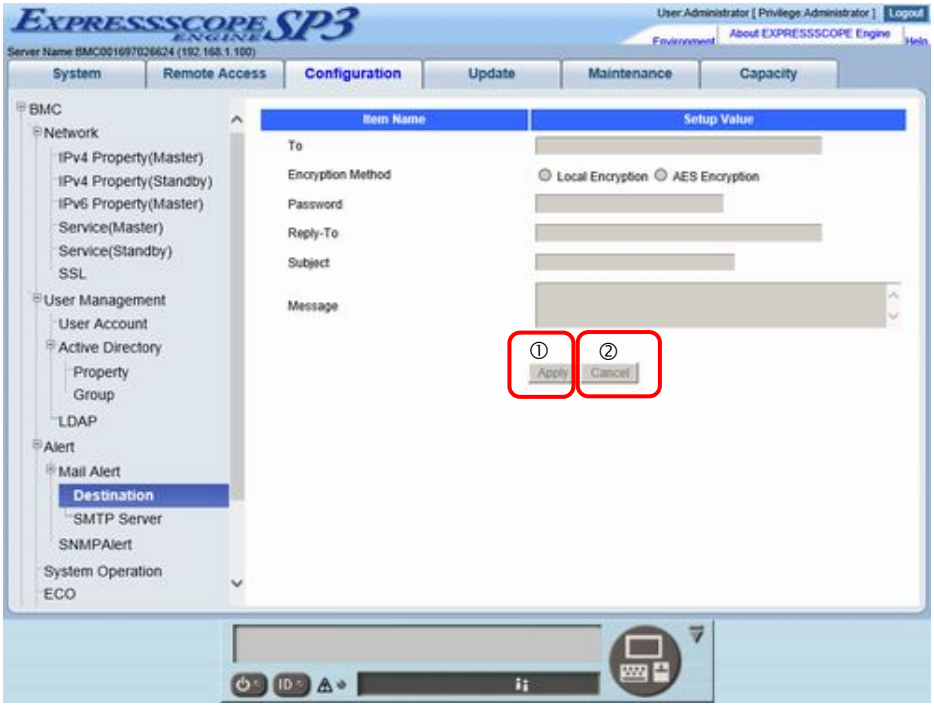
⑤ [Reload] button

Press the [Reload] button to display the latest information.

Important **When you log in to the web console by the operator privilege user, 'Alert' and 'Address' column will be a blank. If you want to confirm the setting value or do any operation, please log in by Administrator privilege user account.**

[Add] page

Add a new destination. To add destination, press the [Edit] button then select [Enable] for Alert.



Item name	Setup value (*1)
To	Specify a destination with up to 255 characters.

	Example: alert1@example.com (*2)
Encryption Method	Specify encryption method. Local Encryption AES Encryption
Password (*6)	Set password (for AES encryption). within the range between 4 and 14 characters. (*3)
Reply-To	Specify a return address with up to 255 characters. Example: root@example.com (*2)
Subject	Enter the subject with up to 63 characters. (*4)
Message	Enter the message text with up to 255 characters.(*5)

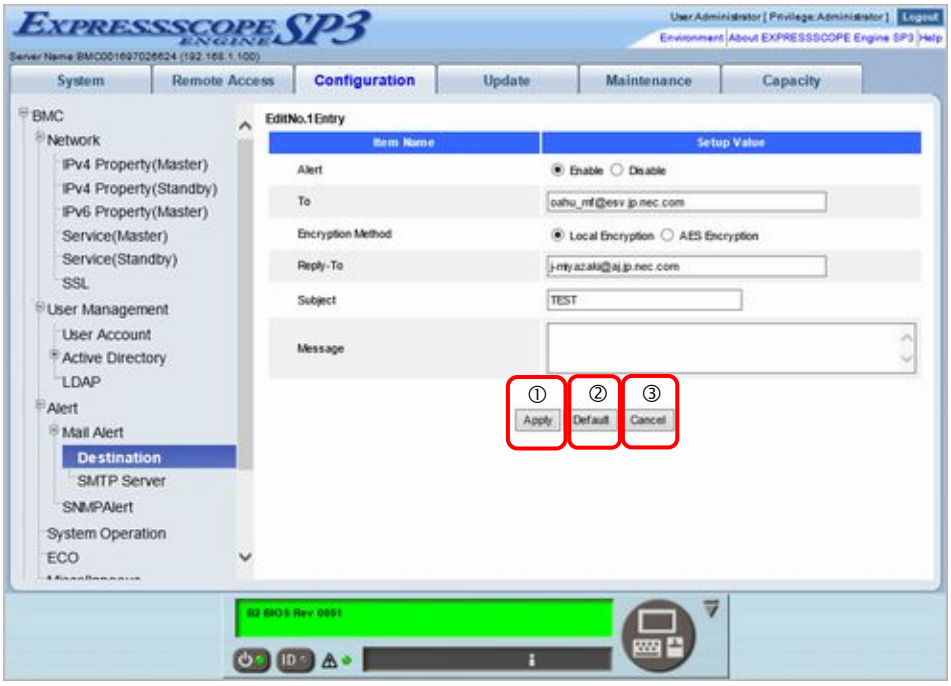
(*1) Addresses and character strings are example.
(*2) Up to 255 1-byte alphanumeric, [-], [_], [.] and [@] can be accepted.
(*3) ASCII characters excluding [(space)] can be accepted.
(*4) Up to 63 ASCII characters excluding [+], ["], [?], [<], [>], [\](backslash), and [#] can be accepted.
(*5) Up to 255 1-byte alphanumeric and [(Space)] can be accepted.
(*6) Displayed when AES Encryption is set to "Enable".

Buttons

① Press the [Apply] button to add destination then return to List page.
② Press the [Cancel] button to return to List page.

Edit page

Use this page to modify the existing destination. To edit destination, press the [Edit] button then select [Enable] for Alert.



Item name	Setup value	Default setting (*2)
Alert	Select Enable or Disable.	Disable
To (*1)	The same rule as in [Add] page is applied.	Blank
Encryption Method (*1)	The same rule as in [Add] page is applied.	Local Encryption
Password (*1)	The same rule as in [Add] page is applied.	Blank
Reply-To (*1)	The same rule as in [Add] page is	Blank

	applied.	
Subject (*1)	The same rule as in [Add] page is applied.	Blank
Message (*1)	The same rule as in [Add] page is applied.	Blank

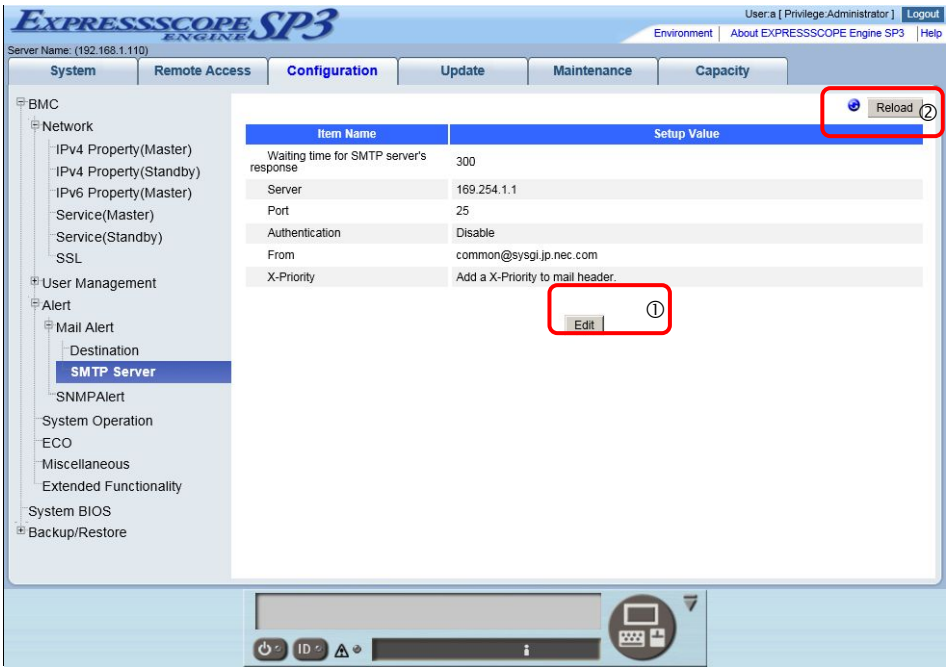
(*1) Displayed when Alert is set to "Enable".

Buttons

① Press the [Apply] button to edit destination, then return to List page.
② Press the [Default] button to clear "Destination (To)", "Password", and "Return address (Reply-To)" fields.
③ Press the [Cancel] button to return to List page.

SMTP Server

Select [Configuration] tab, and select [Alert] → [Mail Alert] → [SMTP Server] from the tree in left pane. You can view or modify the current setting.



Buttons

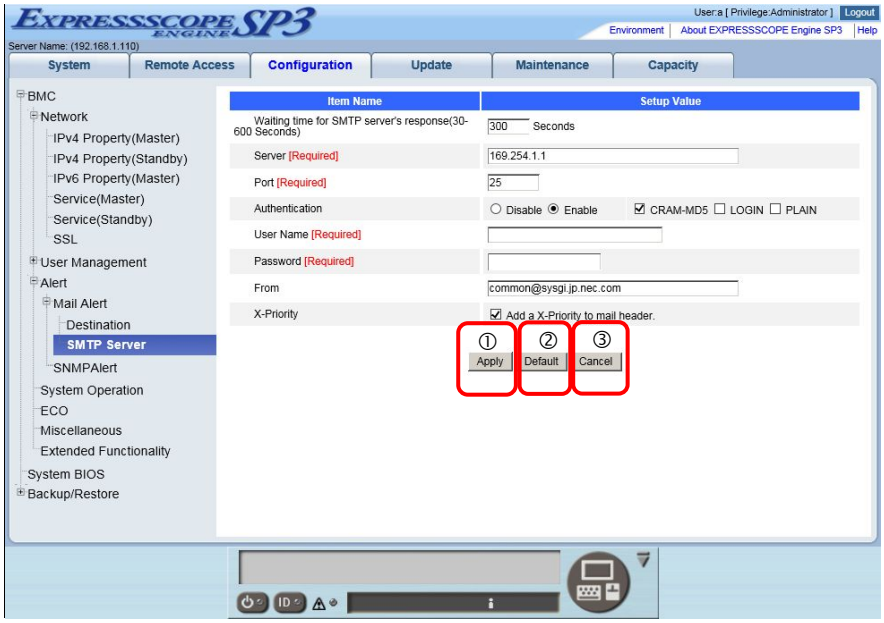
① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

SMTP Server Edit page



Item name	Setup value(*1)	Default setting(*2)
Waiting time for SMTP server's response (seconds) (*3)	30 to 600	30
Server	smtp.example.com (*4)	Blank
Port	1 to 65535	25
Authentication	Disable/Enable	Disable
Authentication Method (*5)	Select SMTP authentication method. (*6) - CRAM-MD5 - LOGIN - PLAIN	CRAM-MD5
User Name (*5)	User name used in SMTP authentication (*7)	Blank
Password (*5)	Password in SMTP authentication (*8)	Blank
From	Sender name (*9)	Blank
X-Priority(*10)	If you want to add a X-Priority to the mail header, you need to check this check box. - Check(Enable) - Non-check(Disable)	Check(Enable)

(*1) Addresses and character strings are example.
(*2) Factory-set value.
(*3) Specify timeout time from the time Email is sent to the time connection with SMTP server is established.
(*4) Up to 255 characters of 1-byte alphanumeric, full domain name with [-] and [.], or IPv4 address or IPv6 address can be accepted.
(*5) Displayed when Authentication is set to "Enable".
(*6) At least one method must be selected.
(*7) ASCII String up to 64 characters excluding [ ](Space), ["], [?], [=], [<], [>] and [#] can be accepted.
(*8) ASCII String up to 19 characters excluding [ ](Space), ["], [?], [=], [<], [>] and [#] can be accepted.
(*9) ASCII String up to 255 characters of 1-byte alphanumeric, [-], [_], [.] and [@] can be accepted.
(*10) This is priority information. If the check box is checked, X-Priority is set to 1.

Buttons

① [Apply] button

Apply the edited value and return to Configuration page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

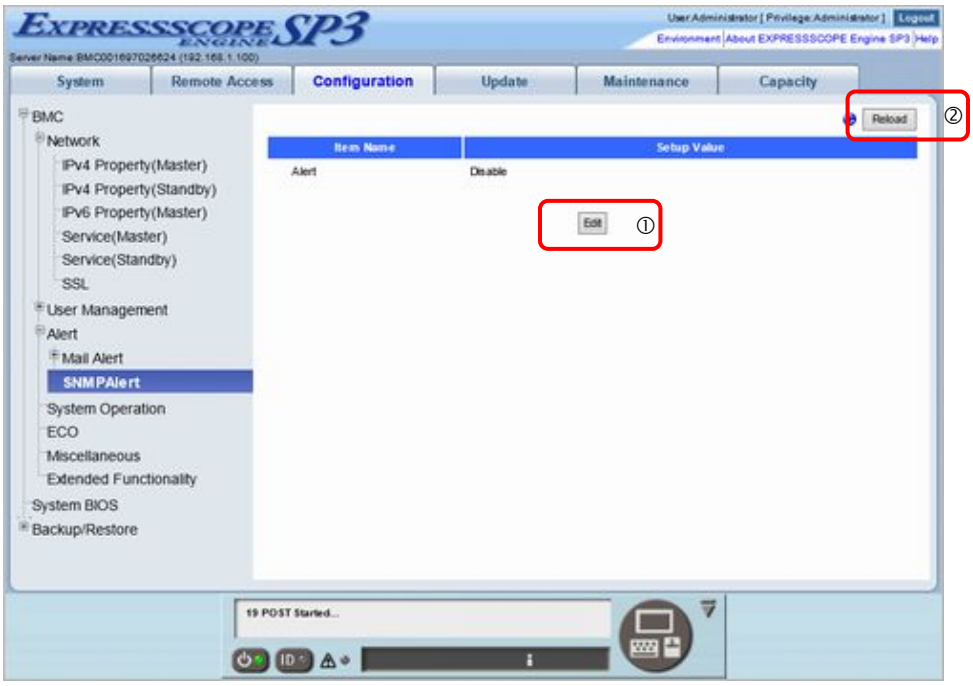
Return to Configuration page without applying the edited value.

(b) SNMP Alert

Use this page to view or edit SNMP alert from BMC. You can access this page when Alert is set to "Enable". Administrator privilege is required to modify settings.

- Click the [Configuration] tab to display available menus.
- Select [SNMP Alert] from menu tree in left pane.

Browse page when SNMP Alert is disabled



Buttons

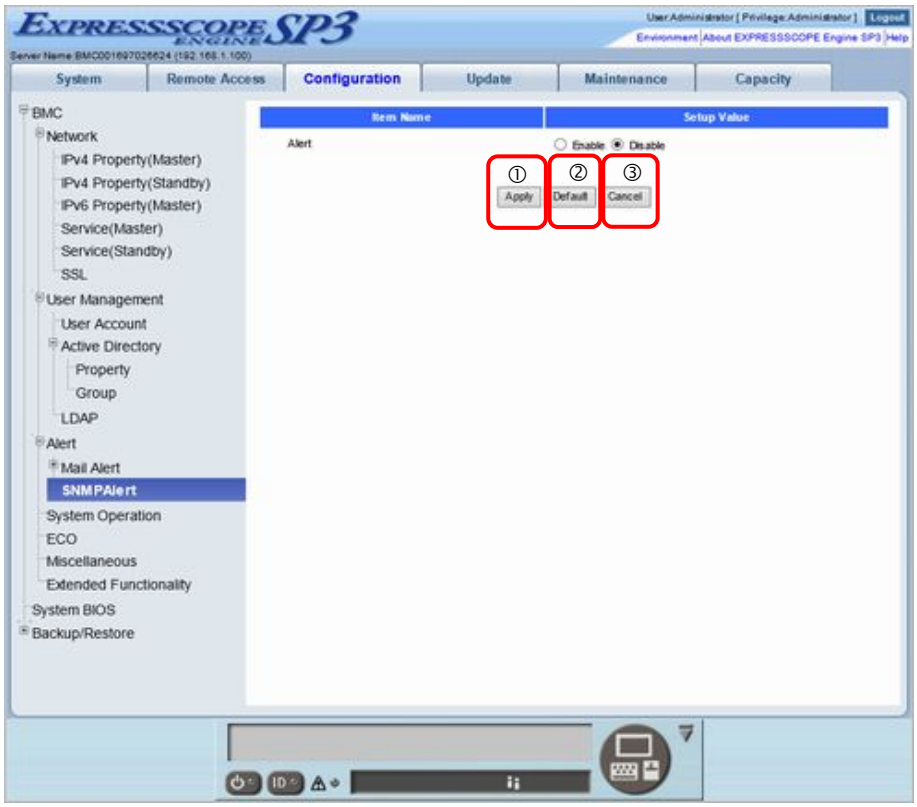
① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

Edit page when SNMP Alert is disabled



Buttons

① [Apply] button

Apply the edited value and return to List page.

② [Default] button

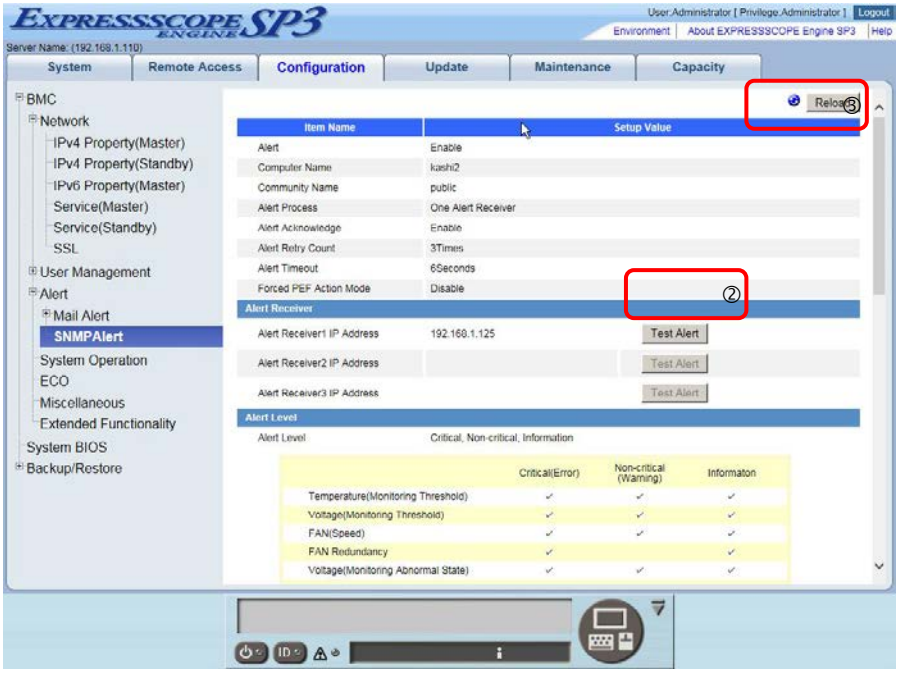
Set the factory-set value. This value is not applied unless [Apply] button is pressed.

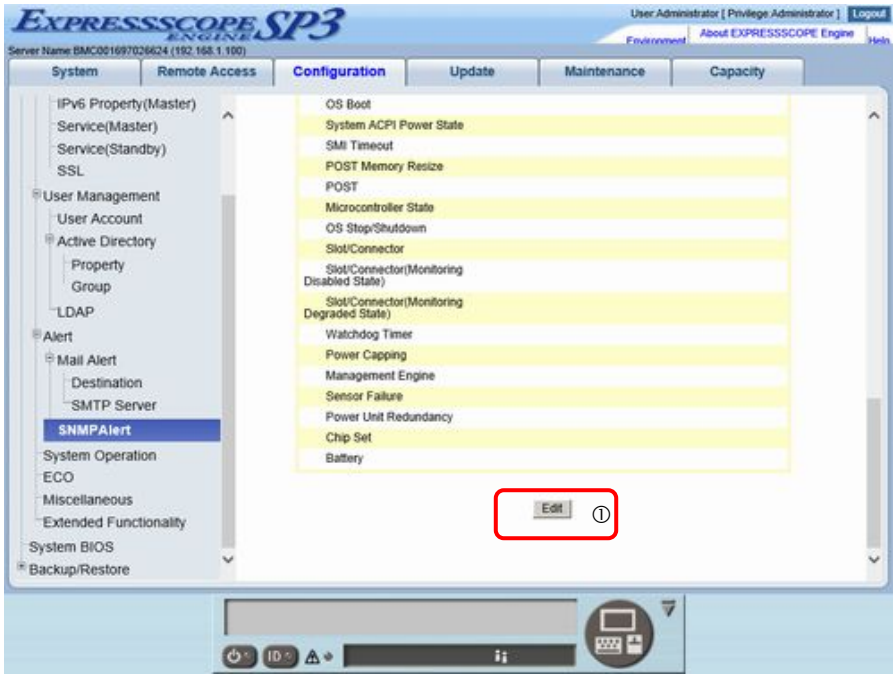
③ [Cancel] button

Return to List page without applying the edited value.

Browse page when SNMP Alert is enabled

Use this page to configure SNMP alert when SNMP Alert is enabled.





Buttons

① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Test Alert] button

Press the [Test Alert] button to send pseudo event to the specified destination.

③ [Reload] button

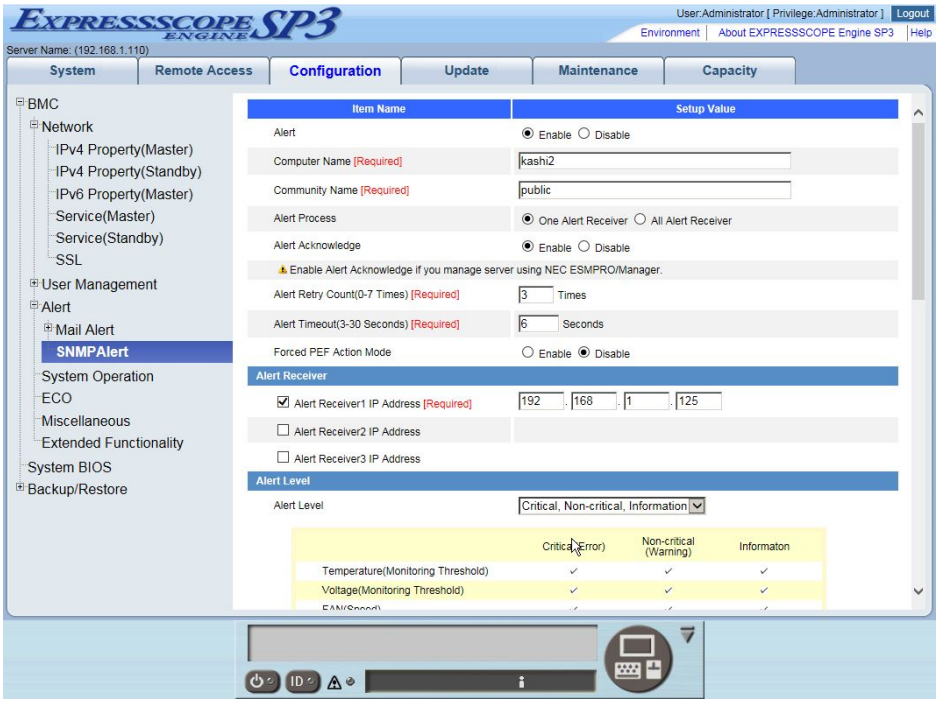
Press the [Reload] button to display the latest information.

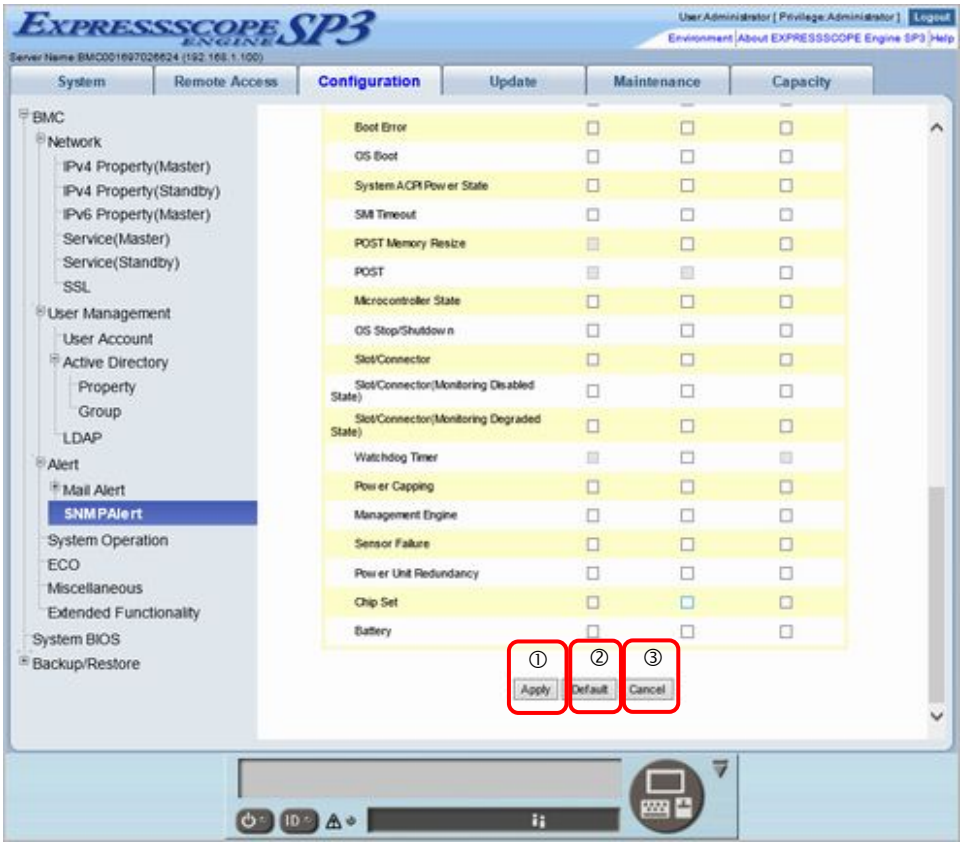
Tips If the test alert failed even once, "Failed to send test alert." dialog pops up regardless of

"Retry To" configuration.

Edit page when SNMP Alert is enabled

You can use this page to configure SNMP alert when Alert is set to "Enable".





Buttons

① [Apply] button

Apply the edited value and return to Configuration page.

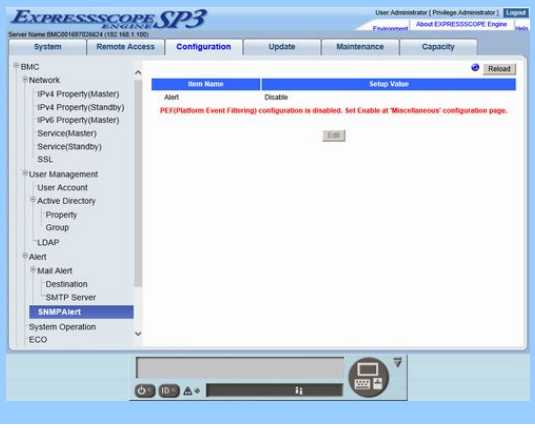
② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

Return to Configuration page without applying the edited value.

Important **If PEF (Platform Event Filtering) is disabled on [Miscellaneous] in [Configuration] tab, the display is as shown below. To change setting, select [Enable] for [PEF].**



Item name	Setup value (*1)	Default value (*2)
Alert (*3)	Enable or disable SNMP alert.	Disable
Computer Name (*4)(*5)	Specify the host name used for SNMP alert.	Blank
Community Name (*4)	Specify the community name used for SNMP alert.	public
Alert Acknowledge (*4)(*6)	Select Enable or Disable to acknowledge response from destination.	Enable
Alert Process (*4)	Specify the alert destination. One Alert Receiver All Alert Receiver	One Alert Receiver
Retry Count (*4) (*10)	Specify the number of retries to send an alert. Allowable range is between 0 and 7.	3
Timeout (sec) (*4) (*10)	Specify the timeout time to send an alert. Allowable range is between 3 and 30.	6
Forced PEF Action Mode	Select enabling or disabling of the mode that BMC send PET alerts to the designated destinations at all times regardless of the PEF action settings specified in IPMI specification. Enable/disable	Disable
Alert Receiver 1 (*4)(*7)		
IP Address	Specify the IP address of destination. (*8)	0.0.0.0
Alert Receiver 2 (*4)(*7)		
IP Address	Specify the IP address of destination. (*8)	Blank
Alert Receiver 3 (*4)(*7)		
IP Address	Specify the IP address of destination. (*8)	Blank
Alert Level (*4)		
Alert Level	Specify the type of event to be sent. Critical Critical, Non-critical Critical, Non-critical, Information Separate Setting (*9)	Critical, Non-critical

(*1) Addresses and character strings are example.
(*2) Factory-set value.
(*3) Displayed when [Configuration] → [Miscellaneous] → "PEF(Platform Event Filtering)" is set to "Enable".
(*4) Displayed when Alert is set to "Enable".
(*5) Computer name must be specified with 1-byte alphanumeric.
(*6) Set to "Enable" when NEC ESMPRO Manager is used for management.
(*7) At least one destination must be enabled.
(*8) When the [Alert Test] button is pressed, a pseudo event to the specified destination.
(*9) You can set an alert level individually for each sensor type.
(*10) If an alert notification fails with the report environment cause, a subsequent alert will be delayed while the failed alert notification transmission is retried. Maximum delay time is Retry Count x Timeout. Alert notification delay is accumulated by the environment, there is a case in which communication is delayed. Set an appropriate value in the range of delay can be allowed.

Important

- **In case host OS is VMware, set 'Forced PEF Action Mode' to Enable. Otherwise some SNMP traps may not be sent to a SNMP receiver sometimes.**

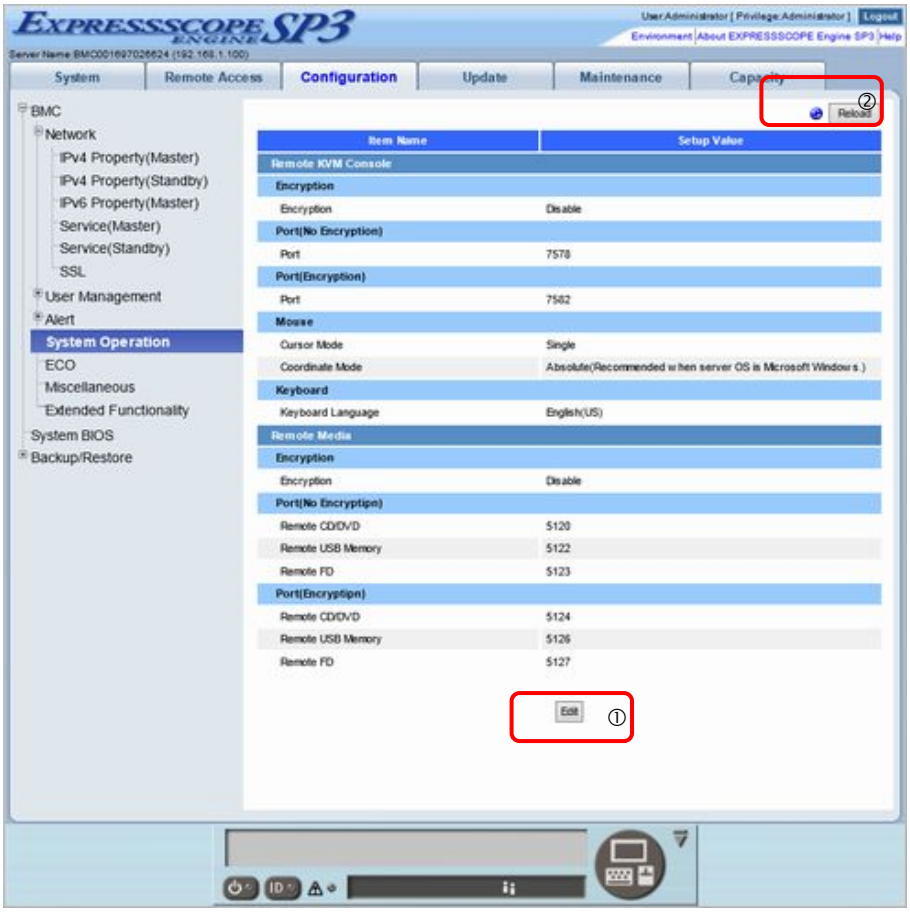
Important

- **If you would like to enable SNMP alert after the alert level setting has been changed to separate setting and then "BMC Configuration Initialization" was executed by the Off-line tool, change alert level to "Critical, Non-critical" or separate setting. Otherwise, SNMP alert enabling may fail.**

(4) System Operation

Overview

Use this page to configure Remote KVM Console and remote media. Administrator privilege is required to modify settings.



Buttons

① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Reload] button

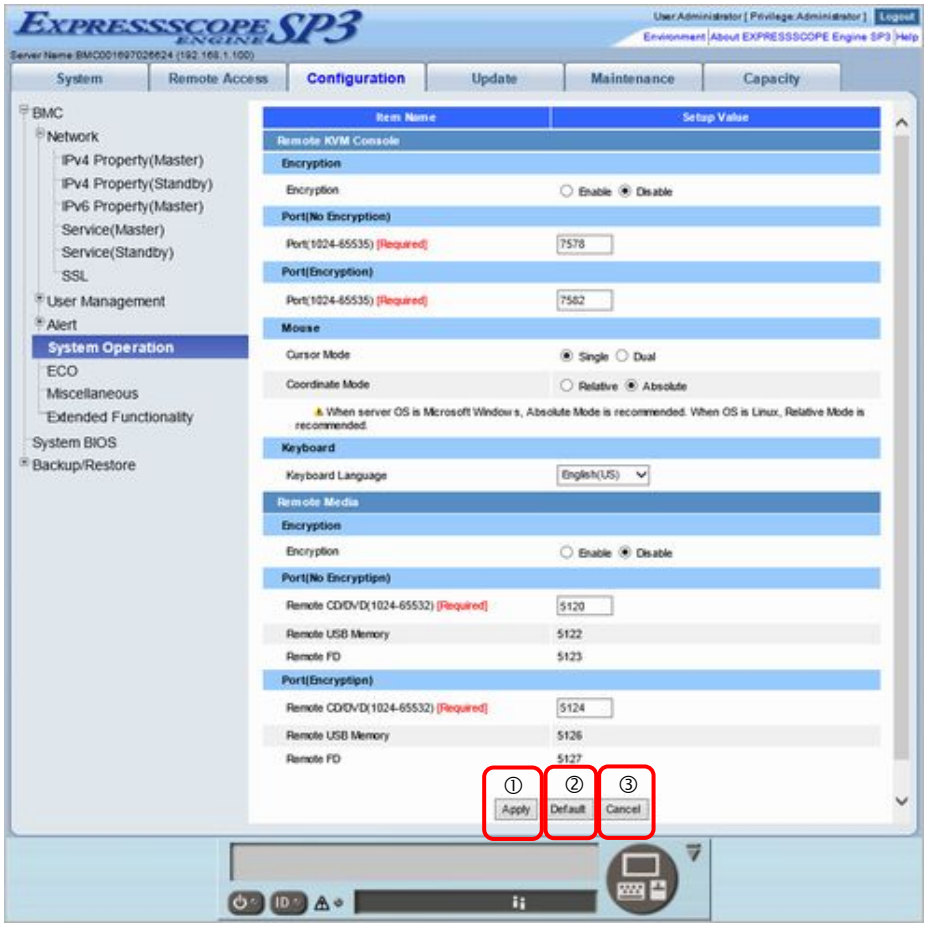
Press the [Reload] button to display the latest information.

The table below shows default setting of BMC.

Item name	Setup value	Default setting(*1)
Encryption		
Encryption	Enable or disable encryption of remote KVM communication.	Enable
Port number of remote KVM (*2)		
Port (No Encryption)	Specify port number used when encryption is disabled. 1024 to 65535	7578
Port (Encryption)	Specify port number used when encryption is enabled. 1024 to 65535	7582
Mouse		
Cursor Mode (*3)	Specify display mode of cursor. Single/Dual	Dual
Coordinate Mode (*4)	Specify operation mode of cursor. Relative/Absolute(*5)	Absolute
Keyboard (*6)		
Keyboard Language	Specify keyboard language. Japanese (JP) English (US) French (FR) German (DE)	Japanese(JP)
Remote Media		
Encryption		
Encryption	Enable or disable encryption of remote media communication.	Enable
Port (No Encryption) (*2)		
Remote CD/DVD	Specify port number. 1024 to 65532	5120
Remote USB Memory	Display port number. Port number of Remote CD/DVD + 2 is displayed.	5122
Remote FD	Specify port number. Port number of Remote CD/DVD + 3 is displayed.	5123
Port (Encryption) (*2)		
Remote CD/DVD	Specify port number. 1024 to 65532	5124
Remote USB Memory	Display port number. Port number of Remote CD/DVD + 2 is displayed.	5126
Remote FD	Display port number. Port number of Remote CD/DVD + 3 is displayed.	5127

(*1) Factory-set value.
(*2) Port number must be unique.
(*3) Select a mode to display mouse cursor on Remote KVM Console screen.
"Single": Display the cursor of the server.
"Dual": Display cursors of the server and local console.
(*4) Select a coordinate system for mouse cursor which is sent from management PC to the server.
Absolute: Sends the current absolute coordinate of mouse from coordinate (0,0) of Remote KVM Console screen.
Relative: Sends relative coordinate of mouse position before and after the movement.
(*5) If Windows OS is used on the server, Absolute mode is recommended. If Linux is used on the server, Relative mode is recommended.
(*6) Keyboard language used by OS on the server and management PC must be identical.

Edit page



Buttons

① [Apply] button

Apply the edited value and return to Configuration page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

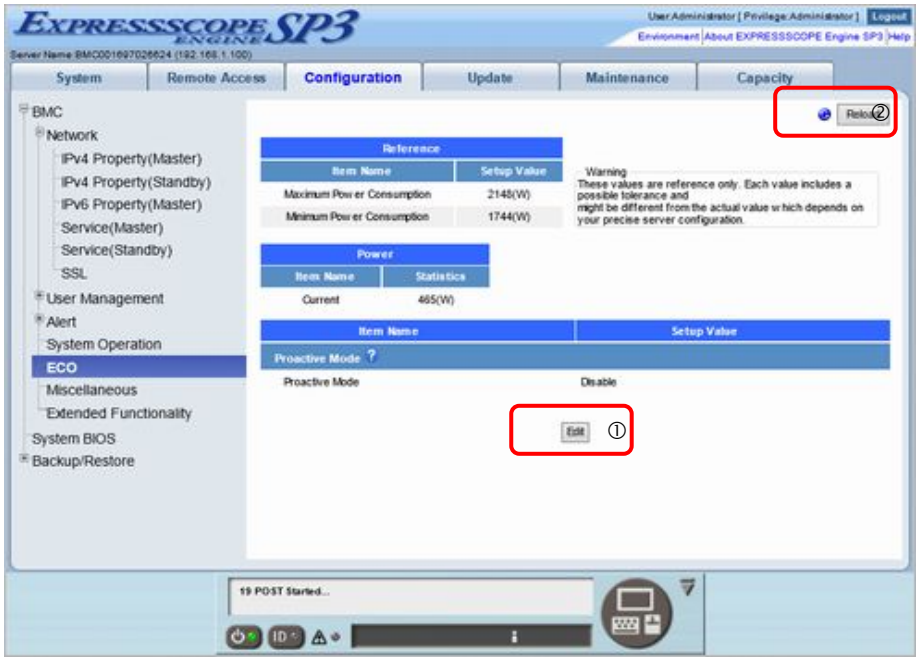
③ [Cancel] button

Return to Configuration page without applying the edited value.

(5) ECO

Overview

Use this page to view or configure power saving feature of the server. Administrator privilege is required to refer or modify settings.



Buttons

① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

Reference

The following table shows reference values of power consumption depending on configuration and running status of the managed server.

Item name	Setup value
Maximum Power Consumption (*1)	Power consumption depending on configuration and running status
Minimum Power Consumption (*1)	Power consumption depending on configuration and running status

(*1) These values are reference only. Actual value depends on your server configuration.

Power

Shows current power consumption of managed server.

Item name	Statistics
Current	Current power consumption

Proactive Mode

Use this mode to control power consumption of the server not exceeding the upper limit. In this mode, power consumption is reduced by changing CPU clock speed to lower the system performance.

Item name	Description	Setup value	Default
Proactive Mode	Enable or disable Proactive Mode.	Enable/Disable	Disable
Power Threshold (Pa)(*2)	Specify threshold value in Proactive Mode.	AAA to Maximum Power Consumption [W](*1) When Alert Mode is Enabled, AAA is the value specified in Alert Mode Power Threshold (Pn). When Alert Mode is Disable, AAA is the minimum power consumption.	Maximum Power Consumption (*1)

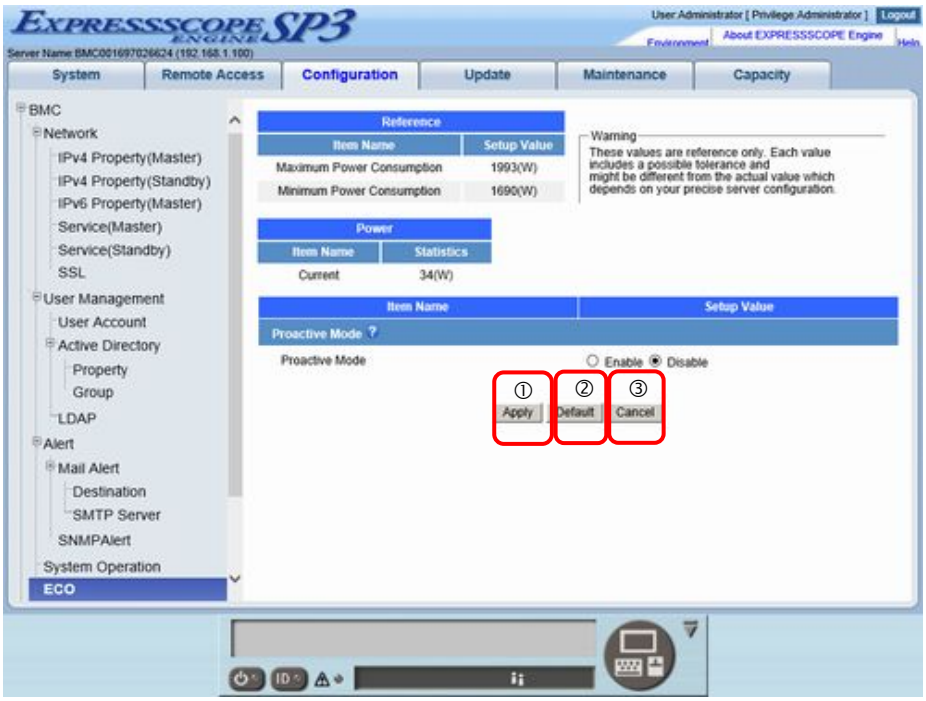
(*1) Allowable range of (Minimum Power Consumption to Maximum Power Consumption)[W] depends on server model. (The default value indicates the maximum value in allowable range.)

(*2) This item is displayed if Proactive Mode is set to “Enable”,

Important

- **If this mode is specified during OS running, it is applied immediately. If this mode is specified while the DC power is off, it is applied at the next OS bootup.**
- **Do not specify this mode during the time between DC OFF to OS startup.**
- **When the operator privilege user moves to this page, ‘Failed to access BMC.’ diag pops up, and nothing is displayed on the settings value. Administrator privilege is required to refer or modify settings.**

Edit page



Buttons

① [Apply] button

Apply the edited value and return to Configuration page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

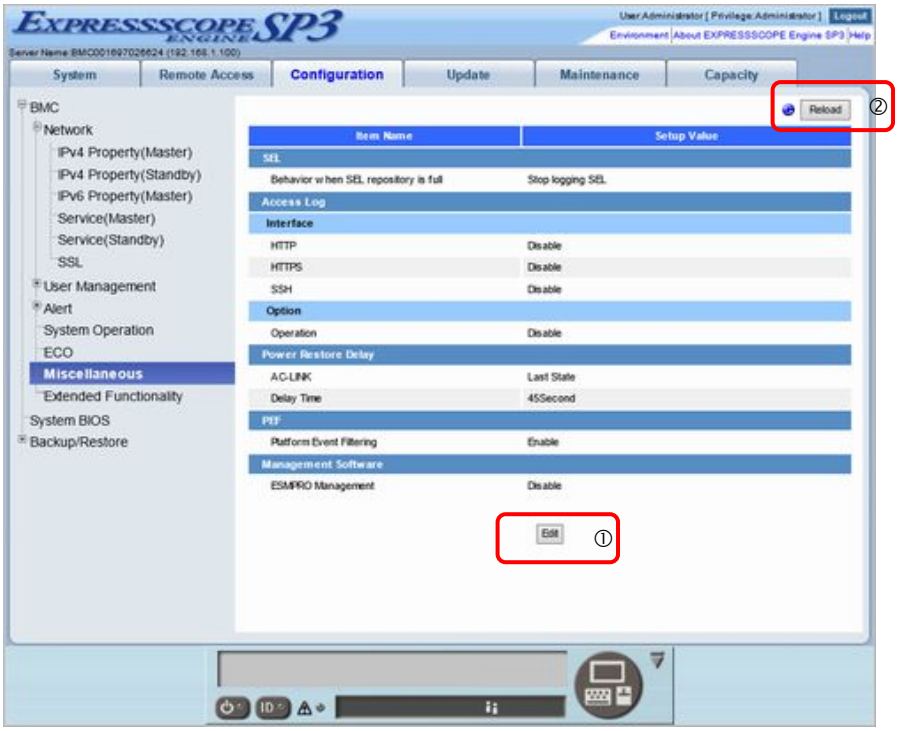
③ [Cancel] button

Return to Configuration page without applying the edited value.

(6) Miscellaneous

Overview

Use this page to provide settings for various features of BMC. Administrator privilege is required to modify settings.



Buttons

① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Reload] button

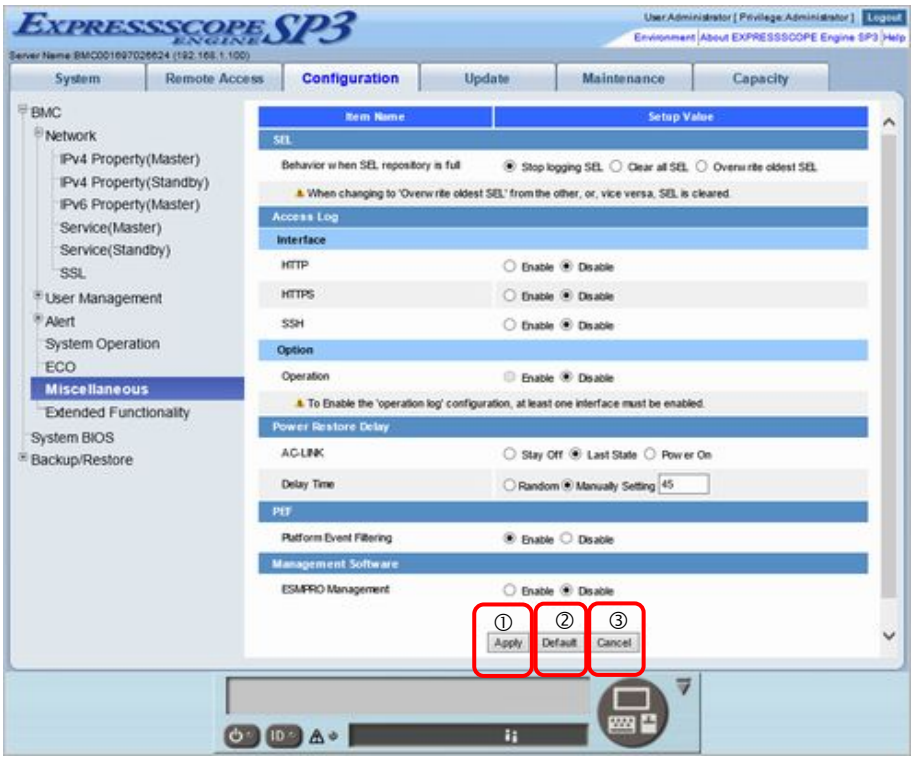
Press the [Reload] button to display the latest information.

Item name		Description	Setup value	Default setting(*1)
SEL	Behavior when SEL repository is full (*2)	Specify the logging method of new event log (SEL) when SEL repository is full.	Stop logging SEL (*3) New event is not logged when SEL repository is full. This setting can be used on the server where NEC ESMPRO ServerAgentService or NEC ESMPRO Agent is installed(Service Mode). NEC ESMPRO ServerAgentService or NEC ESMPRO Agent takes up SEL, and then clears SEL. If NEC ESMPRO ServerAgentService or NEC ESMPRO Agent is not installed, new event log cannot be collected.	Stop logging SEL
			Clear All SEL All the event logs are cleared when SEL repository becomes full.	
			Overwrite oldest SEL The oldest log is overwritten by new log when SEL repository is full.	
Access Log (*4)	Interface	Specify an event to be registered in Access Log.	Enable/Disable	Disable
	HTTP		Enable/Disable	Disable
	HTTPS		Enable/Disable	Disable
	SSH		Enable/Disable	Disable
Power Option	AC-LINK(*5)	Specify the DC power mode when AC power is on.	Stay Off Does not turn DC power on.	Last State
			Last State Restore the DC state before AC-Off.	
			Power On DC power is always turned on.	
	Delay Time (sec)(*6)	Specify the delay time from AC ON to server power on (in seconds). Setting of delay time can be changed when [Last State] or [Power On] is selected for [AC-LINK].	45 to 600 Select Random of Manual Setting to specify delay time. Manual Setting: Select this item to set delay time manually. Available values are between 45 and 600 seconds. Random: BMC sets random value in the range between 45 and 600 seconds.	45
PEF (*7)	Platform Event Filtering	Enable or disable SNMP Alert (PEF). When set to Disable, SNMP alert is not sent.	Enable/Disable	Enable

Item name		Description	Setup value	Default setting(*1)
Management Software	ESMPRO Management (*8)	Enable or disable the feature to monitor or manage the server from NEC ESMPRO Manager. If Enabled, NEC ESMPRO Manager can remotely monitor or manage the server.	Enable/Disable	Enable ※Do not change by clicking [default button].
	Authentication key (*9)	When ESMPRO Management is enabled, specify authentication key used to access BMC,	Authentication key when managed by NEC ESMPRO Manager (*10)	guest
	Redirection (LAN)(*9)	Enable or disable the feature to display Serial Over Lan (SOL) screen from NEC ESMPRO Manager.	Enable/Disable	Enable

(*1) Factory-set value.
(*2) SEL is cleared when changed from "Overwrite oldest SEL" to other setting, or from other setting to "Overwrite oldest SEL".
(*3) Use this setting when NEC ESMPRO Agent is used.
(*4) At least one interface must be enabled to configure operation log.
(*5) If "Power Save" in System BIOS is set to Enabled, this item is set to "Power On".
(*6) Not displayed when AC-Link is set to "Stay Off". Specify the delay time from AC power-on to DC power-on.
(*7) Enable or disable alert from BMC. When "Disable" is selected, SNMP alert is not sent from BMC.
(*8) Select "Enable" to let NEC ESMPRO Manager manage BMC directly.
(*9) Displayed only when "Enable" is selected for ESMPRO Management.
(*10) Up to 16 characters of 1-byte alphanumeric can be accepted.

Edit page



Buttons

① [Apply] button

Apply the edited value and return to Configuration page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

Return to Configuration page without applying the edited value.

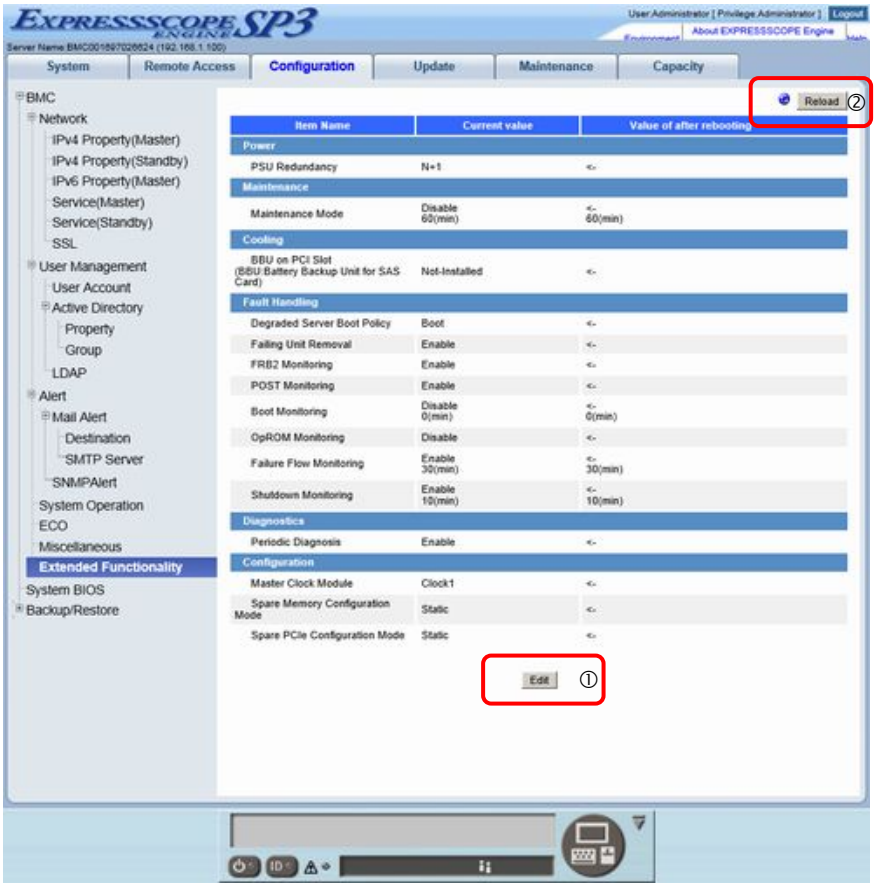
Important

- **In case host OS is VMware, set 'Platform Event Filtering' to Enable. Otherwise some SNMP traps may not be sent to a SNMP receiver sometimes.**

(7) Extended Functionality

Overview

Use this page to view or configure Extended Functionality of managed server. Administrator privilege is required to modify settings.



Buttons

① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

Setting range and default value

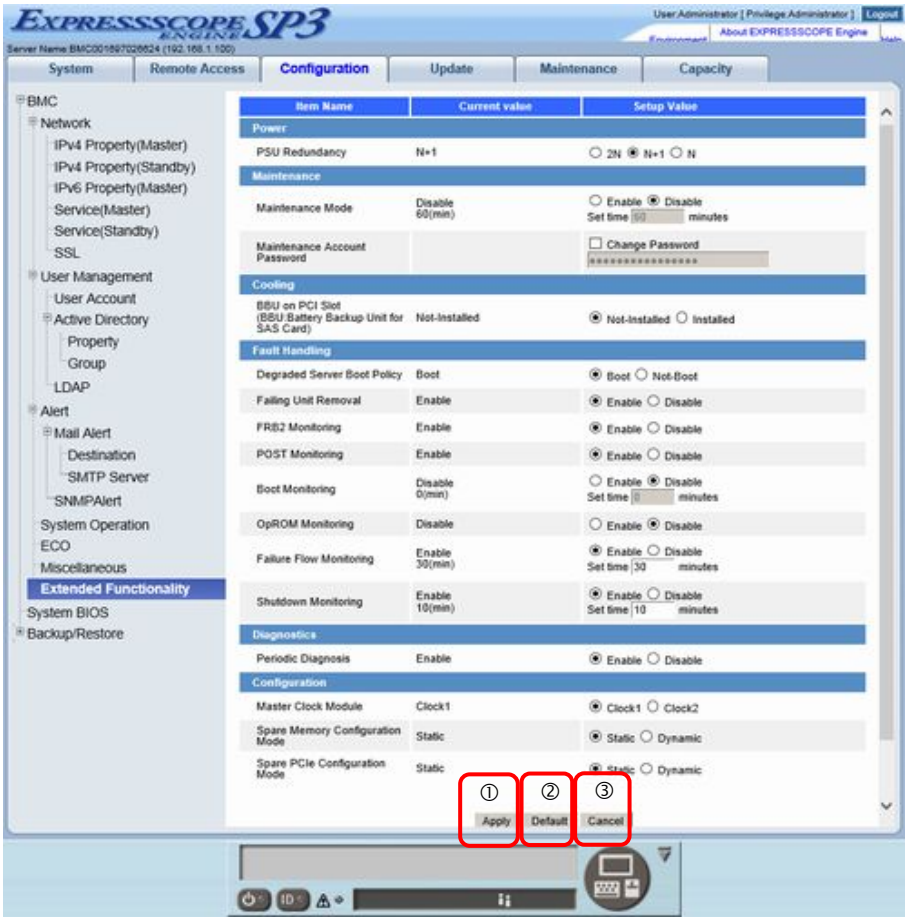
Item	Description	When applied	Default value(*1)
Power			
PSU Redundancy	Specify the redundancy of power supply unit. – 2N: Power supply system redundant mode (2N redundancy) – N+1: Power supply unit redundant mode (N+1 redundancy) – N: Non-redundant mode (N configuration)	At next boot	2N
Maintenance			
Maintenance Mode	Select whether the maintenance personnel can work with the system in this mode, and specify the time allowed for maintenance. Specify the allowed time in unit of minute, in the range between 6 and 1440). While this mode is on, the maintenance icon is displayed at upper right corner of screen, but this icon isn't displayed on the standby web console.. – Disable: Allowed time for maintenance (default): 0 minute – Enable: Allowed time for maintenance (default): 6 minutes	Immediate	Disable
Maintenance Account Password	Set password for maintenance user. (*4)	Immediate	Displayed by [*].
Cooling			
BBU on PCI Slot	Specify whether the battery backup unit is installed on PCI card for external SAS RAID. Change this parameter to "Installed" when BBU is mounted. The setting of power-saving mode of fan control is also changed according to this setting. – Not-Installed – Installed	At next boot	Not-Installed
Fault Handling			
Failing Unit Removal	Specify whether the failing component is automatically removed from the system or not. – Disable – Enable Enable: Enables automatic removing of the failing units. Disable: Disables automatic removing of the failing units.	At next boot	Enable
Degraded Server Boot Policy	Specify the boot policy when the failing component is removed from the system. When this configuration is set to "Not-Boot", please set "Failing Unit Removal" to "Enable". – Boot – Not-Boot	At next boot	Boot
FRB2 Monitoring	Enable or disable the boot monitoring feature (FRB2 phase) for the server (hardware and BIOS). If Enabled, Hard Reset is performed automatically when bootup failed. – Disable	Immediate	Enable

Item	Description	When applied	Default value(*1)
	– Enable		
POST Monitoring	Enable or disable the boot monitoring feature (POST phase) for the server (hardware and BIOS). If Enabled, Hard Reset is performed automatically when bootup failed. – Disable – Enable	Immediate	Enable
Boot Monitoring	Enable or disable the boot monitoring feature of OS. If Enabled, Hard Reset is performed automatically when bootup failed. – Disable – Enable	Immediate	Disable
	Monitoring time: 1 to 60 minutes	Immediate	1 (*3)
OpROM Monitoring	Enable or disable the boot monitoring feature (OpROM boot phase) for the server (hardware and BIOS). If Enabled, Hard Reset is performed automatically when bootup failed. – Disable – Enable	Immediate	Disable
Failure Flow Monitoring	Enable or disable the feature to monitor fault processing performed at occurrence of failure. – Disable – Enable	Immediate	Disable
	Monitoring time: 1 to 60 minutes	Immediate	30 (*3)
Shutdown Monitoring	Enable or disable monitoring feature of server shutdown. When Enabled, forcibly shuts down the server if normal shutdown fails. – Disable – Enable	Immediate	Enable
	Monitoring time: 1 to 60 minutes	Immediate	10 (*3)
BMC Failover Boot Policy	Specify server boot policy when the secondary BMC(BMC#2) is promoted to the master. -Boot -Not-Boot	At DC OFF: Immediate	Boot
Diagnostics(*2)			
Periodic Diagnosis(*2)	Enable or disable periodic diagnosis for spare hardware component. – Disable – Enable	Immediate	Enable
Configuration			
Master Clock Module (*2)	Specify whether the master clock is assigned to Primary CLK (the youngest number) or Secondary CLK. – Clock1 – Clock2	At DC OFF: Immediate Other than DC OFF: At next boot	Clock1
Spare Memory Configuration Mode (*2)	Select Static or Dynamic for mode to configure memory. – Static – Dynamic	At next boot	Static
Spare PCIe Configuration Mode(*2)	Select Static or Dynamic for mode to configure PCIe card. (*1) – Static – Dynamic	At next boot	Static

(*1) Factory-set value.
(*2) Displayed only when selectable depending on server model. This feature is supported on Express5800 A2040c/A2020c/A2010c model only.
(*3) If changed from Disable to Enable, Monitoring time returns to the default value.
If you want to change the setting value of Shutdown Monitoring after clicking default button, you need to choose the 'Enable' after having chosen the 'Disable'.(*4) ASCII characters excluding [(space)], ["], [&], [?], [=], [\](backslash), and [#] can be accepted. Character string must be in the range between 1 and 19 characters.

Important **This product does not support 'Spare Memory Configuration Mode' though you can change it.**

Edit page



Buttons

① [Apply] button

Apply the edited value and return to Configuration page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

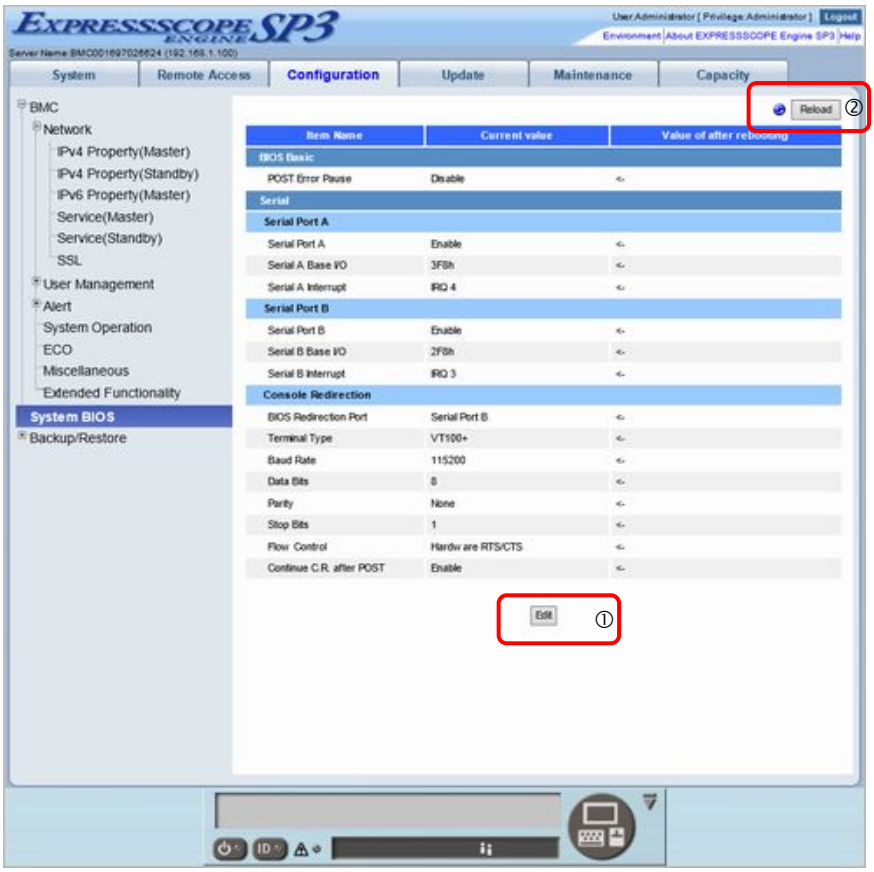
Return to Configuration page without applying the edited value.

Tips [Maintenance Mode] is used by maintenance personnel only. [Maintenance Account Password] is required for Maintenance account. The user need not set or change these items.

7.7.2 SystemBIOS

Overview

Use this page to view or configure System BIOS of the managed server. A part of BIOS SETUP menu can be configured on this page. Administrator privilege is required to modify settings.



Buttons

① [Edit] button

Press the [Edit] button to modify the setup value of each item.

② [Reload] button

Press the [Reload] button to display the latest information.

Item name	Allowable value	Default setting(*1)
BIOS Basic		
POST Error Pause	Enable/Disable	Disable
Serial Port A		
Serial Port A	Enable/Disable	Enable
Serial A Base I/O	2E8h 2F8h 3E8h 3F8h	3F8h
Serial A Interrupt	IRQ 3 IRQ 4	IRQ 4
Serial Port B		
Serial Port B	Enable/Disable	Enable
Serial B Base I/O	2E8h 2F8h 3E8h 3F8h	2F8h
Serial B Interrupt	IRQ 3 IRQ 4	IRQ 3
Console Redirection		
BIOS Redirection Port	Disabled Serial Port A Serial Port B	Serial Port B
Terminal Type	VT100+ VT-UTF8 PC-ANSI	VT100+
Baud Rate	9600 19200 57600 115200	115200
Data Bits	7 8	8
Parity	None Even Odd	None
Stop Bits	1 2	1
Flow Control	None Hardware RTS/CTS	Hardware RTS/CTS
Continue C.R. after POST	Enable/Disable	Enable

(*1) Factory-set value.

Tips

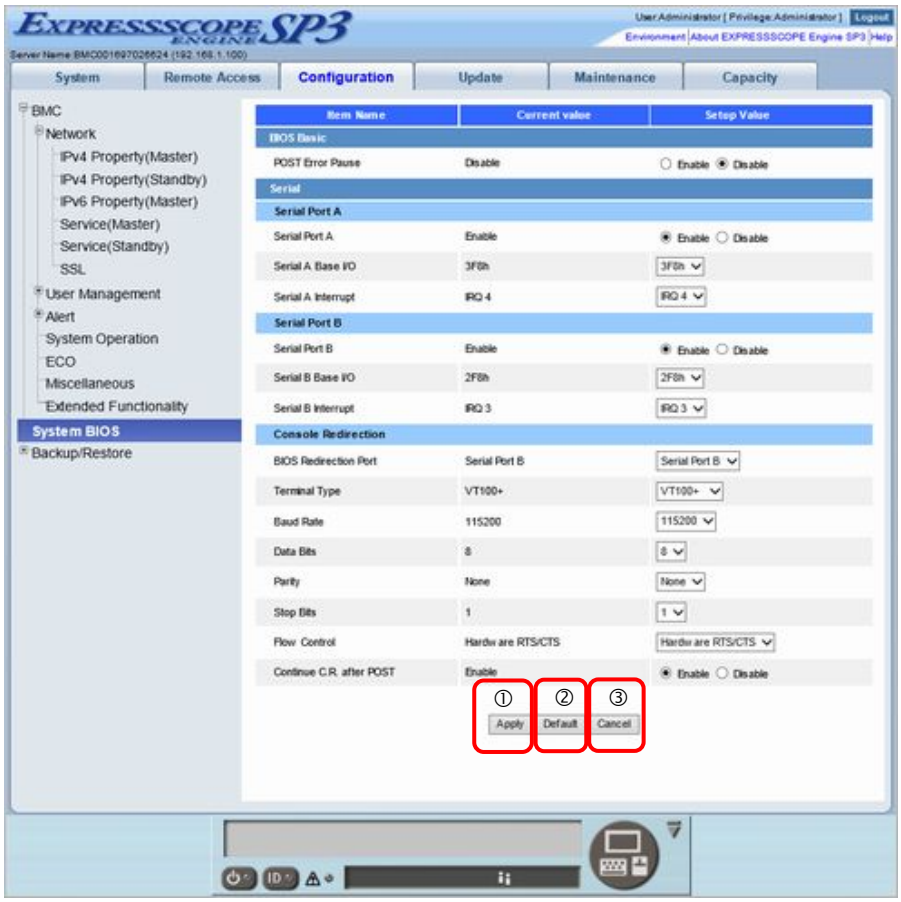
For details of available parameters, see Chapter 2 (1. System BIOS) in Maintenance Guide.

Important

The followings features are described in the HELP page(System BIOS section) on the Web console, but this model does not support these features.

- **Memory Error**
- **CLI SETUP**
- **Power Save**

Edit page



Buttons

① [Apply] button

Apply the edited value and return to Configuration page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

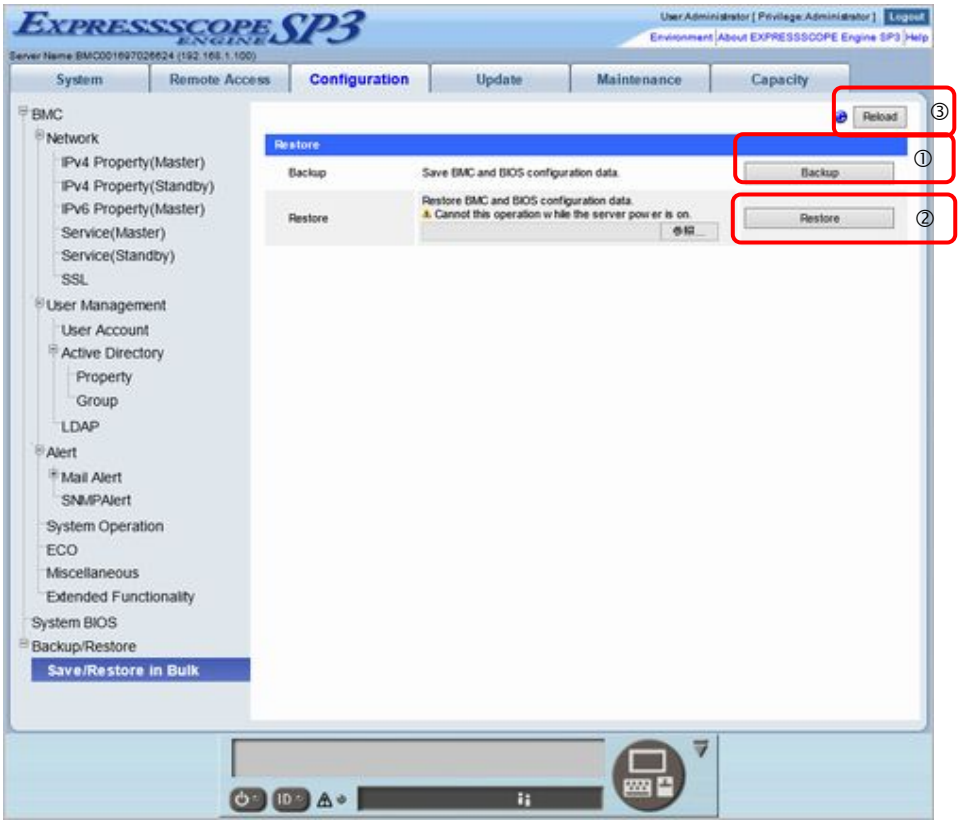
Return to Configuration page without applying the edited value.

7.7.3 Backup/Restore

Overview

You can save (backup) the setup items in [Configuration] tab of web console, or restore them using Backup / Restore feature. Administrator privilege is required to use this feature.

Select [Configuration] tab, and select [Backup / Restore] - [Save/Restore in Bulk] from menu tree in left pane to display operation screen.



Buttons

① [Backup] button

Press the [Backup] button to collect backup information and generate backup file. When backup file is generated, a dialog box to specify save destination appears. Specify save destination and file name, and press the [OK] button.

② [Restore] button

Press the [Restore] button to restore the contents of backup file. Press the [Browse] button and select a backup file you want to restore from the dialog box. You cannot restore the data from backup file that was generated on the other machine.

③ [Reload] button

Press the [Reload] button to display the latest information.

Backup/Restore

The following items and internal information can be backed up or restored. For details of each item, see section 7.7 Configuration.

Type	Item
Backup	Network
	SSL (*1)
	User Management (*2)
	Alert
	System Operation
	ECO
	Miscellaneous
	Extended Functionality
	System BIOS
	Internal information
Restore	Network
	SSL(*1)
	User Management (*2)
	Alert
	System Operation
	ECO
	Miscellaneous
	Extended Functionality
	System BIOS
	Internal information

(*1) Includes SSL server certificate.
(*2) Includes SSH public key.

Important **After pressing [Backup] button, a dialog box appears to specify save destination and file name, and then press [OK] button to save the file.**
If you press [OK] button when it has passed for more than 5 minutes after a dialog box was appeared, 'Failed to get file.' dialog pops up, and then you press [OK] button, 'Your session was expired. Please login again.' dialog pops up. When you press [OK] button, you return to the login page. In this case, the file has not been saved. You need to login and operate again to save the file.

Important **The backup or restore data has configuration information as for the System BIOS. When you have lost the backup file, you need to change the settings as for System BIOS in web console and the BIOS-set-up-utility(SETUP).**

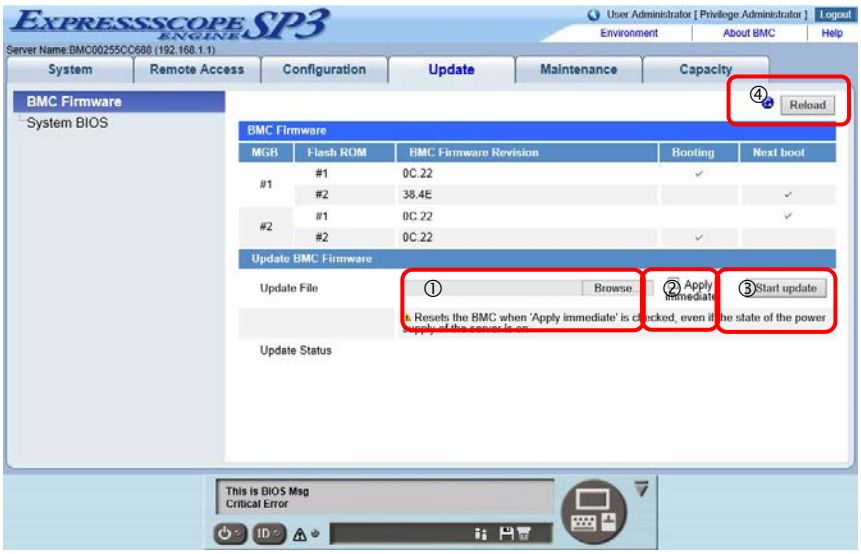
7.8 Update

7.8.1 BMC Firmware

Use this page to update BMC firmware. Administrator privilege is required to update the firmware.

Tips

- With A2040c/A02020c/A2010c model, BMCs are duplicated. Thus, up to two BMC revisions are displayed on this page.
- With any other model, only one BMC revision is displayed.



Tips

- The file extension of binary module for firmware update is [.ima].
- The downloaded system BMC firmware update module (Windows/Linux) is zip format file. Unzip the file, and open the Readme file to check if its firmware version is appropriate to that of BMC of the server. Update image file of BMC has a file extension [.ima].

MGB*1	Flash ROM*2	BMC Firmware Revision *3	Booting *4	Next boot *5
#1	#1	0C.22		✓
	#2	38.4E	✓	
#2	#1	0C.22		✓
	#2	38.4E	✓	

*1: Indicates BMC number.
*2: Flash ROM area of each BMC is divided into two banks. This indicates the bank number.
*3: Indicates BMC version installed in each bank of BMC.
*4: Indicates whether the bank is running with a checkmark [✓].
*5: Indicates the bank to be booted at next bootup with a checkmark [✓].

Update procedure

1. Press the [Browse] button to select an image file used for update.
2. Pressing the [Start Update] button starts update.
3. You can check the progress of update by viewing message displayed on Update Status field. When update completes, "Update completed" is displayed.

Important

- **If update is performed while the DC power is off, BMC is reset 60 seconds later and restarted with new firmware regardless of the checkmark on "Apply immediate" check box.**
- **If update is performed while the DC power is on, BMC is reset automatically at next power-off of server, and restarts with the new firmware.**
- **Clear the cache of the Web browser after the update completed.**

Buttons

① [Browse] button

Press the [Browse] button to select an image file used for update.

② [Apply immediate]

When the server is in power-off state, or server is in power-on state and [Apply immediate] is being checked, BMC is reset automatically 60 seconds after completion of update.

After completion of update, 'Automatic logout will run after X (X=10-1) seconds' dialog pops up. Secondary to Automatic logout, BMC is reset in approximately 50 seconds, and then the connection with BMC will close.

③ [Start update] button

Press the [Start update] button to start update.

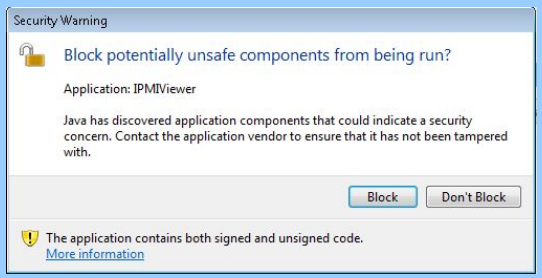
④ [Reload] button

Press the [Reload] button to display the latest information.

Important

The Security Warning of Java as shown below may appear when update is started. In this case, be sure to select [Don't Block]. If you select [Block], update will fail.

To hide popup message as shown below, select [Control Panel] → [Java] → [Advanced] → [Mixed Code (sandbox vs. trusted) security verification], and check to [Enable - hide warning and run with protections].



Important

If 'Failed to access BMC. Check your network and login again, please.' dialog pops up after starting BMCFW update, press [OK] button to continue this operation.
If you press [OK] button when it has passed for more than 5 minutes after a dialog box was appeared, 'Failed to xxx' dialog pops up (The indication of xxx is different depending on the processing operation.), and then you press [OK] button, 'Your session was expired. Please login again.' dialog pops up.
When you press [OK] button, you return to the login page. In this case, the file has not been saved. You need to login and operate again.

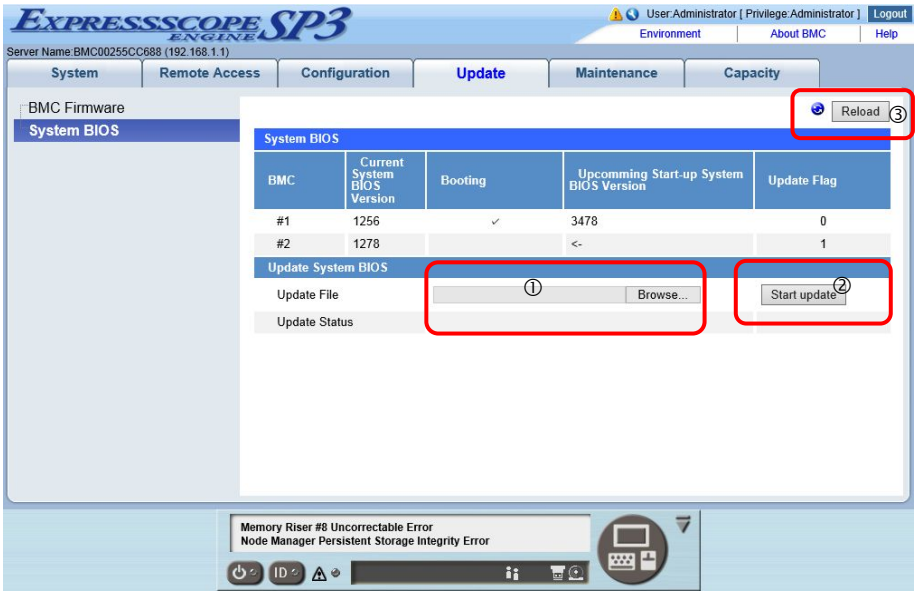
7.8.2 System BIOS

You can update System BIOS of managed server through BMC.

Administrator privilege is required to update System BIOS.

Tips

- With A2040c/A02020c/A2010c model, BMCs are duplicated. Thus, up to two BMC revisions are displayed on this page.
- With any other model, only one BMC revision is displayed.



Tips

- The file extention of binary module for firmware update is [.ima].
- The downloaded system BMC firmware update module (Windows/Linux) is zip format file. Unzip the file, and open the Readme file to check if its BIOS version is appropriate to that of BIOS of the server. If the selected file is inappropriate to the server, update process terminates abnormally at the next POST execution. Name of update image file of BIOS is [BiosUpdt.dat].

BMC*1	Current System BIOS version *2	Running *3	System BIOS version used at next time *4	Update flag *5
#1	5.6.0015	✓	5.6.0020	1
#2	5.6.0015		5.6.0020	0

*1: Indicates the corresponding BMC number.
*2: Indicates BIOS version currently running.
*3: A checkmark [✓] is displayed on BMC corresponding to running BIOS.
*4: Indicates BIOS version to be applied at next boot.
"←" in Upcoming Startup System BIOS Version field indicates the same version as current one.
If version information is unknown, "-" is displayed.
*5: Indicates presence of BIOS to be applied at restart of the server. If this flag is "1", it indicates there is a BIOS to be updated, "0" indicates no BIOS is to be updated.

Update procedure (Express5800/A1040c model)

1. Press the [Browse] button to select an image file used for update.
2. Pressing the [Start Update] button starts update.

3. You can check the progress of update by viewing message displayed on Update Status field. When update completes, "Update completed" is displayed. At this time, update flag changes from 0 to 1. In addition, the system BIOS version to be applied at next startup is indicated in this field.
4. Power on the server or reset the server is the server is already powered on to launch system BIOS.
5. System BIOS updates itself.
6. The server automatically restarts. When server is restarted, the update flag changes from 1 to 0.

Important

- **The new System BIOS is applied at next startup of managed server.**
- **When system BIOS is successfully updated, the update flag changes from 0 to 1. (If "1" is indicated for the update flag, system BIOS itself does not perform update process, and new BIOS is not yet applied.) When turning on the server (or restarting the server if server has already been powered-on) to start BIOS, the BIOS starts update itself and, when completed, restarts server automatically. When update of BIOS itself successfully completed and the server has restarted, the update flag changes from 1 to 0.**
- **If system BIOS update is performed (started) again while the server is powered on and "1" is indicated for the update flag, an error message indicating that update has failed. In such a case, turn on the server (or restart the server if server has already been powered on) to let system BIOS update itself. When it completes, perform system BIOS update process again.**
- **If system BIOS update fails, select [Security] → [Remote KM and VMedia] on BIOS Setup utility, and enable this parameter. See Chapter 2 (1.2.3 Security) in Maintenance Guide for details.**
- **When "Failed to update. Retry update again after 240 seconds." is displayed on the update status, please do not let the screen change until 240 seconds pass from the update start. Because the message of the update status disappears when 240 seconds pass, please repeat the update procedure again. There is no problem even if the message of the update status disappeared. Please repeat the update procedure after progress for 240 seconds.**

Buttons

① [Browse] button

Press the [Browse] button to select an image file used for update.

② [Start update] button

Press the [Start update] button to start update.

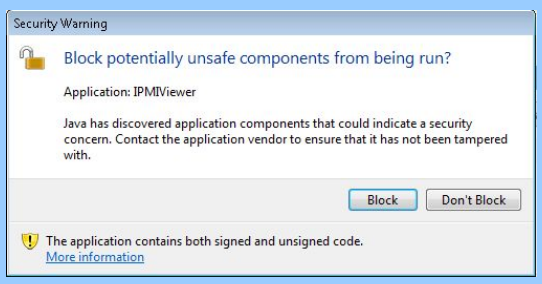
③ [Reload] button

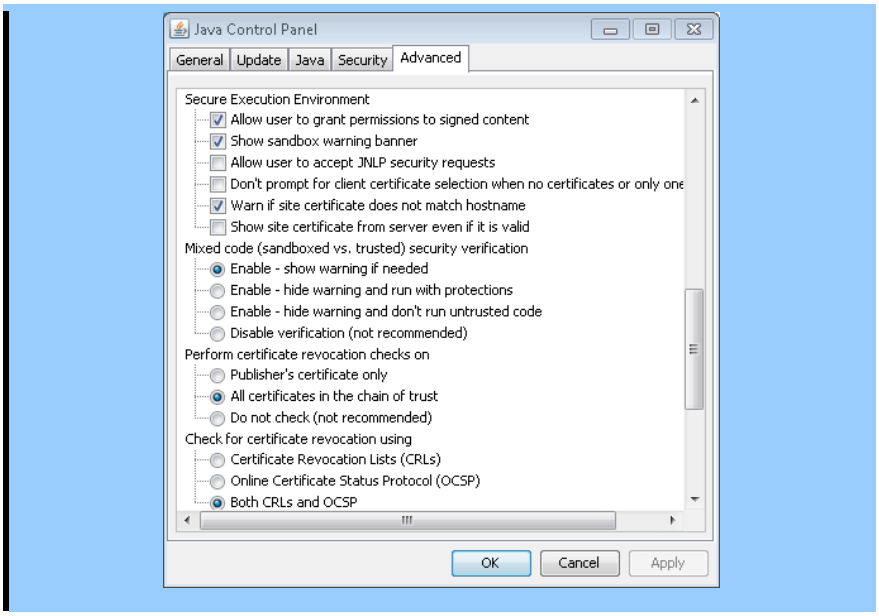
Press the [Reload] button to display the latest information.

Important

The Security Warning of Java as shown below may appear when update is started. In this case, be sure to select [Don't Block]. If you select [Block], update will fail.

To hide popup message as shown below, select [Control Panel] → [Java] → [Advanced] → [Mixed Code (sandbox vs. trusted) security verification], and check to [Enable - hide warning and run with protections].




Java Control Panel
General
Update
Java
Security
Advanced
Secure Execution Environment
Allow user to grant permissions to signed content
Show sandbox warning banner
Allow user to accept JNLP security requests
Don't prompt for client certificate selection when no certificates or only one
Warn if site certificate does not match hostname
Show site certificate from server even if it is valid
Mixed code (sandboxed vs. trusted) security verification
Enable - show warning if needed
Enable - hide warning and run with protections
Enable - hide warning and don't run untrusted code
Disable verification (not recommended)
Perform certificate revocation checks on
Publisher's certificate only
All certificates in the chain of trust
Do not check (not recommended)
Check for certificate revocation using
Certificate Revocation Lists (CRLs)
Online Certificate Status Protocol (OCSP)
Both CRLs and OCSP
OK
Cancel
Apply

7.9 Maintenance

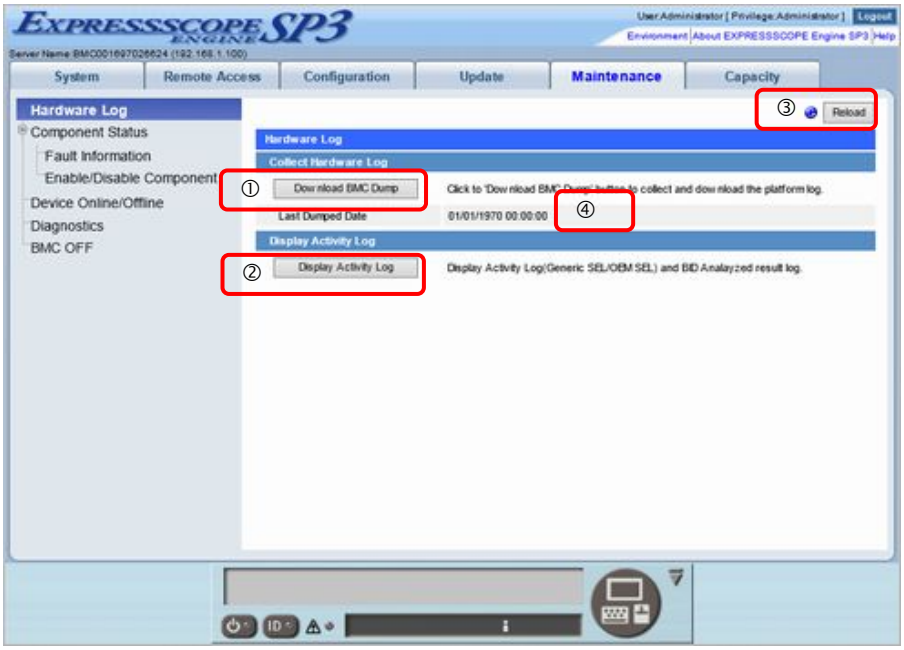
7.9.1 Hardware Log

Overview

Use this page to collect hardware log in the server and view Activity logs.

Administrator privilege is required to collect or clear the hardware log.

- Click the [Maintenance] tab to display available menus.
- Select [Hardware Log] from menu tree in left pane.



Buttons

① Download BMC Dump button

Press the [Download BMC Dump] button to execute BMC Dump (collection of hardware logs and internal logs of BMC), and download the log file.

② Dispaly Activity Log button

Press the [Display Activity Log] button to display list of Activity Logs. Activity Log contains OEM SEL and Generic SEL (defined in IPMI specification).

③ [Reload] button

Press the [Reload] button to display the latest information.

④ Status display

When the [Download BMC Dump] button is pressed, the log collection status is displayed on this area.

(1) Collect Hardware Log

Press the [Download BMC Dump] button.

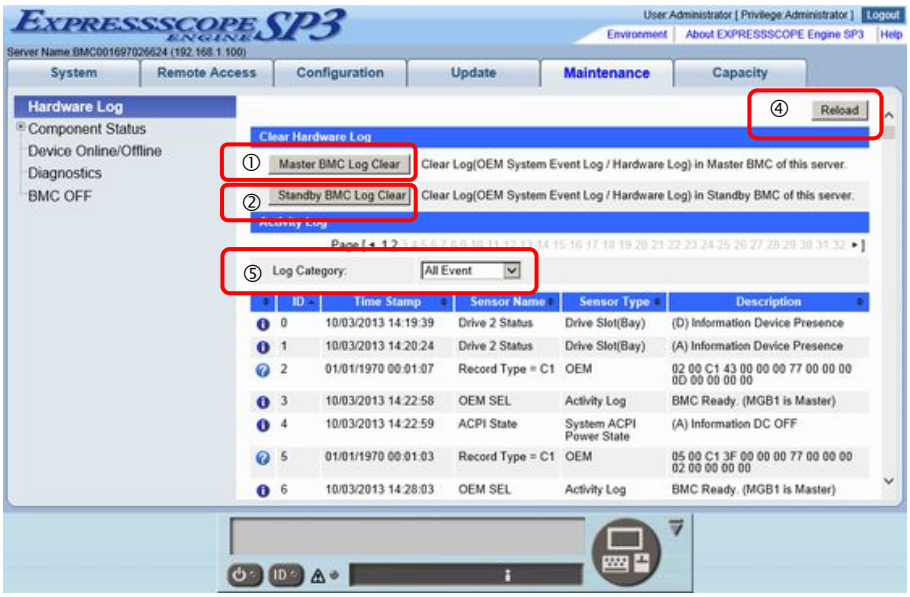
It takes approximately 3 minutes to complete log collection.

When hardware logs have been collected, a popup message "Hardware logs are collected" is displayed. When you press the [OK] button, a popup message whether you want to open the file or save the file. Select [Save] to save the downloaded hardware logs in remote terminal.

(2) Display Activity Log

Press the [Display Activity Log] button to display list of Activity Logs.

If the Activity Logs spreads over several pages, select a desired page. Also, you can filter the display logs by selecting [Log Category].



Buttons

① [Master BMC Log Clear] button

Press the [Master BMC Log Clear] button to clear ActivityLog and SEL (System Event Log) information of master BMC.

② [Standby BMC Log Clear] button

Press the [Standby BMC Log Clear] button to clear ActivityLog and SEL (System Event Log) information of standby BMC.

③ [BID] button

Press the [BID] button to display BID analysis result.

④ [Reload] button

Press the [Reload] button to display the latest information.

⑤ Log Category

Filter the events by specifying category to show the relevant events only. The following category types can be specified.

- All Event: Displays all the events.
- Threshold: Displays only events related to threshold sensors.
- Discrete Event: Displays only events related to discrete sensors.
- OEM: Displays events classified in OEM records and OEM SEL such as hardware logs.

Activity Log contains the following items:

Item	Description
(Blank)	Shows severity of event by an icon.
Event ID	Shows Event ID of log.
Time Stamp	Shows time when an event occurred.
Sensor Name	Shows sensor name.
Sensor Type	Shows sensor type.
Description	Shows contents of event. If BID button appears, press the BID button to acquire and display BID log.

	(A) and (D) show the direction of the event. (A): Assertion Event (B): Deassertion Event

Icons indicating severity of event

Icon	Severity
	Normal operation or Information event
	Warning level (Non Critical event)
	Fatal level (Critical/Non-Recoverable event)
	Unknown event

Important **Last collected date of hardware log and TimeStamp of Activity Log show the BMC time, and they are synchronized with RTC of host OS regularly. BMC time may be Universal Coordinated Time (UTC) depending on OS type or configuration.**

Important **If you are using Internet Explorer (IE) 7, it may take about 30 seconds to show and sort all the logs (16000 logs). If you are using Internet Explorer 8 or later, all the logs are shown within 5 seconds.**

Important **After pressing [Download BMC Dump] button, 'Succeeded to collect Hardware Log.' dialog pops up if it is successful. Press [OK] button to save the file.**
If you press [OK] button when it has passed for more than 5 minutes after a dialog box was appeared, 'Failed to get file.' dialog pops up, and then you press [OK] button, 'Your session was expired. Please login again.' dialog pops up. When you press [OK] button, you return to the login page. In this case, the file has not been saved. You need to login and operate again to save the file.

7.9.2 Component Status

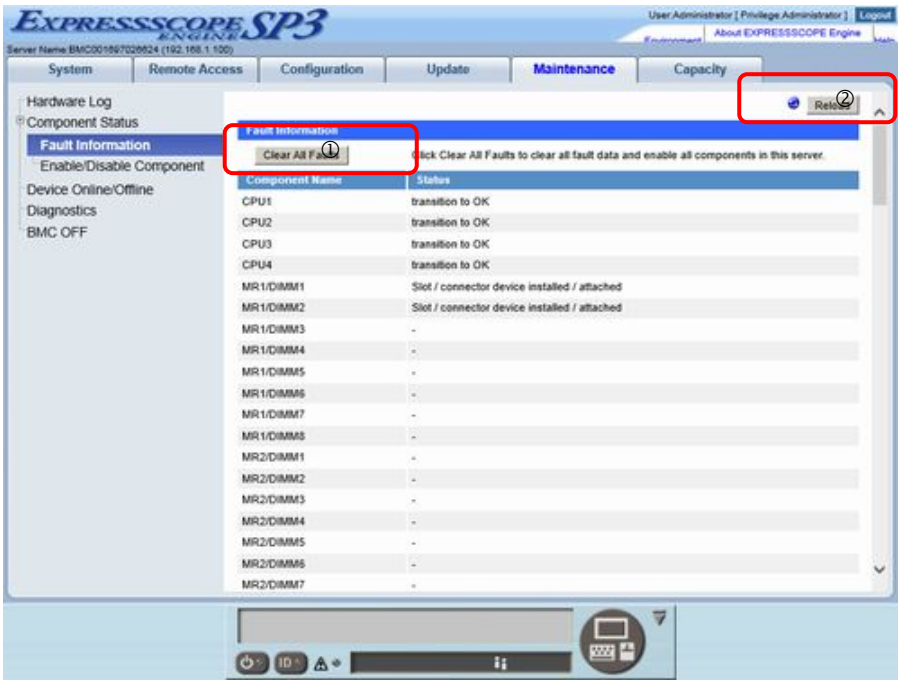
(1) Fault Information

Overview

Use this page to view status of hardware components belonging to the server, or clear fault information.

Administrator privilege is required to clear the fault information.

- Click the [Maintenance] tab to display available menus.
- Select [Fault Information] from menu tree in left pane.



Buttons

① [Clear All Faults] button

Press the [Clear All Faults] button to clear fault status of hardware component and change status to normal value. Administrator privilege is required to use this feature.

② [Reload] button

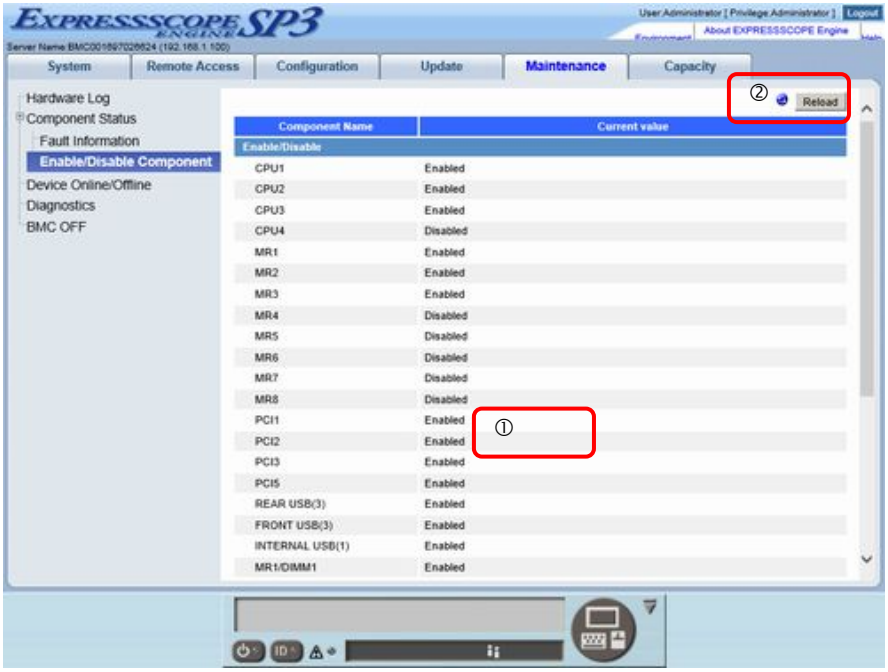
Press the [Reload] button to display the latest information.

Important **If fault information on management board #1 is cleared by Clear All Faults while the master BMC is running on management board #2, a failover occurs. At this time, communication between master and standby BMC is disconnected. So the care must be taken.**

(2) Enable/Disable Component

Use this page to confirm the status (Disable/Enable) of specific component that belongs to server, and change its status. Administrator privilege is required to modify settings.

- Click the [Maintenance] tab to display available menus.
- Select [Enable/Disable Component] from menu tree in left pane.



Buttons

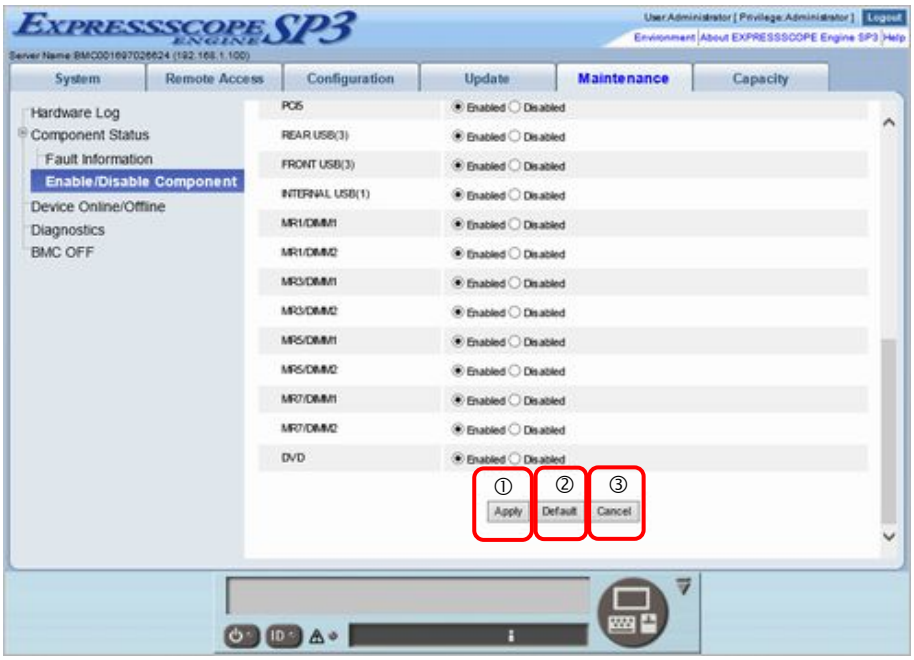
① [Edit] button

Press the [Edit] button to modify the setup value of each item. Administrator or Operator privilege is required to use this feature.

② [Reload] button

Press the [Reload] button to display the latest information.

Edit page



Change status (Enable/Disable) of the specific component that belongs to server.

Component Name	Current value	Default setting
CPU	Enable/Disable	Enabled
MR	Enable/Disable	Enabled
PCI[*1]	Enable/Disable	Enabled
DVD	Enable/Disable	Enabled
DIMM	Enable/Disable	Enabled
REAR USB	Enable/Disable	Enabled
FRONT USB	Enable/Disable	Enabled
INTERNAL USB	Enable/Disable	Enabled

[*1] Unless the VMware is used, this feature is supported on Express5800 A2040c/A2020c/A2010c model only.

Buttons

① [Apply] button

Apply the edited value and return to List page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

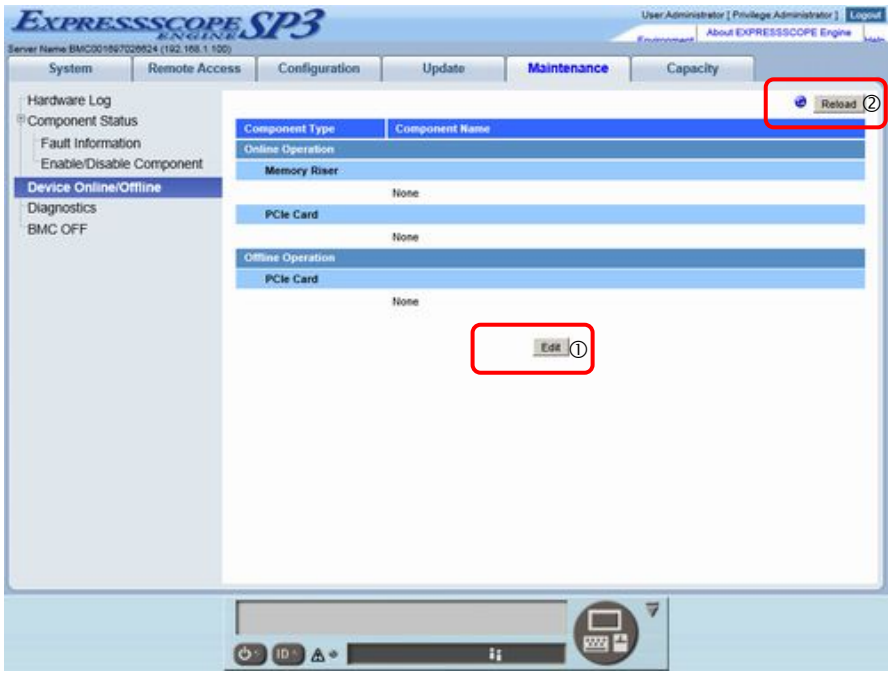
Return to List page without applying the edited value.

7.9.3 Device Online/Offline

Overview

Use this page to connect the spare hardware component (MR (Memory Riser) and PCIe card) in offline state to running OS dynamically. Or, disconnect the component (PCIe card) from the running OS dynamically. Administrator privilege is required to use this feature.

- Click the [Maintenance] tab to display available menus.
- Select [Device Online/Offline] from menu tree in left pane.



Buttons

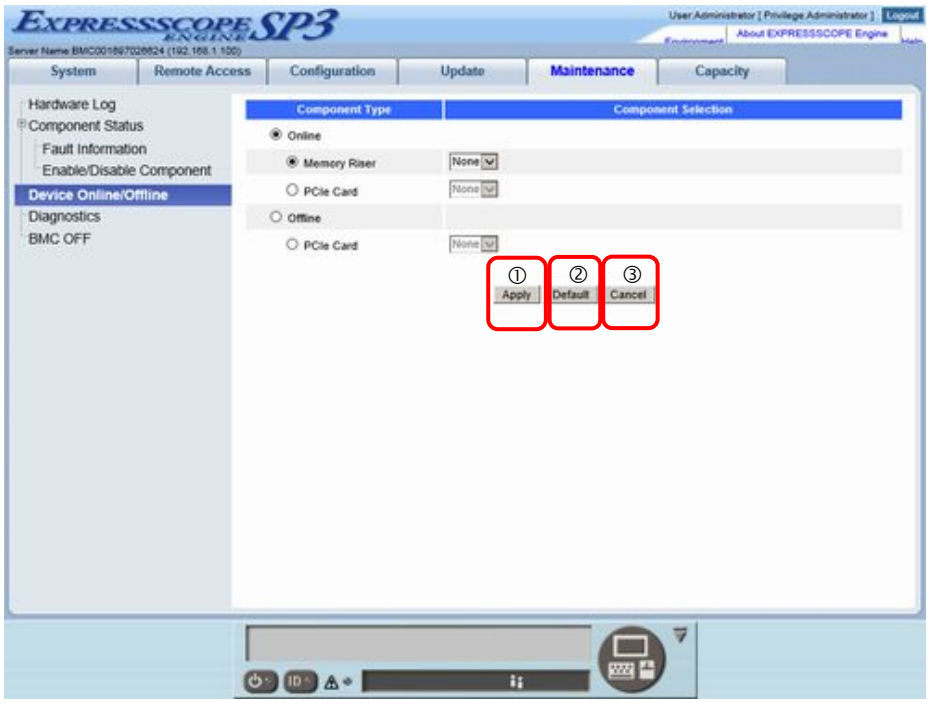
① [Edit] button

Press the [Edit] button to edit each item.

② [Reload] button

Press the [Reload] button to display the latest information.

Edit page



The components selectable in Component Type and Component Selection fields are shown below. To perform Online operation, check to [Online]. To perform Offline operation, check to [Offline].

For Online operation, you can select MR or PCIe card in Component Type field. The target component can be selected from Component Selection list.

Component Type	Component Name (*1)	Default setting(*2)
Online Operation		
Memory Riser	1 to 8(*1)	1(*1)(*3)
PCIe Card	1 to 16(*1)	1(*1)
Offline Operation		
PCIe Card	1 to 16(*1)	1(*1)

(*1) Only the selectable components are displayed.
(*2) Factory-set value.
(*3) If you press the [Default] button, "Online - Memory Riser" is selected.

Tips

"None" is displayed in [Component Selection] list if no spare hardware component is available.

Important

- **The operations must be performed only while the server is powered on.**
- **MR or PCIe card must be inserted into the relevant slot before performing Online operation.**
- **Before performing Online/Offline operation of PCIe card, select [Configuration] tab and click [Extended Functionality] in menu tree to check if "Dynamic" is selected for "Spare PCIe Configuration Mode". If not, change it [Dynamic].**
- **MR Online requires the installations of the dedicated software. Before performing MR online, the target MR and the total capacity of DIMMs on the MR must be specified by the software. Refer to "MR Hot-Add User's Guide" on http://www.58support.nec.co.jp/global/download/index.html.**
- **Before performing Online/Offline operation of MR, select [Configuration] tab and click [Extended Functionality] in menu tree to check if "Dynamic" is selected for "Spare Memory Configuration Mode". If not, change it [Dynamic].**

Buttons

① [Apply] button

Apply the edited value and return to List page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

Return to List page without applying the edited value.

Important **The Online/Offline operation must be performed only while the server is running.**

The Online/Offline operation cannot be performed while another Online/Offline operation is being performed. Wait until it completes.

Tips This feature is supported on Express5800 A2040c/A2020c/A2010c model only.

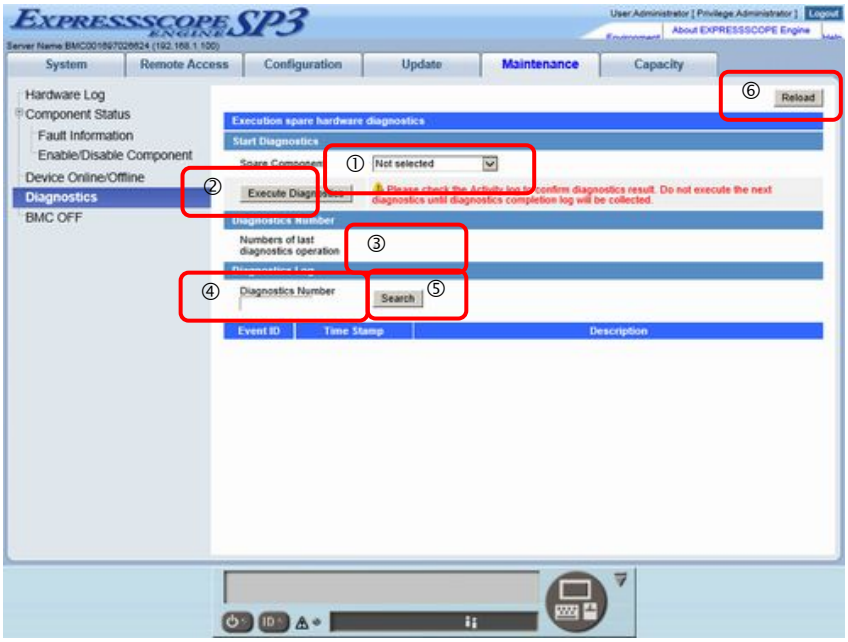
Important **This product does not support the MR Online/Offline functionality.**

7.9.4 Diagnostics

Overview

Use this page to diagnose spare hardware component (not yet incorporated into the running OS). Administrator privilege is required to use this feature.

- Click the [Maintenance] tab to display available menus.
- Select [Diagnostics] from menu tree in left pane.



Buttons

① [Spare Component]

Select a spare hardware component to diagnose. The diagnosis can be performed on the following components:

- Not Selected: No component is selected by default setting
- MR(x): The specified MR(x=1 to 8) is diagnosed.
- PCI(y): The specified PCI PCI (y=1 to 16) is diagnosed.
- CPUs: All of the spare CPU cores are diagnosed.
- PCIs: All of the spare PCIe cards are diagnosed.
- All Spare Components: All of the spare components are diagnosed.

Important

- **Diagnostic of MR requires the installations of the dedicated software.**
- **Refer to "MR Hot-Add User's Guide" on http://www.58support.nec.co.jp/global/download/index.html.**

② [Execute Diagnostics] button

Pressing the [Execute Diagnostics] button starts diagnosis on spare component specified in [Spare Component]. Administrator or Operator privilege is required to use this feature.

③ [Diagnostics Number]

Shows Diagnostic Number executed last.

④ [Diagnostics Log]

Enter the Diagnostics Number you want to search.

⑤ [Search] button

Displays list of diagnostic logs. Enter the Diagnostics Number then press the [Search] button displays the relevant diagnostics logs.

⑥ [Reload] button

Press the [Reload] button to display the latest information.

Diagnostics Log

The following information is displayed in diagnostics log.

Event ID: Shows Event ID of diagnostics log.

Time Stamp: Shows the time when an event occurred.

Description: Shows contents of an event.

Important **The operations must be performed only while the server is powered on.**

Tips This feature is supported on Express5800 A2040c/A2020c/A2010c model only.

Important **The operator privilege users can click button for running diagnostics. But diagnostics is not running actually, and you cannot click button coutinuoully because button is disabled. Administrator privilege is required to use this feature.**

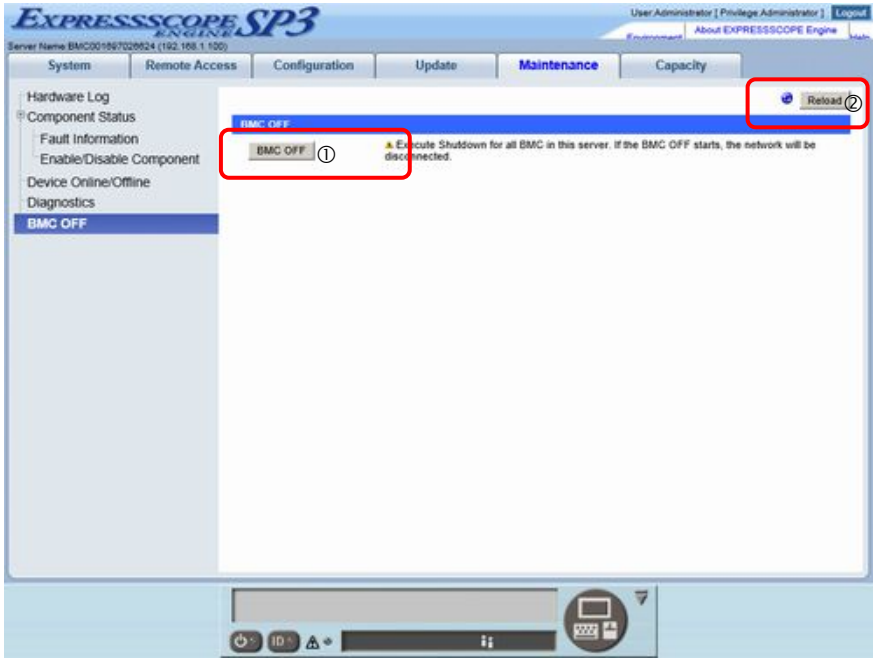
Important **This product does not support MR diagnosis functionality.**

7.9.5 BMC OFF

Overview

Use this page to turn off (shutdown) BMC. This operation is performed to replace BMC board safely. Administrator privilege is required to use this feature.

- Click the [Maintenance] tab to display available menus.
- Select [BMC OFF] from menu tree in left pane.



Buttons

① [BMC OFF] button

Press the [BMC OFF] button to shutdown BMC so that BMC board can be replaced safely.

② [Reload] button

Press the [Reload] button to display the latest information.

Important

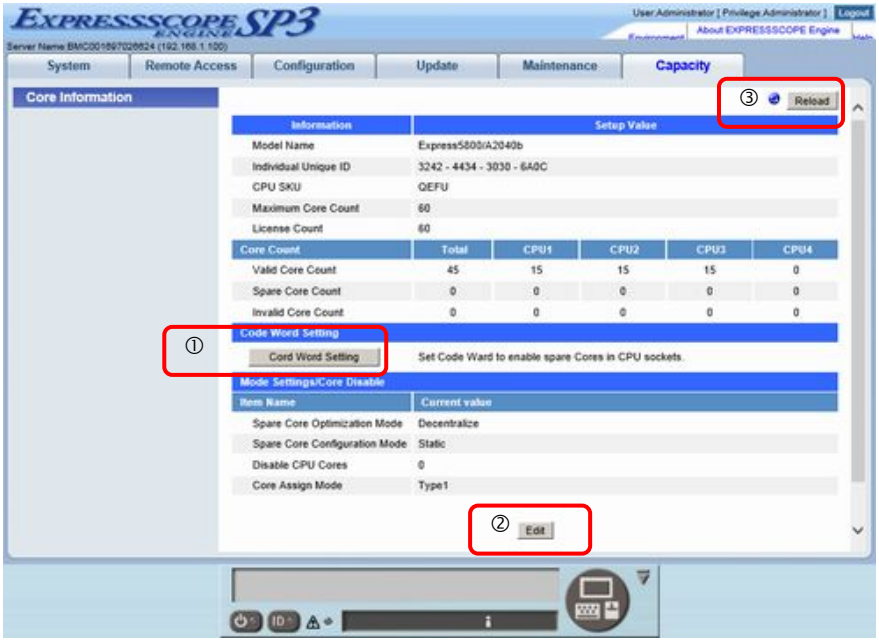
- **This operation must be performed only while the server is powered off**
- **Wait for 30 seconds till all status LEDs of all MGBs go out.**

7.10 Capacity

Overview

Use this page to view information about cores in the server, and specify the number of cores to be used in the system. Administrator privilege is required to refer or modify the settings.

- Click the [Capacity] tab to display available menus.
- Select [Core Information] from menu tree in left pane.



Buttons

① [Code Word Setting] button (A2040c COPT model only)

Press the [Code Word Setting] button to enter codeword (license).

② [Edit] button

Press the [Edit] button to modify the setup value of each item.

③ [Reload] button

Press the [Reload] button to display the latest information.

Important **When the operator privilege user moves to this page, 'Failed to access BMC.' dialog pops up, some information are not displayed. Administrator privilege is required to refer the Core Count and system information.**

Information

Shows server information.

Model Name: Shows model name of managed server.

Individual Unique ID: Shows chassis serial number of managed server.

CPU SKU: Shows SKU number of processor installed in the server.

Maximum Core Count: Shows CPU SKU information of managed server.

License Count: Shows total number of available processor cores on managed server. This items is displayed on A2040c COPT model only.

Core Count

Shows number of enabled cores, spare cores, and disabled cores for each processor installed on managed server.

Valid Core Count: Shows number of enabled cores used for managed server. If the server is in halt state, this field shows the number of enabled cores at previous bootup.

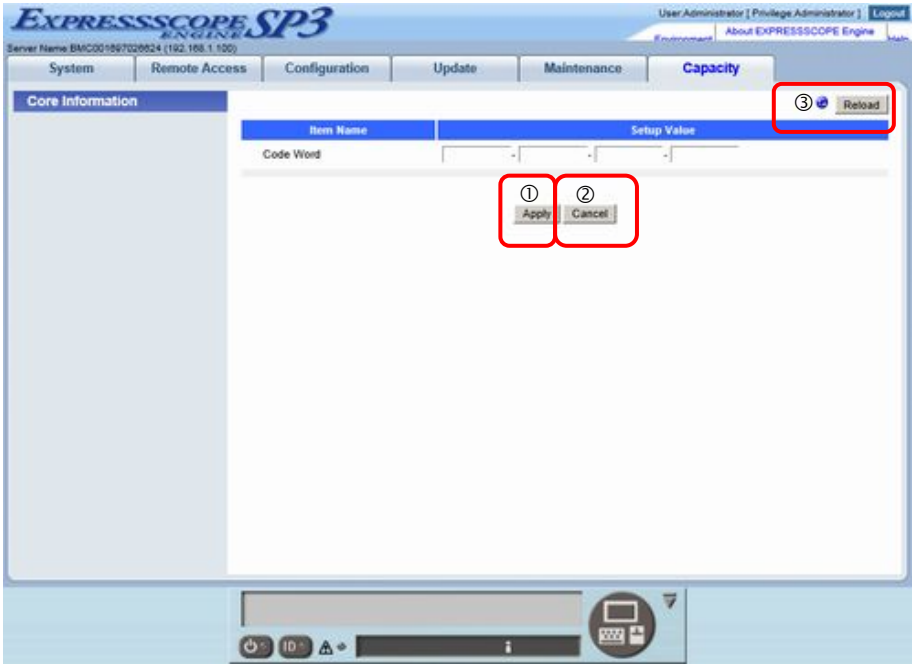
Spare Core Count: Shows number of spare cores (not yet enabled).

Invalid Core Count: Shows number of cores disabled due to failure.

Administrator privilege is required to refer information.

Code Word Setting (A2040c COPT model only)

Use this page to enter codeword used for enabling the spare core. The disabled cores can be enabled by this operation. The core is enabled according to Core Assign Mode, at the timing specified in Core Configuration Mode. Administrator privilege is required to use this feature.



Buttons

① [Apply] button

Apply the entered codeword and return to List page.

② [Cancel] button

Return to List page without applying the entered codeword.

③ [Reload] button

Press the [Reload] button to display the latest information.

Important

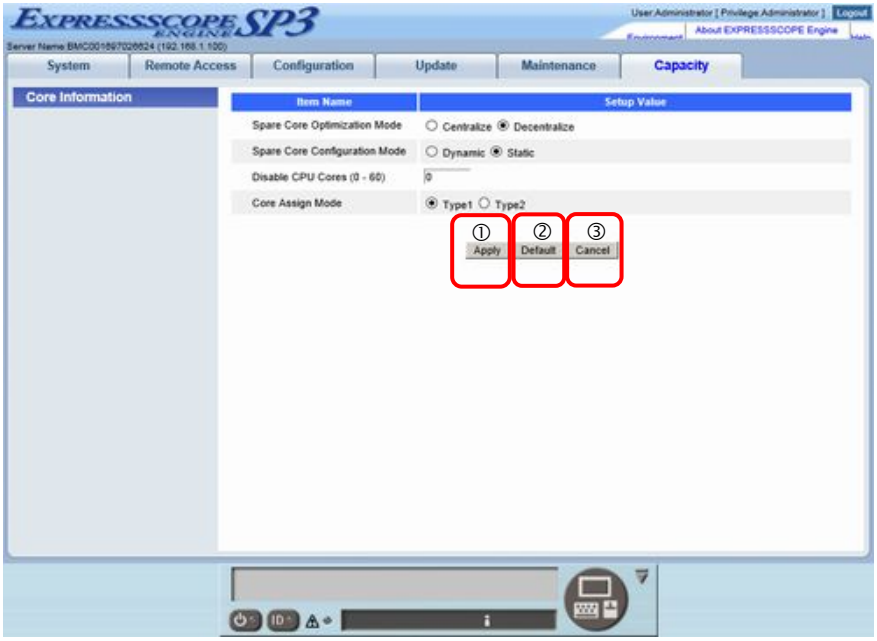
- **This setting is supported only on A2040c model, and not supported on any other model.**
- **Refer to "Express5800/A2040c Capacity Optimization (COPT) User's Guide" for details of operation procedure.**

Tips

The indication on this page differs depending on server model. If you are using Internet Explorer 8 as a browser and copy & paste the text on the page, information of other models may be displayed.

Mode Setting/Core Disable page

Use this page to select a mode and specify the number of cores to be disabled. Administrator privilege is required to use this feature.



Item name	Current value	Default setting
Spare Core Optimization Mode	Specify the mode to assign cores. Centralize: Cores are enabled on each socket intensively. Accordingly, the number of enabled cores may deviated in each core. Decentralize: Enabled cores are distributed to each socket.	Decentralize
Spare Core Configuration Mode	Specify the configuration mode for spare core. Dynamic: Cores are enabled (codeword is set) while the OS is running. Static: Cores are enabled while the OS is not running.	Static
Disable CPU Cores	Specify the number of cores to be disabled. Allowable value: 0 to maximum number of cores The maximum number of cores depends on server model.	0
Core Assign Mode	Specify whether cores are assigned equally to each CPU sockets. Type1: Does not assign equally. Type2: Assigns equally.	Type1

Important

With A1040c , A2010c and A2020c models, [Disable CPU Cores], [Spare Core Optimization Mode], and [Spare Core Configuration Mode] in Mode Setting/Core Disable page are not supported.

Buttons

① [Apply] button

Apply the edited value and return to Configuration page.

② [Default] button

Set the factory-set value. This value is not applied unless [Apply] button is pressed.

③ [Cancel] button

Return to Configuration page without applying the edited value.

Important **When using VMware, be sure to specify Type2 for [Core Assign Mode]. Otherwise, VMware will fail to recognize core count correctly, thus it may fail operate correctly.**

7.11 Standby web console

You can connect with the web console of standby BMC by using IP address of standby BMC. The default IP address of standby BMC is "92.168.1.101: 5080". If you access the IP address "192.168.1.101(:80)", you will be connected to web console of master BMC. Use the same user account and password as those used to login the web console of master BMC. Secure Mode is not supported at login.

Only the [Maintenance] tab can be selected on web console of standby BMC to perform failover operation.

Tips

Connecting to web console of standby BMC is supported on Express5800 A2040c/A2020c/A2010c model only.

Important

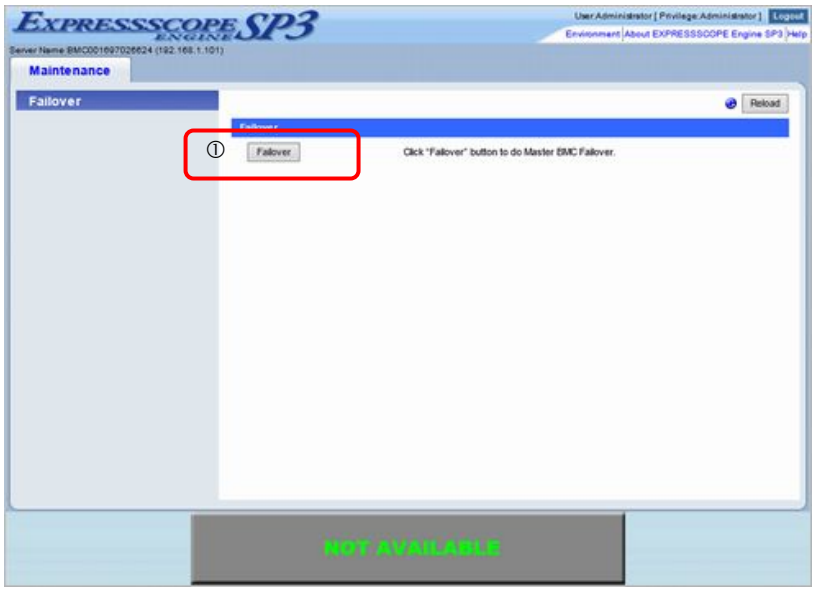
- **You cannot use ActiveDirectory and LDAP authentication to login the web console of standby BMC.**
- **Operations on standby BMC is used by maintenance personnel. Thus, the user does not need to perform operation on this console.**

7.11.1 Failover

Overview

Use this page to perform failover on standby BMC. This operation replaces role of standby BMC with that of master BMC. When you press the [Failover] button and wait for about 3 minutes, you can connect with web consoles of master and standby BMC. To use this feature, the server must be powered off. Administrator privilege is required to use this feature.

This feature is not supported on A1040c model.



Buttons

① [Failover] button
Pressing this button starts failover.

Tips

This feature can be used while the server is powered off. Make sure that server is powered off before performing this operation.

You can confirm at which side of management board (#1 or #2) the master BMC is running by viewing [Summary] in [System] tab on web console.

7.12 BMC Web Console Access Level

The following table shows access level required in operation of BMC web console.

Display item				Required access level
System	Overview			-
	Component	Processor		-
		Memory		-
		Temperature		-
		Voltage		-
		Fan		-
		Power		-
		Power supply		-
		Drive		-
		ME		-
	IPMI Information			-
	Access Information			-
Remote Access	Power Control			Administrator/Operator
	System Operation			Administrator/Operator
	Session Management			Administrator
Configuration	BMC	Network	IPv4 Property (Master)	Reference:Operator Change:Administrator
			IPv4 Property (Standby)	Reference:Administrator Change:Administrator
			IPv6 Property (Master)	Administrator
			Service (Master)	Administrator
			Service (Standby)	Reference:Operator Change:Administrator
			SSL	Administrator
		User Management	User Account	Reference:Operator Change:Administrator
			Active Directory	Reference:Operator Change:Administrator
			LDAP	Reference:Operator Change:Administrator
		Alert	Mail Alert	Reference:Operator Change:Administrator
			SNMP Alert	Reference:Operator Change:Administrator
		System Operation		Reference:Operator Change:Administrator
		ECO		Administrator
		Miscellaneous		Reference:Operator Change:Administrator
		Extended Functionality		Reference:Operator Change:Administrator
	System BIOS			Reference:Operator Change:Administrator
	Backup / Restore	Save/Restore in Bulk		Administrator
Update	BMC Firmware			Administrator
	System BIOS			Administrator

Display item				Required access level
Maintenance	Hardware Log	Collect Hardware Log		Administrator
		Display Activity Log		-
		Hardware Log Clear		Administrator
	Component Status	Fault Information	Display Fault Sensor	-
			Clear All Faults	Administrator
		Enable/Disable Component	Display	-
			Change settings	Administrator
	Device Online/Offline	Display target component for Online/Offline		-
		Online/Offline operation		Administrator
	Diagnostics			Administrator
	BMC OFF			Administrator
	Failover			Administrator
Capacity	Core Information	Device Information		Administrator
		Code Word Setting		Administrator
		Mode Setting/Core Disable		Administrator

7.13 BMC Web Console Language/Help

BMC web console has features to select language and display help file.

7.13.1 Languages

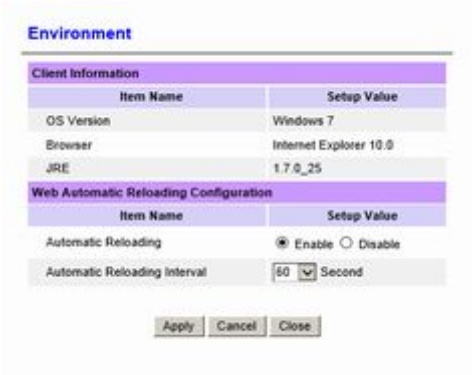
① Press this button to select Japanese.
② Press this button to select English.

7.13.2 Environment

Use this page to view OS information, browser information, JRE (Java Runtime Environment) information of terminal side where the web console is running, and modify [Web Automatic Reloading Configuration] setting.

Browse page

Edit page



Item name	Description	Default setting
Automatic Reloading	Specify whether automatic reloading is enabled or disabled.	Automatic
Automatic Reloading Interval	Select 30, 60, 90, or 120 (seconds) for reloading interval.	60 seconds

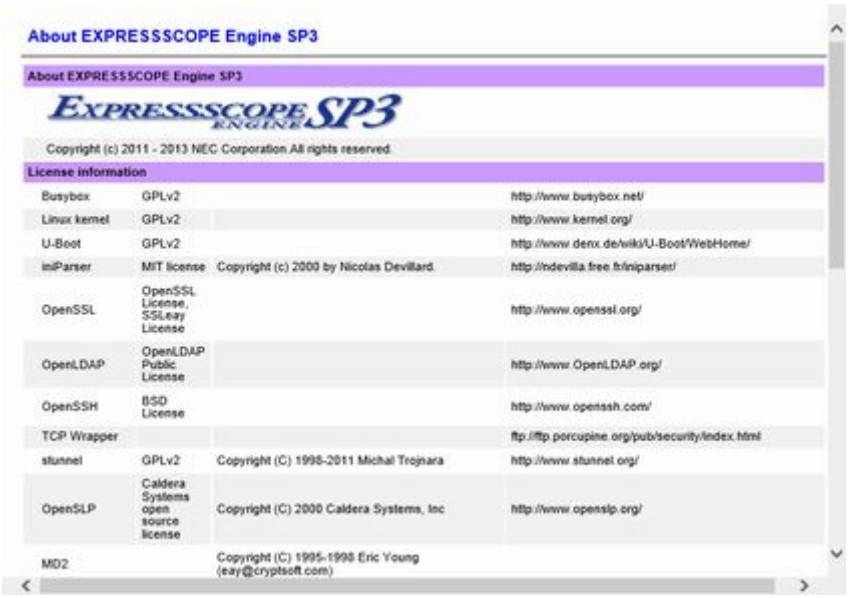
Important **If you cancel execution of application program on security warning popup window displayed after login to web console, [OS Version] and [JRE information] are not displayed thereafter. See "Important" in Chapter 3 (7.1.1 Login) for details.**

Important **In case of Linux Firefox ESR browser, the version format in "about Firefox" can be XX.Y.Z(example:45.1.0), but the version format at "Environment" page in the web console is always XX.0(example:45.0). A browser name is displayed as Firefox.**

Important **When 5 minutes elapsed after this page is opened, the web console session is forcibly disconnected. Please close this page and log in to web console.**

7.13.3 About EXPRESSSCOPE Engine SP3

Displays copyright of EXPRESSSCOPE Engine SP3.

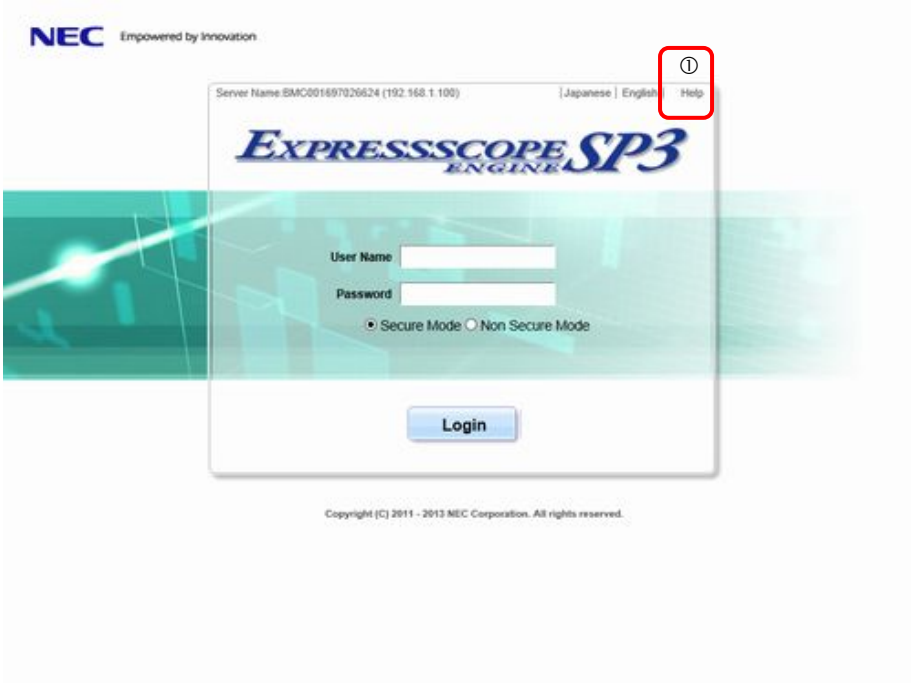


7.13.4 HELP

HELP screen provides guidance for using EXPRESSSCOPE ENGINE SP3.

Use HELP screen when you encounter a problem when managing, monitoring the server or using remote management.

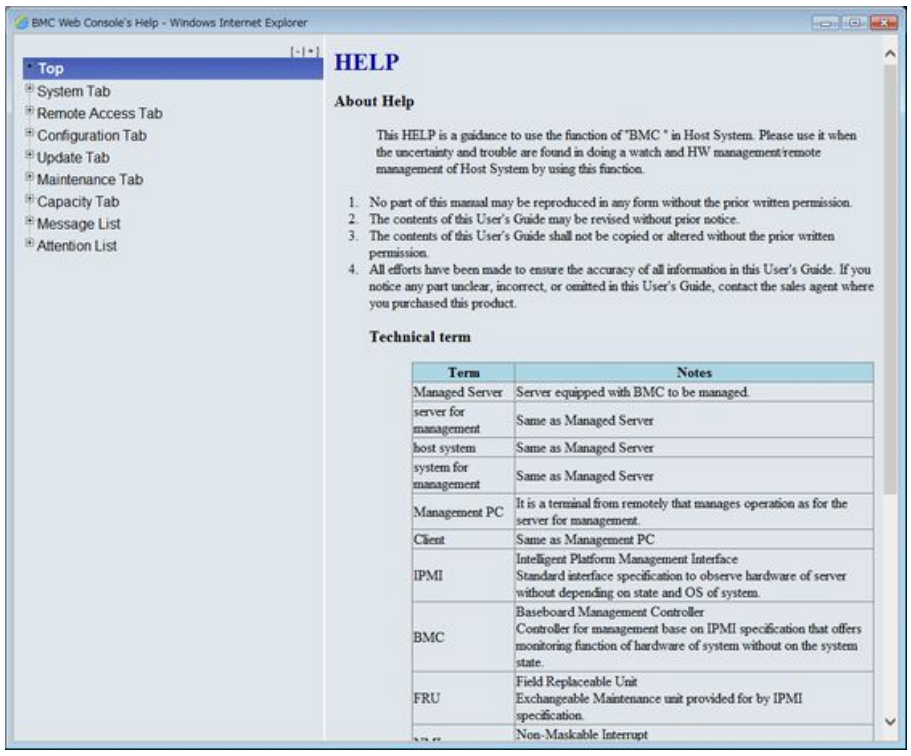
HELP screen is opened as another window. HELP screen shows the help contents as to currently opened page when you click [Help] button on login page or click [Help] on each contents menu. And please click [x] button of HELP screen to close it.



① Clicking [Help] opens HELP screen.

You can view HELP screen on contents menu of each tab.

HELP screen opens in separate window. To close the window press the [Close] button (☒) of browser.



Important **When 5 minutes elapsed after this page is opened, the web console session is forcibly disconnected. Please close this page and log in to web console.**

8. SMASH-CLP

8.1 Overview

With the BMC Command Line Interface, you can control the server from a remote SSH client.

The BMC supports SSH (Version 2) protocol.

8.2 Connecting to BMC

Access the BMC IP address (MLAN IP address for user maintenance or IP address of maintenance LAN) or DNS host name from SSH client on the remote management PC. The BMC default IP address is 192.168.1.100.

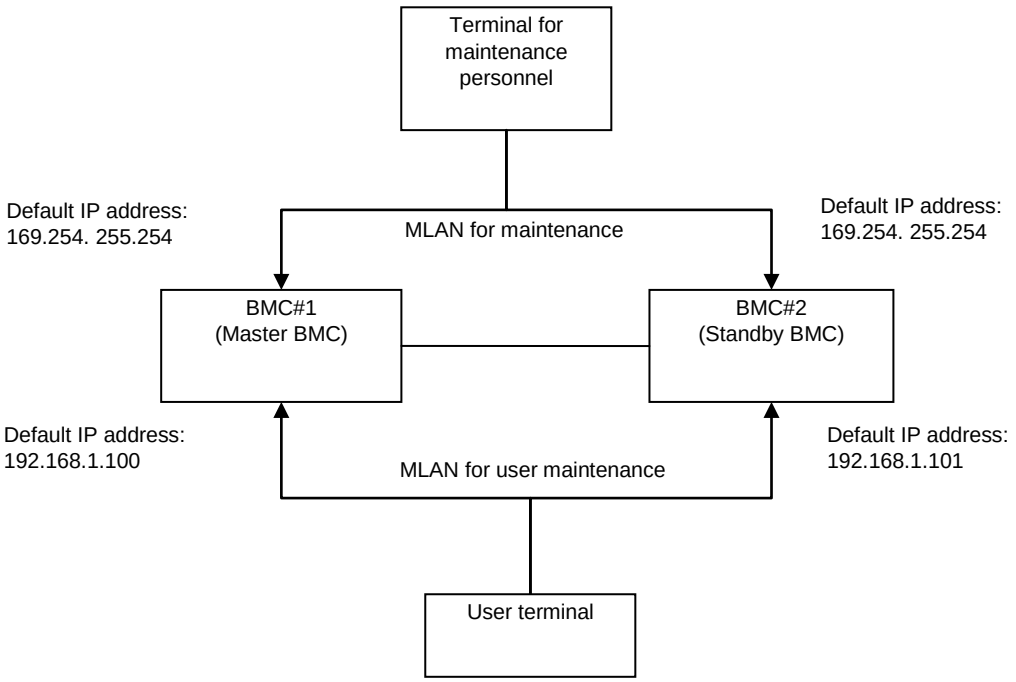
Important

To use Command Line Interface, you need to enable command line interface (feature to be used in SSH) by using BMC Configuration of Off-line/On-line TOOL or setting on web browser. See (7.7.1 BMC (1) Network (a) IPv4 Property (Master)) for how to configure.

Tips

- You can change the BMC's SSH port number by using the BMC Configuration of Off-line/On-line Tool, or a web browser. The default settings is as follows:

  SSH: 22
- A security warning messages regarding your server certificate may be displayed when you access the BMC from a SSH client.
- SSH connection is disconnected automatically after one minute of inactivity after login prompt is displayed.
- Set the terminal window size to 100x32. If the terminal window size cannot be set to "100x32", some strings might not be displayed correctly.


Terminal for maintenance personnel
Default IP address: 169.254. 255.254
MLAN for maintenance
Default IP address: 169.254. 255.254
BMC#1 (Master BMC)
BMC#2 (Standby BMC)
Default IP address: 192.168.1.100
MLAN for user maintenance
Default IP address: 192.168.1.101
User terminal

8.3 Login and Logout

8.3.1 Login

Enter your user name and password at login prompt.

A command prompt will be displayed after login.

Also you can login by using public key authentication.

Tips

- The user account is common to the one used for login to web console.
- The number of users who can log in the system using the command line interface at the same time is three users or less. Therefore, you cannot log in the system if other three users have been logging in the system using SSH clients via the command line interface. Check whether other three users are logging in the system, if you cannot log in via the command line interface.
- Only a single user among users who are using the command line interface or NEC ESMPRO Manager can use a character-based remote console. Check whether another user is using a character-based remote console, if you cannot use a character-based remote console.
- See Chapter 3 (7. Using Remote Management) – (Configuration) for registering SSH public key.

8.3.2 Logout

Enter the "exit" command at the command prompt. The SSH client will be disconnected from the BMC after logout.

8.4 Basic Commands

This section describes basic commands available in the command line interface. These basic commands manage the system by using the concept of command (verb) and target (Managed Element) proposed by DMTF (Distributed Management Task Force).

Each basic command functions to a specified target. The target points the managed element by address path much like the path to a file in a file system. Both absolute path, which is started from "/", and relative path are available for pointing the target. Specifically, "." and ".." are supported. The "." means the current default target and the ".." means the parent target.

Each basic command functions to the current default target when the <target> is not specified in the basic command. The current default target can be changed by the cd command. The current default target is "/admin1" when the command line interface session is started (at login).

The current default target is displayed at the left side of the command prompt ("->").

Help string, command syntax, of each command appears when "-h" option is specified as the <options> of the command. The argument placed between "[" and "]" is omissible.

Important

The user must have an account as the following user level to use the basic commands:

- **cd, exit, help, show, and version can be used under an account as all user levels.**
- **stop, start, and reset require an account as Operator or Administrator user level to use these commands.**
- **set is requires an account as administrator user level to use this command.**

Tips

Maximum number of input character for command line interface is 250.

8.4.1 cd

Syntax

cd [<options>] [<target>]

Description

The cd command changes the current default target to the target specified by the <target> argument.

8.4.2 exit

Syntax

exit [<options>]

Description

The exit command terminates and logs out the user session.

8.4.3 help

Syntax

help [<options>] [<help topics>]

Description

A basic command, <command>, can be specified for the <help topics>. The help command displays the help string for specified basic command when <command> argument is specified.

8.4.4 reset

Syntax

reset [<options>] [<target>]

Description

The reset command performs a hardware reset on the <target>.

/admin1/system1 or /admin1/sp1 is available for the <target> of the reset command. When /admin1/system1 is specified, the server is reset. When /admin1/sp1 is specified, the BMC is reset.

Express5800 A2040c/A2020c/A2010c model has two BMCs. Specifying <-oemnectarget> parameter for <option> can select a BMC to be reset. If "1" is specified, the master BMC is reset. If "2" is specified, the standby BMC is reset. If "3" is specified, both BMCs are reset.

reset [-oemnectarget <1/2/3> /admin1/sp1

Important **Use the reset command only when a trouble occurs on BMC. Do not use the reset command in normal operation. The connections with Web browser and SSH client are disconnected if you reset the BMC.**

8.4.5 set

Syntax

set [<options>] [<target>] <propertyname>=<value>

Description

The set command is used to set the value of one or more properties of target specified by the <target>. The command accepts a target specified by the <target> and series of <propertyname>=<value> pairs. Specify the property name you want to set for <propertyname>, and a new value in <value>. One or more <propertyname>=<value> pairs can be specified by delimiting between each pair with space.

The set command requires <propertyname>=<value> command line argument except when -h is specified as the <options>.

8.4.6 show

Syntax

show [<options>] [<target>] [<properties>]

Description

The show command is used to display information about the target specified by the <target> argument.

The show command displays the specified target on the first line. If the <target> is not specified, the current default target is displayed on the first line. The default behavior of the command for the target specified by the <target> is as follows. The command display targets which are contained by the specified target after the "Targets" string. The command displays properties which are contained by the specified target after the "Properties" string. The properties are displayed in the form of property=value. The command displays basic commands (verbs) and special extended commands which are available for the specified target after the "Verbs" string. The command displays the property specified by the <properties> in the form of property=value if the <properties> is specified. The command displays all properties which are contained by the specified target if the <properties> is not specified.

The -display <arg values> option which can be specified by the <options> for the show command. The option can control the type of information that is displayed about the target specified by the <target>. Valid option argument values as the <arg values> for this option include "targets", "properties", "verbs", and "all". The option argument values can select the above "Targets", "Properties" and "Verbs" information that is displayed. "all" displays the whole. The default for the -display option control is "all".

8.4.7 start

Syntax

start [<options>] [<target>]

Description

/admin1/system1 and /admin1/system1/textredirectsvc1 are available for the target of the start command.

The start command performs a power on to the server if /admin1/system1 is specified by the <target>.

The start command starts a character-based remote console if /admin1/system1/textredirectsvc1 is specified by the <target>.

You can specify baud rate parameter when you start the remote console.

See section 8.6 as to the baud rate parameter which you can specify. If baud rate parameter is not specified, default baud rate is used.

Syntax(for remote console functionality)

start [-oemnecbaudrate <baud rate>]

8.4.8 stop

Syntax

stop [<options>] [<target>]

Description

The stop command performs a normal power off request (OS shutdown request) or a forced power off request.

/admin1/system1 is available for the target of the stop command. The stop command performs a normal power off request (OS shutdown request) to the server if /admin1/system1 is specified by the <target>.

The command with -f (or -force) as the <options> performs a forced power off request to the server if /admin1/system1 is specified by the <target>.

8.4.9 version

Syntax

version [<options>]

Description

The version command is used to display the version of the command line protocol specification which is supported.

8.5 Remote Control

You can perform remote control of the server at the command prompt.

Important

- **Performing remote control when the operating system is running may cause the loss of data in the server.**
- **The user must have an account as Operator or Administrator for remote control.**

8.5.1 Power On

Enter the following command at the command prompt.

start /admin1/system1

8.5.2 Forced Power Off

Enter the following command at the command prompt.

stop -force /admin1/system1

or

stop -f /admin1/system1

8.5.3 OS Shutdown

Enter the following command at the command prompt.

stop /admin1/system1

Important

The above OS shutdown is equivalent to pressing the POWER switch of the server. Your operating system must be configured to shutdown when you press the POWER switch.

8.5.4 System Reset

Enter the following command at the command prompt.

reset /admin1/system1

Important

This command will fail if the power of the server is off.

8.6 Remote Console

To start a character-based remote console (Serial Over Lan), enter the following command at the command prompt.

start /admin1/system1/textredirectsvc1

To return from the character-based remote console to the command interface session, enter the <ESC>stop command (by pressing <ESC>key, <s>key, <t>key, <o>key and <p>key in order) during the character-based remote console.

Important

- **The standard serial port B on the server cannot be used for connecting another device in this cases because the BMC occupies the serial port B.**
- **To use a character-based remote console, provide appropriate settings for the console redirection feature of the server's serial port using the BIOS Setup Utility in advance.**
  Especially, use the following items with the following setting:
  - **BIOS Redirection Port: Serial Port B**
  - **Terminal Type: VT100+**
  - **Baud Rate: 115200**
  - **Flow Control: Hardware RTS/CTS**

  See Chapter 2 (1. System BIOS) in "Maintenance Guide" for details of BIOS SETUP utility.

Tips

Only a single user among users who are using the command line interface or NEC ESMPRO Manager can use a character-based remote console.

- SOL Key Bind

Key bind	Description
<ESC+stop> ※You press and hold down ESC, then press s key, t key, o key, and p key in turn.	Return to SMASH-CLP from OS console
<ESC+brak> ※You press and hold down ESC, then press b key, r key, a key, and k key in turn.	Send a break signal

- Baud rate supported by SOL

  SOL supports baud rate as shown below. The default baud rate value is "115200". You can specify the baud rate as a parameter of start command at "/admin1/system1/textredirectsvc1".

  See section 8.4.7 as to command syntax for remote console functionality.

Baud rate supported by SOL
9600
19200
57600
115200 (Default)

If you cannot use a character-based remote console, enter the following command at the command prompt to check if another SSH client is using the character-based remote console.

show /admin1/system1/textredirectsvc1/textredirectsap1

You can confirm the usage state by value of EnabledState of the "Properties" which is displayed by the command.

EnabledState=2 : The character-based remote console via SMASH-CLP is used by current user or other user.

EnabledState=6 : The character-based remote console via SMASH-CLP is not in use.

Important

- **Confirm if you can stop the character-based remote console using by other user forcibly before running this command.**
- **The user must have an account as administrator for stopping the character-based remote console forcibly.**

Important

If a SOL Session already exists and 「Method Execution failed.」is display by executing SMASH-CLP SOL command, focally disconnect the another SOL session by following method.

1) If the SMASH-CLP SOL session exists (EnabledState property is 2), execute following command.

● example1
cd /admin1/system1/textredirectsvc1/textredirectsap1
show
set EnabledState=6

● example2
show /admin1/system1/textredirectsvc1/textredirectsap1
set /admin1/system1/textredirectsvc1/textredirectsap1 EnabledState=6

***This operation disconnect the SMASH-CLP SOL session focally. If SOL execution method fails after this operation. Execute following 2) method.**

2) In case that IPMI client or NEC ESMPRO Manager is using SOL session, SMASH-CLP SOL command fails. In this case, you check if “remote console (CUI)” session is or not in the session list "Session Management" page on the web console. For disconnect session forcibly, click “Disconnect” button on the session list. If NEC ESMPRO Manager is using SOL session, “Management Software” is shown in user column.

Tips

Depending on the performance of a remote terminal, a command may not be executed correctly on the SOL screen. In this case, input command and execute it again.

8.7 UID Switch Control

You can turn on/off the UID (Unit ID) LED on the server by the virtual UID switch through the command line interface.

Important **To perform UID Switch Control (turning on or turning off the UID LED) through command line interface, set command is required. Accordingly, the user must have an account as administrator.**

Turning on UID LED

Enter the following command at the command prompt.

State of the UID LED becomes same state of turning on the LED by using UID (Unit ID) switch of the server.

set /admin1/system1/led1 ActivationState=2

Turning off UID LED

Enter the following command at the command prompt.

State of the UID LED becomes same state of turning off the LED by using UID (Unit ID) switch of the server.

set /admin1/system1/led1 ActivationState=4

Confirmation of state of turning on UID LED

Enter the following command at the command prompt.

show /admin1/system1/led1

You can confirm the state of the UID LED by value of ActivateState of the "Properties" which is displayed by the command.

ActivateState=2 : UID LED is turned on by UID switch .

ActivateState=3 : UID LED is blinking by the management software .

ActivateState=4 : UID LED is turned off by UID switch .

Tips

- If the server has no UID LED, the "UID Switch Control" feature works only to the virtual UID LED of the Server Panel. See Chapter 1 (5.6.2 UID LED) for details of UID LED.
- The UID LED will blink when it is controlled by Chassis Identify feature of management software such as NEC ESMPRO Manager. The UID LED will turn on when it is controlled by pushing the UID switch of the server or using UID switch control feature of BMC's web server or command line interface. For actual display state of the UID LED, blinking the UID LED is higher priority than turning on it when it is controlled at the same time (blinking state AND turning on state).
- Blinking UID LED by management software can be turned off only by management software. Turning on UID LED by UID switch control (actual switch of the server or the feature of BMC's web server or command line interface) can be turned off only by the UID switch control.

8.8 System Event Log

You can display system event log and modify setting of the system event log through the command line interface.

8.8.1 Viewing System Event Log

Enter the following command at the command prompt to move the current default target to /admin1/system1/log1.

cd /admin1/system1/log1

To confirm the total number of system event log records, enter the following command. The "Targets" section reported by the command indicates the "record<N>" target(s). <N> means any value between 1 and the total number of the system event log records.

show

Tips

When displaying the total number of system event log records using the show command, in the case of the maximum number (3638 records), about 4 minutes may take depending on the SEL registration number.

Next, when the following command is entered, information of a specific record is displayed at "Properties" section: Here, <N> means record number which you would like to confirm.

show record<N>

For example, enter the following command when you would like to confirm the first (number 1) record.

show record1

The example of displaying information in this case is shown below.

```
-> show record1
Command Status: COMMAND COMPLETED

ufip=/admin1/system1/log1/record1
Properties:
RecordID=1
CreationTimeStamp=20110324130745.000000+000
RecordFormat=*RecordID*RecordType*TimeStamp*GeneratorID*EvMRev*SensorType*SensorNumber*E
ventType*EventData1*EventData2*EventData3*
RecordData=*1*2*1300972065*32*4*16*9*111*66*143*255*
      Verbs:
cd
exit
help
show
version
```

Important

SMASH-CLP only shows the system event log record which record type is 0x02(system event record). This record type is defined in IPMI specification. Therefore, the total number of the system event log is sometimes different from the following number on web console.

[System] → [IPMI Information] → [SEL]

Example of SEL data by SMASH-CLP:

RecordData=*1*2*1300972065*32*4*16*9*111*66*143*255*

In this case, SMASH-CLP only shows the record which the next value of 2nd "*" is "2".

8.8.2 Change setting of system event log

Enter the following command at the command prompt to move the current default target to /admin1/system1/log1.

cd /admin1/system1/log1

The "Properties" section reported by the following command indicates the current setting of system event log.

show

Enter the following command if you would like to modify a property of the setting of system event log.

set <property>=<new value>

The properties that can be viewed and modified are as follows:

oemnec_selbehavior

This specifies the behavior when the system event log repository is full. The valid values for this property are as follows. This is the dynamic setting. The system event logs are cleared if this parameter value is changed from "2" to other value.

0: Stop logging the system event log. The system event log is not recorded any more when the system event log is full (Default).

1: Clear all system event logs automatically. All system event logs are cleared when the system event log is full.

2: Overwrite oldest system event log. Oldest system event log is overwritten with new system event log when the system event log is full.

An example is shown below.

Example: To enable the auto clear of system event log.

set oemnec_selbehavior=1

Important **The user must have an account as administrator for modifying the setting of the system event log through the command line interface.**

8.9 Access Log

This feature records login/logout events made through HTTP/HTTPS/SSH connection, logs related to system management and operations to modify settings via web browser. You can display, clear, and set the access log through the command line interface.

Important

The user must have an account as administrator for changing setting of system event log through the command line interface.

Tips

- The following events are supported by the Access Log feature.
  - Login and logout to/from HTTP, HTTPS, and SSH connections
  - System control (Power OFF/ON, and others) or the specific operations via Web browser.
  - Modify the setting (Network setting, and others) via Web browser.
  - Event to start the remote KVM

8.9.1 Viewing Access Log

Enter the following command at the command prompt to move the current default target to /admin1/sp1/log1/record1.

cd /admin1/sp1/log1/record1

Enter the following command, to view the access log.

show

The display example of access log is shown below.

```
timestamp    user      ipaddress      protocol       event
----------+--------+---------------+----------+-------------------------
06/10/2009   ope     192.168.2.14     SSH      Login Successful
 13:52:19
-------------------------------------------------------------------------
06/10/2009  admin    192.168.2.14     SSH      Login Successful
 13:53:14
-------------------------------------------------------------------------
06/10/2009  user     192.168.2.14     HTTP     Login Successful
 13:55:49
```

You can display only access log that corresponded to the following condition.

- timestamp

  Specify the date by the following format: MM/DD/YYYY

- user

  Specify the user name.

- ipaddress

  Specify the IP address on the remote management PC by the following format: XXX.XXX.XXX.XXX

- protocol

  Select the following protocol: HTTP, HTTPS, SSH

- event

  Specify the type of event: normal, error

You can change the displaying sequence of access log and display the specified number of access log by specifying the following options.

- oemnec_headlog <number>

  Display from <number> head of the access log in ascending order.

- oemnec_taillog <number>

  Display from <number> tail of the access log in ascending order.

Shown below are examples for conditional display.

Ex. 1) Display the access log whose username is administrator.

show user==Administrator

Ex. 2) Display the access log whose IP address is 192.168.1.100 and protocol is HTTP and event is error.

show ipaddress==192.168.1.100,protocol==HTTP,event==error

Ex. 3) Display 100 tail logs whose timestamp is 01/01/2010 and protocol is HTTPS.

show -oemnec_taillog 100 timestamp==01/01/2010,protocol==HTTPS

Tips

- The "user" cannot be used as condition for access logs that does not contain user information.
- Access log might not be correctly displayed with timestamp condition for the logs recorded from AC ON to DC ON of the server.

8.9.2 Clearing access log

Enter the following command at the command prompt to move the current default target to /admin1/sp1/log1/record1.

cd /admin1/sp1/log1/record1

Enter the following command.

delete

8.9.3 Setting access log

Enter the following command at the command prompt to move the current default target to /admin1/sp1/log1.

cd /admin1/sp1/log1

Enter the following command to show the settings that access log contains as properties.

show

Enter the following command to modify the setting of access log.

set <property>=<new value>

The properties that can be viewed and modified are as follows:

- oemnec_operationlog_enable

  This specifies whether access log for the system control and the setting modification via Web browser is enabled.

  oemnec_operationlog_enable=2 : Access log is enabled.

  oemnec_operationlog_enable=3 : Access log is disabled.

- oemnec_sshlog_enable

  This specifies whether access log for login/logout of SSH is enabled.

  oemnec_sshlog_enable=2 : Access log is enabled.

  oemnec_sshlog_enable=3 : Access log is disabled.

- oemnec_httpslog_enable

  This specifies whether access log for login/logout of HTTPS is enabled.

  oemnec_httpslog_enable=2 : Access log is enabled.

  oemnec_httpslog_enable=3 : Access log is disabled.

- oemnec_httplog_enable

  This specifies whether access log for login/logout of HTTPS is enabled.

  oemnec_httplog_enable=2 : Access log is enabled.

  oemnec_httplog_enable=3 : Access log is disabled.

An example of setting is shown below.

Example: To enable the setting of access log related to login/logout of HTTPS.

set oemnec_httpslog_enable=2

Important **If you want to enable the operational log, you need to enable any one of interfaces log setting at least.**

8.10 User Settings

This section describes how to view and modify the user account through the command line interface.

Enter the following command at the command prompt to move the current target to a user account target which you would like to view or modify. <N> means any value between 1 and 12: Therefore you can select a user account between account1 and account12. The <N> corresponds to an order from the top of list of user accounts on the user account configuration page through a Web browser.

cd /admin1/sp1/account<N>

Enter the following command, to view the information which the selected user account has as its properties.

show

Enter the following command to modify a property of the selected user account.

set <property>=<new value>

The properties which the selected user account contains are as follows:

- UserID

  This corresponds to a user name (login name). It becomes effective at next login if you change it.

- UserPassword

  This indicates the user password. "UserPassword=" is displayed but the password setting, value of this property, is not displayed. It becomes effective at next login if you change it.

- oemnec_Group

  This specifies the user level. The valid values for this property are "User", "Operator" and "Administrator". It becomes effective at next login if you change it.

Tips

A user name can contain up to 15 alphanumeric characters, including "- (minus)" and "_ (underscore)". "- (minus)" cannot be used for the top of a user name.

The password accepts up to 19 ASCII characters, except for "(space)", "*", "&", "?", "=".

Important

To login with the specified user, all the properties for that user must have valid values.

8.11 Network Settings

This section describes how to confirm the network setting for management LAN through the command line interface. Enter the following command at the command prompt to move the current default target to /admin1/sp1/enetport1.

cd /admin1/sp1/enetport1

Enter the following command to confirm properties of the Ethernet port.

show

The properties which the Ethernet port target contains are as follows:

- PermanentAddress

  Shows the BMC MAC address at the right side of "PermanentAddress=" string. This property is read-only.

- AutoSense

  This indicates whether Auto Negotiation is enabled for the Connection Type of Ethernet port. Note that, the valid values for this property are "TRUE" and "FALSE". "TRUE" means that the Auto Negotiation is enabled. "FALSE" means that the Auto Negotiation is disabled.

- FullDuplex

  This indicates whether Full Duplex Mode is enabled for the Connection Type of Ethernet port when the Auto Negotiation (AutoSense) is disabled (FALSE). Note that, the valid values for this property are "TRUE" and "FALSE". The value of this property is not displayed when the Auto Negotiation (AutoSense) is enabled (TRUE). This property is read-only.

- PortType

  This indicates Link Speed ("10BaseT" or "100BaseTX") for the Connection Type of Ethernet port when the Auto Negotiation (AutoSense) is disabled (FALSE). The value of this property is not displayed when the Auto Negotiation (AutoSense) is enabled (TRUE). This property is read-only.

To modify the access limitation via network, enter the following command at the command prompt to move the current default target to /admin1/sp1/enetport1/lanendpt1.

cd /admin1/sp1/enetport1/lanendpt1

Enter the following command to confirm properties of the access limitation target.

show

Enter the following command to modify a property of the access limitation target.

set <property>=<new value>

The properties that can be viewed and modified are as follows:

- oemnec_allowedaccessips

  This specifies the IP addresses that permit access from the network. Divide IP addresses by "," (ex. 192.168.1.2, 192.168.1.2, …) or use asterisk (ex. 192.168.1.*), if you would like to set multiple permit IP address. Set "0.0.0.0" or no <value> (*) to this property, if you would like to clear the value of this property. It becomes effective at next login if you change it. The value of this property is cleared if oemnec_deniedaccessips is set.

  * When not specifying any value, use [Enter] key next to "=" as shown below:

    set oemnec_allowedaccessips=[Enter]

- oemnec_deniedaccessips

  This specifies the IP addresses that reject access from the network. Divide IP addresses by "," (ex. 192.168.1.2, 192.168.1.2, …) or use asterisk (ex. 192.168.1.*), if you would like to set multiple reject IP address. Set "0.0.0.0" or no <value> (*) to this property, if you would like to clear the value of this property. It becomes effective at next login if you change it. The value of this property is cleared if oemnec_allowedaccessips is set.

  * When not specifying any value, use [Enter] key next to "=" as shown below:

    set oemnec_deniedaccessips=[Enter]

Shown below is an example of access limitation.

Example: To permit access from 192.168.1.* and 192.168.3.4.

set oemnec_allowedaccessips=192.168.1.*,192.168.3.4

Tips

- Clear all oemnec_allowedaccessips/oemnec_deniedaccessips values, if you would like NOT to restrict access by IP address for the management LAN.
- The communication with NEC ESMPRO Manager is also restricted by this configuration. Permit the IP address used by the communication with NEC ESMPRO Manager if you would like to use NEC ESMPRO Manager.
- You cannot restrict an access from an IP address used by logging in to the BMC's SSH server. In this case, log out once, and log in by using other IP address permitted. Then change the configuration.
- Up to 222 characters can be used for setting of access limitation. The show command can display up to 255 characters. Up to 255 characters can be used for setting of access limitation via web browser.

To modify the DHCP setting, enter the following command at the command prompt to move the current default target to /admin1/sp1/enetport1/lanendpt1/ipendpt1.

cd /admin1/sp1/enetport1/lanendpt1/ipendpt1

Enter the following command to confirm properties of the DHCP target.

show

Enter the following command to modify a property of the DHCP target.

set <property>=<new value>

The properties related to DHCP that can be viewed and modified are as follows:

- AddressOrigin

  This specifies whether DHCP is enabled for the network. Note that, the valid values for this property are "3" or "4". "3" means that the DHCP is disabled. "4" means that the DHCP is enabled. This is the dynamic setting.

- IPv4Address

  Shows the IP address for BMC. This property is read-only.

- SubnetMask

  Shows the subnet mask for the network. This property is read-only.

An example of DHCP setting is shown below.

Example: To enable DHCP setting

set AddressOrigin=4

To confirm the gateway setting, enter the following command at the command prompt to move the current default target to /admin1/sp1/enetport1/lanendpt1/ipendpt1/gateway1.

cd /admin1/sp1/enetport1/lanendpt1/ipendpt1/gateway1

Enter the following command to confirm properties of the gateway target.

show

The properties which the gateway target contains are as follows:

- InfoFormat

  "InfoFormat=3" is displayed. This indicates the AccessInfo is IPv4 address. This property is read-only.

- AccessInfo

  This specifies the IP address of the default gateway for the network. This property is read-only.

To configure the network when DHCP is disabled, enter the following command at the command prompt to move the current default target to /admin1/sp1/enetport1/lanendpt1/ipendpt1/staticipsettings1.

cd /admin1/sp1/enetport1/lanendpt1/ipendpt1/staticipsettings1

Enter the following command to confirm properties of the network setting target.

show

Enter the following command to modify a property of the network setting target.

set <property>=<new value>

The properties which the network setting target contains are as follows:

- oemnec_FloatingIPv4Address

  This specifies the IP address (floating IP address) for BMC when DHCP is disabled. This is the dynamic setting.

- IPv4Address

  This specifies the IP address for BMC when DHCP is disabled. This is the dynamic setting.

- SubnetMask

  This specifies the subnet mask for BMC when DHCP is disabled. This is the dynamic setting.

- GatewayIPv4Address

  This specifies the IP address of the default gateway for BMC when DHCP is disabled. This is the dynamic setting.

To modify the HTTP service, enter the following command at the command prompt to move the current default target to /admin1/sp1/httpsvc1.

cd /admin1/sp1/httpsvc1

Enter the following command to confirm properties of the HTTP service target.

show

Enter the following command to modify a property of the HTTP service target.

set <property>=<new value>

The properties which the HTTP service target contains are as follows:

- EnabledState

  This specifies whether HTTP port is enabled for the network. The valid values for this property are "2" and "3". "2" means that the HTTP port is enabled. "3" means that the HTTP port is disabled. This is the dynamic setting.

- oemnec_httpport

  This specifies the HTTP port for the network. This is the dynamic setting.

To modify the HTTPS service, enter the following command at the command prompt to move the current default target to /admin1/sp1/httpssvc1.

cd /admin1/sp1/httpssvc1

Enter the following command to confirm properties of the HTTPS service target.

show

Enter the following command to modify a property of the HTTPS service target.

set <property>=<new value>

The properties which the HTTPS service target contains are as follows:

- EnabledState

  This specifies whether HTTPS port is enabled for the netowrk. The valid values for this property are "2" and "3". "2" means that the HTTPS port is enabled. "3" means that the HTTPS port is disabled. This is the dynamic setting.

- oemnec_httpsport

  This specifies the HTTPS port for the network. This is the dynamic setting.

To modify the SSH service, enter the following command at the command prompt to move the current default target to /admin1/sp1/sshsvc1.

cd /admin1/sp1/sshsvc1

Enter the following command to confirm properties of the SSH service target.

show

Enter the following command to modify a property of the SSH service target.

set <property>=<new value>

The properties which the SSH service target contains are as follows:

- EnabledState

  This specifies whether SSH port is enabled for the network. The valid values for this property are "2" and "3". "2" means that the SSH port is enabled. "3" means that the SSH port is disabled. This is the dynamic setting.

- oemnec_sshport

  This specifies the SSH port for the network. This is the dynamic setting.

If you want to confirm or modify the property of the RMCP service configuration, please execute show or set command at "/admin1/sp1/rmcpsvc1".

Run show command if you want to refer the property of service.

cd /admin1/sp1/rmcpsvc1

show

Run show command if you want to modify the property of service.

cd /admin1/sp1/rmcpsvc1

set <property>=<new value>

Following is property which you can refer or modify.

- EnabledState
  You can enable or disable the RMCP service by changing value of this property.

  Enable: EnabledState=2

  Disable: EnabledState=3

Important **When RMCP service is disabled, BMC do not handle any IPMI request with RMCP protocol.**

8.12 Power Consumption Control

You can control the power consumption of the server through the command line interface.

Important **The user must have an account as administrator for controlling the power consumption through command line interface.**

Enter the following command at the command prompt to move the current default target to /admin1/system1.

cd /admin1/system1

State confirmation and modification of Power Consumption Control

Enter the following command to confirm properties related to the power consumption.

show

Enter the following command to modify a property related to the power consumption.

set <property>=<new value>

The properties related to power consumption are as follows:

- EnabledState

  The value is always "2". This property is read-only.

- oemnec_PowerCapping

  This specifies whether fault check of the power consumption sensor is enabled. The valid values for this property are "enabled" and "disabled". "enabled" means that the fault check is enabled. "disabled" means that the fault check is disabled. Default setting is "disabled".

- oemnec_PowerCappingUpperLimit

  This specifies the upper limit of power consumption. The new value becomes effective at the reboot of server. If power control (oemnec_PowerCapping) is disabled, "N/A" is displayed.

- oemnec_PowerCappingRange

  This specifies the value range of the specifiable power control value range. This property is read-only.

Example of power consumption control is as shown below.

```
oemnec_ProactivePowerCappingRange=1836[W]-2148[W]
oemnec_ProactivePowerCappingValue=N/A[W]
oemnec_ProactivePowerCapping=disabled
```

Important **If the power consumption control is enabled, the system performance such as CPU clock speed is lowered to reduce the power consumption of the system in actual operation.**

8.13 Confirming System Information

This section describes how to confirm the system information (product, BIOS/BMC firmware revision, CPU, and Memory) through the command line interface.

Tips The values of the properties for items not supported by the server is not displayed for the system information. Moreover, the values of the properties for items supported with the server might not be displayed according to a state of a power supply and device installation status.

Confirming Product Information

You can confirm the product information through the command line interface by entering the following basic command at the command prompt.

```
show /admin1/system1

    oemnec_serialnumber=Proto06
    oemnec_modelnumber=NE3400-00Y
    oemnec_productname=Express5800/A2040c
```

In the "Properties" section, the value of oemnec_productname property indicates "Model Name", oemnec_modelnumber property indicates "Part / Model Number", and oemnec_serialnumber property indicates "Product Serial Number". These properties for the product information are read-only.

Tips The model name and the part / model number depend on product.

Important **Execution of the above-mentioned show command takes 5 minutes at the maximum, although it is dependent on the system configuration.**

Confirming System BIOS revision

You can confirm the System BIOS revision through the command line interface by entering the following basic command at the command prompt.

show /admin1/system1/swid1

Example of display is as shown below.

```
ufip=/admin1/system1/swid1
Properties:
    VersionString=5.6.0015
Verbs:
    cd
    exit
    help
    show
    version
```

In this case, the System BIOS revision is displayed at the right side of "VersionString=" string in the "Properties" section.

Confirming BMC firmware revision

You can confirm the BMC firmware revision through the command line interface by entering the following basic command at the command prompt.

show /admin1/sp1/swid1

Example of display is as shown below.

```
ufip=/admin1/sp1/swid1
Properties:
    VersionString=00.20
    oemnec_sdrversion=SDR Version 0.18
Verbs:
    cd
    exit
    help
    show
    version
```

In this case, the BMC firmware revision is displayed at the right side of "VersionString=" string in the "Properties" section. Also the SDR revision is displayed at the right side of " oemnec_sdrversion =" string.

Confirming CPU Information

Enter the following command at the command prompt to move the current default target to /admin1/system1.

cd /admin1/system1

You can confirm all the targets for CPU by entering the following command. All the CPU targets are represented as cpu<N> strings at "Targets" section. <N> means value of one-origin integer between 1 and 4.

show

Next, if the following command is entered, information of a specific CPU target is displayed at "Properties" section. Here, <N> means CPU target number which you would like to confirm.

show cpu<N>

The EnabledState property of the CPU target indicates the CPU status.
"2" indicates that CPU is installed and enabled.

If CPUs are not installed, those CPU targets are not displayed.

For example, enter the following command to confirm the information of CPU#1.

show cpu1

The display example in this case is shown below.

```
ufip=/admin1/system1/cpu1
   Properties:
      EnabledState=2
      oemnec_clock=2600MHz
      oemnec_validcore=15
      oemnec_maxcore=15
      oemnec_validthread=30
      oemnec_maxthread=30
      oemnec_l1cache=960KB
      oemnec_l2cache=3840KB
      oemnec_l3cache=38400KB
   Verbs:
      cd
      exit
```

```
        help
        show
        version
```

Confirming Memory Information

Enter the following command at the command prompt to move the current default target to /admin1/system1.

cd /admin1/system1

You can confirm all the targets for memory (DIMM) by entering the following command. All the memory (DIMM) targets are represented as memory<N> strings at "Targets" section. <N> means value of one-origin integer. The maximum value of <N> is 64.

show

Next, when the following command is entered, information of a specific memory (DIMM) slot target is displayed at "Properties" section. Here, <N> means memory (DIMM) slot target number which you would like to confirm. 1 to 8 memory slots are displayed.

show memory<N>

The EnabledState property of the memory target indicates the memory (DIMM) status.
"2" indicates that memory (DIMM) is installed.
"3" indicates that memory (DIMM) is disabled.
If no memory (DIMM) is installed, nothing is displayed as a target.
The values of the properties not supported by the server are not displayed.

If the EnabledState property is “3”、oemnec_clocksize property is not displayed.

For example, enter the following command to confirm the information of memory1 (MR1_DIMM1).

show memory1

The display example in this case is shown below.

- DIMM is installed and enabled

```
ufip=/admin1/system1/memory1
   Properties:
      enabledstate=2
      oemnec_slotname=MR1_DIMM1
      oemnec_clocksize=8192MB 1066MHz
   Verbs:
      cd
      exit
      help
      show
      version
```

- DIMM is installed and disabled

```
ufip=/admin1/system1/memory1
Properties:
enabledstate=3
oemnec_slotname=MR1_DIMM1
Verbs:
cd
exit
help
show
version
```

Important **After reconfiguring the DIMMs without AC-OFF, you need to run “show /admin1/system1” only once before running ”show /admin1/system1/memory*” so that the new system configuration is reloaded.**

8.14 Special Extended Command

This section describes the special extended command which can perform state acquisition (powerstate, lampstate) and interrupt generation for OS dump (nmidump). The special extended commands use the syntaxes different from those of basic commands.

8.14.1 State Acquisition

You can acquire the state of the system at the command prompt:

Important **Commands to acquire the system state are executable in all user levels.**

(1) Power State acquisition

Power state acquisition command (powerstate) is executable only when current default target is "/admin1" or "/admin1/system1". Enter the following command, if the current default target is not "/admin1" and "/admin1/system1".

cd /admin1

or

cd /admin1/system1

Enter the following command at the command prompt:

powerstate

One of the following responses is returned according to the power state of the server.

- power on
  System power is on.
- power off
  System power is off.

(2) Lamp State acquisition

Lamp state acquisition command (lampstate) is executable only when current default target is "/admin1", "/admin1/system1" or "/admin1/system1/led1". Enter the following command, if the current default target is not "/admin1", "/admin1/system1" or "/admin1/system1/led1".

cd /admin1

or

cd /admin1/system1

or

cd /admin1/system1/led1

Status LED state acquisition

Enter the following command at the command prompt:

lampstate -statuslamp

One of the following responses is returned according to the STATUS LED state.

- off
  STATUS LED is turned off.

- green on
  STATUS LED lights in green.
- amber on
  STATUS LED lights in amber.
- amber blink
  STATUS LED is blinking in amber.

Tips The state of the STATUS LED and the meaning are different according to the system. See Chapter 1 (5.6.3 SYSTEM STATUS LED) for details.

UID LED state acquisition

Enter the following command at the command prompt:

lampstate -uidlamp

One of the following responses is returned according to actual display state of the UID LED.

- off
  UID LED is turned off.
- on
  UID LED is turned on (lights).
- blink
  UID LED is blinking (flashing).

Tips If the server has no UID LED, the "UID Switch Control" feature works only to the virtual UID LED of the Server Panel. See Chapter 1 (5.6.2 UID LED) for details of UID LED.

8.14.2 Set Online/Offline

This command allows you to acquire states of PCIe card and memory module (MR), connect PCIe card or memory module dynamically, and disconnect PCIe card from the server dynamically.

Syntax

oemneccomponent -get/-set <online/offline> [-dev_type <pci/mr> -dev_num <1-16(pci)/1-8(mr)>]

Parameter

get offline/online: Shows state of devices that can be dynamically connected or disconnected.

> oemneconline -get

PCI15	Offline
PCI16	Offline
MR7	Offline
MR8	Offline

set online: Connect the specified device to server dynamically.

dev_type [pci/mr]: Specify device type.

dev_num [1-16(pci)/1-8(mr)]: Specify device number.

set offline: Disconnect the specified device from server dynamically.

dev_type [pci]: Specify the spare device type.

dev_num [1-16]: Specify the spare device number.

Important **The operations must be performed only while the server is powered on.**

Important **The Online/Offline function of MR is unsupported by this server.**

8.14.3 Firmware Update

This command is used to update BMC FW and BIOS.

tftp server is required to use this command. Update of BMC or BIOS FW is performed by downloading binary image from tftp server.

Syntax

oemnecload -source <URI> [-oemnecfiletype <bmcfw/bios/bmcfw2/bios2>]

Parameter

source <URI>: Specify URI of TFTP server.

oemnecfiletype

bmcfw: Update BMC FW.

bios: Update BIOS.

bmcfw2: With the server that has two BMCs (Express5800 A2040c/A2020c/A2010c), both BMC FW of master BMC and standby BMC are updated.

bios2: With the server that has two BMCs (Express5800 A2040c/A2020c/A2010c), both BIOS of master BMC and standby BMC are updated.

While the image file is downloading from the tftp server, you can abort it by pressing Ctrl+C key.

While this command is running, progress rate in each phase as below is displayed.

Display example is shown below:

```
Uploading: 3487232/16777216(20%) [Total received bytes/Expected data length (reception rate %)]
Verifying: 48%
Writing  : 26%
```

When server is power on, BMC reset will not be executed automatically. And then message as below will be displayed. On the other hand, when server is power off, BMC reset will be executed automatically 60 seconds later.

```
-> oemnecload -source tftp://192.168.2.14/rom.ima -oemnecfiletype bmcfw
   Writing  : 97%
   OEMNECLOAD has been completed.
   BMC Firmware Update is successful.You need to reset BMCs to apply update.
   Please execute reset command at /admin1/sp1 target.
   Command Status: COMMAND COMPLETED

->
```

Important **Do not specify bmcfw2 or bios2 for oemnecfiletype on Express5800 A1040c model.**

8.14.4 SOL Log Display

This command displays the latest SOL (Serial Over Lan) console log (up to 1M bytes).

Syntax

oemnecsollog

Parameter

None

Key binds available in this command is shown below.

Key bind	Description
+	Go to the next page.
-	Return to the previous page.
F	Go to the oldest page.
L	Go to the newest page.
q	Return to SMASH-CLP console.
?	Command line help

8.14.5 BMCOFF

Use this command to turn off BMC safely when replacing the management board or turning off the AC power.

Syntax

oemnecbmcoff [-oemnectarget <1/2/3>]

Parameter

-oemnectarget <1/2/3>

This option can be omitted. When omitted, both master and standby BMCs are shutdown.

1: Shutdown master BMC.

2: Shutdown standby BMC.

3: Shutdown both master and standby BMCs.

8.14.6 Reset user's updated SSL certification

Use this command to return user's updated SSL certification back to the default SSL certification.

Refer to "7.7.1.(1).(f) SSL" as for update method of SSL certification.

Syntax

oemnecresetcert

Parameter

None

Important **You need to execute the BMC reset command after this command so that modification is applied. As for the reset command, refer to "8.4.4 reset".**

8.15 Viewing and Modifying Server Configuration Information

If you modify the properties shown below in /admin1/system1 target of SMASH-CLP, you can change operating mode of the server.

Use show command to view, and set command to modify the property.

- oemnec_PowerRedundancy

  Use this property to specify redundancy mode of power supply unit (PSU). Available options are: -N redundancy, N+1 redundancy, and non-redundancy.

- oemnec_SASBatteryBackupUnit

  Use this property to confirm if SAS card is installed or not, if SAS card is equipped with battery backup unit (BBU). Setting can be changed by the set command.

  If BBU is mounted on SAS card, changing this item to "installed" can reduce power consumption of the server.

- oemnec_PeriodicDiagnostis

  Use this property to specify whether the automatic diagnosis is performed on CPU,memory, and PCIe card regularly. Setting can be changed by the set command. When set to [Enabled], diagnosis is performed automatically, and the test result is stored in Activity Log. You can view Activity Log by selecting [Maintenance] tab → [Hardware Log] → [View ActivityLog] on remote management console.

- oemnec_SpareClock

  Use this property to specify which clock module (ClocK#1 or Clock#2) is to be assigned as a spare clock.

- oemnec_SpareMemoryConfigurationMode

  Use this property to specify connecting method for spare MR (memory module) that is not connected with the running OS. Setting can be changed by the set command. You can select "Dynamic" (connect while OS is running) or "Static" (connect while OS is not running).

- oemnec_SparePciConfigurationMode

  Use this property to specify connecting method for PCIe card that is not built in the running OS. Available options are: Dynamic (connect PCIe card while the OS is running) or Static (connect PCIe card while the OS is not running).

- oemnec_FailingUnitRemoval

  Use this property to specify whether the server is rebooted after disconnecting the failed component. When set to "enabled", the failed component is disconnected and the server is rebooted. When set to "disabled", the failed component is not disconnected and the operation is continued.

- oemnec_Degraded Server Boot

  Use this property to specify the server is rebooted automatically when partition is degraded due to occurrence of failure. When "Boot" is specified, the server containing the degraded component is rebooted.

  When "Notboot" is specified, the server containing the degraded component is not rebooted.

- oemnec_Frb2Monitoring

  Use this property to specify whether the monitoring timeout of FRB stall is enabled or disabled.

- oemnec_PostMonitoring

  Use this property to specify whether the monitoring timeout of POST stall is enabled or disabled.

- oemnec_BootMonitoring

  Use this property to specify whether the monitoring timeout of Boot stall is enabled or disabled and its monitoring duration.

- oemnec_OpRomMonitoring

  Use this property to specify whether the monitoring timeout of OpROM stall is enabled or disabled. The setting can be changed by set command.

- oemnec_FailureFlowMonitoring

  Use this property to specify whether the server is rebooted automatically after fatal error occurred.

- oemnec_Shutdownonitoring

  Use this property to specify whether the monitoring timeout of OS Shutdown stall is enabled or disabled and its monitoring duration when enabled.

- oemnec_CoreAssignMode

  Use this property to specify whether the cores are assigned equally to sockets.

  Type1: Cores are not assigned equally to each socket.

  Type2: Cores are assigned equally to each socket.

- oemnec_SpareCoreOptimizationMode

  Use this property to specify core assign mode.

  centralized: Cores are enabled on each socket intensively. Accordingly, the number of enabled cores may deviated in each core.

  decentralized: Enabled cores are distributed to each socket.

- oemnec_SpareCoreConfigurationMode

  Specify the configuration mode for spare core.

  dynamic: Cores are enabled (codeword is set) while the OS is running.

  static: Cores are enabled while the OS is not running.

  Important

  - **With A2010b and A2020b models, viewing and configuring "oemnec_SpareCoreOptimizationMode" and "oemnec_SpareCoreConfigurationMode" properties are not supported. "N/A" is displayed against the show command.**
  - **With A1040c model, viewing and configuring "oemnec_SpareCoreConfigurationMode" property is not supported. "N/A" is displayed against the show command.**

- oemnec_DisableCoreNumber

  Specify the number of cores to be disabled.

- oemnec_CoolingTimeExtension

  Use this property to specify whether the cooling time at power-off should be extended or not.

  enabled: Extends cooling time between power-off and power-on status.

  disabled: Does not extend cooling time between power-off and power-on status.

- oemnec_ProactivePowerCappingRange

  If Proactive mode is enabled, this property shows modifiable power consumption range by wattage. This property is read only.

  modifiable power consumption range: modifiable minimum power consumption value[W] - modifiable power consumption value[W]。

  Ex: oemnec_ProactivePowerCappingRange = 549[W] - 2085[W]

- oemnec_ProactivePowerCappingValue

  If Proactive mode is enabled, specify the value maximum power consumption by wattage.

  Ex: oemnec_ProactivePowerCappingRange = 2000[W]

- oemnec_ProactivePowerCapping=disabled
  Use this property to specify whether Proactive mode is enabled or not.

  enabled: Reduce system power consumptions by lowering the maximum power.

  disabled: Does not reduce system power consumptions.

The table below shows the default value and available values for each property.

Property name	Allowable range	Default value	Target	When applied
oemnec_PowerRedundancy	0/1/2 - 2N: 2N redundancy - N+1: N+1 redundancy - N: non-redundancy	0	system1	At the next reboot
oemnec_SASBatteryBackupUnit	installed/notinstalled	notinstalled	system1	At the next reboot
oemnec_PeriodicDiagnostis	enabled/disabled	enabled	system1	Immediate
oemnec_SpareClock	0/1	0	system1	Immediate / At next reboot
oemnec_SpareMemoryConfigurationMode	static/dynamic	static	system1	At the next reboot
oemnec_SparePciConfigurationMode	static/dynamic	static	system1	At the next reboot
oemnec_FailingUnitRemoval	enabled/disabled	enabled	system1	At the next reboot
oemnec_Degraded Server Boot	notboot/boot	notboot	system1	At the next reboot
oemnec_Frb2Monitoring	enabled/disabled	enabled	system1	Immediate
oemnec_PostMonitoring	enabled/disabled	enabled	system1	Immediate
oemnec_BootMonitoring	1-60 [minutes] 0:disabled	0	system1	At the next reboot
oemnec_OpRomMonitoring	enabled/disabled	enabled	system1	At the next reboot
oemnec_FailureFlowMonitoring	1-60 [minutes] 0:disabled	0	system1	At the next reboot
oemnec_Shutdownonitoring	enabled/disabled	enabled	system1	At the next reboot
oemnec_CoreAssignMode	type1/type2	type1	system1	At the next reboot
oemnec_SpareCoreOptimizationMode	centralized/ decentralized	centralized	system1	At the next reboot
oemnec_SpareCoreConfigurationMode	dynamic/static	static	system1	At the next reboot
oemnec_DisableCoreNumber	0- maximum number of cores (depends on server model)	0	system1	At the next reboot
oemnec_CoolingTimeExtension	disabled/enabled	disabled	system1	Immediate
oemnec_ProactivePowerCappingValue	The specified value must be in the range of oemnec_ProactivePowerCapping.	Currently settings value	system1	Immediate. (OS must be running.)
oemnec_ProactivePowerCapping	enabled/disabled	disabled	system1	Immediate. (OS must be running.)

8.16 Command Line Interface of Standby BMC

The following commands are available on SMASH-CLP of standby BMC.

Tips The SMASH-CLP of standby BMC is supported by Express5800 A2040c/ A2020c/A2010c models only.

Important **SMASH-CLP of standby BMC is used by maintenance personnel. Thus, the user does not need to perform operation on this console.**

8.16.1 Connecting to Standby BMC

Access the IP address shown in "IP Address" section that appears when [Setting] → [BMC] → [Network] → [IPv4 Property (Standby)] is selected on remote management console, from SSH client to connect with SMASH-CLP of standby BMC. The default IP address of standby BMC is 192.168.1.101: 5022. Specifying 192.168.1.101:22 will connect with SMASH-CLP of master BMC.

Tips The user account is common to the one for a remote management feature via web browser.

Important **To use Command Line Interface, you need to enable command line interface (feature used in SSH) by BMC Configuration of Off-line/On-line TOOL or on web browser. See Chapter 3 (7.7.1 BMC (1) Network (b) IPv4 Property (Standby)) for how to configure.**

Tips

- You can change the BMC's SSH port number by using the Off-line BMC Configuration Tool, On-line BMC Configuration Tool or a web browser. The default settings is as follows:
  SSH: 5022
  To connect with SMASH-CLP of standby BMC, specify "5022" for the port number. If you change the SSH port number of standby BMC, be sure to specify that number.
- A security warning messages regarding your server certificate may be displayed when you access the BMC from a SSH client.
- SSH connection is disconnected automatically after one minute of inactivity after login prompt is displayed.

8.16.2 Login and Logout

(1) Login

Enter your user name and password at login prompt.

A command prompt will be displayed after login.

Also you can login by using public key authentication.

Tips

- The user account is common to the one used for login to web console.
- The number of users who can log in the system using the command line interface at the same time is three users or less. Therefore, you cannot log in the system if other three users have been logging in the system using SSH clients via the command line interface. Check whether other three users are logging in the system, if you cannot log in via the command line interface.
- Only a single user among users who are using the command line interface or NEC ESMPRO Manager can use a character-based remote console. Check whether another user is using a character-based remote console, if you cannot use a character-based remote console.
- See Chapter 3 (7. Using Remote Management) - (Configuration) for registering SSH public key.
- SMASH-CLP does not support authentication via LDAP and Active Directory. Therefore, use the login user account and user password that was set for SMASH-CLP or IPMI.

(2) Logout

Enter the "exit" command at the command prompt. The SSH client will be disconnected from the BMC after logout.

8.16.3 Basic Commands

This section describes basic commands available in the command line interface of standby BMC.

8.16.4 cd

Syntax

cd [<options>] [<target>]

Description

The cd command changes the current default target to the target specified by the <target> argument.

8.16.5 exit

Syntax

exit [<options>]

Description

The exit command terminates and logs out the user session.

8.16.6 help

Syntax

help [<options>] [<help topics>]

Description

A basic command, <command>, can be specified for the <help topics>. The help command displays the help string for specified basic command when <command> argument is specified.

8.16.7 reset

Syntax

reset [<options>] [<target>]

Description

The reset command performs a hardware reset on the <target>. /admin1/sp1 is available for the <target> of the reset command. When /admin1/sp1 is specified, the standby BMC is reset.

Important **Use the reset command only when a trouble occurs on BMC. Do not use the reset command in normal operation. The connections with Web browser and SSH client are disconnected if you reset the BMC.**

8.16.8 set

Syntax

set [<options>] [<target>] <propertyname>=<value>

Description

The set command is used to set the value of one or more properties of target specified by the <target>. The command accepts a target specified by the <target> and series of <propertyname>=<value> pairs. Specify the property name you want to set for <propertyname>, and a new value in <value>. One or more <propertyname>=<value> pairs can be specified by delimiting between each pair with space.

The set command requires <propertyname>=<value> command line argument except when -h is specified as the <options>.

The targets available on SMASH-CLP of standby BMC are shown below. See Chapter 3 (8.11 Network Settings) for available properties.

- /admin1/sp1/enetport1
- /admin1/sp1/enetport1/lanendpt1
- /admin1/sp1/enetport1/lanendpt1/ipendpt1
- /admin1/sp1/enetport1/lanendpt1/ipendpt1/gateway1
- /admin1/sp1/enetport1/lanendpt1/ipendpt1/staticipsettings1

8.16.9 show

Syntax

show [<options>] [<target>] [<properties>]

Description

The show command is used to display information about the target specified by the <target> argument.

The show command displays the specified target on the first line. If the <target> is not specified, the current default target is displayed on the first line. The default behavior of the command for the target specified by the <target> is as follows. The command display targets which are contained by the specified target after the "Targets" string. The command displays properties which are contained by the specified target after the "Properties" string. The properties are displayed in the form of property=value. The command displays basic commands (verbs) and special extended commands which are available for the specified target after the "Verbs" string. The command displays the property specified by the <properties> in the form of property=value if the <properties> is specified. The command displays all properties which are contained by the specified target if the <properties> is not specified.

The -display <arg values> option can be specified by the <options> for the show command. The option can control the type of information that is displayed about the target specified by the <target>. Valid option argument values as the <arg values> for this option include "targets", "properties", "verbs", and "all". The option argument values can select the above "Targets", "Properties" and "Verbs" information that is displayed. "all" displays the whole. The default for the -display option control is "all".

8.16.10 version

Syntax

version [<options>]

Description

The version command is used to display the version of the command line protocol specification which is supported.

8.16.11 oemnecfailover

The oemnecfailover command is used to perform failover of BMC (change to master). Use this command to switchover the roles of master and standby BMCs.

Syntax

oemnecfailover

Parameter

None

Important **Executing this command resets both master BMC and standby BMC. Waiting for a while (approx. 3 minutes), you can log in SMASH-CLP on both master and standby BMCs.**

Tips This command can be used only while the server is off-powered. Make sure that the server is off-powered before issuing this command.

You can confirm on which management board (#1 or #2) the master BMC works by viewing System tab on web console.

9. WS-Management

9.1 Overview

With the WS-Management Protocol, you can control the power of server and check the sensor information of the server.

Tips

- WS-Management complies with the specification, DTMF Web Service for Management 1.0.0.
- Operation of the following tools that support the WS-Management protocol is verified in Windows Server 2012 environment.

Important

- **To use WS-Management, you need to enable HTTPS connection. See Chapter 3 (7.7.1 BMC – Network – SSL) for how to configure it.**
- **Before using WinRM, you need to start WinRM service and change configuration of WinRM client. Then, run the following command to check if configuration is correct.**
  > winrm get winrm/config

Starting Windows remote management service and change WinRM configuration

- winrm quickconfig
- winrm set winrm/config @{MaxEnvelopeSizekb="10000"}
- winrm set winrm/config @{MaxTimeoutms="600000"}
- winrm set winrm/config/service @{EnumerationTimeoutms="600000"}
- winrm set winrm/config/client @{AllowUnencrypted="true"}
- winrm set winrm/config/client @{TrustedHosts="<Server IP Address>"}

Tips

Specify the IP address of EXPRESSSCOPE Engine SP3 for <Server IP Address>.

9.2 Power Control

You can perform power control of the server as follows.

- Power ON
- Power OFF immediate
- Soft Shutdown
- Hard Reset
- Force Dump
- Power Cycle

Important

- **Performing these operations while the operating system is running may cause the loss of data in the server.**
- **Specify the IP address of EXPRESSSCOPE Engine SP3 on master BMC for "IP_ADDRESS", and login user name and login password for "USERNAME/PASSWORD" in the example.**
- **Specify http or https for "PROTOCOL" in the example.**
- **Do not perform any operation on WS-Management while any of the following is running on Web console.**

Tab	Menu screen	Buttons on dialog
Remote Access	Power Control	All buttons
	System Operation	All buttons
Configuration	IPv4 Property (Master)	[Apply] button on Edit screen
	IPv6 Property (Master)	[Apply] button on Edit screen
	Service (Master)	[Apply] button on Edit screen
	Backup / Restore	[Backup], [Restore]
Update	BMC	[Update]
	BIOS	
	Hardware Log	[Download BMC Dump]
	Device Online / Offline	[Apply] button on Edit screen
	Diagnosis	[Execute]

Tips

To perform power control with WS-Management, an Operator privilege or an Administrator privilege is required.

9.2.1 Power On

To use WinRM, create a file input-RequestPowerStateChange2.xml, and run the following command to issue a RequestPowerStateChange of its PowerState is 2 (On) to BMC.

```
winrm invoke RequestPowerStateChange
"http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_PowerManagementService?__cimnamespac
e=root/cimv2+Name=IPMI Power
Service+CreationClassName=CIM_PowerManagementService+SystemName=Unknown.IPMI BMC
DeviceID.32+SystemCreationClassName=Host_ComputerSystem" -r:PROTOCOL:// IP_ADDRESS /wsman
-username: USERNAME -password: PASSWORD -auth:basic -encoding:utf-8 -skipCAcheck -skipCNcheck
-skipRevocationcheck -format:xml -file:input-RequestPowerStateChange2.xml
```

input-RequestPowerStateChange2.xml

```
<n1:RequestPowerStateChange_INPUT
xmlns:n1="http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_PowerManagementService"
xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
xmlns:wsman="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
<n1:PowerState>2</n1:PowerState>
<n1:ManagedElement>
<wsa:ReferenceParameters>
<wsman:ResourceURI>http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/Host_ComputerSystem
</wsman:ResourceURI>
<wsman:SelectorSet>
<wsman:Selector Name='__cimnamespace'>root/cimv2</wsman:Selector>
<wsman:Selector Name='CreationClassName'>Host_ComputerSystem</wsman:Selector>
<wsman:Selector Name='Name'>Unknown.IPMI BMC DeviceID.32</wsman:Selector>
</wsman:SelectorSet>
</wsa:ReferenceParameters>
</n1:ManagedElement>
</n1:RequestPowerStateChange_INPUT>
```

Tips This operation is equivalent to performing **Remote Access** → **Power Control** → **Power ON** on Web console.

9.2.2 Power Off immediate

To use WinRM, create a file input-RequestPowerStateChange6.xml, and run the following command to issue a RequestPowerStateChange of its PowerState is 6 (Off - Hard) to BMC.

```
winrm invoke RequestPowerStateChange
"http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_PowerManagementService?__cimnamespac
e=root/cimv2+Name=IPMI Power
Service+CreationClassName=CIM_PowerManagementService+SystemName=Unknown.IPMI BMC
DeviceID.32+SystemCreationClassName=Host_ComputerSystem" -r:PROTOCOL:// IP_ADDRESS /wsman
-username: USERNAME -password: PASSWORD -auth:basic -encoding:utf-8 -skipCAcheck -skipCNcheck
-skipRevocationcheck -format:xml -file:input-RequestPowerStateChange6.xml
```

input-RequestPowerStateChange6.xml

```
<n1:RequestPowerStateChange_INPUT
xmlns:n1="http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_PowerManagementService"
xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
xmlns:wsman="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
<n1:PowerState>6</n1:PowerState>
<n1:ManagedElement>
<wsa:ReferenceParameters>
<wsman:ResourceURI>http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/Host_ComputerSystem
</wsman:ResourceURI>
<wsman:SelectorSet>
<wsman:Selector Name='__cimnamespace'>root/cimv2</wsman:Selector>
<wsman:Selector Name='CreationClassName'>Host_ComputerSystem</wsman:Selector>
<wsman:Selector Name='Name'>Unknown.IPMI BMC DeviceID.32</wsman:Selector>
</wsman:SelectorSet>
</wsa:ReferenceParameters>
</n1:ManagedElement>
</n1:RequestPowerStateChange_INPUT>
```

Tips This operation is equivalent to performing **Remote Access** → **Power Control** → **Forced Power Off** on Web console.

9.2.3 OS Shutdown

To use WinRM, create a file input-RequestPowerStateChange8.xml, and run the following command to issue a RequestPowerStateChange of its PowerState is 8 (Off - Soft) to BMC.

```
winrm invoke RequestPowerStateChange
"http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_PowerManagementService?__cimnamespac
e=root/cimv2+Name=IPMI Power
Service+CreationClassName=CIM_PowerManagementService+SystemName=Unknown.IPMI BMC
DeviceID.32+SystemCreationClassName=Host_ComputerSystem" -r:PROTOCOL:// IP_ADDRESS /wsman
-username: USERNAME -password: PASSWORD -auth:basic -encoding:utf-8 -skipCAcheck -skipCNcheck
-skipRevocationcheck -format:xml -file:input-RequestPowerStateChange8.xml
```

input-RequestPowerStateChange8.xml

```
<n1:RequestPowerStateChange_INPUT
xmlns:n1="http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_PowerManagementService"
xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
xmlns:wsman="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
<n1:PowerState>8</n1:PowerState>
<n1:ManagedElement>
<wsa:ReferenceParameters>
<wsman:ResourceURI>http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/Host_ComputerSystem
</wsman:ResourceURI>
<wsman:SelectorSet>
<wsman:Selector Name='__cimnamespace'>root/cimv2</wsman:Selector>
<wsman:Selector Name='CreationClassName'>Host_ComputerSystem</wsman:Selector>
<wsman:Selector Name='Name'>Unknown.IPMI BMC DeviceID.32</wsman:Selector>
</wsman:SelectorSet>
</wsa:ReferenceParameters>
</n1:ManagedElement>
</n1:RequestPowerStateChange_INPUT>
```

Tips This operation is equivalent to performing **Remote Access** → **Power Control** → **OS Shutdown** on Web console.

9.2.4 Hard Reset

To use WinRM, create a file input-RequestPowerStateChange10.xml, and run the following command to issue a RequestPowerStateChange of its PowerState is 10 (Master Bus Reset) to BMC.

```
winrm invoke RequestPowerStateChange
"http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_PowerManagementService?__cimnamespac
e=root/cimv2+Name=IPMI Power
Service+CreationClassName=CIM_PowerManagementService+SystemName=Unknown.IPMI BMC
DeviceID.32+SystemCreationClassName=Host_ComputerSystem" -r:PROTOCOL:// IP_ADDRESS /wsman
-username: USERNAME -password: PASSWORD -auth:basic -encoding:utf-8 -skipCAcheck -skipCNcheck
-skipRevocationcheck -format:xml -file:input-RequestPowerStateChange10.xml
```

input-RequestPowerStateChange10.xml

```
<n1:RequestPowerStateChange_INPUT
xmlns:n1="http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_PowerManagementService"
xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
xmlns:wsman="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
<n1:PowerState>10</n1:PowerState>
<n1:ManagedElement>
<wsa:ReferenceParameters>
<wsman:ResourceURI>http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/Host_ComputerSystem
</wsman:ResourceURI>
<wsman:SelectorSet>
<wsman:Selector Name='__cimnamespace'>root/cimv2</wsman:Selector>
<wsman:Selector Name='CreationClassName'>Host_ComputerSystem</wsman:Selector>
<wsman:Selector Name='Name'>Unknown.IPMI BMC DeviceID.32</wsman:Selector>
</wsman:SelectorSet>
</wsa:ReferenceParameters>
</n1:ManagedElement>
</n1:RequestPowerStateChange_INPUT>
```

Tips This operation is equivalent to performing **Remote Access** → **Power Control** → **System Reset** on Web console.

9.2.5 Force Dump

To use WinRM, create a file input-RequestPowerStateChange11.xml, and run the following command to issue a RequestPowerStateChange of its PowerState is 11 (Diagnostic Interrupt (NMI)) to BMC.

```
winrm invoke RequestPowerStateChange
"http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_PowerManagementService?__cimnamespac
e=root/cimv2+Name=IPMI Power
Service+CreationClassName=CIM_PowerManagementService+SystemName=Unknown.IPMI BMC
DeviceID.32+SystemCreationClassName=Host_ComputerSystem" -r:PROTOCOL:// IP_ADDRESS /wsman
-username: USERNAME -password: PASSWORD -auth:basic -encoding:utf-8 -skipCAcheck -skipCNcheck
-skipRevocationcheck -format:xml -file:input-RequestPowerStateChange11.xml
```

input-RequestPowerStateChange11.xml

```
<n1:RequestPowerStateChange_INPUT
xmlns:n1="http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_PowerManagementService"
xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
xmlns:wsman="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
<n1:PowerState>11</n1:PowerState>
<n1:ManagedElement>
<wsa:ReferenceParameters>
<wsman:ResourceURI>http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/Host_ComputerSystem
</wsman:ResourceURI>
<wsman:SelectorSet>
<wsman:Selector Name='__cimnamespace'>root/cimv2</wsman:Selector>
<wsman:Selector Name='CreationClassName'>Host_ComputerSystem</wsman:Selector>
<wsman:Selector Name='Name'>Unknown.IPMI BMC DeviceID.32</wsman:Selector>
</wsman:SelectorSet>
</wsa:ReferenceParameters>
</n1:ManagedElement>
</n1:RequestPowerStateChange_INPUT>
```

Tips

- This operation is equivalent to performing **Remote Access** → **System Operation** → **DUMP (NMI)** on Web console.
- Performing these operations while the operating system is running may cause the loss of data in the server.

9.2.6 Power Cycle

To use WinRM, create a file input-RequestPowerStateChange9.xml, and run the following command to issue a RequestPowerStateChange of its PowerState is 9 (Power Cycle (Off-Hard)) to BMC.

```
winrm invoke RequestPowerStateChange
"http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_PowerManagementService?__cimnamespac
e=root/cimv2+Name=IPMI Power
Service+CreationClassName=CIM_PowerManagementService+SystemName=Unknown.IPMI BMC
DeviceID.32+SystemCreationClassName=Host_ComputerSystem" -r:PROTOCOL:// IP_ADDRESS /wsman
-username: USERNAME -password: PASSWORD -auth:basic -encoding:utf-8 -skipCAcheck -skipCNcheck
-skipRevocationcheck -format:xml -file:input-RequestPowerStateChange9.xml
```

input-RequestPowerStateChange9.xml

```
<n1:RequestPowerStateChange_INPUT
xmlns:n1="http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_PowerManagementService"
xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
xmlns:wsman="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
<n1:PowerState>9</n1:PowerState>
<n1:ManagedElement>
<wsa:ReferenceParameters>
<wsman:ResourceURI>http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/Host_ComputerSystem
</wsman:ResourceURI>
<wsman:SelectorSet>
<wsman:Selector Name='__cimnamespace'>root/cimv2</wsman:Selector>
<wsman:Selector Name='CreationClassName'>Host_ComputerSystem</wsman:Selector>
<wsman:Selector Name='Name'>Unknown.IPMI BMC DeviceID.32</wsman:Selector>
</wsman:SelectorSet>
</wsa:ReferenceParameters>
</n1:ManagedElement>
</n1:RequestPowerStateChange_INPUT>
```

Tips This operation is equivalent to performing **Remote Access** → **Power Control** → **Power Cycle** on Web console.

9.3 Sensor Information

You can get sensor information either by enumeration of all sensors or by retrieving specified sensor.

9.3.1 Enumuration

Run the following command to enumerate sensors that have threshold values (e.g.: system power, temperature, voltage, fan speed) with WinRM.

```
winrm enumerate http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_NumericSensor
-username:USERNAME -password:PASSWORD -r:PROTOCOL://IP_ADDRESS/wsman -auth:basic
-encoding:utf-8 -skipCAcheck -skipCNcheck -skipRevocationcheck
```

Run the following command to enumerate sensors that do not threshold values (e.g.: events and sensors that show statuses of processor, power supply module, memory, and fan) with WinRM.

```
winrm enumerate http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_Sensor
-username:USERNAME -password:PASSWORD -r:PROTOCOL://IP_ADDRESS/wsman -auth:basic
-encoding:utf-8 -skipCAcheck -skipCNcheck -skipRevocationcheck
```

Important

- **Specify the IP address of EXPRESSSCOPE Engine SP3 for "IP_ADDRESS", and login user name and login password for ”USERNAME/PASSWORD” in the example.**
- **Specify http or https for "PROTOCOL" in the example.**

9.3.2 Displaying Specified Sensor

You can display the sensor data by specifying sensor number.

Run the following command to display the sensor data of sensor number 0 that has threshold value by using WinRM.

```
winrm get
"http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_NumericSensor?SystemCreationClassNam
e=CIM_ComputerSystem+CreationClassName=CIM_NumericSensor+SystemName=Unknown.IPMI BMC
DeviceID.32+DeviceID=1.0.0.32.1.99" -r:PROTOCOL://IP_ADDRESS/wsman -username:USERNAME
-password:PASSWORD -auth:basic -encoding:utf-8 -skipCAcheck -skipCNcheck -skipRevocationcheck
```

Run the following command to display the sensor data of sensor number 1 that does not have threshold value by using WinRM.

```
winrm get
"http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_Sensor?SystemCreationClassName=CIM_C
omputerSystem+CreationClassName=CIM_Sensor+SystemName=Unknown.IPMI BMC DeviceID.32+DeviceID=
2.1.0.32.b.0" -r:PROTOCOL://IP_ADDRESS/wsman -username:USERNAME -password:PASSWORD -auth:basic
-encoding:utf-8 -skipCAcheck -skipCNcheck -skipRevocationcheck
```

Important

- **Specify the IP address of EXPRESSSCOPE Engine SP3 for "IP_ADDRESS", and login user name and login password for ”USERNAME/PASSWORD” in the example.**
- **Specify http or https for "PROTOCOL" in the example.**
- **Specify ”Unknown.IPMI BMC DeviceID.32” for <SystemName>.**

10. Installing Software Components

Continue to install software components such as OS.

Refer to the instructions below.

- Windows: Installation Guide (Windows)
- Linux: Installation Guide (Linux)

11. Turning Off the Server

Turn off the server (DC OFF) by using the following procedure.

1. Shut down the OS.
2. The server automatically turns off after the OS shuts down.
   Confirm that SYSTEM POWER LED is OFF.
3. Turn off peripheral devices.

If you turn AC power off after DC OFF, perform any one of the following 2 procedures.

Important

If AC power off procedure is not performed properly, configuration information you have made on web console and/or BIOS SETUP, and device offline information due to failure might be lost. Even in such a case, the system can boot by performing AC ON and then DC ON. However, the setting values are restored to default and no offlined device exists. Configuration information can be recovered by restoring it before DC ON, but the offlined device information cannot be restored. Thus, the failure same as before might be detected at system boot or while the system is running. To avoid this, view the fault information to identify the failed component and remove it, or disable the failed component on web console.

Note

Optional components (CRU) can be replaced with AC power being on, thus the procedure for AC off below is not necessary.

① After DC OFF, perform AC OFF procedure in 70 seconds or more: refer to AC OFF execution procedure ①

② After DC OFF, shutdown BMC and then perform AC OFF procedure: refer to AC OFF execution procedure ②

Note

If the power cord of the server is connected to a UPS, refer to the documentation supplied with the UPS or the documentation for the application controlling the UPS.

[**AC OFF execution procedure ①**]

1. After DC OFF, please wait about 70 seconds or more.
2. Turn AC power off.

   Disconnect power cable from outlet, and from the server. If the power cord of the server is connected to a UPS, turn off the power supply of the UPS.

Important

After AC OFF, wait about 30 seconds before starting the next work. Some components on motherboard might be working for about 30 seconds.

[**AC OFF execution procedure ②**]

1. Press the BMC OFF switch at front of the server for 4 seconds or longer to shutdown BMC (It may take about 30 seconds to shutdown BMC).
2. Confirm that STATUS LEDs for all MGB are turned off.

Important **After confirming that STATUS LEDs for all MGB are turned off, wait for about 30 seconds.**

3. Turn AC power off.

   Disconnect power cable from outlet, and from the server. If the power cord of the server is connected to a UPS, turn off the power supply of the UPS.

Important **After AC OFF, wait about 30 seconds before starting the next work. Some components on motherboard might be working for about 30 seconds.**

NEC Express5800 Series

Express5800/ A1040c, A2040c, A2020c, A2010c

4

Appendix

1. **Specifications**

   Lists specification of the server.

2. **Operation Mode**

   Describes operation mode that the server supports.

3. **Settings for Each OS and Each SMS**

   Describes BMC settings and BIOS settings for each operating system. Also, describes BMC settings for each SMS.

4. **BMC Failover Setup Procedure**

   Describes the procedure for setting up BMC failover.

1. Specifications

1.1 EXPRESS5800/ A1040c (1/2)

Product Code			(Base Unit)	NE3300-090F			
			(CPU)	NE3301-H011F	NE3301-H012F	NE3301-H013F	NE3301-H014F
CPU	CPU			Intel ®Xeon® processor E7-8800/4800			
				E7-8890 v3	E7-8880 v3 *1	E7-8870 v3	E7-4850 v3
	Clock speed			2.5GHz	2.3GHz	2.1GHz	2.2GHz
	Number of CPUs, minimum/maximum			1/4 (CPUs are not pre-installed in the Base Unit)			
	3rd cache			45MB			35MB
	Number of cores (C) / Number of threads (T) per CPU			18C / 36T			14C / 28T
Chipset				Intel ® C602-J chipset			
Memory	Capacity, standard/maximum			Not pre-installed/ 4TB (64x64GB)			
	Memory module			DDR4-2133 Registered DIMM(8GB/16GB/32GB) / DDR4-2133 Load Reduced DIMM(32GB/64GB)			
	Maximum clock speed			1866MHz			
	Error check, correction			ECC, x4 SDDC(Independent mode), x4 DDDC(LockStep mode)			
	Rank sparing			Supported			
	Memory mirroring			Supported			
Auxiliary storage device	Hard disk drive	Internal (standard)		–			
		Internal (maximum)		HDD : SAS 14.4TB(8x 1.8TB), SSD : SAS 3.2TB(8x 400GB)			
		Hot plug		Supported			
	Interface / RAID level			SAS 12Gb/s : RAID 0 / 1 / 5 / 6 / 10 / 50 / 60			
	Optical disk drive			Internal drive (option)			
	Expansion bay			None			
Expansion slots	Supported slots			14x PCI EXPRESS 3.0(x8 lane, x8 socket) (Low profile, 167.6mm in length)			
				2x PCI EXPRESS 3.0(x4 lane, x8 socket) (Low profile, 167.6mm in length)			
Graphics	Chip/Video RAM			Embedded in management controller chip / 8MB			
	Graphic display / resolution			16,770,000 colors: 640x480, 800x600, 1,024x768, 1,152x864, 1,280x1,024, 1,600x1,200			
Standard interface				5x USB 2.0(3x front, 1x rear, 1x internal), 1x Analog RGB (Mini D-sub 15-pin, 1x front), 1x SUV (2x USB / 1x VGA / 1x Serial, 1x rear)			
				1x Maintenance LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 1x rear)			
				1x Management LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 1x rear)			
Power supply unit				Not pre-installed / 4 units max.			
				800W or 1000W(*2) 80 Plus® Platinum compliant(bipolar grounded outlet) (hot-plug available)			
				AC 100/200V±10%, 50/60Hz			
Redundant power supply				Supported (hot-plug available)			
Redundant fan				Supported (standard, hot-plug available)			
External dimensions (width × depth × height)				443.0 x 719.3 x 174.5 mm (w/o protuberance/inner rail) 482.6 x 891.0 x 175.5 mm (including protuberance/inner rail)			

Product Code	(Base Unit)	NE3300-090F			
	(CPU)	NE3301-H011F	NE3301-H012F	NE3301-H013F	NE3301-H014F
Weight (Min. / Max.)		35Kg/53Kg			
Power consumption (100V maximum configuration, Standby)		1291VA / 1265W	1291VA / 1265W	1291VA / 1265W	1291VA / 1265W
Power consumption (100V maximum configuration, High Load)		2311VA / 2265W	2250VA / 2205W	2209VA / 2165W	2107VA / 2065W
Power consumption (200V maximum configuration, Standby)		1285VA / 1259W	1285VA / 1259W	1285VA / 1259W	1285VA / 1259W
Power consumption (200V maximum configuration, High Load)		2300VA / 2254W	2239VA / 2194W	2198VA / 2154W	2096VA / 2054W
Carolific value(KJ/h)		8334	8118	7974	7614
Environmental requirements Temperature/Humidity		Operating: 10 to 40°C / 20 to 80%, Storage: -10 to 55°C / 20 to 80% (no condensation either when operating or when stored)			
Accessories		EXPRESSBUILDER (NEC ESMPRO Manager (Windows/Linux), NEC ESMPRO ServerAgentService, NEC ESMPRO Agent, User's Guide (electronic document) included), Getting Started, Rack mount kit, TeDoLi (System Diagnostic Tool), SUV cable			
Installed OS		–			
Supported OS		Microsoft® Windows Server® 2012 Standard, Microsoft® Windows Server® 2012 Datacenter Microsoft® Windows Server® 2012 R2 Standard, Microsoft® Windows Server® 2012 R2 Datacenter Red Hat® Enterprise Linux® 6.6 or later (x86_64) Oracle® Linux 6.6/UEK R2 or later (x86_64) VMware® ESXi™ 5.5 Update 2, VMware® ESXi™ 6.0			

*1 CTO production. Lead time is different from standard products.

*2 1000 W when 100VAC is applied. 1200 W when 200 VAC is applied.

1.2 EXPRESS5800/ A1040c (2/2)

Product Code	(Base Unit)	NE3300-090F			
	(CPU)	NE3300-015F	NE3300-016F	NE3300-017F	NE3300-018F
CPU	CPU	Intel ®Xeon® processor E7-8800/4800			
		E7-4820 v3	E7-4809 v3	E7-8891 v3	E7-8893 v3
	Clock speed	1.9GHz	2.0GHz	2.8GHz	3.2GHz
	Number of CPUs, minimum/maximum	1/4 (CPUs are not pre-installed in the Base Unit)			
	3rd cache	25MB	20MB	45MB	
	Number of cores (C) / Number of threads (T) per CPU	10C / 20T	8C / 16T	10C / 20T	4C / 8T
Chipset		Intel ® C602-J chipset			
Memory	Capacity, standard/maximum	Not pre-installed/ 4TB (64x64GB)			
	Memory module	DDR4-2133 Registered DIMM(8GB/16GB/32GB) / DDR4-2133 Load Reduced DIMM(32GB/64GB)			
	Maximum clock speed	1866MHz			
	Error check, correction	ECC, x4 SDDC(Independent mode), x4 DDDC(LockStep mode)			
	Rank sparing	Supported			
	Memory mirroring	Supported			
Auxiliary storage device	Hard disk drive: Internal (standard)	–			
	Hard disk drive: Internal (maximum)	HDD : SAS 14.4TB(8x 1.8TB), SSD : SAS 3.2TB(8x 400GB)			
	Hard disk drive: Hot plug	Supported			
	Interface / RAID level	SAS 12Gb/s : RAID 0 / 1 / 5 / 6 / 10 / 50 / 60			
	Optical disk drive	Internal drive (option)			
	Expansion bay	None			
Expansion slots	Supported slots	14x PCI EXPRESS 3.0(x8 lane, x8 socket) (Low profile, 167.6mm in length)			
		2x PCI EXPRESS 3.0(x4 lane, x8 socket) (Low profile, 167.6mm in length)			
Graphics	Chip/Video RAM	Embedded in management controller chip / 8MB			
	Graphic display / resolution	16,770,000 colors: 640x480, 800x600, 1,024x768, 1,152x864, 1,280x1,024, 1,600x1,200			
Standard interface		5x USB 2.0(3x front, 1x rear, 1x internal), 1x Analog RGB (Mini D-sub 15-pin, 1x front), 1x SUV (2x USB / 1x VGA / 1x Serial, 1x rear)			
		1x Maintenance LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 1x rear)			
		1x Management LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 1x rear)			
Power supply unit		Not pre-installed / 4 units max.			
		800W or 1000W(*2) 80 Plus® Platinum compliant(bipolar grounded outlet) (hot-plug available)			
		AC 100/200V±10%, 50/60Hz			
Redundant power supply		Supported (hot-plug available)			
Redundant fan		Supported (standard, hot-plug available)			
External dimensions (width × depth × height)		443.0 x 719.3 x 174.5 mm (w/o protuberance/inner rail) 482.6 x 891.0 x 175.5 mm (including protuberance/inner rail)			
Weight (Min. / Max.)		35Kg/53Kg			
Power consumption (100V maximum configuration, Standby)		1291VA / 1265W	1291VA / 1265W	1291VA / 1265W	1291VA / 1265W

Product Code	(Base Unit)	NE3300-090F			
	(CPU)	NE3300-015F	NE3300-016F	NE3300-017F	NE3300-018F
Power consumption (100V maximum configuration, High Load)		2107VA / 2065W	2107VA / 2065W	2311VA / 2265W	2209VA / 2165W
Power consumption (200V maximum configuration, Standby)		1285VA / 1259W	1285VA / 1259W	1285VA / 1259W	1285VA / 1259W
Power consumption (200V maximum configuration, High Load)		2096VA / 2054W	2096VA / 2054W	2300VA / 2254W	2198VA / 2154W
Carolific value(KJ/h)		7614	7614	8334	7974
Environmental requirements Temperature/Humidity		Operating: 10 to 40°C / 20 to 80%, Storage: -10 to 55°C / 20 to 80% (no condensation either when operating or when stored)			
Accessories		EXPRESSBUILDER (NEC ESMPRO Manager (Windows/Linux), NEC ESMPRO ServerAgentService, NEC ESMPRO Agent, User's Guide (electronic document) included), Getting Started, Rack mount kit, TeDoLi (System Diagnostic Tool) , SUV cable			
Installed OS		–			
Supported OS		Microsoft® Windows Server® 2012 Standard, Microsoft® Windows Server® 2012 Datacenter Microsoft® Windows Server® 2012 R2 Standard, Microsoft® Windows Server® 2012 R2 Datacenter Red Hat® Enterprise Linux® 6.6 or later (x86_64) Oracle® Linux 6.6/UEK R2 or later (x86_64) VMware® ESXi™ 5.5 Update 2, VMware® ESXi™ 6.0			

*1 CTO production. Lead time is different from standard products.

*2 1000 W when 100VAC is applied. 1200 W when 200 VAC is applied.

1.3 EXPRESS5800/ A2040c (1/2)

Product Code			(Base Unit)	NE3400-090F			
				NE3400-091F **			
			(CPU)	NE3301-H011F	NE3301-H012F	NE3301-H013F	NE3301-H014F
CPU	CPU			Intel ®Xeon® processor E7-8800/4800			
				E7-8890 v3	E7-8880 v3 *1	E7-8870 v3	E7-4850 v3
	Clock speed			2.5GHz	2.3GHz	2.1GHz	2.2GHz
	Number of CPUs, minimum/maximum			2/4 (CPUs are not pre-installed in the Base Unit)			
	3rd cache			45MB			35MB
	Number of cores (C) / Number of threads (T) per CPU			18C / 36T			14C / 28T
Chipset				Intel ® C602-J chipset			
Memory	Capacity, standard/maximum			Not pre-installed/ 4TB (64x64GB)			
	Memory module			DDR4-2133 Registered DIMM(8GB/16GB/32GB) / DDR4-2133 Load Reduced DIMM(32GB/64GB)			
	Maximum clock speed			1866MHz			
	Error check, correction			ECC, x4 SDDC(Independent mode), x4 DDDC(LockStep mode)			
	Rank sparing			Supported			
	Memory mirroring			Supported			
Auxiliary storage device	Hard disk drive	Internal (standard)		–			
		Internal (maximum)		HDD : SAS 14.4TB(8x 1.8TB), SSD : SAS 3.2TB(8x 400GB)			
		Hot plug		Supported			
	Interface / RAID level			SAS 12Gb/s : RAID 0 / 1 / 5 / 6 / 10 / 50 / 60			
	Optical disk drive			Internal drive (option)			
	Expansion bay			None			
Expansion slots	Supported slots			14x PCI EXPRESS 3.0(x8 lane, x8 socket) (Low profile, 167.6mm in length)			
				2x PCI EXPRESS 3.0(x4 lane, x8 socket) (Low profile, 167.6mm in length)			
Graphics	Chip/Video RAM			Embedded in management controller chip / 8MB			
	Graphic display / resolution			16,770,000 colors: 640x480, 800x600, 1,024x768, 1,152x864, 1,280x1,024, 1,600x1,200			
Standard interface				5x USB 2.0(3x front, 1x rear, 1x internal), 1x Analog RGB (Mini D-sub 15-pin, 1x front), 1x SUV (2x USB / 1x VGA / 1x Serial, 1x rear)			
				2x Maintenance LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 2x rear)			
				2x Management LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 2x rear)			
Power supply unit				Not pre-installed / 4 units max.			
				800W or 1000W(*2) 80 Plus® Platinum compliant(bipolar grounded outlet) (hot-plug available)			
				AC 100/200V±10%, 50/60Hz			
Redundant power supply				Supported (hot-plug available)			
Redundant fan				Supported (standard, hot-plug available)			
External dimensions (width × depth × height)				443.0 x 719.3 x 174.5 mm (w/o protuberance/inner rail) 482.6 x 892.5 x 175.5 mm (including protuberance/inner rail)			
Weight (Min. / Max.)				36Kg/54Kg			

Product Code	(Base Unit)	NE3400-090F			
		NE3400-091F **			
	(CPU)	NE3301-H011F	NE3301-H012F	NE3301-H013F	NE3301-H014F
Power consumption (100V maximum configuration, Standby)		1298VA / 1272W	1298VA / 1272W	1298VA / 1272W	1298VA / 1272W
Power consumption (100V maximum configuration, High Load)		2319VA / 2273W	2258VA / 2213W	2217VA / 2173W	2115VA / 2073W
Power consumption (200V maximum configuration, Standby)		1291VA / 1265W	1291VA / 1265W	1291VA / 1265W	1291VA / 1265W
Power consumption (200V maximum configuration, High Load)		2307VA / 2261W	2246VA / 2201W	2205VA / 2161W	2103VA / 2061W
Carolific value(KJ/h)		8363	8147	8003	7643
Environmental requirements Temperature/Humidity		Operating: 10 to 40°C / 20 to 80%, Storage: -10 to 55°C / 20 to 80% (no condensation either when operating or when stored)			
Accessories		EXPRESSBUILDER (NEC ESMPRO Manager (Windows/Linux), NEC ESMPRO ServerAgentService, NEC ESMPRO Agent, User's Guide (electronic document) included), Getting Started, Rack mount kit, TeDoLi (System Diagnostic Tool), Codeword Notification (only for COPT-supported model) , SUV cable			
Installed OS		–			
Supported OS		Microsoft® Windows Server® 2012 Standard, Microsoft® Windows Server® 2012 Datacenter Microsoft® Windows Server® 2012 R2 Standard, Microsoft® Windows Server® 2012 R2 Datacenter Red Hat® Enterprise Linux® 6.6 or later (x86_64) Oracle® Linux 6.6/UEK R2 or later (x86_64) VMware® ESXi™ 5.5 Update 2, VMware® ESXi™ 6.0			

** COPT-supported model

*1 CTO production. Lead time is different from standard products.

*2 1000 W when 100VAC is applied. 1200 W when 200 VAC is applied.

1.4 EXPRESS5800/ A2040c (2/2)

Product Code			(Base Unit)	NE3400-090F			
				NE3400-091F **			
			(CPU)	NE3301-H015F	NE3301-H016F	NE3301-H017F	NE3301-H018F
CPU	CPU			Intel ®Xeon® processor E7-8800/4800			
				E7-4820 v3	E7-4809 v3	E7-8891 v3	E7-8893 v3
	Clock speed			1.9GHz	2.0GHz	2.8GHz	3.2GHz
	Number of CPUs, minimum/maximum			2/4 (CPUs are not pre-installed in the Base Unit)			
	3rd cache			25MB	20MB	45MB	
	Number of cores (C) / Number of threads (T) per CPU			10C / 20T	8C / 16T	10C / 20T	4C / 8T
Chipset				Intel ® C602-J chipset			
Memory	Capacity, standard/maximum			Not pre-installed/ 4TB (64x64GB)			
	Memory module			DDR4-2133 Registered DIMM(8GB/16GB/32GB) / DDR4-2133 Load Reduced DIMM(32GB/64GB)			
	Maximum clock speed			1866MHz			
	Error check, correction			ECC, x4 SDDC(Independent mode), x4 DDDC(LockStep mode)			
	Rank sparing			Supported			
	Memory mirroring			Supported			
Auxiliary storage device	Hard disk drive	Internal (standard)		–			
		Internal (maximum)		HDD : SAS 14.4TB(8x 1.8TB), SSD : SAS 3.2TB(8x 400GB)			
		Hot plug		Supported			
	Interface / RAID level			SAS 12Gb/s : RAID 0 / 1 / 5 / 6 / 10 / 50 / 60			
	Optical disk drive			Internal drive (option)			
	Expansion bay			None			
Expansion slots	Supported slots			14x PCI EXPRESS 3.0(x8 lane, x8 socket) (Low profile, 167.6mm in length)			
				2x PCI EXPRESS 3.0(x4 lane, x8 socket) (Low profile, 167.6mm in length)			
Graphics	Chip/Video RAM			Embedded in management controller chip / 8MB			
	Graphic display / resolution			16,770,000 colors: 640x480, 800x600, 1,024x768, 1,152x864, 1,280x1,024, 1,600x1,200			
Standard interface				5x USB 2.0(3x front, 1x rear, 1x internal), 1x Analog RGB (Mini D-sub 15-pin, 1x front), 1x SUV (2x USB / 1x VGA / 1x Serial, 1x rear)			
				2x Maintenance LAN connector (1000BASE-T/100BASE-T/10BASE-T supported, RJ45, 2x rear)			
				2x Management LAN connector (1000BASE-T/100BASE-T/10BASE-T supported, RJ45, 2x rear)			
Power supply unit				Not pre-installed / 4 units max.			
				800W or 1000W(*2) 80 Plus® Platinum compliant(bipolar grounded outlet) (hot-plug available)			
				AC 100/200V±10%, 50/60Hz			
Redundant power supply				Supported (hot-plug available)			
Redundant fan				Supported (standard, hot-plug available)			
External dimensions (width × depth × height)				443.0 x 719.3 x 174.5 mm (w/o protuberance/inner rail) 482.6 x 892.5 x 175.5 mm (including protuberance/inner rail)			
Weight (Min. / Max.)				36Kg/54Kg			

Product Code	(Base Unit)	NE3400-090F			
		NE3400-091F **			
	(CPU)	NE3301-H015F	NE3301-H016F	NE3301-H017F	NE3301-H018F
Power consumption (100V maximum configuration, Standby)		1298VA / 1272W	1298VA / 1272W	1298VA / 1272W	1298VA / 1272W
Power consumption (100V maximum configuration, High Load)		2115VA / 2073W	2115VA / 2073W	2319VA / 2273W	2217VA / 2173W
Power consumption (200V maximum configuration, Standby)		1291VA / 1265W	1291VA / 1265W	1291VA / 1265W	1291VA / 1265W
Power consumption (200V maximum configuration, High Load)		2103VA / 2061W	2103VA / 2061W	2307VA / 2261W	2205VA / 2161W
Carolific value(KJ/h)		7643	7643	8363	8003
Environmental requirements Temperature/Humidity		Operating: 10 to 40°C / 20 to 80%, Storage: -10 to 55°C / 20 to 80% (no condensation either when operating or when stored)			
Accessories		EXPRESSBUILDER (NEC ESMPRO Manager (Windows/Linux), NEC ESMPRO ServerAgentService, NEC ESMPRO Agent, User's Guide (electronic document) included), Getting Started, Rack mount kit, TeDoLi (System Diagnostic Tool), Codeword Notification (only for COPT-supported model) , SUV cable			
Installed OS		–			
Supported OS		Microsoft® Windows Server® 2012 Standard, Microsoft® Windows Server® 2012 Datacenter Microsoft® Windows Server® 2012 R2 Standard, Microsoft® Windows Server® 2012 R2 Datacenter Red Hat® Enterprise Linux® 6.6 or later (x86_64) Oracle® Linux 6.6/UEK R2 or later (x86_64) VMware® ESXi™ 5.5 Update 2, VMware® ESXi™ 6.0			

** COPT-supported model

*1 CTO production. Lead time is different from standard products.

*2 1000 W when 100VAC is applied. 1200 W when 200 VAC is applied.

1.5 EXPRESS5800/ A2020c (1/2)

Product Code			NE3400-071F	NE3400-072F	NE3400-073F	NE3400-074F
CPU	CPU		Intel ®Xeon® processor E7-8800/4800			
			E7-8890 v3	E7-8880 v3 *1	E7-8870 v3	E7-4850 v3
	Clock speed		2.5GHz	2.3GHz	2.1GHz	2.2GHz
	Number of CPUs, minimum/maximum		2/2 (CPUs are pre-installed)			
	3rd cache		45MB			35MB
	Number of cores (C) / Number of threads (T) per CPU		18C / 36T			14C / 28T
Chipset			Intel ® C602-J chipset			
Memory	Capacity, standard/maximum		Not pre-installed/ 4TB (64x64GB)			
	Memory module		DDR4-2133 Registered DIMM(8GB/16GB/32GB) / DDR4-2133 Load Reduced DIMM(32GB/64GB)			
	Maximum clock speed		1866MHz			
	Error check, correction		ECC, x4 SDDC(Independent mode), x4 DDDC(LockStep mode)			
	Rank sparing		Supported			
	Memory mirroring		Supported			
Auxiliary storage device	Hard disk drive	Internal (standard)	–			
		Internal (maximum)	HDD : SAS 14.4TB(8x 1.8TB), SSD : SAS 3.2TB(8x 400GB)			
		Hot plug	Supported			
	Interface / RAID level		SAS 12Gb/s : RAID 0 / 1 / 5 / 6 / 10 / 50 / 60			
	Optical disk drive		Internal drive (option)			
	Expansion bay		None			
Expansion slots	Supported slots		14x PCI EXPRESS 3.0(x8 lane, x8 socket) (Low profile, 167.6mm in length)			
			2x PCI EXPRESS 3.0(x4 lane, x8 socket) (Low profile, 167.6mm in length)			
Graphics	Chip/Video RAM		Embedded in management controller chip / 8MB			
	Graphic display / resolution		16,770,000 colors: 640x480, 800x600, 1,024x768, 1,152x864, 1,280x1,024, 1,600x1,200			
Standard interface			5x USB 2.0(3x front, 1x rear, 1x internal), 1x Analog RGB (Mini D-sub 15-pin, 1x front), 1x SUV (2x USB / 1x VGA / 1x Serial, 1x rear)			
			2x Maintenance LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 2x rear)			
			2x Management LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 2x rear)			
Power supply unit			Not pre-installed / 4 units max.			
			800W or 1000W(*2) 80 Plus® Platinum compliant(bipolar grounded outlet) (hot-plug available)			
			AC 100/200V±10%, 50/60Hz			
Redundant power supply			Supported (hot-plug available)			
Redundant fan			Supported (standard, hot-plug available)			
External dimensions (width × depth × height)			443.0 x 719.3 x 174.5 mm (w/o protuberance/inner rail) 482.6 x 892.5 x 175.5 mm (including protuberance/inner rail)			
Weight (Min. / Max.)			36Kg/54Kg			
Power consumption (100V maximum configuration, Standby)			1298VA / 1272W	1298VA / 1272W	1298VA / 1272W	1298VA / 1272W
Power consumption (100V maximum configuration, High Load)			2185VA / 2141W	2136VA / 2093W	2103VA / 2061W	2021VA / 1981W

Product Code	NE3400-071F	NE3400-072F	NE3400-073F	NE3400-074F
Power consumption (200V maximum configuration, Standby)	1291VA / 1265W	1291VA / 1265W	1291VA / 1265W	1291VA / 1265W
Power consumption (200V maximum configuration, High Load)	2172VA / 2129W	2123VA / 2081W	2091VA / 2049W	2009VA / 1969W
Carolific value(KJ/h)	7888	7715	7600	7312
Environmental requirements Temperature/Humidity	Operating: 10 to 40°C / 20 to 80%, Storage: -10 to 55°C / 20 to 80% (no condensation either when operating or when stored)			
Accessories	EXPRESSBUILDER (NEC ESMPRO Manager (Windows/Linux), NEC ESMPRO ServerAgentService, NEC ESMPRO Agent, User's Guide (electronic document) included), Getting Started, Rack mount kit, TeDoLi (System Diagnostic Tool) , SUV cable			
Installed OS	–			
Supported OS	Microsoft® Windows Server® 2012 Standard, Microsoft® Windows Server® 2012 Datacenter Microsoft® Windows Server® 2012 R2 Standard, Microsoft® Windows Server® 2012 R2 Datacenter Red Hat® Enterprise Linux® 6.6 or later (x86_64) Oracle® Linux 6.6/UEK R2 or later (x86_64) VMware® ESXi™ 5.5 Update 2, VMware® ESXi™ 6.0			

*1 CTO production. Lead time is different from standard products.

*2 1000 W when 100VAC is applied. 1200 W when 200 VAC is applied.

1.6 EXPRESS5800/ A2020c (2/2)

Product Code			NE3400-075F	NE3400-076F	NE3400-077F	NE3400-078F
CPU	CPU		Intel ®Xeon® processor E7-8800/4800			
			E7-4820 v3	E7-4809 v3	E7-8891 v3	E7-8893 v3
	Clock speed		1.9GHz	2.0GHz	2.8GHz	3.2GHz
	Number of CPUs, minimum/maximum		2/2 (CPUs are pre-installed)			
	3rd cache		25MB	20MB	45MB	
	Number of cores (C) / Number of threads (T) per CPU		10C / 20T	8C / 16T	10C / 20T	4C / 8T
Chipset			Intel ® C602-J chipset			
Memory	Capacity, standard/maximum		Not pre-installed/ 4TB (64x64GB)			
	Memory module		DDR4-2133 Registered DIMM(8GB/16GB/32GB) / DDR4-2133 Load Reduced DIMM(32GB/64GB)			
	Maximum clock speed		1866MHz			
	Error check, correction		ECC, x4 SDDC(Independent mode), x4 DDDC(LockStep mode)			
	Rank sparing		Supported			
	Memory mirroring		Supported			
Auxiliary storage device	Hard disk drive	Internal (standard)	–			
		Internal (maximum)	HDD : SAS 14.4TB(8x 1.8TB), SSD : SAS 3.2TB(8x 400GB)			
		Hot plug	Supported			
	Interface / RAID level		SAS 12Gb/s : RAID 0 / 1 / 5 / 6 / 10 / 50 / 60			
	Optical disk drive		Internal drive (option)			
	Expansion bay		None			
Expansion slots	Supported slots		14x PCI EXPRESS 3.0(x8 lane, x8 socket) (Low profile, 167.6mm in length)			
			2x PCI EXPRESS 3.0(x4 lane, x8 socket) (Low profile, 167.6mm in length)			
Graphics	Chip/Video RAM		Embedded in management controller chip / 8MB			
	Graphic display / resolution		16,770,000 colors: 640x480, 800x600, 1,024x768, 1,152x864, 1,280x1,024, 1,600x1,200			
Standard interface			5x USB 2.0(3x front, 1x rear, 1x internal), 1x Analog RGB (Mini D-sub 15-pin, 1x front), 1x SUV (2x USB / 1x VGA / 1x Serial, 1x rear)			
			2x Maintenance LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 2x rear)			
			2x Management LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 2x rear)			
Power supply unit			Not pre-installed / 4 units max.			
			800W or 1000W(*2) 80 Plus® Platinum compliant(bipolar grounded outlet) (hot-plug available)			
			AC 100/200V±10%, 50/60Hz			
Redundant power supply			Supported (hot-plug available)			
Redundant fan			Supported (standard, hot-plug available)			
External dimensions (width × depth × height)			443.0 x 719.3 x 174.5 mm (w/o protuberance/inner rail) 482.6 x 892.5 x 175.5 mm (including protuberance/inner rail)			
Weight (Min. / Max.)			36Kg/54Kg			
Power consumption (100V maximum configuration, Standby)			1298VA / 1272W	1298VA / 1272W	1298VA / 1272W	1298VA / 1272W
Power consumption (100V maximum configuration, High Load)			2021VA / 1981W	2021VA / 1981W	2185VA / 2141W	2103VA / 2061W

Product Code	NE3400-075F	NE3400-076F	NE3400-077F	NE3400-078F
Power consumption (200V maximum configuration, Standby)	1291VA / 1265W	1291VA / 1265W	1291VA / 1265W	1291VA / 1265W
Power consumption (200V maximum configuration, High Load)	2009VA / 1969W	2009VA / 1969W	2172VA / 2129W	2091VA / 2049W
Carolific value(KJ/h)	7312	7312	7888	7600
Environmental requirements Temperature/Humidity	Operating: 10 to 40°C / 20 to 80%, Storage: -10 to 55°C / 20 to 80% (no condensation either when operating or when stored)			
Accessories	EXPRESSBUILDER (NEC ESMPRO Manager (Windows/Linux), NEC ESMPRO ServerAgentService, NEC ESMPRO Agent, User's Guide (electronic document) included), Getting Started, Rack mount kit, TeDoLi (System Diagnostic Tool) , SUV cable			
Installed OS	–			
Supported OS	Microsoft® Windows Server® 2012 Standard, Microsoft® Windows Server® 2012 Datacenter Microsoft® Windows Server® 2012 R2 Standard, Microsoft® Windows Server® 2012 R2 Datacenter Red Hat® Enterprise Linux® 6.6 or later (x86_64) Oracle® Linux 6.6/UEK R2 or later (x86_64) VMware® ESXi™ 5.5 Update 2, VMware® ESXi™ 6.0			

*1 CTO production. Lead time is different from standard products.

*2 1000 W when 100VAC is applied. 1200 W when 200 VAC is applied.

1.7 EXPRESS5800/ A2010c (1/2)

Product Code			NE3400-081F	NE3400-082F	NE3400-083F	NE3400-084F
CPU	CPU		Intel ®Xeon® processor E7-8800/4800			
			E7-8890 v3	E7-8880 v3 *1	E7-4850 v3	E7-4820 v3
	Clock speed		2.5GHz	2.3GHz	2.1GHz	2.2GHz
	Number of CPUs, minimum/maximum		1/1 (CPU is pre-installed)			
	3rd cache		37.5MB			35MB
	Number of cores (C) / Number of threads (T) per CPU		18C / 36T			14C / 28T
Chipset			Intel ® C602-J chipset			
Memory	Capacity, standard/maximum		Not pre-installed/ 2TB (32x64GB)			
	Memory module		DDR4-2133 Registered DIMM(8GB/16GB/32GB) / DDR4-2133 Load Reduced DIMM(32GB/64GB)			
	Maximum clock speed		1866MHz			
	Error check, correction		ECC, x4 SDDC(Independent mode), x4 DDDC(LockStep mode)			
	Rank sparing		Supported			
	Memory mirroring		Supported			
Auxiliary storage device	Hard disk drive	Internal (standard)	–			
		Internal (maximum)	HDD : SAS 14.4TB(8x 1.8TB), SSD : SAS 3.2TB(8x 400GB)			
		Hot plug	Supported			
	Interface / RAID level		SAS 12Gb/s : RAID 0 / 1 / 5 / 6 / 10 / 50 / 60			
	Optical disk drive		Internal drive (option)			
	Expansion bay		None			
Expansion slots	Supported slots		7x PCI EXPRESS 3.0(x8 lane, x8 socket) (Low profile, 167.6mm in length)			
			2x PCI EXPRESS 3.0(x4 lane, x8 socket) (Low profile, 167.6mm in length)			
Graphics	Chip/Video RAM		Embedded in management controller chip / 8MB			
	Graphic display / resolution		16,770,000 colors: 640x480, 800x600, 1,024x768, 1,152x864, 1,280x1,024, 1,600x1,200			
Standard interface			5x USB 2.0(3x front, 1x rear, 1x internal), 1x Analog RGB (Mini D-sub 15-pin, 1x front), 1x SUV (2x USB / 1x VGA / 1x Serial, 1x rear)			
			2x Maintenance LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 2x rear)			
			2x Management LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 2x rear)			
Power supply unit			Not pre-installed / 4 units max.			
			800W or 1000W(*2) 80 Plus® Platinum compliant(bipolar grounded outlet) (hot-plug available)			
			AC 100/200V±10%, 50/60Hz			
Redundant power supply			Supported (hot-plug available)			
Redundant fan			Supported (standard, hot-plug available)			
External dimensions (width × depth × height)			443.0 x 719.3 x 174.5 mm (w/o protuberance/inner rail) 482.6 x 892.5 x 175.5 mm (including protuberance/inner rail)			
Weight (Min. / Max.)			36Kg/48Kg			
Power consumption (100V maximum configuration, Standby)			929VA / 911W	929VA / 911W	929VA / 911W	929VA / 911W
Power consumption (100V maximum configuration, High Load)			1381VA / 1354W	1357VA / 1330W	1340VA / 1314W	1300VA / 1274W

Product Code	NE3400-081F	NE3400-082F	NE3400-083F	NE3400-084F
Power consumption (200V maximum configuration, Standby)	925VA / 906W	925VA / 906W	925VA / 906W	925VA / 906W
Power consumption (200V maximum configuration, High Load)	1374VA / 1346W	1349VA / 1322W	1333VA / 1306W	1292VA / 1266W
Carolific value(KJ/h)	5053	4966	4909	4765
Environmental requirements Temperature/Humidity	Operating: 10 to 40°C / 20 to 80%, Storage: -10 to 55°C / 20 to 80% (no condensation either when operating or when stored)			
Accessories	EXPRESSBUILDER (NEC ESMPRO Manager (Windows/Linux), NEC ESMPRO ServerAgentService, NEC ESMPRO Agent, User's Guide (electronic document) included), Getting Started, Rack mount kit, TeDoLi (System Diagnostic Tool) , SUV cable			
Installed OS	–			
Supported OS	Microsoft® Windows Server® 2012 Standard, Microsoft® Windows Server® 2012 Datacenter Microsoft® Windows Server® 2012 R2 Standard, Microsoft® Windows Server® 2012 R2 Datacenter Red Hat® Enterprise Linux® 6.6 or later (x86_64) Oracle® Linux 6.6/UEK R2 or later (x86_64) VMware® ESXi™ 5.5 Update 2, VMware® ESXi™ 6.0			

*1 CTO production. Lead time is different from standard products.

*2 1000 W when 100VAC is applied. 1200 W when 200 VAC is applied.

1.8 EXPRESS5800/ A2010c (2/2)

Product Code			NE3400-085F	NE3400-086F	NE3400-087F	NE3400-088F
CPU	CPU		Intel ®Xeon® processor E7-8800/4800			
			E7-4820 v3	E7-4809 v3	E7-8891 v3	E7-8893 v3
	Clock speed		1.9GHz	2.0GHz	2.8GHz	3.2GHz
	Number of CPUs, minimum/maximum		1/1 (CPU is pre-installed)			
	3rd cache		25MB	20MB	45MB	
	Number of cores (C) / Number of threads (T) per CPU		10C / 20T	8C / 16T	10C / 20T	4C / 8T
Chipset			Intel ® C602-J chipset			
Memory	Capacity, standard/maximum		Not pre-installed/ 2TB (32x64GB)			
	Memory module		DDR4-2133 Registered DIMM(8GB/16GB/32GB) / DDR4-2133 Load Reduced DIMM(32GB/64GB)			
	Maximum clock speed		1866MHz			
	Error check, correction		ECC, x4 SDDC(Independent mode), x4 DDDC(LockStep mode)			
	Rank sparing		Supported			
	Memory mirroring		Supported			
Auxiliary storage device	Hard disk drive	Internal (standard)	–			
		Internal (maximum)	HDD : SAS 14.4TB(8x 1.8TB), SSD : SAS 3.2TB(8x 400GB)			
		Hot plug	Supported			
	Interface / RAID level		SAS 12Gb/s : RAID 0 / 1 / 5 / 6 / 10 / 50 / 60			
	Optical disk drive		Internal drive (option)			
	Expansion bay		None			
Expansion slots	Supported slots		7x PCI EXPRESS 3.0(x8 lane, x8 socket) (Low profile, 167.6mm in length)			
			2x PCI EXPRESS 3.0(x4 lane, x8 socket) (Low profile, 167.6mm in length)			
Graphics	Chip/Video RAM		Embedded in management controller chip / 8MB			
	Graphic display / resolution		16,770,000 colors: 640x480, 800x600, 1,024x768, 1,152x864, 1,280x1,024, 1,600x1,200			
Standard interface			5x USB 2.0(3x front, 1x rear, 1x internal), 1x Analog RGB (Mini D-sub 15-pin, 1x front), 1x SUV (2x USB / 1x VGA / 1x Serial, 1x rear)			
			2x Maintenance LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 2x rear),			
			2x Management LAN connector (1000BASE-T/100BASE-TX/10BASE-T supported, RJ45, 2x rear)			
Power supply unit			Not pre-installed / 4 units max.			
			800W or 1000W(*2) 80 Plus® Platinum compliant(bipolar grounded outlet) (hot-plug available)			
			AC 100/200V±10%, 50/60Hz			
Redundant power supply			Supported (hot-plug available)			
Redundant fan			Supported (standard, hot-plug available)			
External dimensions (width × depth × height)			443.0 x 719.3 x 174.5 mm (w/o protuberance/inner rail) 482.6 x 892.5 x 175.5 mm (including protuberance/inner rail)			
Weight (Min. / Max.)			36Kg/48Kg			
Power consumption (100V maximum configuration, Standby)			929VA / 911W	929VA / 911W	929VA / 911W	929VA / 911W
Power consumption (100V maximum configuration, High Load)			1300VA / 1274W	1300VA / 1274W	1381VA / 1354W	1340VA / 1314W

Product Code	NE3400-085F	NE3400-086F	NE3400-087F	NE3400-088F
Power consumption (200V maximum configuration, Standby)	925VA / 906W	925VA / 906W	925VA / 906W	925VA / 906W
Power consumption (200V maximum configuration, High Load)	1292VA / 1266W	1292VA / 1266W	1374VA / 1346W	1333VA / 1306W
Carolific value(KJ/h)	4765	4765	5053	4909
Environmental requirements Temperature/Humidity	Operating: 10 to 40°C / 20 to 80%, Storage: -10 to 55°C / 20 to 80% (no condensation either when operating or when stored)			
Accessories	EXPRESSBUILDER (NEC ESMPRO Manager (Windows/Linux), NEC ESMPRO ServerAgentService, NEC ESMPRO Agent, User's Guide (electronic document) included), Getting Started, Rack mount kit, TeDoLi (System Diagnostic Tool) , SUV cable			
Installed OS	–			
Supported OS	Microsoft® Windows Server® 2012 Standard, Microsoft® Windows Server® 2012 Datacenter Microsoft® Windows Server® 2012 R2 Standard, Microsoft® Windows Server® 2012 R2 Datacenter Red Hat® Enterprise Linux® 6.6 or later (x86_64) Oracle® Linux 6.6/UEK R2 or later (x86_64) VMware® ESXi™ 5.5 Update 2, VMware® ESXi™ 6.0			

*1 CTO production. Lead time is different from standard products.

*2 1000 W when 100VAC is applied. 1200 W when 200 VAC is applied.

2. Operation Mode

The server supports the following operation modes, and these modes can be set and changed.

Each setting can be changed on BIOS SETUP and Remote Management.

See the corresponding section as shown below for details.

BIOS Setup Utility (SETUP): Chapter 2 (1. System BIOS) in Maintenance Guide

Remote Management: Chapter 3 (7. Using Remote Management) in User's Guide

(1) BIOS Setup Utility (SETUP)

Processor Related (Power Management)

Advanced menu → Processor Configuration → Processor Power Management

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
Processor C3 Report	[Disabled] Enabled	At next boot	Enable or disable the feature to transfer C3 State by OS. Disabled: Disables the feature. Enabled: Trasnfer to C3 State (Deep Sleep: Clock stop) according to CPU load status, and reduce the energy consumption while retaining the optimum performance.
Processor C6 Report	Disabled [Enabled]	At next boot	Enable or disable the feature to transfer C6 State by OS. Disabled: Disables the feature. Enabled: Trasnfer to C6 State (Deep Power Down: Stop power supply except for SRAM) according to CPU load status, and reduce the energy consumption while retaining the optimum performance.
Package C state Limit	[C0] C2 C6 No Limit	At next boot	Specify the upper limit of Package C State. C0 represents normal operation status. The energy saving efficiency increases C2, and then C6 in order. However, the time required to return to normal status (C0) increases. If transition between C0, C2, and C6 is performed frequently, the performance may be lowered. C State other than C0 is not supported by the server. C0: Always in Package C0 State. C2: Transits from C0 to C2 state according to system load state. C6: Transits from C0 to C2, C2 to C6 state according to system load state. No-Limit: Transits to any C state available.
EIST	Disabled [Enabled]	At next boot	Enable or disable the Enhanced Intel SpeedStep Technology feature. This item is displayed only when the installed processor supports this feature. Disabled: Disables the feature. Enabled: Enables the feature.
OS Performance Tuning	Disabled [Enabled]	At next boot	Allow or disallow the performance tuning by OS. Disabled: Disables the feature. Enabled: Enables the feature.

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
Energy Performance	Performance [Balanced Performance] Balanced Energy Energy Efficient	At next boot	Specify the priority of operation of processor, performance or power saving. This option is displayed only when OS Performance Tuning is set to Disabled. Performance: Performance is preferred. Balanced Performance: Performance and power-saving are well-balanced. Performance is preferred rather than Balanced Energy. Balanced Energy: Performance and power-saving are well-balanced. Power-saving is preferred rather than Balanced Performance. Energy Efficient: Power saving is highest priority.
Turbo Boost	Disabled , [Enabled]	At next boot	Enable or disable Intel(R) Turbo Boost technology. This item is displayed only when the installed processor supports this feature. This option is displayed only when **EIST** is set to **Enabled.** Disabled: Disables the feature. Enabled: Enables the feature.

Processor Related (Others)

Advanced menu → Processor Configuration

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
DCU IP Prefetcher	Disabled [Enabled]	At next boot	Enable or disable the DCU IP prefetch feature of processor. Disabled: Disables the feature. Enabled: The processor prefetches the data with the highest relevance of the data in use.As a result, performance may improve.
DCU Streamer Prefetch	Disabled [Enabled]	At next boot	Enable or disable the DCU Stremer prefetch feature of processor. Disabled: Disables the feature. Enabled: The processor prefetches the data with the highest relevance of the data within L1 cache by analyzing the cash access pattern.As a result, performance may improve.
Hardware Prefetcher	Disabled [Enabled]	At next boot	Enable or disable the prefetch feature of hardware. Disabled: Disables the feature. Enabled: With the consecutive access to memory area made within the certain time as a start, the processor prefetches the memory data in 1st cache memory which is expected to be accessed next. As a result, performance may improve.
Adj Cache Line Prefet (Adjacent Cache Line Prefetch)	Disabled [Enabled]	At next boot	Enable or disable prefetch feature of LLC (Last Level Cache). Disabled: Disables the feature. Enabled: When loading memory, predict the adjacent 64B memory is to be loaded, load it at the same time. As a result, performance may improve.
Execute Disable Bit	Disabled [Enabled]	At next boot	Enable or disable to memory protect feature that disables illegal program execution. This item is displayed only when the installed processor supports this feature. Disabled: Disables the feature. Enabled: Enables the feature. OS must support this feature.

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
VT-x	Disabled [Enabled]	At next boot	Enable or disable Intel(R) VT-x which is the processor virtualization feature. This item is displayed only when the installed processor supports this feature. This option is inaccessible when **Intel TXT Support** is set to **Enabled**. Disabled: Disables the feature. Enabled: Enables the feature.
Hyper-Threading	Disabled [Enabled]	At next boot	Enable or disable the Intel(R) Hyper-Threading technology. This item is displayed only when the installed processor supports this feature. Disabled: Disables the feature. Enabled: Two threads words by a single processor core. The number of processors doubles the number of processor cores.
x2APIC	Disabled [Enabled]	At next boot	Enable or disable the x2APIC feature of processor. Enabled: Enable the x2APIC feature of processor. Use this setting in usual operation. In addition, be sure to specify "Enabled" for "VT-d" when X2APIC is enabled. Disabled: Disable the x2APIC feature of processor.
Processor Error Mode	LOM [Poison]	At next boot	Specify the operation when an uncorrectable data error is detected. LOM: Stops the normal operation when an error is detected, and starts fault processing. Poison: Does not start fault processing when an error is detected. OS tries recovery when that data is actually used.

Memory Related

Advanced menu → Memory Configuration

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
Memory Freq. Limit	[Auto] 1066MHz 1333MHz 1600MHz 1866Mhz	At next boot	Specify the upper limit of memory clock speed. Actual speed may be lowered than the specified value depending on memory configuration. Auto: BIOS checks DIMM configuration and let DIMM work at the highest clock speed. 1066MHz: Let DIMM work at the speed not exceeding 1066MHz. 1333MHz: Let DIMM work at the speed not exceeding 1333MHz. 1600MHz: Let DIMM work at the speed not exceeding 1600MHz. 1866MHz: Let DIMM work at the speed not exceeding 1866MHz.
NUMA	Disabled [Enabled]	At next boot	Enable or disable NUMA (Non Uniform MemoryAccess) feature. When enabled, OS detects CPU core and memory configuration, and allocate resources appropriately to ensure performance. Enabled: Enables the feature. Disabled: Disables the feature.

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
Memory RAS Mode	Independent Independent+Rank Sparing Independent+Mirroring Independent+Addr Mirroring [Lock Step] Lock Step+Rank Sparing Lock Step+Mirroring Lock Step+Addr Mirroring	At next boot	Specify the memory RAS mode. See Chapter 2 (1.14.6 Using Memory RAS Feature). As to the Addr Mirroring items, they can be chosen after executing the necmemras tool on Linux. For details, refer to Express5800/A2040c, A2020c, A2010c, A1040c necmemras User's Guide for Linux. This document is available on the following website. http://www.58support.nec.co.jp/global/download/index.html
Memory Interleave	Disabled [Intra]	At next boot	Enable or disable the memory interleave feature. Disabled: Disables the feature. Intra: Use the memory in socket in interleave mode.
Patrol Scrub	Disabled [Enabled]	At next boot	Enable or disable the patrol scrubbing feature. Disabled: Disables the feature. Enable: Accesses the memory periodically. If a correctable error is detected, correct an error, and write back the corrected data to memory to recover the data.
Demand Scrub	Disabled [Enabled]	At next boot	Enable or disable the demand scrubbing feature. Disabled: Disables the feature. Enabled: If a correctable error is detected by memory access request in normal processing, correct an error, and write back the corrected data to memory to recover the data.
Double Refresh	[Disabled] Enabled	At next boot	Enable or disable the feature to double the DRAM refresh rate. Disabled: Disables the feature. Enabled: Doubles the DRAM refresh rate at disabled state. This can reduce occurrence of DRAM failure, however, memory access performance may be lowered.
Memory P.E. Retry	Disabled [Enabled]	At next boot	Enable or disable the DDR4 CMD/ADDR parity error retry feature. Disabled: Disables the feature. Enabled: When a command or address parity error occurs on a read, drops the transaction. Then the Memory Controller will retry all transactions blocked, and if successful system continues. When enabled a 1 cycle latency is added for the parity checking.
MRx/MEMBUFFERy/CHz	Spare Disable [1Rank Spare] 2Rank Spare 3Rank Spare 4Rank Spare	At next boot	Specify the number of spare ranks to be assigned to each DDR channel. This option is displayed only when **Memory RAS Mode** is set to **Rank Sparing**. Spare Disable: Disables the feature on relevant DDR channel. [1-4]Rank Spare: Specify the number of spare ranks to be assigned on relevant DDR channel.
Memory Mirroring MRx	Disabled [Enabled]	At next boot	Enable or disable the mirroring feature for each memory riser. This option is displayed only when **Memory RAS Mode** is set to **Mirroring**. Disabled: Disables the feature on relevant memory riser. Enabled: Enableds the feature on relevant memory riser.

I/O related (Option ROM)

Advanced menu → PCI Configuration → PCI Device Controller and Option ROM Settings

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
PCI1-16 Slot Option ROM	Disabled [Enabled] (for PCI slot #1) [Disabled] Enabled (for PCI slot other than #1)	At next boot	Enable or disable execution of option ROM installed on PCI card. Enabled: Execute option ROM installed on relevant slot. Disabled: Does not execute option ROM installed on relevant slot.

I/O related (PCI Link Speed)

Advanced menu → PCI Configuration → PCI Link Speed Settings

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
PCI1-16 LinkSpeed Limit	2.5GT/s 5.0GT/s [8.0GT/s]	At next boot	Specify the upper limit of link speed for PCI slot. 2.5GT/s: Let the slot work at 2.5GT/s. 5.0GT/s: Let the slot work at 5.0GT/s. 8.0GT/s: Let the slot work at 8.0GT/s.

I/O related (Others)

Advanced menu → PCI Configuration

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
ASPM Support	[Disabled] Auto OSPM	At next boot	Enable or disable the power-saving feature (Active State Power Management) for PCI device. When this feature is enabled, the process to reset PCIe link is performed by OS. By this, a correctable error may occur on PCIe Link, however, this is not an error. You can continue the normal operation. Disabled: Disables the power-saving feature to PCI device. Auto: Makes the power-saving feature to PCI device to the highest level within the allowable range. OSPM: Setting of power-saving feature to PCI device depends on OS.
MMIOH	[Disabled] Enabled	At next boot	Enable or disable MMIOH (Memory Mapped I/O Space over 4GB). Disabled: Disables the feature. Enabled: To be enabled when I/O card that supports MMIOH is used.

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
Fixed PCI Bus F.O.	Disabled [Enabled]	At next boot	Specify whether the fixed PCI bus number is to be assigned to PCI card at BMC failover. This item is displayed only for other than Express5800/A1040c. Enabled: The same PCI bus number is assigned to PCI card before and after failover. Use this setting if you are using Linux OS or VMware ESX. Disabled: The different PCI bus number is assigned to PCI card before and after failover. Use this setting if you are using Windows Server.
I/O Space Skip List	Disabled [Enabled]	At next boot	Enable or disable the feature to skip allocation of Legacy I/O Space for the specific PCI card. Set this item to Enabled unless the allocation of Legacy I/O Space is required specifically. Enabled: Enables the feature. Legacy I/O Space cannot be allocated to the specific PCI card. Disabled: Disables the feature. Legacy I/O Space can be allocated to the specific PCI card as well as the normal PCI card.

LSI Related

Advanced menu → Advanced Chipset Configuration

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
QPI Frequency Limit	[Auto] 6.4 GT/s 7.2 GT/s 8.0 GT/s 9.6 GT/s	At next boot	Specify the upper limit of QPI Link speed. Auto: Works at highest link speed. 6.4GT/s: Works at 6.4GT/s. 7.2GT/s: Works at 7.2GT/s. 8.0GT/s: Works at 8.0GT/s. 9.6GT/s: Works at 9.6GT/s.
VT-d	Disabled [Enabled]	At next boot	Enable or disable Intel(R) Virtualization Technology for Directed I/O feature which is the I/O virtualation technology.This item is displayed only when the installed processor supports this feature. This option is inaccessible when **Intel TXT Support** is set to **Enabled**. Disabled: Disables the feature. Enabled: Enables the feature.
I/OAT	[Disabled] Enabled	At next boot	Enable or disable Intel(R) I/O Acceleration feature which is the technology developed by Intel to improve I/O performance, reliability, and efficiency of network and storage. Enabled: Enables the feature. Disabled: Disables the feature.
SR IOV Support	[Disabled] Enabled	At next boot	Enable or disable the Single Root I/O Virtualization feature that supports virtualization at PCI device side. Enabled: Enables the feature. Disabled: Disables the feature.
Wake On LAN/PME	Disabled [Enabled]	At next boot	Enable or disable remote power on feature via network. Disabled: Disables the feature. Enabled: Enables the feature.

Storage Related

Advanced menu → Storage Configuration

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
SATA Mode	Disabled IDE Mode [AHCI Mode]	At next boot	Specify the SATA mode. Disabled: Disables the feature. IDE Mode: Uses SATA device in IDE emulation mode. AHCI Mode: Uses SATA device in AHCI mode.

USB Related

Advanced menu → USB Configuration

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
Device Reset Timeout	10 sec [20 sec] 30 sec 40 sec	At next boot	Specify the timeout time when Start Unit command is issued to USB Mass Storage Device.
Controller Timeout	1 sec 5 sec 10 sec [20 sec]	At next boot	Specify the timeout time when Control, Bulk, and Interrupt Transfer commands are issued to USB Controller.

Security Related (TPM/VT feature)

Security menu → Trusted Computing

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
TPM Support	[Disabled] Enabled	At next boot	Enable or disable TPM feature.This item is accessible when TPM Support has been set to [Enabled]. This option is inaccessible when **Intel TXT Support** is set to **Enabled**. TPM feature is not supported on VMware ESXi. Enabled: Enables the feature. To use the security feature by TPM, the TPM State below must be enabled. Disabled: Disables the feature.
TPM State	[Disabled] Enabled	At next boot	Enable or disable the TPM feature use state. This option can be selected after next boot with **TPM Support** enabled. This option is inaccessible when **Intel TXT Support** is set to **Enabled**. Enabled: Allows TPM to be used for security. Disabled: Does not allow TPM to be used for security.
Pending TPM operation	[None] Enable Take Ownership Disable Take Ownership TPM Clear	At next boot	Specify the TPM Operation. The setting is made effective at next boot. This option is inaccessible when **Intel TXT Support** is set to **Enabled**. None: Does not perform any operation. Enable Take Ownership: Can acquire TPM ownership. Disable Take Ownership: Cannot acquire TPM ownership. TPM Clear: Clears TPM setting.

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
Intel TXT Support	[Disabled] Enabled	At next boot	Enable or disable Intel(R) Trusted Execution Technology feature that improves reliability of computer using TPM developed by Intel.This item is accessible when VT-x, VT-d, and TPM State menu has beed set to [Enabled]. Enabled: Enables the feature. Disabled: Disables the feature.
VT-x	Disabled [Enabled]	At next boot	Enable or disable Intel(R) Virtualization Technology which is the processor virtualization feature. This item is displayed only when the installed processor supports this feature. This option is inaccessible when **Intel TXT Support** is set to **Enabled**. Disabled: Disables the feature. Enabled: Enables the feature.
VT-d	Disabled [Enabled]	At next boot	Enable or disable Intel(R) Virtualization Technology for Directed I/O which is the I/O virtualation feature.This item is displayed only when the installed processor supports this feature. This option is inaccessible when **Intel TXT Support** is set to **Enabled**. Disabled: Disables the feature. Enabled: Enables the feature.

Security Related (Others)

Security menu

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
Password on Boot	[Disabled] Enabled	At next boot	Enable or disable the feature to request password entry on boot. This item is accessible when Administorator Password has been set. Disabled: Disables the feature. Enabled: Enables the feature.
Disable USB Ports	[Disabled] Front Rear Internal Front+ Rear Front+ Internal Rear+ Internal Front + Rear + Internal	At next boot	Specify the USB port to be disabled. If internal USB port is disabled, Internal Flash Memory cannot be used. Disabled: All the USB ports are available. Front: The USB port at front of chassis cannot be used. Rear: The USB port at rear of chassis cannot be used. Internal: The internal USB port cannot be used. Front + Rear: The USB ports at front and rear of chassis cannot be used. Front + Internal: The USB port at front of chassis and the internal USB port cannot be used. Rear + Internal: The USB port at rear of chassis and the internal USB port cannot be used. Front + Rear + Internal: All the USB ports are unavailable.

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
Remote KM and VMedia	Disabled [Enabled]	At next boot	Enable or disable remote keyboard, remote mouse, and virtual media feature that BMC supports. Disabled: Disables the feature. Enabled: Enables the feature.

Server Related

Server menu

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
POST Error Pause	[Disabled] Enabled	At next boot	Enable or disable the feature to suppress OS startup until user interruption if an error is detected during POST. If set to [Disabled], does not wait for user interruption and tries OS startup even if an error is detected. It is recommended to set [Disabled] because the POST error in this case is a correctable error (the hardware corrects an error, and the system can continue operation). In the system that does not permit continuous operation even if an error is correctable, set this item to [Enabled].
Power Switch Inhibit	[Disabled] Enabled	At next boot	Enable or disable the inhibit feature of the SYSTEM POWER switch. Disabled: Disables the feature. Enabled: Enables the feature.
Fast Reboot	[Disabled] Enabled	At next boot	Enable or disable the initial diagnosis of hardware performed at system rebootup. When set to [Disabled], it takes time for initial diagnosis on memory and PCI before rebooting the system. [Enabled] can be selected if shorter time for rebootup is needed rather than fault detection.
Clear All Faults	[No] Yes	At next boot	Use this item to clear fault information when the failed component is replaced. See the description of replacement procedure for failed component.

Boot Related

Boot menu

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
Quiet Boot	Disabled [Enabled]	At next boot	Enable or disable the feature to display NEC logo during POST. When set to [Disabled], POST execution result is displayed instead of logo. When [BIOS Redirection Port] is enabled, this item shows [Unavailable] and becomes inaccessible ([Disabled] is set automatically).
Bootup NumLock State	On [Off]	At next boot	Enable or disable NumLock feature of keyboard. You can select voluntarily to fit your purpose.
Setup Prompt Timeout	[0] (Allowable range: 0-65535 sec)	At next boot	Set waiting time for <F2> key entry used to launch SETUP. You can select voluntarily between 0 and 65535 seconds. If the larger value is specified, it takes long time to automatically startup unless the <F2> key is pressed.
Boot mode select	[UEFI] Legacy	At next boot	Specify the boot mode of OS. Usually specify UEFI Mode in this server. If booting Legacy OS, specify **Legacy.**

(2) Remote Management

Server Related

Configuration menu→ Extended Functionality

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
POWER/ PSU Redundancy	N N+1 [2N]	At next boot	Specify redundancy of power supply unit. N: Non-redundancy. Change the parameter to “N” if you select this redundancy of power supply unit using web console before the first boot. If you turn the server on without this change, the following message is displayed (boot of the server is halted). “(A) Error Non-Redundant(Insufficient Resources)” If web console is available, perform Clear All Faults and change the parameter to “N”, and then reboot the server. If web console is not available, consult with your sales representative. N+1: Use one of the power supply units among installed ones as a redundant power unit. Change the parameter to “N+1” if you select this redundancy of power supply unit using web console before the first boot. If you turn the server on without this change, the following message is displayed (boot of the server is not halted). “(A) Information Non-Redundant(Sufficient Resources)” In this case, change the parameter to “N+1” and reboot the server using web console or BIOS Setup Utility. The server status returns to normal state. 2N: Use half of the power supply units among installed ones as the redundant power unit(s).
Cooling/ BBU on PCI Slot	[Not-Installed] Installed	At next boot	Specify whether the battery backup unit is installed on PCI card for external SAS RAID. Change this parameter to "Installed" when BBU is mounted. The setting of power-saving mode of fan control is also changed according to this setting. If not changed to "Installed" even when BBU is mounted, a temperature alarm may occur.
Fault Handling/ Failing Unit Removal	Disable [Enable]	At next boot	Specify whether the failing component is to be disconnected before the next boot. If the failed component is disconnected, hardware configuration is degraded but the probability of operation continuity increases. If the failed component is not disconnected, the same failure may occur that causes system shutdown. Disable: Does not disconnect the failed component before the next boot. Enable: Disconnect the failed component before the next boot.
Fault Handling/ Degraded Server Boot Policy	[Boot] Not-Boot	At next boot	Specify whether the server is automatically booted after it shutdown due to failure. Boot: Boot the server after shutdown to try to continue operation. Not-Boot: Shutdown and stop the server.
Fault Handling/ FRB2 Monitoring	Disable [Enable]	Immediate	Enable or disable the boot monitoring feature (FRB2 phase) for the server (hardware and BIOS). If Enabled, Hard Reset is performed automatically when bootup failed.

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
Fault Handling/ POST Monitoring	Disable [Enable]	Immediate	Enable or disable the feature to monitor the time until the completion of POST. If timeout occurs, turn off the DC power of the server. Disable: Does not monitor the time until the completion of POST. Enable: Monitor the time until the completion of POST.
Fault Handling/ Boot Monitoring	[Disable] Enable 1 - 60 minutes (Default: [1] minute)	Immediate	Enable or disable boot monitoring feature. Use this feature in an OS environment where NEC ESMPRO ServerAgentService or NEC ESMPRO Agent is installed. If NEC ESMPRO ServerAgentService or NEC ESMPRO Agent is not installed, change this parameter to [Disable].
Fault Handling/ OpROM Monitoring	[Disable] Enable	Immediate	Enable or disable the feature to monitor the timeout time of OpROM stall. Enable: Enable the feature. Disable: Disable the feature.
Fault Handling/ Failure Flow Monitoring	[Disable] Enable 1- 60 minutes (Default: [30] minutes)	Immediate	Enable or disable the feature to monitor the time from start to completion of hardware fault processing due to critical failure, or the time from issuance of OS dump collection to its completion. Enable: Enable the feature. Disable: Disable the feature.
Fault Handling/ Shutdown Monitoring	Disable [Enable] 1- 60 minutes (Default: [10] minutes)	At next boot	Enable or disable the feature to monitor shutdown of server. When Enabled, boot the server forcedly when shutdown failed.
Periodic Diagnosis	Disable [Enable]	Immediate	Specify whether the spare hardware (installed in the server but is not in use) to be diagnosed periodically or not. The target components are spare CPU Core and spare Memory Riser. If this feature is enabled, failure of spare component can be detected before it is actually used. Enable: Enable scheduled diagnosis of spare hardware. Disable: Disable scheduled diagnosis of spare hardware.
Master Clock Module	[Clock1] Clock2	At DC OFF: Immediate Other than DC OFF: At next boot	Specify whether the master clock is assigned to Primary CLK (the youngest number) or Secondary CLK.
Spare Memory Configuration Mode	[Static] Dynamic	At next boot	Specify whether adding of Memory Riser Card during OS running is allowed or not. Note that removal of Memory Riser Card is allowed only while the DC power is being OFF regardless of this setting. Static: Memory Riser Card can be added only while the DC power is off. If adding is specified while the OS is running, it is ignored. Dynamic: Memory Riser Card can be added while OS is running.
Spare PCIe Configuration Mode	[Static] Dynamic	At next boot	Specify whether adding and removal of PCIe Card during OS running is allowed or not. Static: PCIe Card can be added or removed only while the DC power is off. If adding or removal is specified while the OS is running, it is ignored. Dynamic: PCIe Card can be added or removed while OS is running.

BIOS Related

Configuration menu → SystemBIOS

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
BIOS Basic/ POST Error Pause	Enable [Disable]	At next boot	Enable or disable the feature to suppress OS startup until user interruption if an error is detected during POST. If set to [Disabled], does not wait for user interruption and tries OS startup even if an error is detected. It is recommended to set [Disabled] because the POST error in this case is a correctable error (the hardware corrects an error, and the system can continue operation). In the system that does not permit continuous operation even if an error is correctable, set this item to [Enabled].

COPT Related

Capacity

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
Core Optimization Mode	[Decentralize] Centralize	BIOS process phase	When using COPT feature on the server having several CPU sockets, specify the assigning method. Decentralize: Assign the CPU cores that are logically enabled to several CPU sockets equally. For example, when the server has 3 CPU sockets on it and 9 CPU cores are logically enabled, 3 CPU cores are enabled on each CPU socket. If the server has only one CPU socket, 9 CPU cores are enabled on that socket. The CPU resources are used equally and load to CPU socket are decentralized. Performance improvement is expected by this method. Centralize: Assign the logically enabled CPU cores to as little CPU sockets as possible. For example, when the server has 3 CPU sockets on it and 9 CPU cores are logically enabled, 9 CPU cores are enabled on a single CPU socket, and the residual CPU cores on other sockets are not enabled. This can reduce the cost for license fee when using the software that requires license fee in proportional to the number of CPU sockets.
Spare Core Configuration Mode	[Static] Dynamic	At next boot	When using COPT feature, specify whether the configuration change which is the number of enabled cores and location to assign enabled cores is allowed while the OS is running or not. Static: Can change the number of enabled cores and location to assign enabled cores only while the DC power is off. These changes are ignored if they are performed while the OS is running. Dynamic: Can change the number of enabled cores and location to assign enabled cores even while the OS is running.
Disable CPU Cores	[0] (Allowable value: 0 to maximum number of cores) * The maximum number of cores depends on server model.	At next boot	Specify the number of cores to be disabled.

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
Core Assign Mode	[Type1]: Does not assign equally. Type2: Assigns equally.	At next boot	Specify whether cores are assigned equally to each CPU sockets.

Others

Configuration menu → Miscellaneous

Operation mode	Parameter ([ ]: Default setting)	When applied	Description
SEL	[Stop logging SEL] Clear All SEL Overwrite oldest SEL	Immediate	Specify the logging method of new event log (SEL) when SEL repository is full. Stop logging SEL: New event is not logged when SEL repository is full. This setting can be used on the server where NEC ESMPRO ServerAgentService or NEC ESMPRO Agent is installed(Service Mode). NEC ESMPRO ServerAgentService or NEC ESMPRO Agent takes up SEL, and then clears SEL. If NEC ESMPRO ServerAgentService or NEC ESMPRO Agent is not installed, new event log cannot be collected. Clear All SEL: All the event logs are cleared when SEL repository becomes full. Overwrite oldest SEL: The oldest log is overwritten by new log when SEL repository is full.
Power Option / AC-LINK	Stay Off [Last State] Power On	At next boot	Specify whether AC-LINK feature is enabled or not. Stay Off: Does not perform DC On automatically after AC-On. Last State: Restore the DC state before AC-Off. Normally, AC-Off is performed while in DC Off state. Accordingly, DC On is not performed automatically in this case. However, if AC power is lost due to disconnecting AC cable by mistake or failure of PSU, DC On is performed automatically after AC power is turned on next time. Power On: Perform DC On automatically after AC-On.
Power Option / Delay time	Random [Manual Setting (45)]	At next boot	Specify the time to start AC Link.With this setting, delay time can be set if "Power On" is specified for AC Link. Random: BMC sets random value not exceeding 600 seconds. Manual Setting: Select this item to set delay time manually. Available values are between 0 and 600 seconds.
PEF/ Platform Event Filtering	[Enable] Disable	Immediate	Enable or disable SNMP trap (PEF). If Disabled, SNMP alert is not sent. If you want to receive SNMP alert, set this item to Enable.
Management Software / ESMPRO Management	[Enable] Disable	Immediate	Enable or disable the feature to monitor or manage the server from NEC ESMPRO Manager. If Enabled, NEC ESMPRO Manager can remotely monitor or manage the server.
Management Software / Redirection (LAN)	[Enable] Disable	Immediate	Enable or disable the feature to display SerialOverLan (SOL) page from NEC ESMPRO Manager.

3. Settings for Each OS and Each SMS

When installing or booting OS, settings on BMC and BIOS are needed to be changed from the default settings depending on the OS. For details of BMC configuration, see Chapter 3 (7. Using Remote Management). For details of BIOS SETUP, refer to Chapter 2 (1. System BIOS) in Maintenance Guide.

BMC setting	Factory default	Windows Server 2012	Windows Server 2012 R2	Red Hat Enterprise Linux 6	Oracle Linux 6	VMware ESXi 5.5 Update 2	VMware ESXi 6.0
Core Assign Mode *1	Type1	Voluntarily	Voluntarily	Voluntarily	Voluntarily	Type2	Type2
Spare Core Configuration Mode *1	Static	Static	Static	Voluntarily	Voluntarily	Static	Static
Spare Memory Configuration Mode *2	Static	Static	Static	Voluntarily	Voluntarily	Static	Static
Spare PCIe Configuration Mode *2	Static	Voluntarily	Voluntarily	Voluntarily	Voluntarily	Static	Static

*1: See Chapter 3 (7.10 Capacity) for how to confirm and change setting.

*2: See Chapter 3 (7.7.1 Extended Functionality) for how to confirm and change setting.

BIOS setting	Factory default	Windows Server 2012	Windows Server 2012 R2	Red Hat Enterprise Linux 6	Oracle Linux 6	VMware ESXi 5.5 Update 2	VMware ESXi 6.0
x2APIC *1 *2	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
VT-d *1 *2	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
Fixed PCI Bus F.O.	Enabled	Disabled	Disabled	Enabled	Enabled	Enabled	Enabled

*1: See Chapter 2 (1.2.2 Advanced) in Maintenance Guide for how to confirm and change setting.

*2: "x2APIC" and "VT-d" must be specified together with each other. Select them appropriately to your OS.

Depending on SMS, settings on BMC are recommended to be changed from the default settings. For details of BMC configuration, see Chapter 3 (7. Using Remote Management).

BMC setting (recommended)	When using NEC ESMPRO ServerAgentService or NEC ESMPRO ServerAgent		When not using NEC ESMPRO ServerAgentService or NEC ESMPRO ServerAgent
	Service Mode	Non-Service Mode	
Behavior when SEL repository is full	Stop logging SEL	Overwrite oldest SEL	Overwrite oldest SEL

HANDLING THE LASER PRODUCTS

Class 1 laser product which is complied with JISC6802 ,EN60825 ,IEC825 and FDA 21CFR chapter1, subchapter J is used in this unit.
NOTE: Class 1 laser product is regarded safety emission lebel for the body, stated in JISC6802 ,EN60825 ,IEC825 and FDA 21CFR .
If there is an adjustment which can affect the laser emission power level, don't touch or adjust without authorized NEC service personnel's permission, otherwise harmful laser may be emitted and you will be exposed .

MANIPULATION DES PRODUITS LASER

Un produit laser de Classe 1 conforme à JISC6802, EN60825, IEC825 et FDA 21CFR chapitre 1, sous-chapitre J est utilisé dans cette unité.
REMARQUE : Un produit laser de Classe 1 signifie que le niveau d'émissions contre le corps humain est conforme aux règles énoncées dans JISC6802, EN60825, IEC825 et FDA 21CFR .
Si un ajustement est nécessaire, seul le personnel de service NEC est autorisé à contrôler le niveau d'émission laser. Si vous tentez de le faire vous même, vous risquez de vous exposer a des émissions laser dangereuses.

MANIPOLAZIONE DEI PRODOTTI LASER

Un prodotto laser di Classe 1 che è conforme a JISC6802, EN60825, IEC825 e FDA 21CFR capitolo 1, sottocapitolo J è utilizzato in questa unità.
NOTA: il prodotto laser di Classe 1 è considerato con livello di emissione di sicurezza per il corpo, indicato in JISC6802, EN60825, IEC825 e FDA 21CFR.
Se vi è una regolazione che può influire sul livello di potenza di emissione del laser, non toccare né regolare senza l'autorizzazione del personale di assistenza NEC. In caso contrario, può essere emesso un laser nocivo a cui l'utente può essere esposto.

HANDHABUNG DER LASERPRODUKTE

Klasse 1 Laserprodukt wird in diesem Gerät verwendet, das JISC6802, EN60825, IEC825 und FDA 21CFR Kapitel1, Unterkapitel J erfüllt.
HINWEIS: Das Klasse 1 Laserprodukt gilt als Sicherheitsemissionskennzeichen für den Korpus, wie es in JISC6802, EN60825, IEC825 und FDA 21CFR erläutert ist.
Wenn es eine Einstellung gibt, welche Einfluss auf die Laseremissionsleistungsstufe hat, berühren Sie das Gerät nicht und nehmen Sie keine Einstellungen ohne die Erlaubnis eines autorisierten NEC-Service-Mitarbeiters vor, ansonsten kann ein schädlicher Laser ausgesendet werden und Sie werden diesem ausgesetzt.

MANIPULAR LOS PRODUCTOS LÁSER

Esta unidad utiliza un producto láser de Clase 1 que cumple con las normas JISC6802, EN60825, IEC825 el título 21 del CFR de la FDA, Capítulo 1, subcapítulo J.
NOTA: Las emisiones del producto láser de Clase 1 se consideran de un nivel seguro para el cuerpo conforme a JISC6802, EN60825, IEC825 y el título 21 del CFR de la FDA.
Si se realiza un ajuste que pueda afectar el nivel de potencia de la emisión láser, no toque ni ajuste sin la autorización del personal de servicio de NEC. De lo contrario pueden producirse emisiones dañinas de láser a las que quedaría expuesto.

关于激光安全标准

本设备中安装的光驱符合激光安全标准（JIS C-6802、IEC 60825-1）级别1的规定。

關於雷射安全標準

本設備中安裝之光驅單元符合雷射之安全標準（JIS C-6802、IEC 60825-1），屬於第一類雷射產品。

4. BMC Failover Setup Procedure

This chapter describes the settings and actions required for installing and running Windows Server 2012 R2 or Windows Server 2012 on the Express5800/A2040c, A2020c, A2010c and related important matters. Observe the procedures described in this section when installing the system.

4.1. OSs and Versions Subject to Failover Setup

The OSs subject to BMC failover setup are as follows:

Windows Server 2012 R2	All SPs
Windows Server 2012	All SPs

*This BMC failover set-up procedure is applicable to Windows Server 2012 R2 Standard/Datacenter and Windows Server 2012 Standard/Datacenter. This procedure is not applicable to Server Core.

4.2. BMC Failover Setup Procedure for Windows Server 2012R2/ Windows Server 2012

This section describes how to set up BMC failover for Windows Server 2012 R2/Windows Server 2012

For Express5800/A2040c, A2020c and A2010c, after a BMC failover occurs as a result of Master BMC failure or a user intervention, the recognition order of IO cards in PCI slots at OS boot up changes and this change affects the OS. Windows OS in a different order from the order before the failover occurred. Therefore you need to reconfigure the settings according to the procedure described in this section.
What changes after BMC failover occurs is the number of each PCI slot. The VGA, USB ports, and built-in DVD drive that are not connected to the PCI slot directly are remained unchanged.

- When the system is installed or when the OS is clean installed
  When a BMC failover occurs after a Windows OS is installed, the recognition order of IO cards changes and the change obstructs the OS boot up. In this case, you need to start the OS in safe mode. Starting the OS in safe mode is required only once after the system is installed or the OS is clean installed.
  ⇒ See 4.2.2 Procedure for setup when the system is installed.

- When a BMC failover occurs while the system is running and thus the OS is shut down and restarted
  After the master BMC is switched, you need to reconfigure the network settings.
  ⇒ See 4.2.3 Procedure for running the system when a BMC failover occurs.

- When a BMC failback occurs after repairing the failure.
  ⇒ See 4.2.4 Procedure for running the system when a BMC failback occurs.

- When an IO card is installed, removed, or moved to other slot which an IO card is installed
  After the master BMC is switched, you need to re-specify the settings according to the new configuration changed due to the system configuration.
  ⇒ See 4.2.6 Procedure for reconfiguring the settings after the system configuration is changed.

4.2.1. Checking the PCI slot location in which a network adapter is installed

The names of the networks and devices might also be changed by BMC failover, but the PCI slot location in which network adapters are installed are not depending on BMC failover. You can check the PCI slot location of a network adapter is installed, which is displayed in the Network and Sharing Center window, by referring to Table 4-1 Correspondence between PCI bus numbers and PCI slot locations. If the name of a network has been changed when re-configuring the network, follow the procedure below to associate the names of the network and device before and after BMC failover, based on the PCI slot location of the network adapter, and read the names appropriately.

1). Click Control Panel, Network and Internet, and then Network Connection to display a list of local area connections.

2). Right-click the local network connection you want to check, and then click Properties to open the property dialog box.

3). On the Networking tab, click Configure.

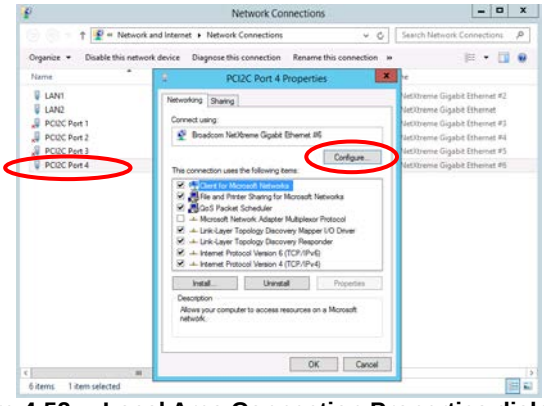


Figure 4-52: Local Area Connection Properties dialog box

4). The PCI bus name and number is indicated for Location on the General tab.

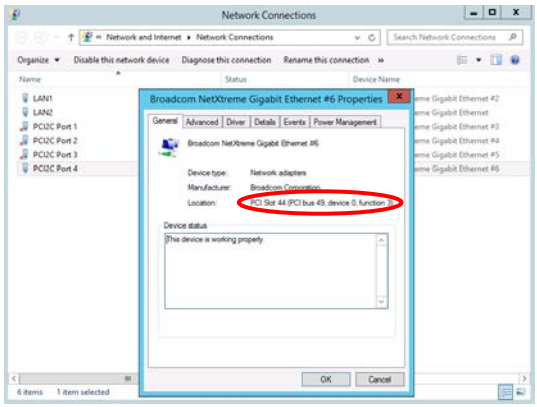


Figure 4-53: Checking the PCI bus number

5). See Table 4-1 to determine the number of the PCI slot location of which the network adapter is installed, based on the PCI bus number.

Table 4-1 Correspondence between PCI bus numbers and slot locations

PCI slot locations	PCI bus numbers If BMC#1 is the master	PCI bus numbers If BMC#2 is the master
Slot#1	33	96
Slot#2	96	33
Slot#3	39	102
Slot#4	45	108
Slot#5	51	114
Slot#6	102	39
Slot#7	108	45
Slot#8	114	51
Slot#9	120	57
Slot#10	193	193
Slot#11	199	199
Slot#12	205	205
Slot#13	211	211
Slot#14	225	225
Slot#15	231	231
Slot#16	237	237

4.2.2. Procedure for setup when the system is installed

When the system is installed or when the OS is clean installed, execute BMC failover to promote the standby BMC to the master BMC, and then restart the OS in safe mode by following the procedure below.

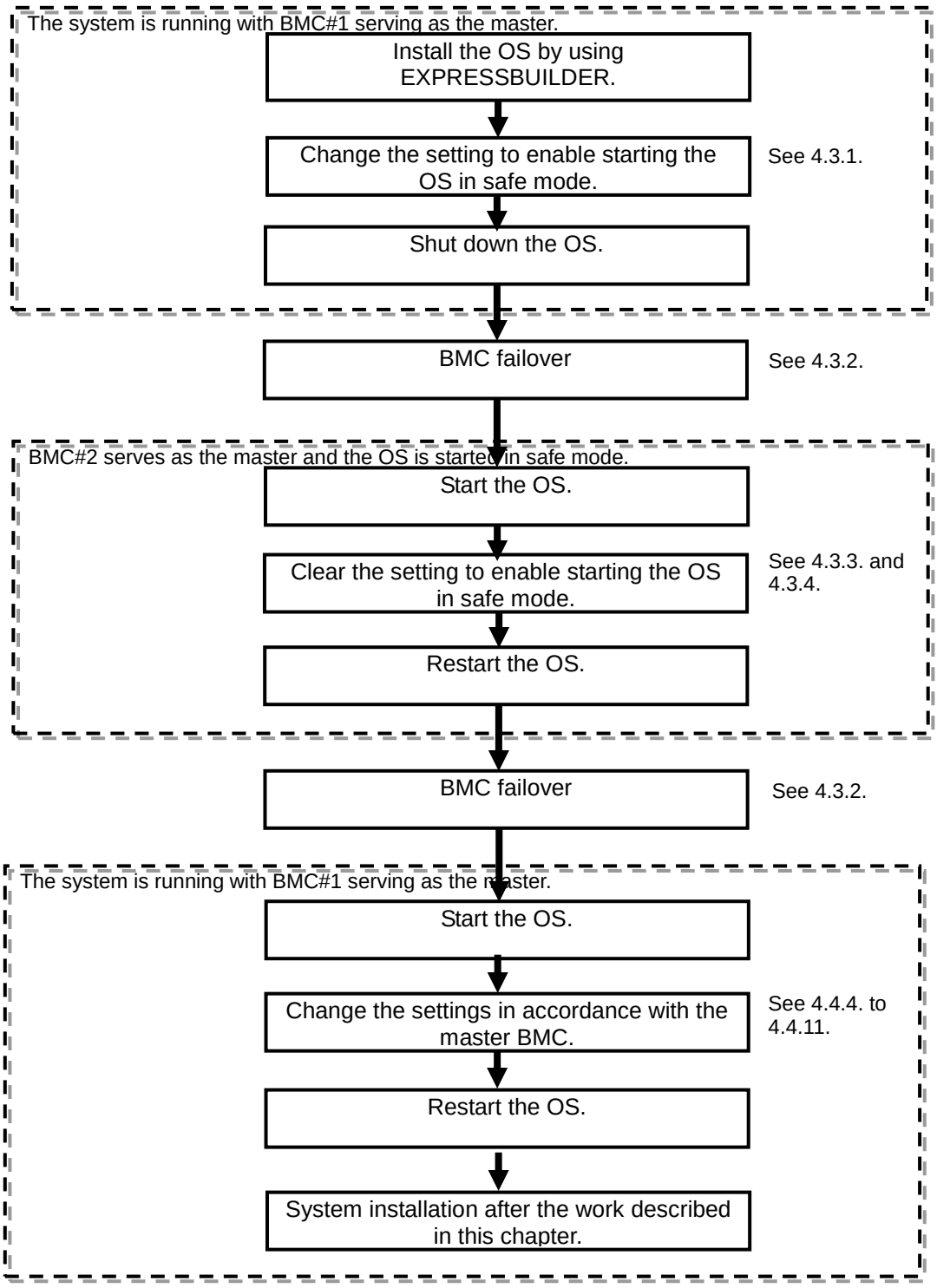


Figure 4-54: Setting failover when the system is installed

4.2.3. Procedure for running the system when a BMC failover occurs

When restarting the OS along with occurrence of a BMC failover, reconfigure the network settings in accordance with the BMC that serves as the master by following the procedure below.

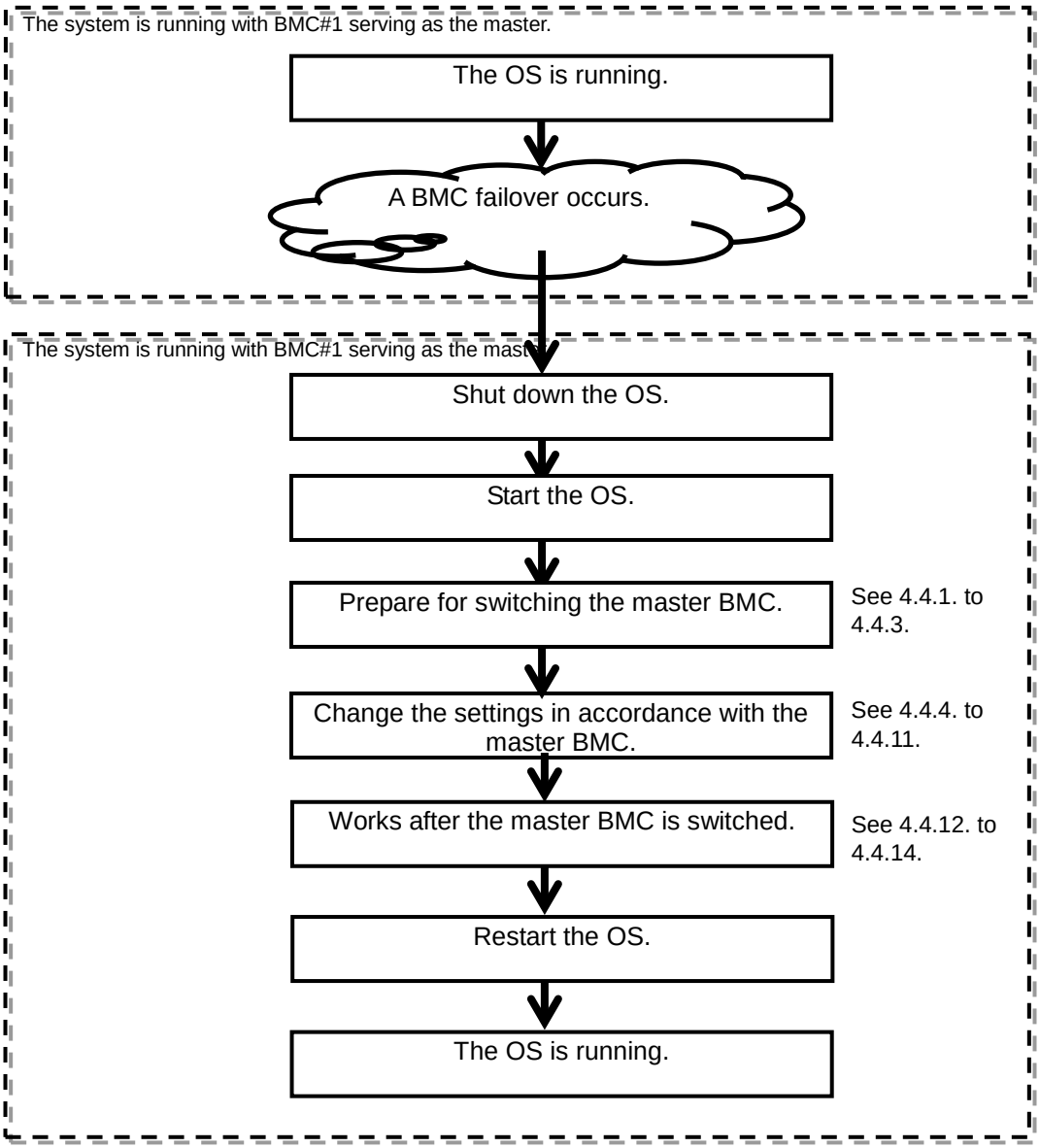


Figure 4-55: System operation when a BMC failover occurs

4.2.4. Procedure for running the system when a BMC failback occurs

When switching the master BMC as a result of replacing a failed component for maintenance, reconfigure the network settings by following the procedure below.

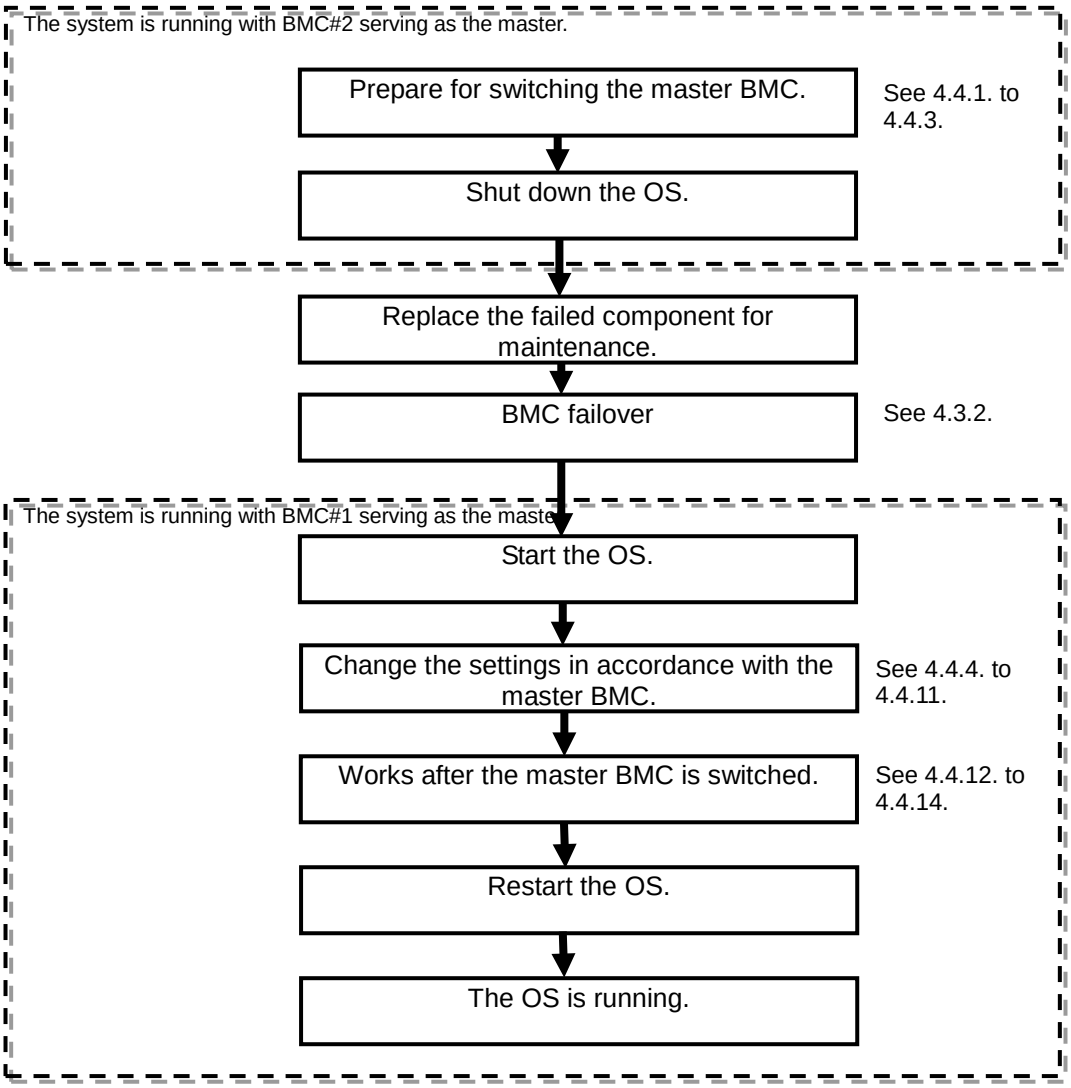


Figure 4-16: System operation when a BMC failback occurs

4.2.5. Procedure for running the system during normal maintenance

You do not need to perform special procedures when performing maintenance work that does not require BMC failover or that involves replacement of a failed IO card with the equivalent IO card.

4.2.6. Procedure for reconfiguring the settings after the system configuration is changed

The system configuration is changed after you install, remove or move to other PCI slot in which an IO card is installed. In this case, reconfigure the settings according to the new configuration by following the procedures for changing the settings in accordance with the master BMC after a BMC failover occurs (Figure 4-55) and

after a BMC failback occurs (Figure 4-56). If you hot-plug a PCIe card, that is, BMC failover is not required, perform maintenance work according to the instructions in Maintenance Guide for the device.

4.3. Procedure for Starting the OS in Safe Mode and Executing a BMC Failover

4.3.1. Starting the OS in safe mode

1). Click Start, and then type msconfig in the Search programs to start System Configuration.

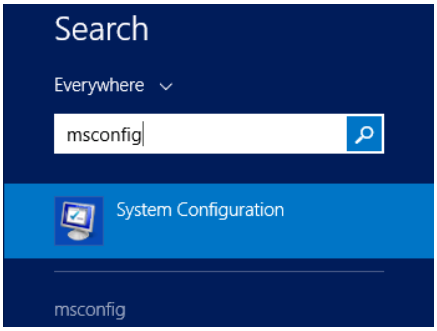


Figure 4-57: Starting System Configuration

2). In the System Configuration dialog box, click the Boot tab.

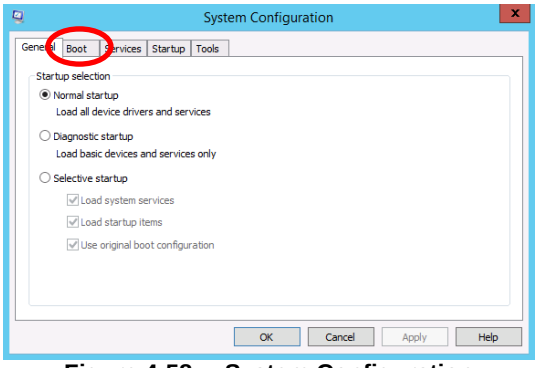


Figure 4-58: System Configuration

3). On the Boot tab, under Boot options, select the Safe boot check box and the Minimal option, and then click OK.

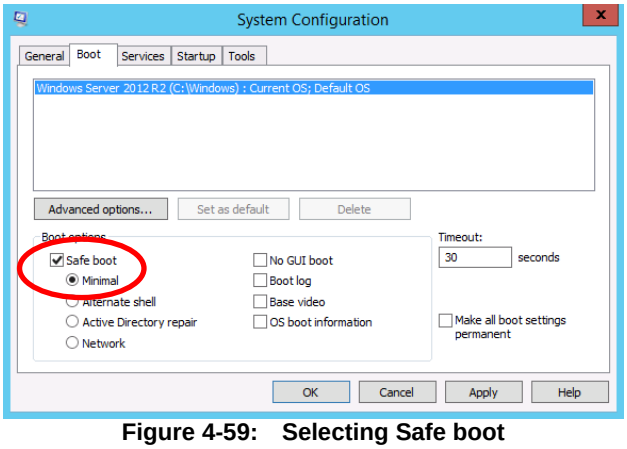


Figure 4-59: Selecting Safe boot

4). You need to turn off the DC power when executing a BMC failover. If a dialog box for confirming restarting of the OS is displayed, select "Exit without restart". Then, shut down the OS and turn off the DC power.

4.3.2. Executing BMC failover

Execute a BMC failover by using EXPRESSSCOPE ENGINE SP3.

For details about using EXPRESSSCOPE ENGINE SP3, see Chapter 3 (7.11 Standby web console).

1). Start a Web browser, and then connect to and log in to EXPRESSSCOPE ENGINE SP3.

2). The Failover button is not available if the DC power to the server is on. Check that the DC power is off.

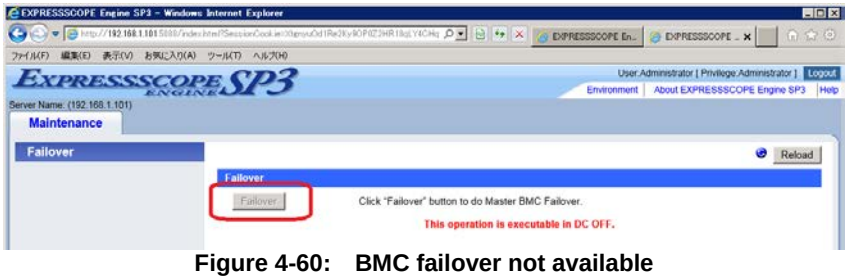


Figure 4-60: BMC failover not available

3). Click the Failover button.

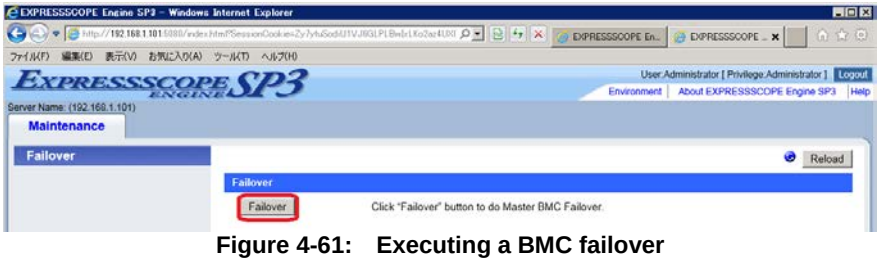


Figure 4-61: Executing a BMC failover

4). Communication with EXPRESSSCOPE ENGINE SP3 is disconnected during failover, so wait until the failover finishes. When the failover finishes, the login window for EXPRESSSCORPE ENGINE SP3 is displayed again. If the login window is not displayed, see Chapter 3 (5.5.7 Troubleshooting).

5). After reconnecting to EXPRESSSCORPE ENGINE SP3, turn on the server and then start the OS. On the System tab, you can see which of #1 and #2 is the current active BMC. Figure 4-62 shows an example of when BMC#1 is running as the master BMC.

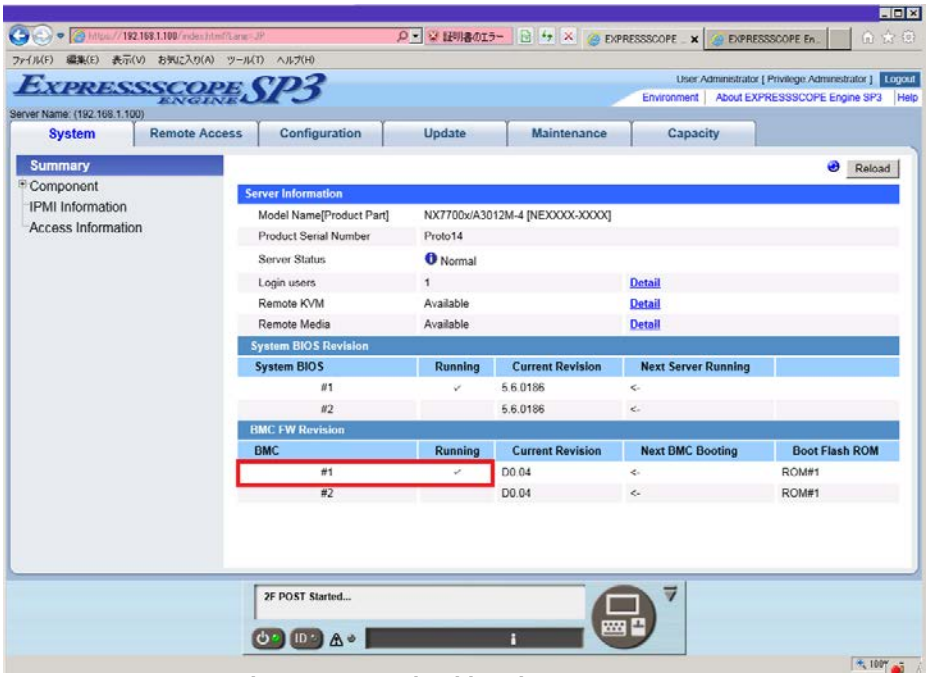


Figure 4-62: Checking the master BMC

4.3.3. Exiting safe mode

1). After the OS is started, start System Configuration, and then click the Boot tab.

2). Clear the Safe boot check box, and then click OK.

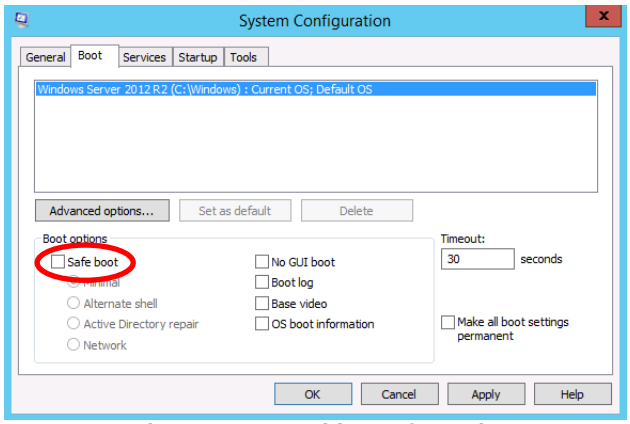


Figure 4-63: Exiting safe mode

3). If BMC failover is not required, select Restart in the dialog box for confirming restarting of the OS if it is displayed, and then restart the OS. You need to turn off the DC power when executing a BMC failover. If a dialog box for confirming restarting of the OS is displayed, select "Exit without restart. Then, shut down the OS and turn off the DC power.

4.3.4. Reactivating disks

After a BMC failover occurs, the IO card installed in a PCI slot is recognized by the Windows OS in a different order from the order before the failover occurred, which might cause some disks to be in an offline state.

1). Click Server Manager in taskbar to start Server Manager.

2). Click Server Manager, Tool menu, and then Computer Management.

3). Select Disk Management.

4). If there is a disk marked Offline, right-click the disk image, and then click Online.

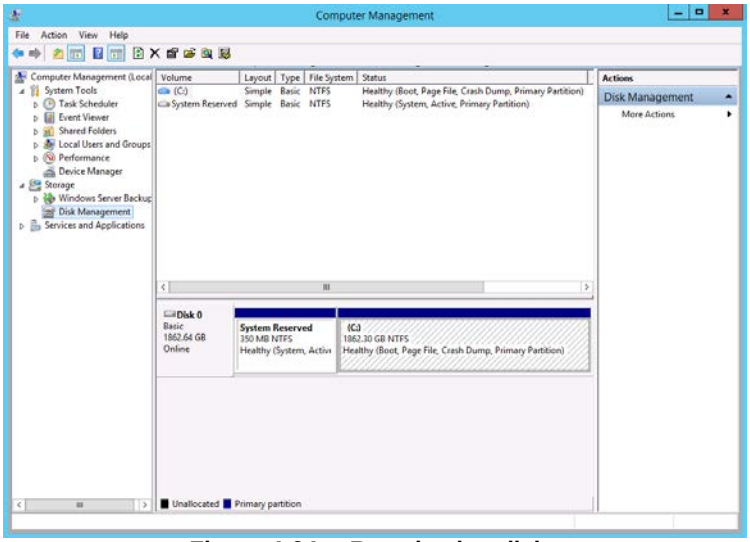


Figure 4-64: Reactivating disks

4.4. Reconfiguring the System Settings After the Master BMC Is Switched

You need to reconfigure the system settings such as network settings after the master BMC is switched along with occurrence of a BMC failover or after you switch the master BMC to perform maintenance work on BMC. Obtain reference materials for checking the network configuration of the system, including information such as the network construction procedure and related parameters (hereinafter referred to as network specifications). The description below assumes that the network specifications include the settings changed after system construction.

Important

- **To perform the actions in this section, you need to log on to Windows as Administrator or by using an account with administrator privileges on the local computer. Note that the OS is disconnected from the network while the actions are performed. Therefore, these actions cannot be performed by using remote connection via a network.**
- **The system must be restarted after reconfiguration. After restarting the system, log on to Windows as Administrator or by using an account with administrator privileges on the local computer, and then proceed to the subsequent steps.**
- **For the information required for reconfiguring the network settings, check the corresponding settings in the actual computer or the network specifications. Apply the settings in the actual computer to the network specifications for future reference.**
  The device name might be changed. If a setting parameter includes the device name, such as the interface specified for the if option in the route add command, the device name might need to be read as a relevant name by using the name as a key.

4.4.1. Stopping applications

The system is disconnected from the network during network reconfiguration, so stop all applications that use the network until you finish the reconfiguration. In particular, be sure to stop monitoring applications because a failover might occur if a monitoring application detects a network error. Monitoring applications include clustering software such as EXPRESSCLUSTER and Oracle RAC. If clustering software is used, disconnect the server on which to reconfigure the settings from the clustering system, in addition to stopping clustering software on the server.

The system is restarted several times during reconfiguration. Change the setting of each application to be stopped so that it does not start automatically each time the system is restarted.

4.4.2. Checking whether the Hyper-V role has been installed

Check whether the Hyper-V role has been installed on the server by following the procedure below.

1). Click Start, Administrative Tools, and then Server Manager to start Server Manager.

2). Click Roles, under Roles Summary, click Roles to expand entries and check whether "Hyper-V" is displayed. Figure 4-65 shows the case in which Hyper-V is displayed; the Hyper-V role has been installed on the server. If "Hyper-V" is not displayed, this means that the Hyper-V role has not been installed on the server.

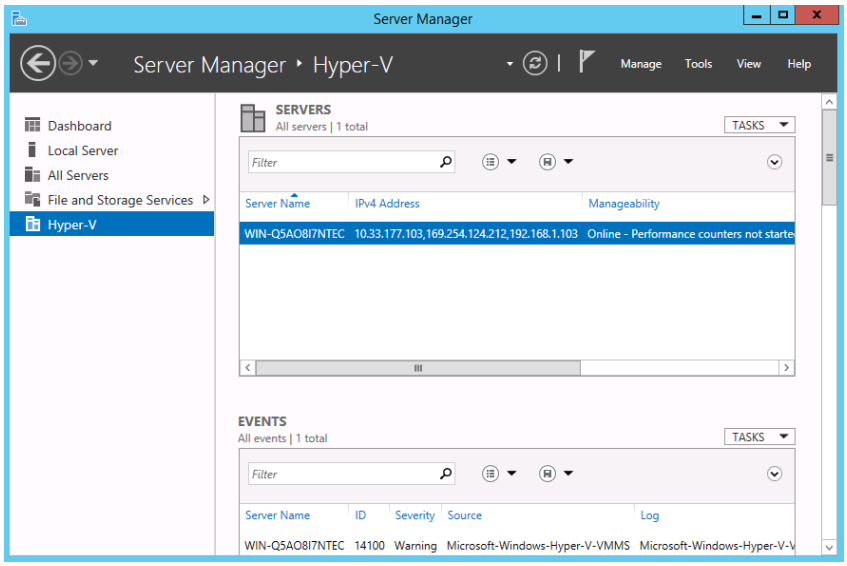


Figure 4-65: Checking Server Manager for whether the Hyper-V role has been installed

*If the Hyper-V role has been installed, keep Server Manager running because it is used in the subsequent procedure. If the Hyper-V role has not been installed, exit Server Manager.

4.4.3. Changing the Hyper-V virtual network settings

If the Hyper-V role has not been installed in 4.4.2, go to 4.4.4 Removing a teaming.

If the Hyper-V role has been installed, an unexpected behavior might occur when a physical port setting is changed while the system is connected to the Hyper-V virtual network. To prevent this, the Hyper-V environment setting procedure includes steps to remove and re-add physical ports from/to the virtual network. These steps cause changes in the virtual network status during reconfiguration of the system, so stop virtual machines while changing the settings.

After that, disconnect the virtual network from the external network by following the procedure below.

1). Click Server Manager on taskbar to start Server Manager.

2). Click Hyper-V Manager, Tools and then Hyper-V Manager to start Hyper-V Manager (Figure 4-66).

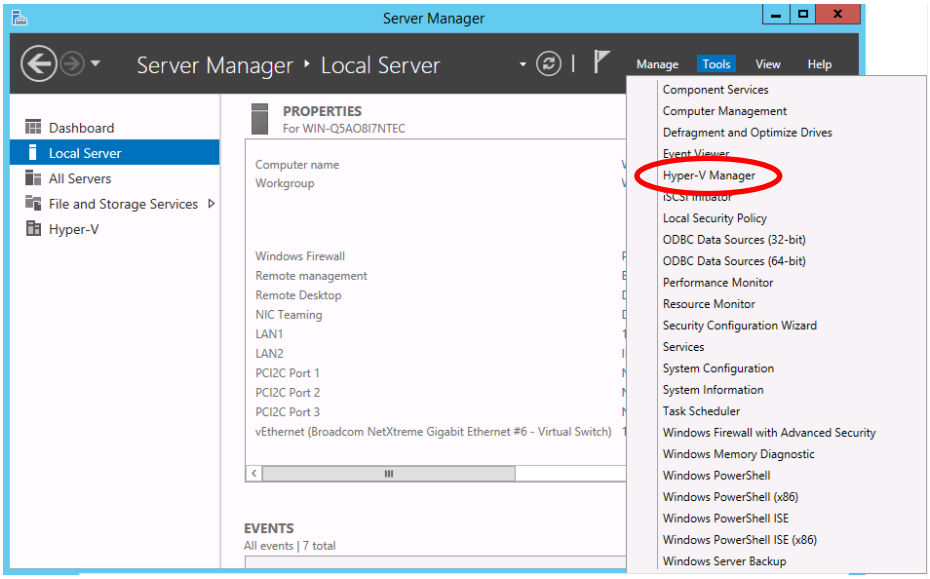


Figure 4-66: Starting Hyper-V Manager

3). On the navigation window of Hyper-V Manager, select server (1 in Figure 4-67). On the Action pane, click Virtual Switch Manager (2 in Figure 4-67) to start Virtual Switch Manager.

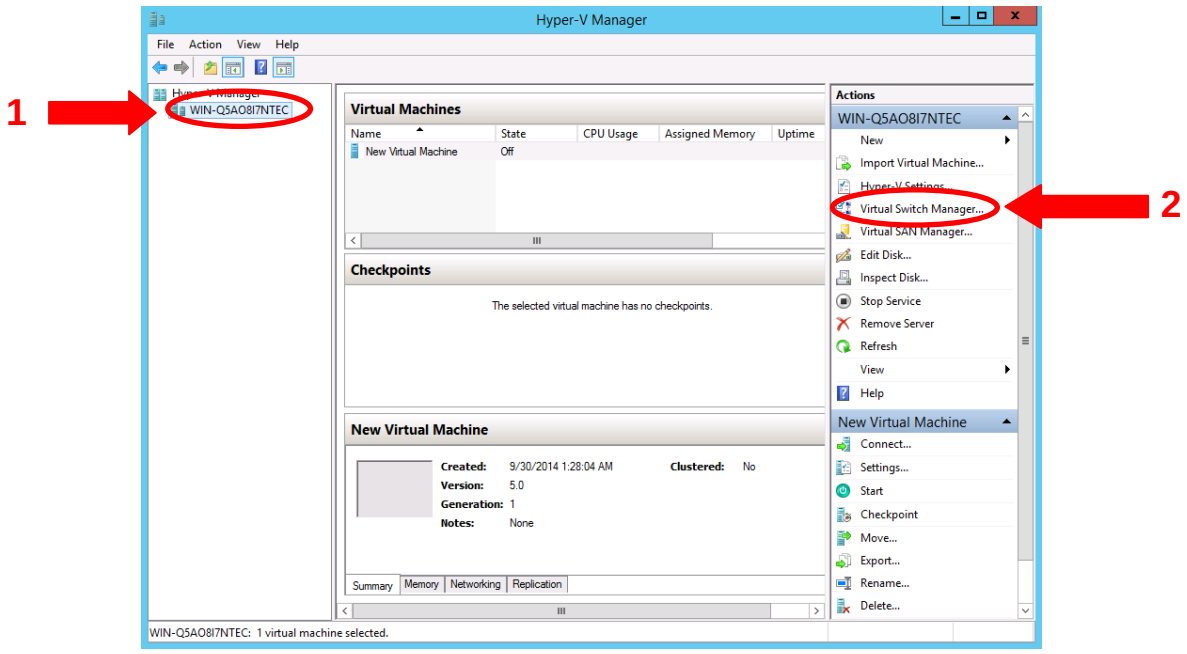


Figure 4-67: Starting Virtual Network Manager

4). Under Connection type for each virtual network, change the option from External network to Internal network(1 in Figure 4-68), and then click Apply (2 in Figure 4-68).

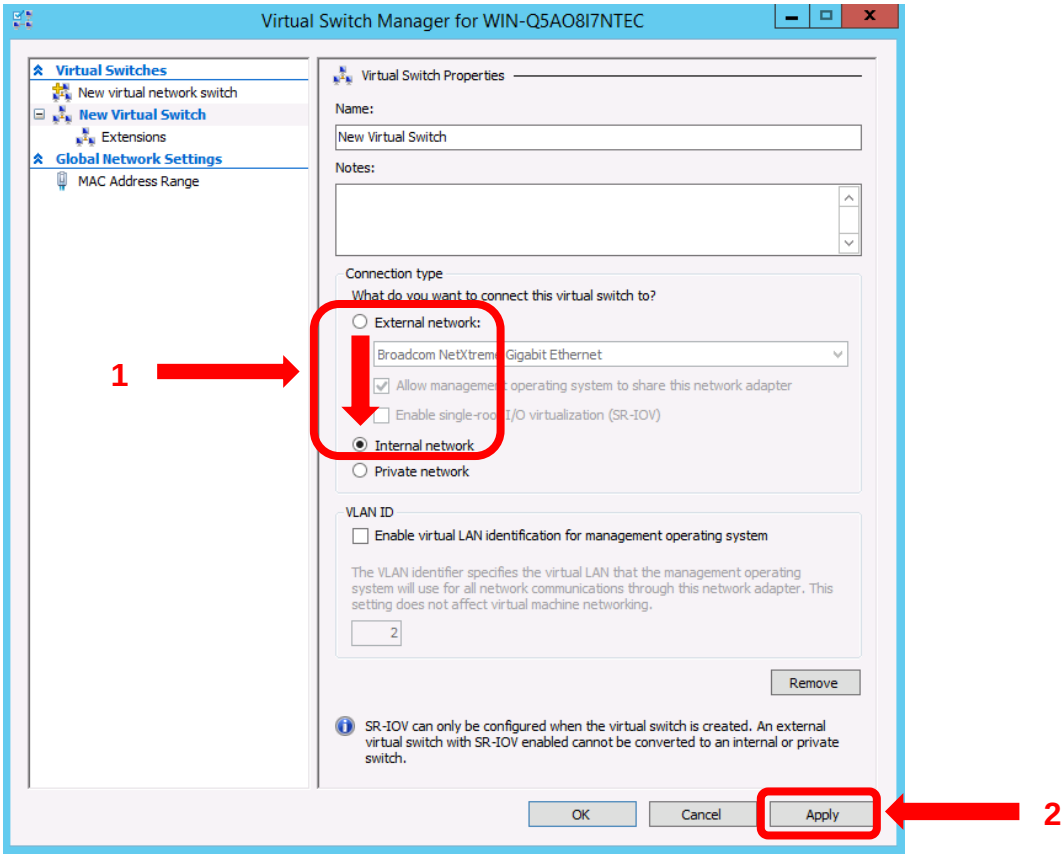


Figure 4-68: Changing the virtual network settings

5). Apply Networking Changes dialog box might appear when Apply is clicked. Click Yes(Figure 4-69).

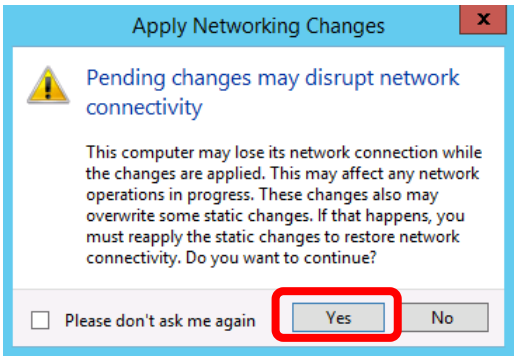


Figure 4-69: Confirmation for applying networking change

6). Virtual Switch Manager error might appear when Apply is clicked(Figure 4-70). Click Close of error Dialog box. Restart Virtual Switch Manager after clicking a Cancel of Virtual Switch Manager. Under connection type for virtual switch, be sure to change to internal network.

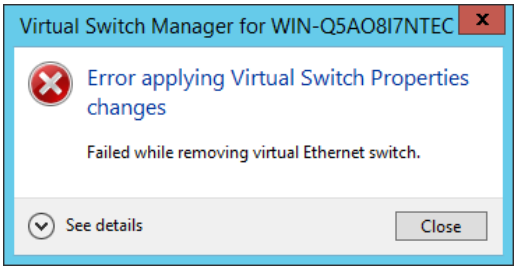


Figure 4-70: Error Dialog box

4.4.4. Removing a team

A NIC Teaming Management UI might fail modification while modifying team property. To avoid the error, remake these teams and VLANs after deleting them.

1). Click Powershell from taskbar.

2). Execute the following command to remove all teams including some missing team members.

```
Get-NetLbfoTeam | Remove-NetLbfoTeam
```

4.4.5. Configuring team

Reconfigure these teams as shown below if teams are configured.

1). Select Local Server in the Server Manager UI, then click on Enabled or Disabled for the NIC Teaming item in the Local Server Window.

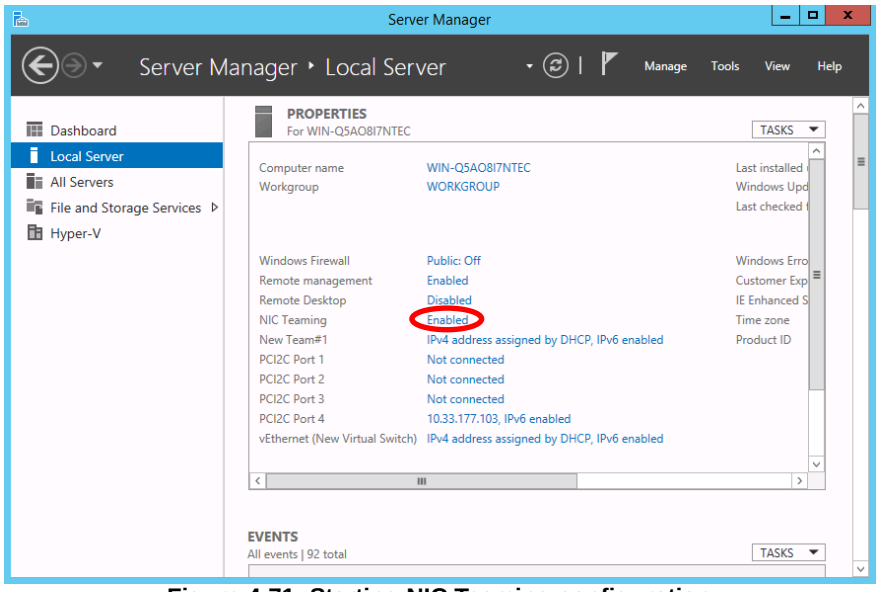


Figure 4-71: Starting NIC Teaming configuration

2). The NIC Teaming Management UI will appear.

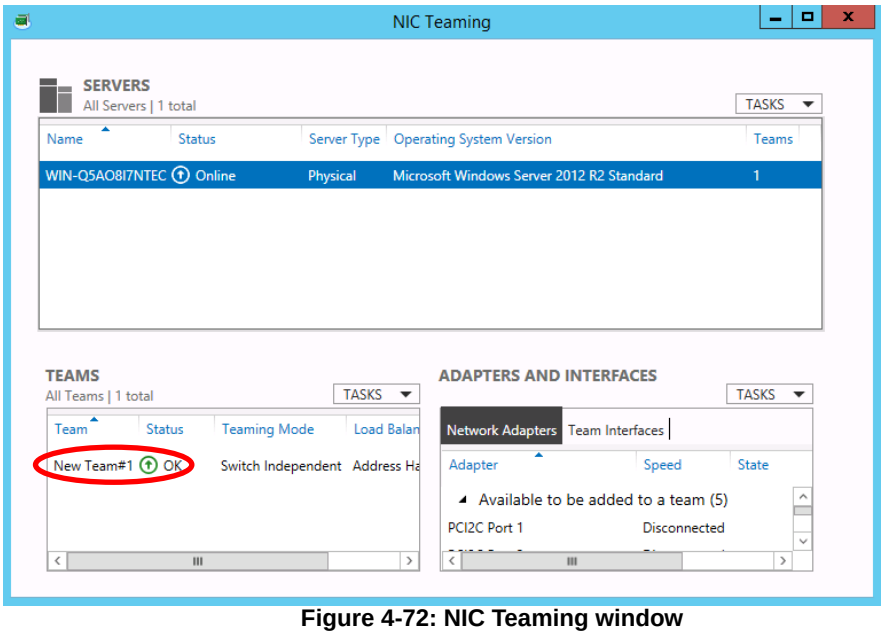


Figure 4-72: NIC Teaming window

3). Select the tasks menu at the top right corner of the Teams tile, and then select New Team in the dropdown menu.

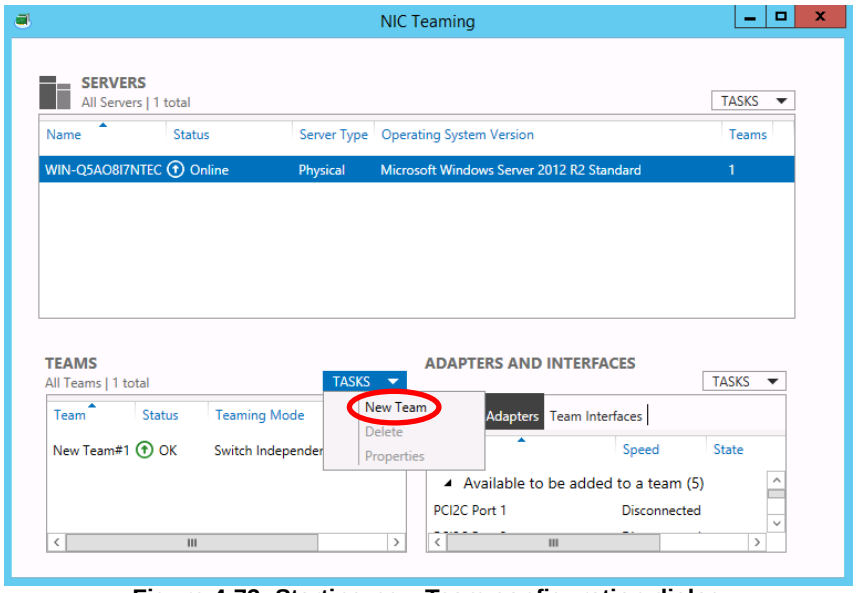


Figure 4-73: Starting new Team configuration dialog

4). The New Team dialog box will pop up and then expand the Additional properties in the dialog box.

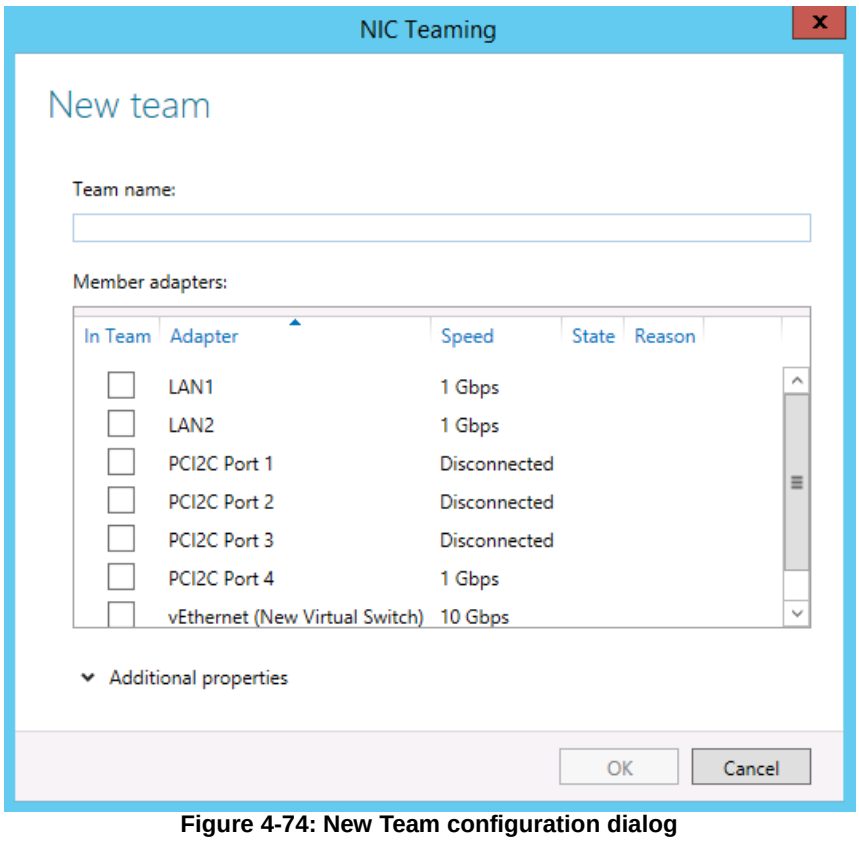


Figure 4-74: New Team configuration dialog

5). Fill in a Team Name, select adapters to be members of the team, configure the teaming mode, load balancing mode, and the name of the primary team interface. When the team name, the team members, and optionally any additional properties have been set to the administrator's choices, click on the OK button and the team will be created.

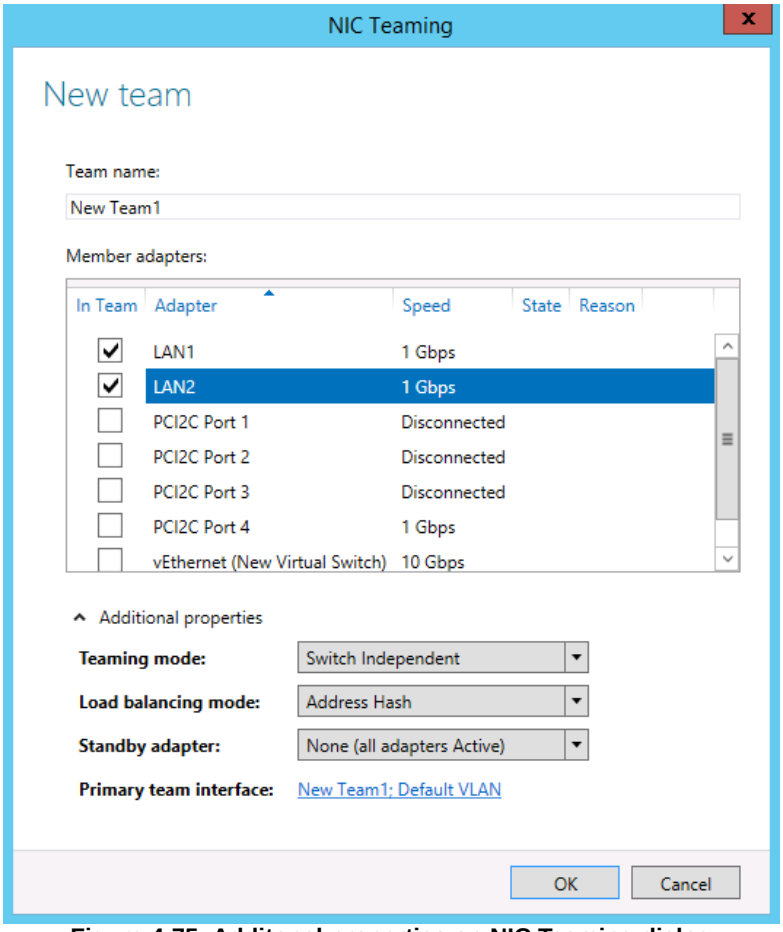


Figure 4-75: Additonal properties on NIC Teaming dialog

Configure all the teaming following by 4) to 5). When all the teaming configurations are completed, go to 4.4.6 Configuration network adapter.

4.4.6. Configuring the network adapters

Important

After a BMC failover occurs, communication using the network settings specified before the BMC failover occurs is no longer possible. Be sure to reconfigure the network settings for all network adapters in accordance with the environment, according to 4.4.6 Configuring the network adapters and 4.4.7 Configuring the network settings and confirm that communication can be established.

Configure the network adapters in accordance with the descriptions in the network specifications by following the procedure below.

You do not need to specify the settings not described in the network specifications.

1). On Control Panel, click Network and Sharing Center.

2). Click Change adapter settings (see Figure 4-76) to open the Network connection window.

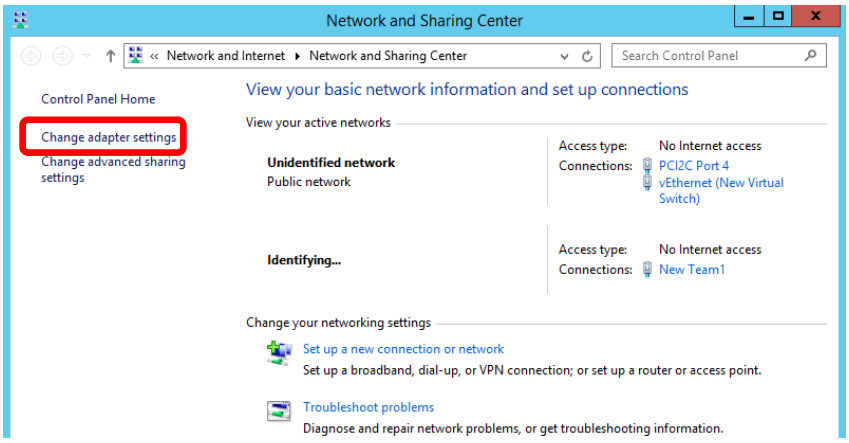


Figure 4-76: Network and Sharing Center

3). Right-click the network connection to disable and click Disable (1 in Figure 4-77). The network names (2 in Figure 4-77) and device names (3 in Figure 4-77) might be changed due to switching of the master BMC. Associate the names of the network and device before and after the master BMC is switched according to their correspondence described in 4.2.1 Checking the slot in which a network adapter is installed, and read the name appropriately.

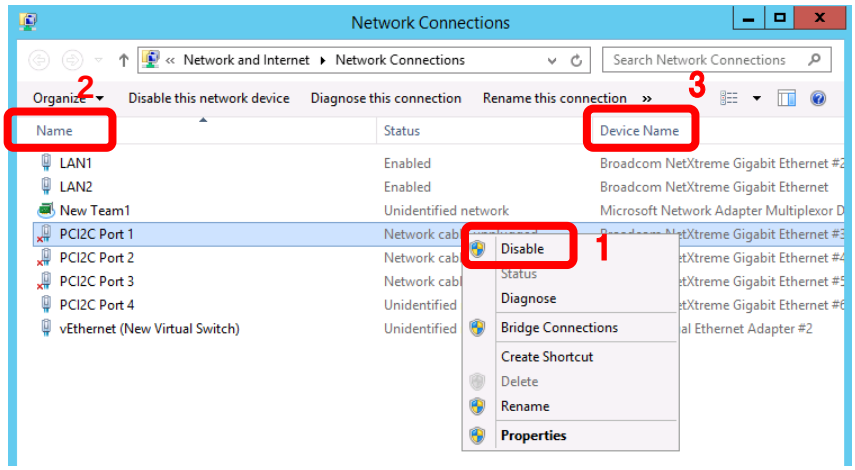


Figure 4-77: Disabling a network connection

Important **When changing a network name, the name that has been used before switching the master BMC cannot be specified.**

4). Right-click a network connection and click Properties to display the property dialog box.

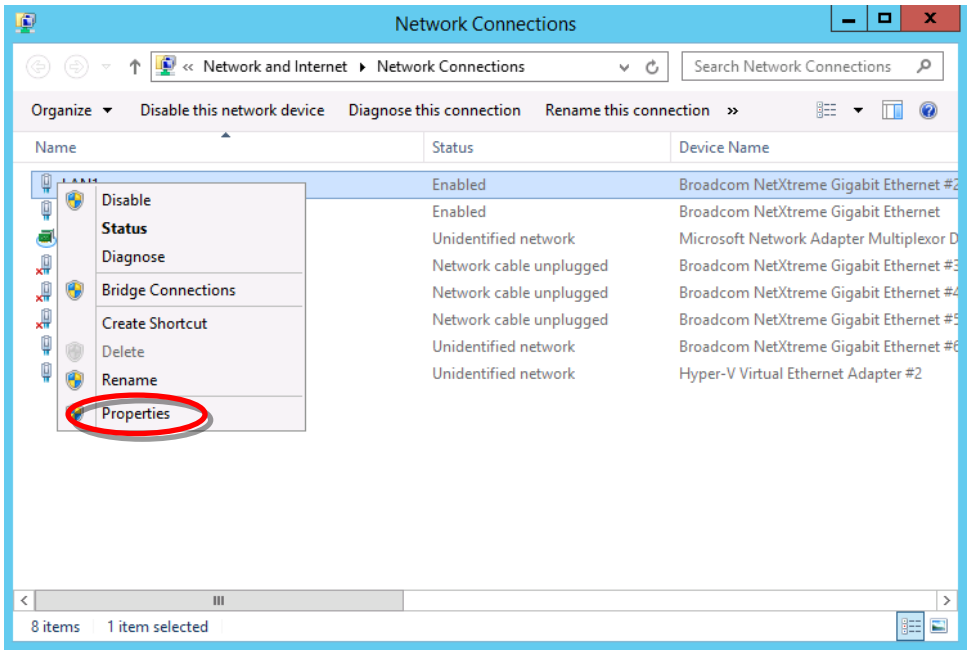


Figure 4-78: Network connections

5). On the Networking tab, click Configure.

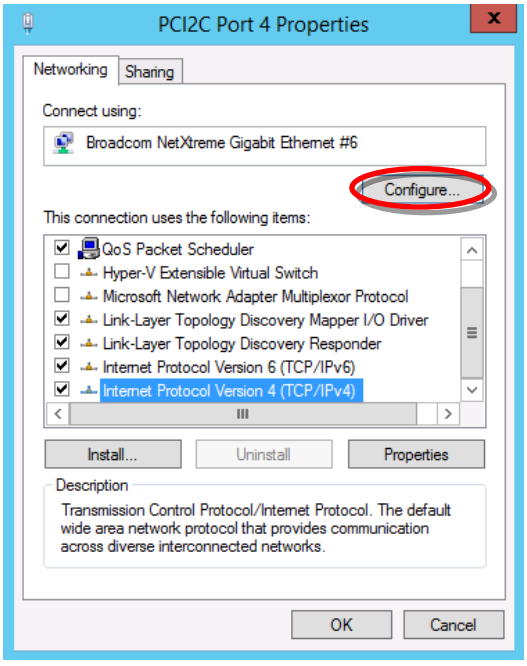


Figure 4-79: Local Area Connection Properties dialog box

6). Click the Advanced tab.

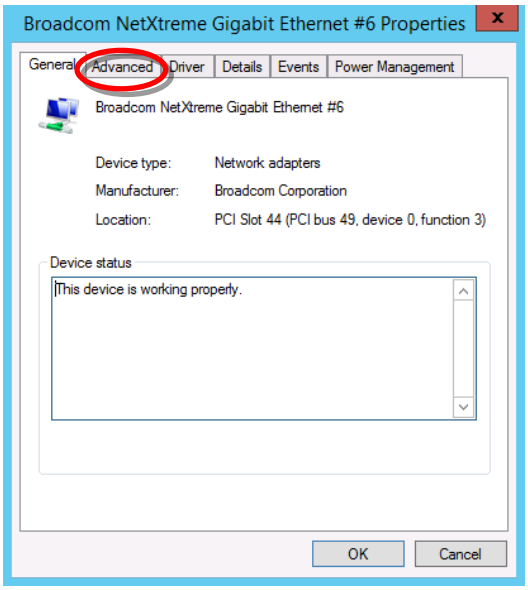


Figure 4-80: Displaying the advanced settings for the network adapter

7). Specify the value for each property entry.

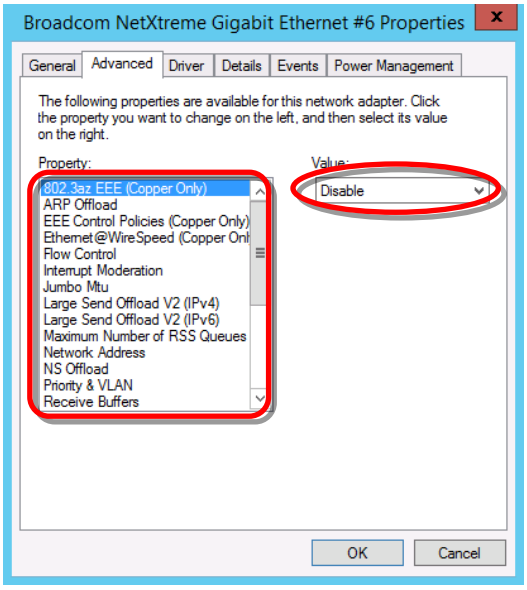


Figure 4-81: Advanced settings for the network adapter

4.4.7. Configuring the network settings

Configure the network settings in accordance with the descriptions in the network configuration parameters sheets by following the procedure below.

You do not need to specify the settings not described in the network configuration parameters sheets.

1). On taskbar, click Network and Sharing Center, and then Change adapter settings to open the Network connection window.

2). Select a network connection and then Right-click a network connection. Click Properties to display the property dialog box.

3). Specify the settings for the connection items whose check box is selected (see Figure 4-82). If the connection item you want to configure is not installed by default, install it according to the network specifications.

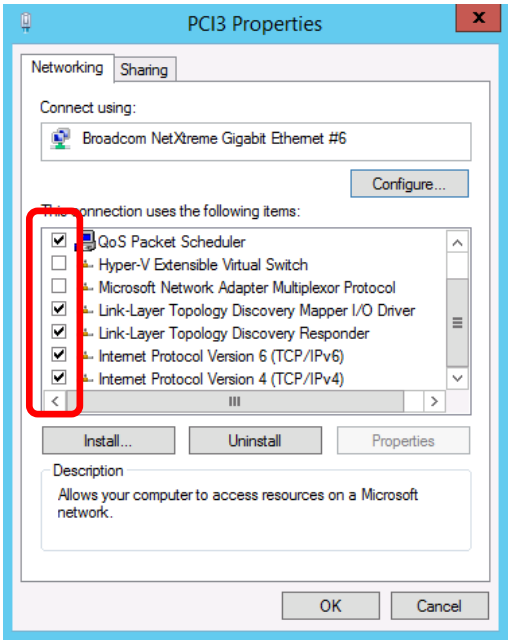


Figure 4-82: Local Area Connection

4). Select Internet Protocol Version 4 (TCP/IPv4) (Figure 4-83), and then click Properties.

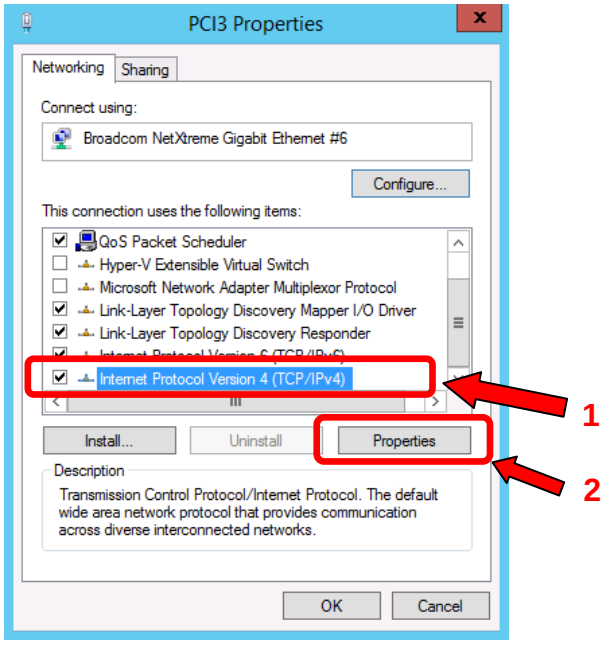


Figure 4-83: Network property

5). If the property dialog box includes the Alternate Configuration tab, click the Alternate Configuration tab (see Figure 4-84).
If the Alternate Configuration tab does not exist, go to step 7).
The Alternate Configuration tab is displayed only when the Obtain an IP address automatically check box is selected on the General tab. This tab is not displayed if the Obtain an IP address automatically check box is cleared; in this case, the absence of this tab is not an error.

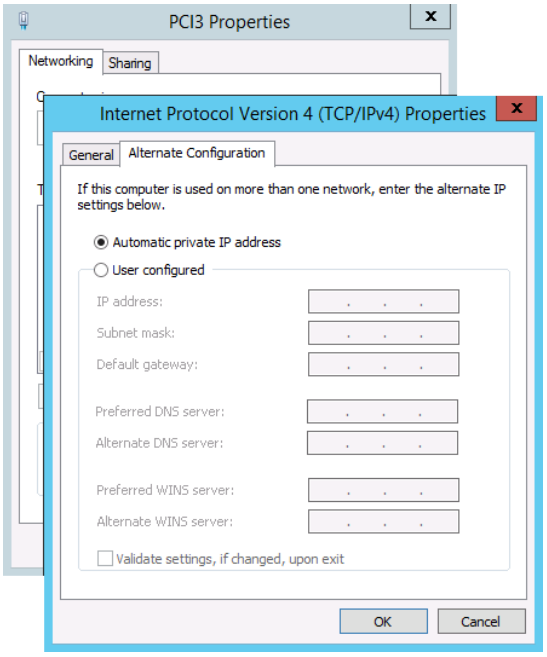


Figure 4-84: TCP/IPv4 Properties - General tab

6). When using an alternate configuration, specify the settings on the Alternate Configuration tab. Figure 4-84 shows the default setting. If User configured is selected, set the values in this area again.
When you finish the settings, click OK.

7). Select Internet Protocol Version 4 (TCP/IPv4), and then click Properties to display the General tab. On the General tab, click the Advanced button (Figure 4-85).

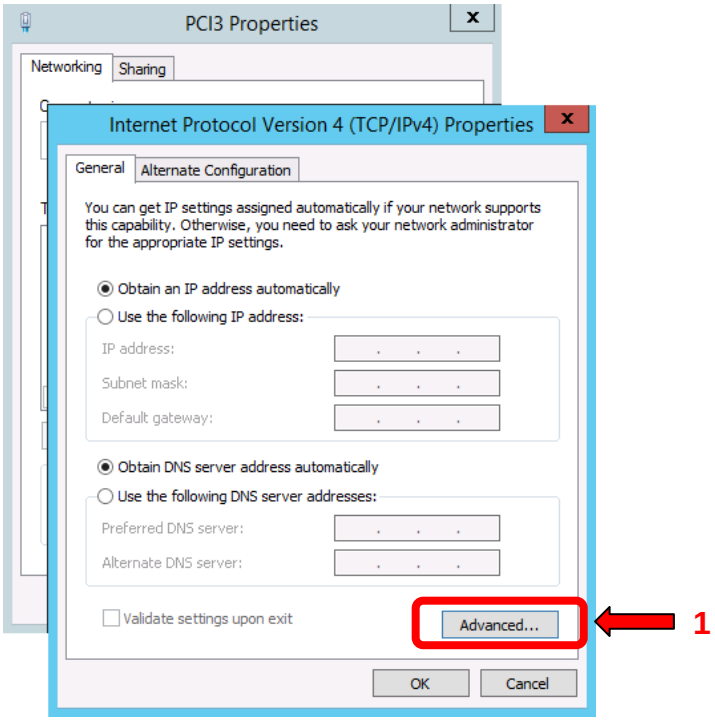


Figure 4-85: TCP/IPv4 Properties - General tab

8). In the Advanced TCP/IP Settings dialog box, on the IP Settings tab, specify the settings for IP address (1 in Figure 4-86), Subnet mask (2 in Figure 4-86), Default gateways (3 in Figure 4-86), and Metric (4 in Figure 4-86), and then click OK.

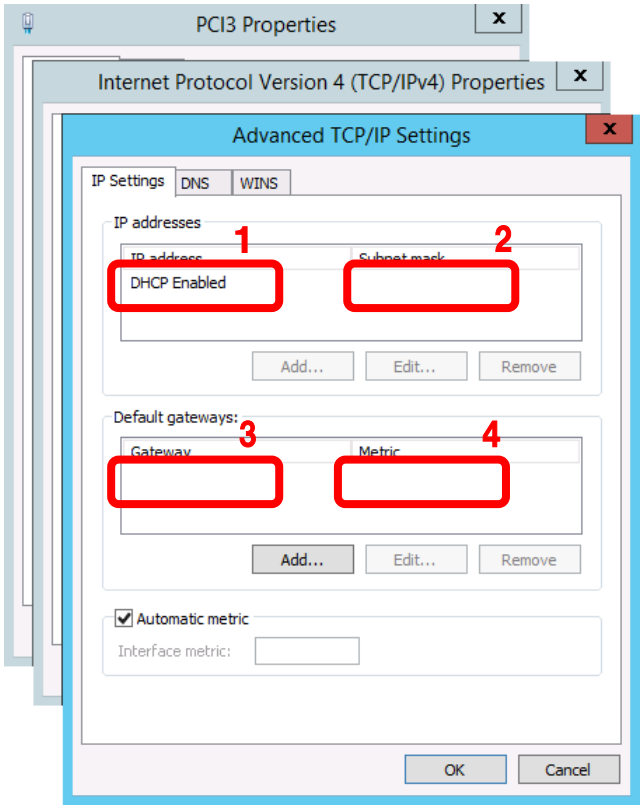


Figure 4-86: IPv4 Advanced TCP/IP Settings - IP Settings tab

9). The display returns to the General tab. Click the Advanced button, click the DNS tab, (see Figure 4-87), specify the DNS addresses and DNS suffixes, and then click OK.

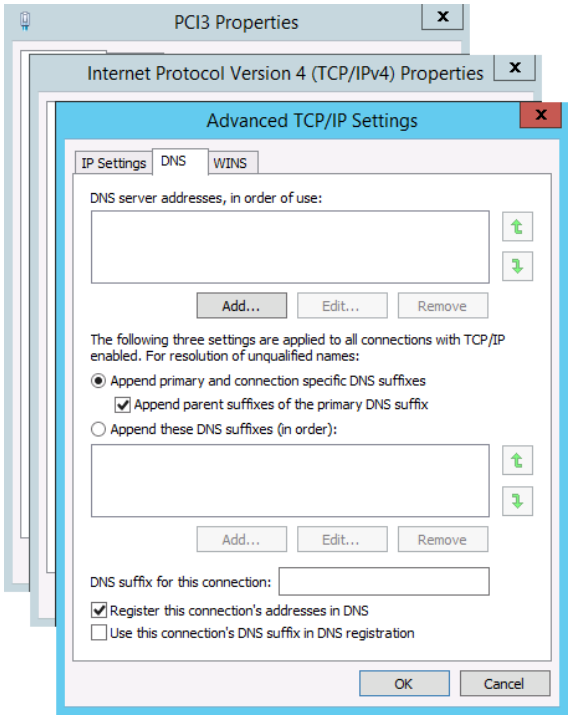


Figure 4-87: IPv4 Advanced TCP/IP Settings - DNS tab

10). The display returns to the General tab. Click the Advanced button, click the WINS tab, (see Figure 4-88), specify the settings on this tab, and then click OK.

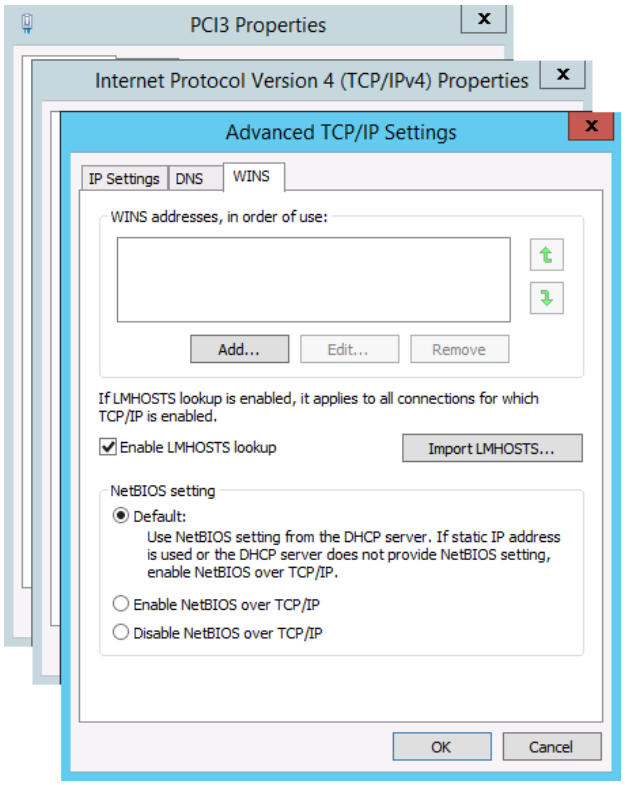


Figure 4-88: IPv4 Advanced TCP/IP Settings - WINS tab

11). The display returns to the General tab. Click OK to apply the specified settings.
A message as shown in Figure 4-89 might be displayed. Click Yes to apply the specified settings.

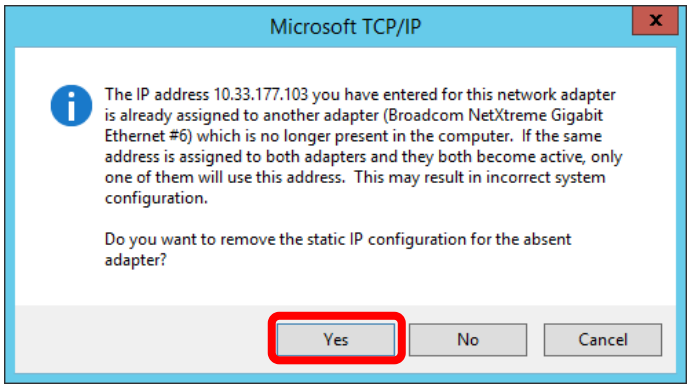


Figure 4-89: Confirmation of TCP/IP setting

12). On the Properties dialog box, select Internet Protocol Version 6 (TCP/IPv6) (Figure 4-90), and then click Properties (Figure 4-90).

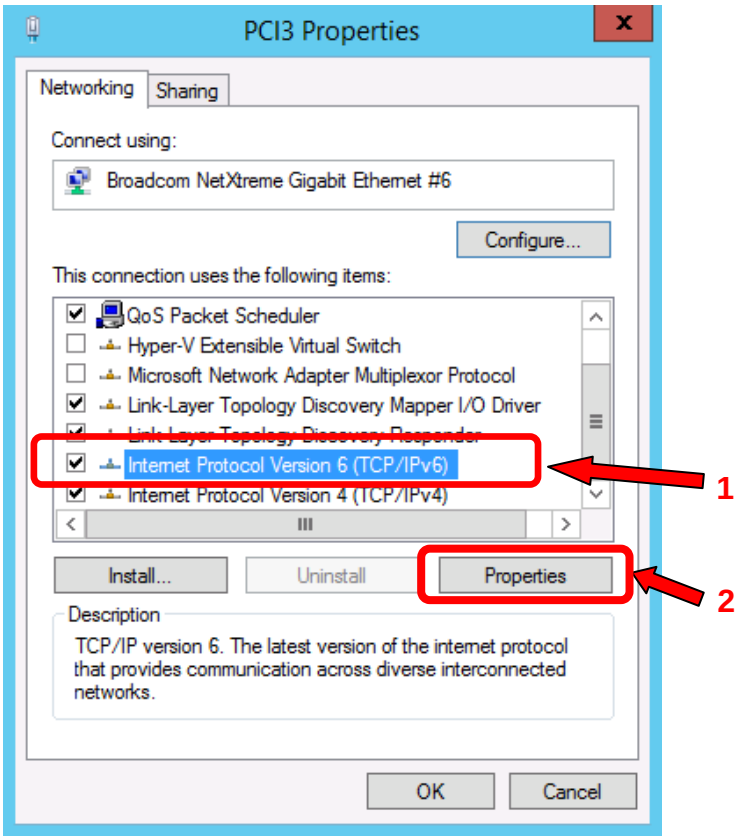


Figure 4-90: Local Area Connection Properties dialog box

13). Specify all the settings on the General tab, and then click OK. Figure 4-91 shows the default settings.

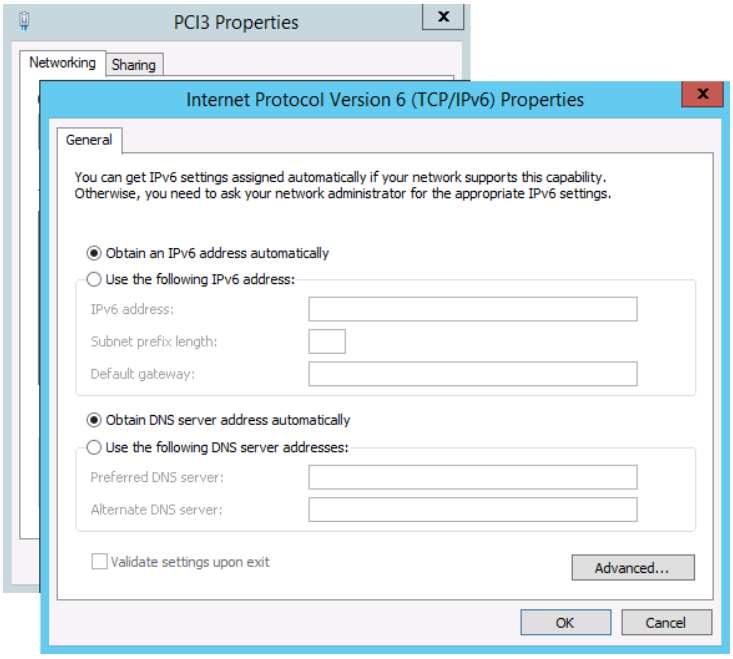


Figure 4-91: TCP/IPv6 Properties - General tab

14). Select Internet Protocol Version 6 (TCP/IPv6), and then click Properties to display the General tab.

15). Click the Advanced button to display the Advanced TCP/IP Settings dialog box.

16). Specify the settings on the IP Settings tab (see Figure 4-92) according to the network specifications.

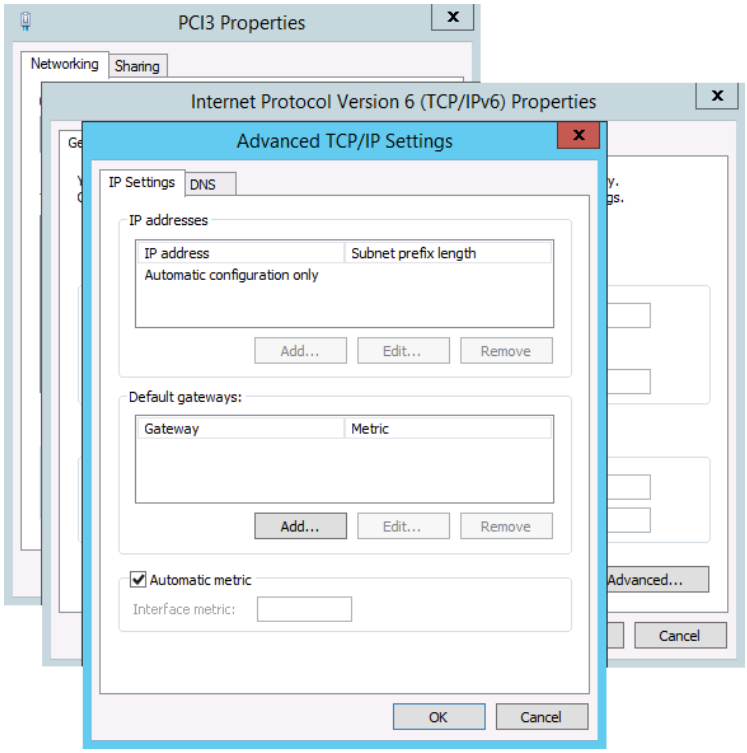


Figure 4-92: TCP/IPv6 Advanced TCP/IP Settings - IP Settings tab

17). Click the Advanced button. Click the DNS tab, (see Figure 4-93), specify the settings on this tab, and then click OK.

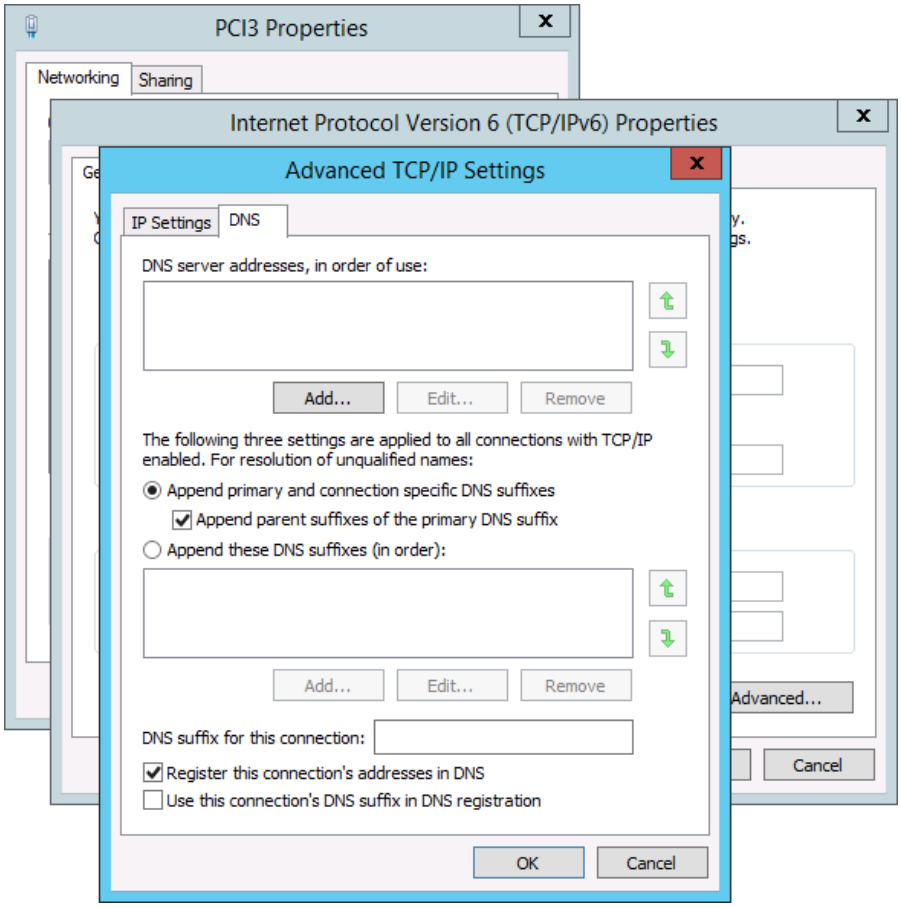


Figure 4-93: IPv6 Advanced TCP/IP Settings - DNS tab

18). The display returns to the General tab. Click OK to apply the specified settings. If there are multiple network connections displayed, perform steps 2) to 17) for each network.

4.4.8. Configuring Hyper-V

If the Hyper-V role has not been installed in 4.4.2, go to 4.4.11 Configuring a static route.

4.4.9. Configuring the virtual network

Connect the virtual network to the external network by following the procedure below.

1). Click Start and then Server Manager to start Server Manager.

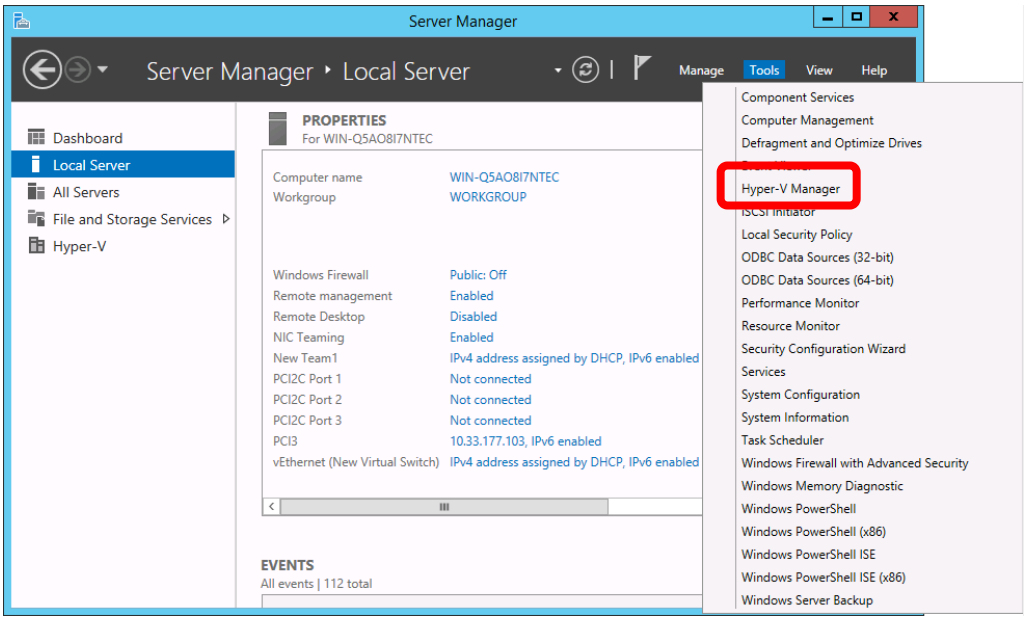


Figure 4-94: Starting Hyper-V Manager

2). In the Tools tab, select Hyper-V Manager to start Hyper-V Manager.

3). On the navigation windows of hyper-V Manager, select server. In Actions windows, click Virtual Switch Manager to start Virtual Switch Manager. (Figure 4-95)

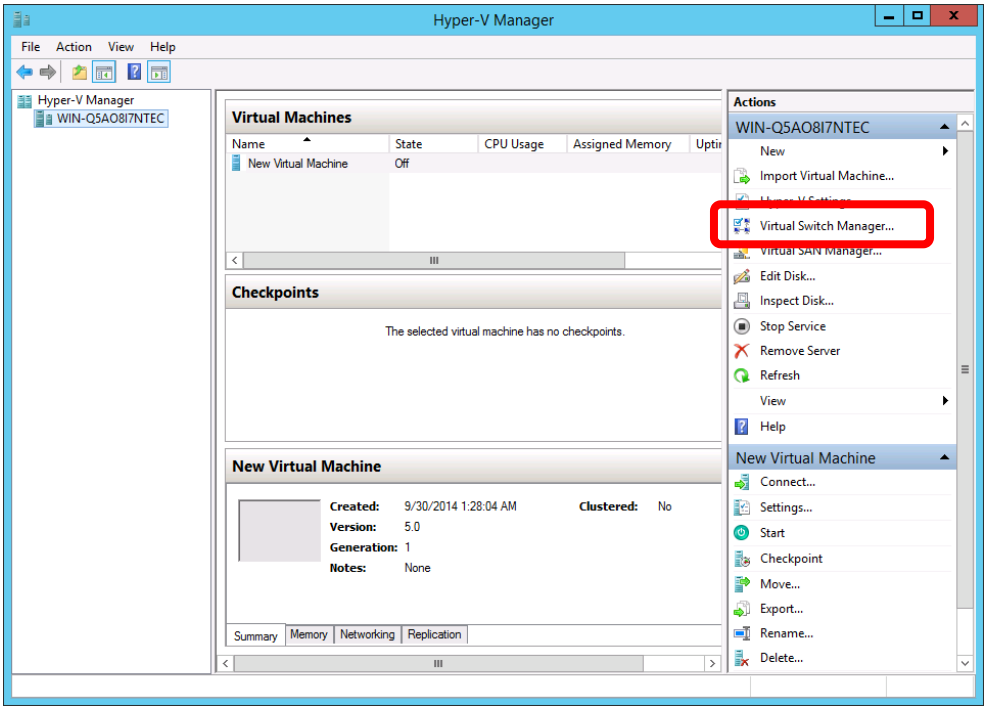


Figure 4-95: Starting Virtual Network Manager

4). Restore the settings (2 to 6 in Figure 4-96) of the virtual network to be connected externally, which have been associated with the virtual network name (1 in Figure 4-96) and which you have written down, and then click Apply. The device name is indicated in the External text box (3 in Figure 4-96), but the name might have been changed due to switching of the master BMC. Read the device name before the master BMC is switched as that after the master BMC is switched according to their correspondence described in 4.2.1 Checking the PCI slot location which a network adapter is installed.
If multiple virtual networks are defined, perform this step for all the virtual networks.

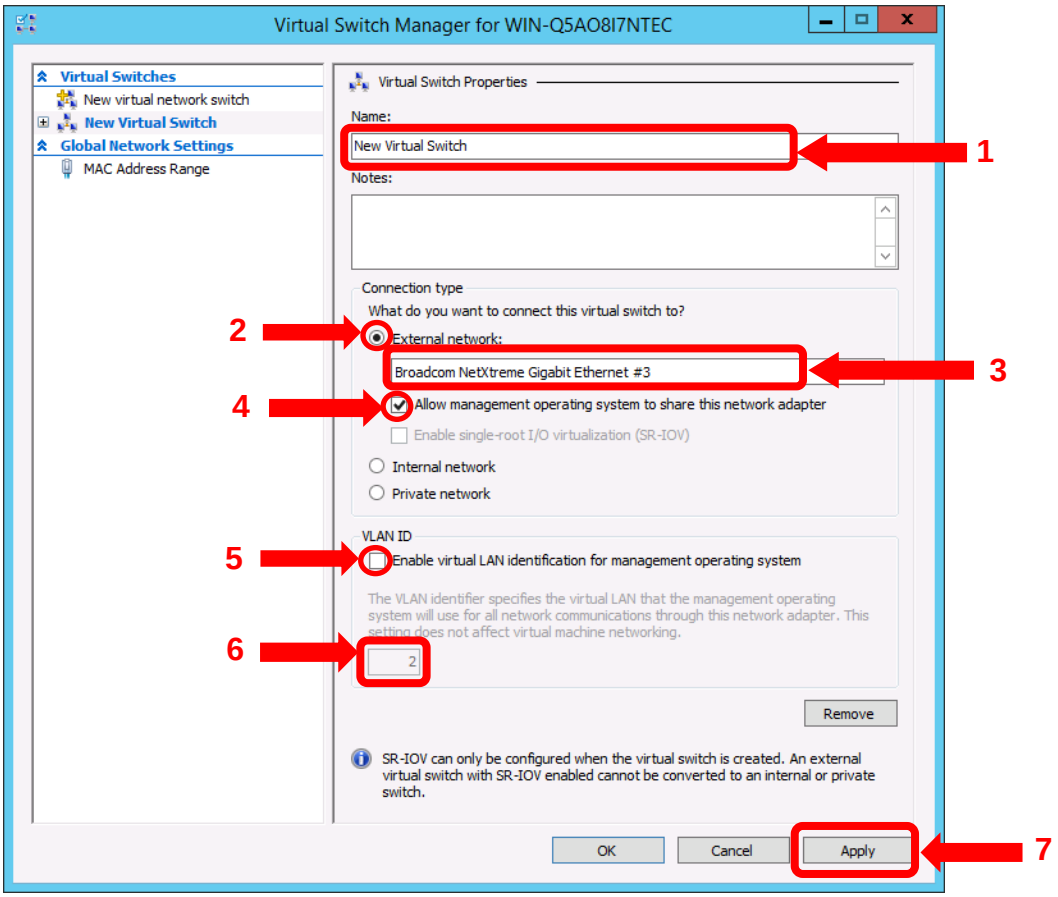


Figure 4-96: Restoring the virtual network settings

5). Apply Networking Changes dialog box might appear when the Apply button is clicked. Click Yes.

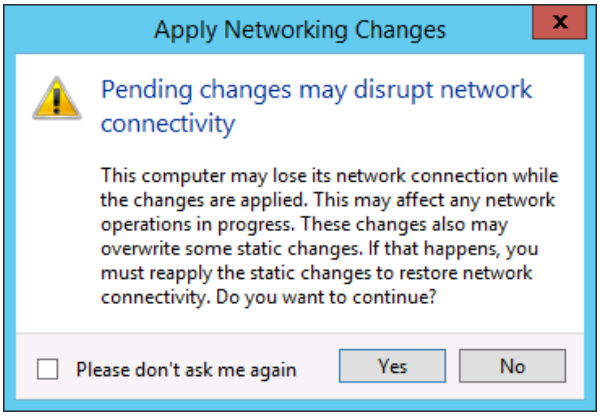


Figure 4-97: Confirmation for applying networking change

4.4.10. Configuring the disk used by virtual machines

If the Hyper-V role has been installed, an unexpected behavior might occur when a physical port setting is changed while the Hyper-V virtual machines are set to use a physical hard disk. To prevent this, the Hyper-V environment setting procedure includes steps to remove and re-add the physical hard disk. These steps cause changes in the virtual machine disk connection status during reconfiguration of the system, so stop virtual machines while changing the settings. If a physical hard disk is connected to the IDE controller or SCSI controller of a virtual machine, change the hard disk drive settings for the virtual machine by following the procedure below.

1). Click Start and then Server Manager to start Server Manager.

2). Click the Server Manager, tool, and then hyper-V Manager to start Hyper-V Manager. Select a Server.

3). In the right Actions pane, click Settings to start the Settings.

4). Under IDE Controller and SCSI Controller, if Physical hard disk is set as the media for Hard Drive (1 in Figure 4-98) and the disk to which the physical hard drive is connected is not set to correct disk (2 in Figure 4-98), select the correct physical hard disk from the drop-down menu, and then click Apply (3 in Figure 4-98).

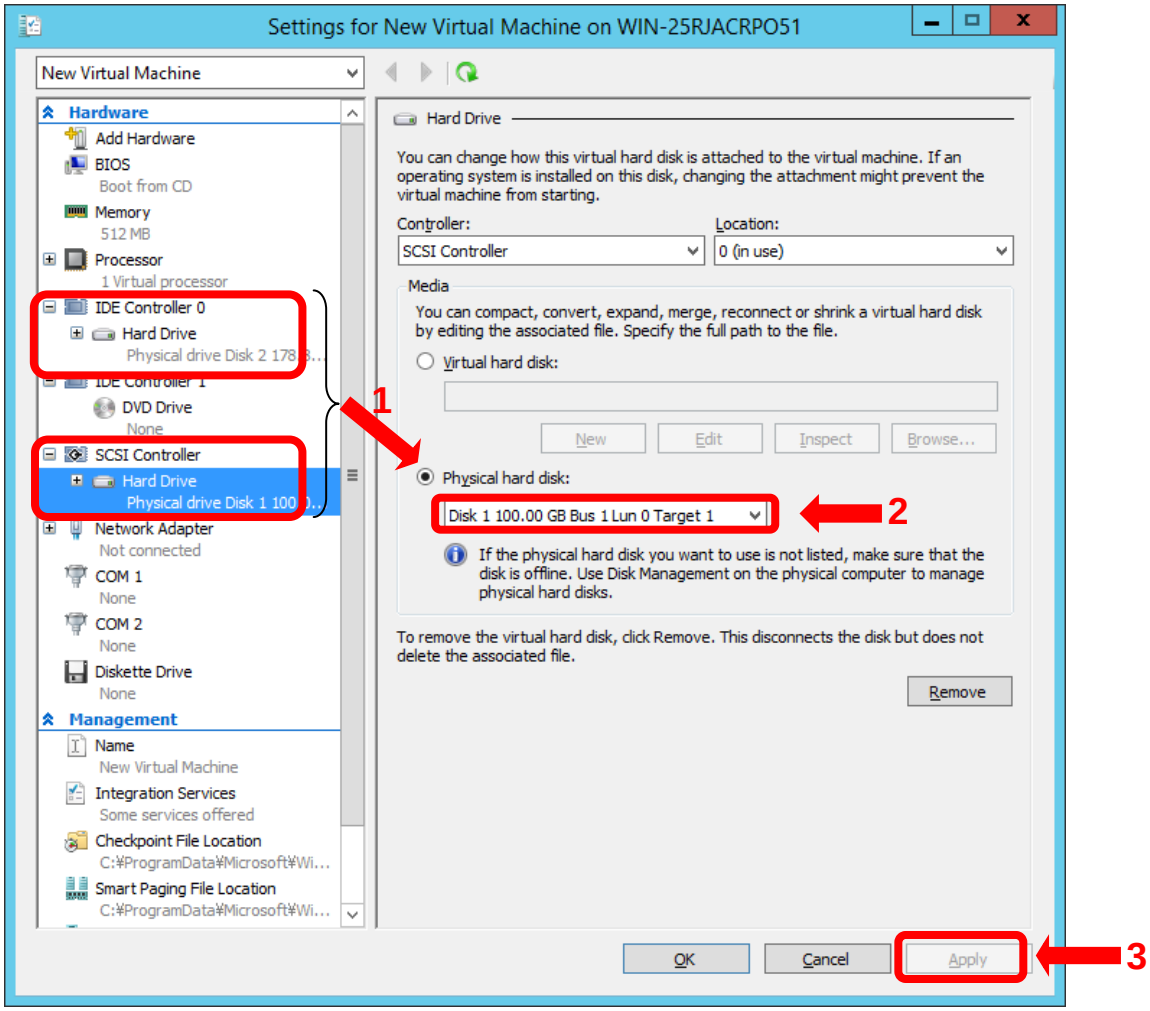


Figure 4-98: Configuring the disk used by virtual machines

4.4.11. Configuring a static route

Configure static routes in accordance with the descriptions in the network specifications by following the procedure below.

You do not need to specify the settings if static routing is not described in the network specifications.

1). Click Start, All Programs, and Accessories, right-click Command Prompt, and then click Run as administrator.

2). At the command prompt, type **netsh interface ipv4 show route store=persistent**. Information of static routes (1 in Figure 4-99) is displayed.-You need to check the Network configuration Parameters Sheets and, set up a static route if the prefix corresponding to Network configuration Parameters Sheets does not be displayed
There might be multiple routes for which no prefix is displayed.
There might also be a case in which no routes are displayed, but this is not an error.

Reference: Static route setting not subject to restore in this section
A route whose prefix is 0.0.0.0/0 was registered based on the default gateway setting.
A route whose Idx is 0 (the static route whose prefix is 192.168.2.0/24 in the example below) was registered by using route add without specifying the if option and its setting is retained.

3). To configure a static route, at the command prompt, type **netsh interface ipv4 add route <prefix> "<name>" <gateway/interface name> metric=<Met> publish=<yes | no>**.
If there are multiple routes for which no prefix is displayed, run this command for each route.

The example below shows that the static route whose prefix is 192.168.1.0/24 needs to be restored. To restore this route, type as follows: netsh interface ipv4 add route 192.168.1.0/24 "Local Area Connection 2" 192.168.0.20 metric=1 publish=no

Table 4-2: Configuring a static route

Publish	Type	Met	prefix	Idx	Gateway/Interface	Name
yes	other	1	192.168.2.0/24	0	192.168.0.20	Idx=0
yes	other	Default	0.0.0.0/0	10	192.168.0.20	LAN1
no	other	1	192.168.1.0/24	18	192.168.0.20	LAN2

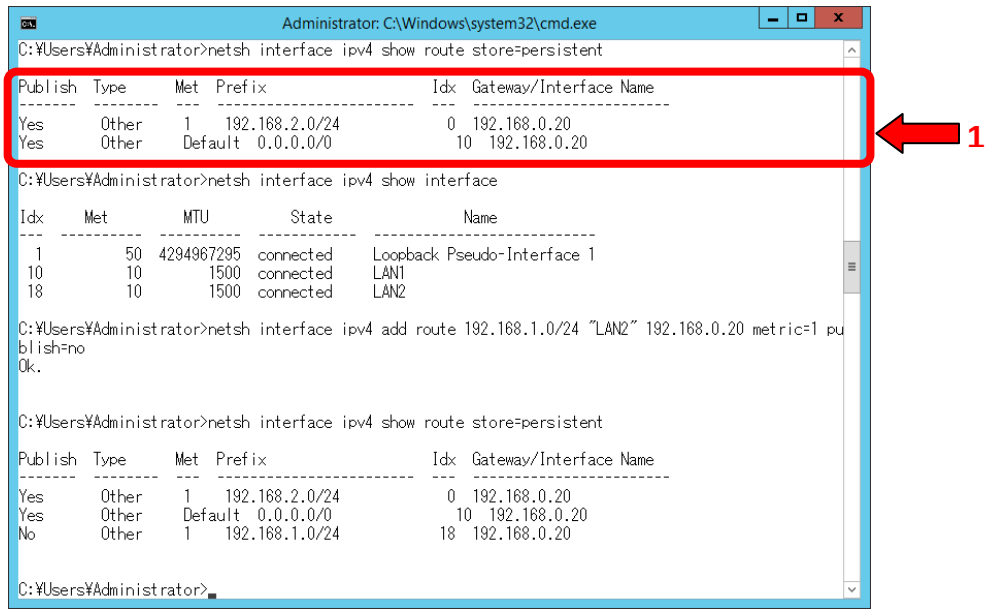


Figure 4-99: Configuring a static route

4.4.12. Starting applications

Restore the startup setting of the applications that have been stopped in 4.4.1 Stopping applications.

If clustering software such as EXPRESSCLUSTER and Oracle RAC is used, add this node in cluster again, in addition to restoring the startup setting on the server.

4.4.13. Restarting Hyper-V virtual machines

Start the virtual machines that have been stopped during reconfiguration in 4.4.3 Changing the Hyper-V virtual network settings as needed.

4.4.14. Checking the configuration based on the network configuration parameters sheets.

If you have obtained the network configuration parameters sheets of the system, make sure that the settings changed from the default are all reconfigured and their settings are correct. If you found missed settings or incorrect settings, configure them according to the network specifications.

4.4.15. Checking operation

Check that communication with other servers connected to each network can be established.

Setting up failover for Windows Server 2012/Windows Server 2012 R2 is now complete.

License Notification

The System BIOS of this product contains open source software for the following license.

EDK2 FROM TIANOCORE.ORG

Any product redistribution that you make must also include this license and notice for EDK2 from Tianocore.org. Where applicable include the following license text in your redistributions.

BSD License from Intel

Copyright (c) 2012, Intel Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the Intel Corporation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2004 - 2007, Intel Corporation
All rights reserved. This program and the accompanying materials are licensed and made available under the terms and conditions of the BSD License which accompanies this distribution. The full text of the license may be found at http://opensource.org/licenses/bsd-license.php
THE PROGRAM IS DISTRIBUTED UNDER THE BSD LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR REPRESENTATIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED.

UEFI SHELL

Any product redistribution that you make must also include this license and notice for UEFI Shell. Where applicable include the following license text in your redistributions.

Copyright (c) 2012, Intel Corporation. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions dand the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN

CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

UEFI NETWORK STACK II and iSCSI

Any product redistribution that you make must also include this license and notice for UEFI Network Stack 2. Where applicable include the following license text in your redistributions.

OpenSSL License

Copyright (c) 1998-2011 The OpenSSL Project. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. All advertising materials mentioning features or use of this software must display the following acknowledgment:
"This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (http://www.openssl.org/)"

4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact openssl-core@openssl.org.

5. Products derived from this software may not be called "OpenSSL" nor may "OpenSSL" appear in their names without prior written permission of the OpenSSL Project.

6. Redistributions of any form whatsoever must retain the following acknowledgment:
"This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)"

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

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

CRYPTO PACKAGE USING WPA SUPPLICANT

Any product redistribution that you make must also include this license and notice for Crypto Package using WPA Supplicant. Where applicable include the following license text in your redistributions.

WPA Supplicant

Copyright (c) 2003-2012, Jouni Malinen <j@w1.fi> and contributors
All Rights Reserved.

This program is licensed under the BSD license (the one with advertisement clause removed).

If you are submitting changes to the project, please see CONTRIBUTIONS file for more instructions.

License

This software may be distributed, used, and modified under the terms of
BSD license:

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. Neither the name(s) of the above-listed copyright holder(s) nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOTLIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The Offline Tools of this product contains open source software for the following license.

EDK FROM TIANOCORE.ORG

Any product redistribution that you make must also include this license and notice for EDK from Tianocore.org. Where applicable include the following license text in your redistributions.

BSD License from Intel

Copyright (c) 2004, Intel Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the Intel Corporation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2004 - 2007, Intel Corporation
All rights reserved. This program and the accompanying materials are licensed and made available under the terms and conditions of the BSD License which accompanies this distribution. The full text of the license may be found at http://opensource.org/licenses/bsd-license.php
THE PROGRAM IS DISTRIBUTED UNDER THE BSD LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR REPRESENTATIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED.

This product includes open source software programs described below.

■ GNU General Public License

- Busybox
- Linux Kernel
- U-Boot
- stunnel

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any

patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program,

and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such

parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to

address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful,

but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License along
with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.

■ GNU Lesser General Public Licsense

- glibc

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it

does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of

running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6.

Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot

use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any

patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A

FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

■ OpenSSL Toolkit

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/).
This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).

LICENSE ISSUES
==========

The OpenSSL toolkit stays under a dual license, i.e. both the conditions of

the OpenSSL License and the original SSLeay license apply to the toolkit.
See below for the actual license texts. Actually both licenses are BSD-style
Open Source licenses. In case of any license issues related to OpenSSL
please contact openssl-core@openssl.org.

OpenSSL License

```
/* ====================================================================
 * Copyright (c) 1998-2011 The OpenSSL Project.  All rights reserved.
 *
 * Redistribution and use in source and binary forms, with or without
 * modification, are permitted provided that the following conditions
 * are met:
 *
 * 1. Redistributions of source code must retain the above copyright
 *    notice, this list of conditions and the following disclaimer.
 *
 * 2. Redistributions in binary form must reproduce the above copyright
 *    notice, this list of conditions and the following disclaimer in
 *    the documentation and/or other materials provided with the
 *    distribution.
 *
 * 3. All advertising materials mentioning features or use of this
 *    software must display the following acknowledgment:
 *    "This product includes software developed by the OpenSSL Project
 *    for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
 *
 * 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
 *    endorse or promote products derived from this software without
 *    prior written permission. For written permission, please contact
 *    openssl-core@openssl.org.
 *
 * 5. Products derived from this software may not be called "OpenSSL"
 *    nor may "OpenSSL" appear in their names without prior written
 *    permission of the OpenSSL Project.
 *
 * 6. Redistributions of any form whatsoever must retain the following
 *    acknowledgment:
 *    "This product includes software developed by the OpenSSL Project
 *    for use in the OpenSSL Toolkit (http://www.openssl.org/)"
 *
 * THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY
 * EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
 * IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
 * PURPOSE ARE DISCLAIMED.  IN NO EVENT SHALL THE OpenSSL PROJECT OR
 * ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
 * SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
 * NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
 * LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
 * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
 * STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
 * ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
 * OF THE POSSIBILITY OF SUCH DAMAGE.
 * ====================================================================
 *
 * This product includes cryptographic software written by Eric Young
 * (eay@cryptsoft.com).  This product includes software written by Tim
 * Hudson (tjh@cryptsoft.com).
 *
 */
```

Original SSLeay License

```
/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
 * All rights reserved.
 *
 * This package is an SSL implementation written
 * by Eric Young (eay@cryptsoft.com).
 * The implementation was written so as to conform with Netscapes SSL.
 *
 * This library is free for commercial and non-commercial use as long as
 * the following conditions are aheared to.  The following conditions
 * apply to all code found in this distribution, be it the RC4, RSA,
 * lhash, DES, etc., code; not just the SSL code.  The SSL documentation
 * included with this distribution is covered by the same copyright terms
 * except that the holder is Tim Hudson (tjh@cryptsoft.com).
 *
 * Copyright remains Eric Young's, and as such any Copyright notices in
 * the code are not to be removed.
 * If this package is used in a product, Eric Young should be given attribution
 * as the author of the parts of the library used.
 * This can be in the form of a textual message at program startup or
 * in documentation (online or textual) provided with the package.
 *
 * Redistribution and use in source and binary forms, with or without
 * modification, are permitted provided that the following conditions
 * are met:
 * 1. Redistributions of source code must retain the copyright
 *    notice, this list of conditions and the following disclaimer.
 * 2. Redistributions in binary form must reproduce the above copyright
 *    notice, this list of conditions and the following disclaimer in the
 *    documentation and/or other materials provided with the distribution.
 * 3. All advertising materials mentioning features or use of this software
 *    must display the following acknowledgement:
 *    "This product includes cryptographic software written by
 *     Eric Young (eay@cryptsoft.com)"
 *    The word 'cryptographic' can be left out if the rouines from the library
 *    being used are not cryptographic related :-).
 * 4. If you include any Windows specific code (or a derivative thereof) from
 *    the apps directory (application code) you must include an acknowledgement:
 *    "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
 *
 * THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
 * ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
 * IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
 * ARE DISCLAIMED.  IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
 * FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
 * DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
 * OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
 * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
 * LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
 * OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
 * SUCH DAMAGE.
 *
 * The licence and distribution terms for any publically available version or
 * derivative of this code cannot be changed.  i.e. this code cannot simply be
 * copied and put under another distribution licence
 * [including the GNU Public Licence.]
 */
```

■ MIT License

- iniParser

Copyright (c) 2000-2011 by Nicolas Devillard.

- jQuery

Copyright (c) 2011 John Resig, http://jquery.com/

- canvas-text

Copyright (c) 2008 Fabien Menager

- jQuery TreeView

Copyright (c) 2007 Jorn Zaefferer

- jQuery tablesorter

Copyright (c) 2007 Christian Bach

- typeface.js

Copyright (c) 2008, David Chester (davidchester@gmx.net)

- JSDeferred

Copyright (c) 2007 cho45 (www.lowreal.net)

- jQuery upload

Copyright (c) 2010 lagos

- jQuery LoadMask

Copyright (c) 2009 Sergiy Kovalchuk (serg472@gmail.com)

- flot

Copyright (c) 2007-2009 IOLA and Ole Laursen (http://code.google.com/p/flot)

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:
The above copyright notice and this permission notice shall be included in
all copies or substantial portions of the Software.
THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
THE SOFTWARE.

■ Other open source software programs

■ OpenSSH

```
1)
     * Copyright (c) 1995 Tatu Ylonen <ylo@cs.hut.fi>, Espoo, Finland
     *                    All rights reserved
     *
     * As far as I am concerned, the code I have written for this software
     * can be used freely for any purpose.  Any derived versions of this
     * software must be clearly marked as such, and if the derived work is
     * incompatible with the protocol description in the RFC file, it must be
     * called by a name other than "ssh" or "Secure Shell".

    [Tatu continues]
     *  However, I am not implying to give any licenses to any patents or
     * copyrights held by third parties, and the software includes parts that
     * are not under my direct control.  As far as I know, all included
     * source code is used in accordance with the relevant license agreements
     * and can be used freely for any purpose (the GNU license being the most
     * restrictive); see below for details.
```

[However, none of that term is relevant at this point in time. All of these restrictively licenced software components which he talks about have been removed from OpenSSH, i.e.,

- RSA is no longer included, found in the OpenSSL library
- IDEA is no longer included, its use is deprecated
- DES is now external, in the OpenSSL library
- GMP is no longer used, and instead we call BN code from OpenSSL
- Zlib is now external, in a library
- The make-ssh-known-hosts script is no longer included
- TSS has been removed
- MD5 is now external, in the OpenSSL library
- RC4 support has been replaced with ARC4 support from OpenSSL
- Blowfish is now external, in the OpenSSL library

[The licence continues]

Note that any information and cryptographic algorithms used in this software are publicly available on the Internet and at any major bookstore, scientific library, and patent office worldwide. More information can be found e.g. at "http://www.cs.hut.fi/crypto".

The legal status of this program is some combination of all these permissions and restrictions. Use only at your own responsibility. You will be responsible for any legal consequences yourself; I am not making any claims whether possessing or using this is legal or not in your country, and I am not taking any responsibility on your behalf.

NO WARRANTY

BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

2)

The 32-bit CRC compensation attack detector in deattack.c was contributed by CORE SDI S.A. under a BSD-style license.

```
 * Cryptographic attack detector for ssh - source code
 *
 * Copyright (c) 1998 CORE SDI S.A., Buenos Aires, Argentina.
 *
 * All rights reserved. Redistribution and use in source and binary
 * forms, with or without modification, are permitted provided that
 * this copyright notice is retained.
 *
 * THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED
 * WARRANTIES ARE DISCLAIMED. IN NO EVENT SHALL CORE SDI S.A. BE
 * LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY OR
 * CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR MISUSE OF THIS
 * SOFTWARE.
 *
```

```
 * Ariel Futoransky <futo@core-sdi.com>
 * <http://www.core-sdi.com>

3)
ssh-keyscan was contributed by David Mazieres under a BSD-style
license.

 * Copyright 1995, 1996 by David Mazieres <dm@lcs.mit.edu>.
 *
 * Modification and redistribution in source and binary forms is
 * permitted provided that due credit is given to the author and the
 * OpenBSD project by leaving this copyright notice intact.

4)
The Rijndael implementation by Vincent Rijmen, Antoon Bosselaers
and Paulo Barreto is in the public domain and distributed
with the following license:

 * @version 3.0 (December 2000)
 *
 * Optimised ANSI C code for the Rijndael cipher (now AES)
 *
 * @author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>
 * @author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>
 * @author Paulo Barreto <paulo.barreto@terra.com.br>
 *
 * This code is hereby placed in the public domain.
 *
 * THIS SOFTWARE IS PROVIDED BY THE AUTHORS ''AS IS'' AND ANY EXPRESS
 * OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
 * WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
 * ARE DISCLAIMED.  IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE
 * LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
 * CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
 * SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
 * BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
 * WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE
 * OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE,
 * EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

5)
One component of the ssh source code is under a 3-clause BSD license,
held by the University of California, since we pulled these parts from
original Berkeley code.

 * Copyright (c) 1983, 1990, 1992, 1993, 1995
 *     The Regents of the University of California.  All rights reserved.
 *
 * Redistribution and use in source and binary forms, with or without
 * modification, are permitted provided that the following conditions
 * are met:
 * 1. Redistributions of source code must retain the above copyright
 *    notice, this list of conditions and the following disclaimer.
 * 2. Redistributions in binary form must reproduce the above copyright
 *    notice, this list of conditions and the following disclaimer in the
 *    documentation and/or other materials provided with the distribution.
 * 3. Neither the name of the University nor the names of its contributors
 *    may be used to endorse or promote products derived from this software
 *    without specific prior written permission.
 *
 * THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
 * ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
 * IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
 * ARE DISCLAIMED.  IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
 * FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
 * DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
 * OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
 * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
 * LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
 * OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
```

```
 * SUCH DAMAGE.

6)
   Remaining components of the software are provided under a standard
   2-term BSD licence with the following names as copyright holders:

        Markus Friedl
        Theo de Raadt
        Niels Provos
        Dug Song
        Aaron Campbell
        Damien Miller
        Kevin Steves
        Daniel Kouril
        Wesley Griffin
        Per Allansson
        Nils Nordman
        Simon Wilkinson

   Portable OpenSSH additionally includes code from the following copyright
   holders, also under the 2-term BSD license:

        Ben Lindstrom
        Tim Rice
        Andre Lucas
        Chris Adams
        Corinna Vinschen
        Cray Inc.
        Denis Parker
        Gert Doering
        Jakob Schlyter
        Jason Downs
        Juha Yrjölä
        Michael Stone
        Networks Associates Technology, Inc.
        Solar Designer
        Todd C. Miller
        Wayne Schroeder
        William Jones
        Darren Tucker
        Sun Microsystems
        The SCO Group
        Daniel Walsh

    * Redistribution and use in source and binary forms, with or without
    * modification, are permitted provided that the following conditions
    * are met:
    * 1. Redistributions of source code must retain the above copyright
    *    notice, this list of conditions and the following disclaimer.
    * 2. Redistributions in binary form must reproduce the above copyright
    *    notice, this list of conditions and the following disclaimer in the
    *    documentation and/or other materials provided with the distribution.
    *
    * THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR
    * IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
    * OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
    * IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
    * INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
    * NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
    * DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
    * THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
    * (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
    * THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

8) Portable OpenSSH contains the following additional licenses:

   a) md5crypt.c, md5crypt.h

        * "THE BEER-WARE LICENSE" (Revision 42):
        * <phk@login.dknet.dk> wrote this file.  As long as you retain this
```

```
 * notice you can do whatever you want with this stuff. If we meet
 * some day, and you think this stuff is worth it, you can buy me a
 * beer in return.   Poul-Henning Kamp
```

b) snprintf replacement

```
 * Copyright Patrick Powell 1995
 * This code is based on code written by Patrick Powell
 * (papowell@astart.com) It may be used for any purpose as long as this
 * notice remains intact on all source code distributions
```

c) Compatibility code (openbsd-compat)

Apart from the previously mentioned licenses, various pieces of code in the openbsd-compat/ subdirectory are licensed as follows:

Some code is licensed under a 3-term BSD license, to the following copyright holders:

```
Todd C. Miller
Theo de Raadt
Damien Miller
Eric P. Allman
The Regents of the University of California
Constantin S. Svintsoff

* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. Neither the name of the University nor the names of its contributors
*    may be used to endorse or promote products derived from this software
*    without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
* ARE DISCLAIMED.  IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
```

Some code is licensed under an ISC-style license, to the following copyright holders:

```
Internet Software Consortium.
Todd C. Miller
Reyk Floeter
Chad Mynhier

* Permission to use, copy, modify, and distribute this software for any
* purpose with or without fee is hereby granted, provided that the above
* copyright notice and this permission notice appear in all copies.
*
* THE SOFTWARE IS PROVIDED "AS IS" AND TODD C. MILLER DISCLAIMS ALL
* WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES
* OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL TODD C. MILLER BE LIABLE
* FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
* WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION
* OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN
* CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
```

```
Some code is licensed under a MIT-style license to the following
copyright holders:

   Free Software Foundation, Inc.

   * Permission is hereby granted, free of charge, to any person obtaining a  *
   * copy of this software and associated documentation files (the          *
   * "Software"), to deal in the Software without restriction, including     *
   * without limitation the rights to use, copy, modify, merge, publish,     *
   * distribute, distribute with modifications, sublicense, and/or sell      *
   * copies of the Software, and to permit persons to whom the Software is   *
   * furnished to do so, subject to the following conditions:              *
   *                                                                        *
   * The above copyright notice and this permission notice shall be included  *
   * in all copies or substantial portions of the Software.                 *
   *                                                                        *
   * THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS  *
   * OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF             *
   * MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.   *
   * IN NO EVENT SHALL THE ABOVE COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM,   *
   * DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR    *
   * OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR    *
   * THE USE OR OTHER DEALINGS IN THE SOFTWARE.                              *
   *                                                                        *
   * Except as contained in this notice, the name(s) of the above copyright   *
   * holders shall not be used in advertising or otherwise to promote the    *
   * sale, use or other dealings in this Software without prior written      *
   * authorization.                                                         *
   **************************************************************************/
```

■ OpenSLP

The following copyright and license is applicable to the entire OpenSLP project (libslp, slpd, and related documentation):

Copyright (C) 2000 Caldera Systems, Inc

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of Caldera Systems nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE CALDERA SYSTEMS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

■ OpenLDAP

Copyright 1998-2009 The OpenLDAP Foundation
All rights reserved.
Redistribution and use in source and binary forms, with or without

modification, are permitted only as authorized by the OpenLDAP
Public License.
A copy of this license is available in the file LICENSE in the
top-level directory of the distribution or, alternatively, at
<http://www.OpenLDAP.org/license.html>.
OpenLDAP is a registered trademark of the OpenLDAP Foundation.
Individual files and/or contributed packages may be copyright by
other parties and/or subject to additional restrictions.
This work is derived from the University of Michigan LDAP v3.3
distribution. Information concerning this software is available
at <http://www.umich.edu/~dirsvcs/ldap/ldap.html>.
This work also contains materials derived from public sources.
Additional information about OpenLDAP can be obtained at
<http://www.openldap.org/>.

Portions Copyright 1998-2008 Kurt D. Zeilenga.
Portions Copyright 1998-2006 Net Boolean Incorporated.
Portions Copyright 2001-2006 IBM Corporation.
All rights reserved.
Redistribution and use in source and binary forms, with or without
modification, are permitted only as authorized by the OpenLDAP
Public License.

Portions Copyright 1999-2008 Howard Y.H. Chu.
Portions Copyright 1999-2008 Symas Corporation.
Portions Copyright 1998-2003 Hallvard B. Furuseth.
Portions Copyright 2008-2009 Gavin Henry.
Portions Copyright 2008-2009 Suretec Systems Ltd.
All rights reserved.
Redistribution and use in source and binary forms, with or without
modification, are permitted provided that this notice is preserved.
The names of the copyright holders may not be used to endorse or
promote products derived from this software without their specific
prior written permission. This software is provided ``as is''
without express or implied warranty.

Portions Copyright (c) 1992-1996 Regents of the University of Michigan.
All rights reserved.
Redistribution and use in source and binary forms are permitted
provided that this notice is preserved and that due credit is given
to the University of Michigan at Ann Arbor. The name of the
University may not be used to endorse or promote products derived
from this software without specific prior written permission. This
software is provided ``as is'' without express or implied warranty.

■ TCP Wrapper

```
/************************************************************************
* Copyright 1995 by Wietse Venema.  All rights reserved.  Some individual
* files may be covered by other copyrights.
*
* This material was originally written and compiled by Wietse Venema at
* Eindhoven University of Technology, The Netherlands, in 1990, 1991,
* 1992, 1993, 1994 and 1995.
*
* Redistribution and use in source and binary forms are permitted
* provided that this entire copyright notice is duplicated in all such
* copies.
*
* This software is provided "as is" and without any expressed or implied
* warranties, including, without limitation, the implied warranties of
* merchantibility and fitness for any particular purpose.
```

```
**************************************************************************/

/*
 * Copyright (c) 1987 Regents of the University of California.
 * All rights reserved.
 *
 * Redistribution and use in source and binary forms are permitted
 * provided that the above copyright notice and this paragraph are
 * duplicated in all such forms and that any documentation,
 * advertising materials, and other materials related to such
 * distribution and use acknowledge that the software was developed
 * by the University of California, Berkeley.  The name of the
 * University may not be used to endorse or promote products derived
 * from this software without specific prior written permission.
 * THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR
 * IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED
 * WARRANTIES OF MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE.
 */
```

■ sblim-sfcb

```
/*
 *
 * (C) Copyright IBM Corp. 2005
 *
 * THIS FILE IS PROVIDED UNDER THE TERMS OF THE ECLIPSE PUBLIC LICENSE
 * ("AGREEMENT"). ANY USE, REPRODUCTION OR DISTRIBUTION OF THIS FILE
 * CONSTITUTES RECIPIENTS ACCEPTANCE OF THE AGREEMENT.
 *
 * You can obtain a current copy of the Eclipse Public License from
 * http://www.opensource.org/licenses/eclipse-1.0.php
 *
*/
/* ---------------------------------------------------------------------- */
/*                                                                        */
/* Copyright (c) 2006 The Open Group                                      */
/*                                                                        */
/* Permission is hereby granted, free of charge, to any person obtaining a   */
/* copy of this software (the "Software"), to deal in the Software without   */
/* restriction, including without limitation the rights to use, copy,        */
/* modify, merge, publish, distribute, sublicense, and/or sell copies of     */
/* the Software, and to permit persons to whom the Software is furnished     */
/* to do so, subject to the following conditions:                            */
/*                                                                        */
/* The above copyright notice and this permission notice shall be included   */
/* in all copies or substantial portions of the Software.                    */
/*                                                                        */
/* THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS   */
/* OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF                */
/* MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.    */
/* IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY      */
/* CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT */
/* OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR  */
/* THE USE OR OTHER DEALINGS IN THE SOFTWARE.                                */
/*                                                                        */
/* ---------------------------------------------------------------------- */
```

■ SQLite

SQLite is in the Public Domain

All of the deliverable code in SQLite has been dedicated to the public domain by the authors. All code authors, and representatives of the companies they work for, have signed affidavits dedicating their contributions to the public domain and originals of those signed affidavits are stored in a firesafe at the main offices of Hwaci. Anyone is free to copy, modify, publish, use, compile, sell, or distribute the original SQLite code, either in source code form or as a compiled binary, for any purpose, commercial or non-commercial, and by any means.

The previous paragraph applies to the deliverable code in SQLite - those parts of the SQLite library that you actually bundle and ship with a larger application. Portions of the documentation and some code used as part of the build process might fall under other licenses. The details here are unclear. We do not worry about the licensing of the documentation and build code so much because none of these things are part of the core deliverable SQLite library.

All of the deliverable code in SQLite has been written from scratch. No code has been taken from other projects or from the open internet. Every line of code can be traced back to its original author, and all of those authors have public domain dedications on file. So the SQLite code base is clean and is uncontaminated with licensed code from other projects.

■ MD2

```
/* crypto/md2/md2.c */
/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
* All rights reserved.
*
* This package is an SSL implementation written
* by Eric Young (eay@cryptsoft.com).
* The implementation was written so as to conform with Netscapes SSL.
*
* This library is free for commercial and non-commercial use as long as
* the following conditions are aheared to. The following conditions
* apply to all code found in this distribution, be it the RC4, RSA,
* lhash, DES, etc., code; not just the SSL code. The SSL documentation
* included with this distribution is covered by the same copyright terms
* except that the holder is Tim Hudson (tjh@cryptsoft.com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed.
* If this package is used in a product, Eric Young should be given attribution
* as the author of the parts of the library used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the copyright
* notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
* notice, this list of conditions and the following disclaimer in the
* documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
* must display the following acknowledgement:
* "This product includes cryptographic software written by
* Eric Young (eay@cryptsoft.com)"
* The word 'cryptographic' can be left out if the rouines from the library
* being used are not cryptographic related :-).
* 4. If you include any Windows specific code (or a derivative thereof) from
* the apps directory (application code) you must include an acknowledgement:
* "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
```

```
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*
* The licence and distribution terms for any publically available version or
* derivative of this code cannot be changed. i.e. this code cannot simply be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/
```

■ MD5

```
/* MD5C.C - RSA Data Security, Inc., MD5 message-digest algorithm
 */

/* Copyright (C) 1991-2, RSA Data Security, Inc. Created 1991. All
   rights reserved.

   License to copy and use this software is granted provided that it
   is identified as the "RSA Data Security, Inc. MD5 Message-Digest
   Algorithm" in all material mentioning or referencing this software
   or this function.

   License is also granted to make and use derivative works provided
   that such works are identified as "derived from the RSA Data
   Security, Inc. MD5 Message-Digest Algorithm" in all material
   mentioning or referencing the derived work.

   RSA Data Security, Inc. makes no representations concerning either
   the merchantability of this software or the suitability of this
   software for any particular purpose. It is provided "as is"
   without express or implied warranty of any kind.

   These notices must be retained in any copies of any part of this
   documentation and/or software.
 */
```

■ SHA1/2

```
/*
 * FIPS 180-2 SHA-224/256/384/512 implementation
 * Last update: 02/02/2007
 * Issue date:  04/30/2005
 *
 * Copyright (C) 2005, 2007 Olivier Gay <olivier.gay@a3.epfl.ch>
 * All rights reserved.
 *
 * Redistribution and use in source and binary forms, with or without
 * modification, are permitted provided that the following conditions
 * are met:
 * 1. Redistributions of source code must retain the above copyright
 *    notice, this list of conditions and the following disclaimer.
 * 2. Redistributions in binary form must reproduce the above copyright
 *    notice, this list of conditions and the following disclaimer in the
 *    documentation and/or other materials provided with the distribution.
 * 3. Neither the name of the project nor the names of its contributors
```

```
 *    may be used to endorse or promote products derived from this software
 *    without specific prior written permission.
 *
 * THIS SOFTWARE IS PROVIDED BY THE PROJECT AND CONTRIBUTORS ``AS IS'' AND
 * ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
 * IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
 * ARE DISCLAIMED.  IN NO EVENT SHALL THE PROJECT OR CONTRIBUTORS BE LIABLE
 * FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
 * DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
 * OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
 * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
 * LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
 * OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
 * SUCH DAMAGE.
 */
```

■ HMAC-SHA1/2

```
/*-
 * HMAC-SHA-224/256/384/512 implementation
 * Last update: 06/15/2005
 * Issue date:  06/15/2005
 *
 * Copyright (C) 2005 Olivier Gay <olivier.gay@a3.epfl.ch>
 * All rights reserved.
 *
 * Redistribution and use in source and binary forms, with or without
 * modification, are permitted provided that the following conditions
 * are met:
 * 1. Redistributions of source code must retain the above copyright
 *    notice, this list of conditions and the following disclaimer.
 * 2. Redistributions in binary form must reproduce the above copyright
 *    notice, this list of conditions and the following disclaimer in the
 *    documentation and/or other materials provided with the distribution.
 * 3. Neither the name of the project nor the names of its contributors
 *    may be used to endorse or promote products derived from this software
 *    without specific prior written permission.
 *
 * THIS SOFTWARE IS PROVIDED BY THE PROJECT AND CONTRIBUTORS ``AS IS'' AND
 * ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
 * IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
 * ARE DISCLAIMED.  IN NO EVENT SHALL THE PROJECT OR CONTRIBUTORS BE LIABLE
 * FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
 * DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
 * OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
 * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
 * LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
 * OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
 * SUCH DAMAGE.
```

■ ExploerCanvas

■ js-tables

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the

Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

   (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

   (b) You must cause any modified files to carry prominent notices stating that You changed the files; and

   (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

   (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

   You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright 2006 Google Inc.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

See the License for the specific language governing permissions and limitations under the License.

■ IPA Font License Agreement v1.0

The Licensor provides the Licensed Program (as defined in Article 1 below) under the terms of this license agreement (“Agreement”). Any use, reproduction or distribution of the Licensed Program, or any exercise of rights under this Agreement by a Recipient (as defined in Article 1 below) constitutes the Recipient’s acceptance of this Agreement.

Article 1 (Definitions)

1. “Digital Font Program” shall mean a computer program containing, or used to render or display fonts.

2. “Licensed Program” shall mean a Digital Font Program licensed by the Licensor under this Agreement.

3. “Derived Program” shall mean a Digital Font Program created as a result of a modification, addition, deletion, replacement or any other adaptation to or of a part or all of the Licensed Program, and includes a case where a Digital Font Program newly created by retrieving font information from a part or all of the Licensed Program or Embedded Fonts from a Digital Document File with or without modification of the retrieved font information.

4. “Digital Content” shall mean products provided to end users in the form of digital data, including video content, motion and/or still pictures, TV programs or other broadcasting content and products consisting of character text, pictures, photographic images, graphic symbols and/or the like.

5. “Digital Document File” shall mean a PDF file or other Digital Content created by various software programs in which a part or all of the Licensed Program becomes embedded or contained in the file for the display of the font (“Embedded Fonts”). Embedded Fonts are used only in the display of characters in the particular Digital Document File within which they are embedded, and shall be distinguished from those in any Digital Font Program, which may be used for display of characters outside that particular Digital Document File.

6. “Computer” shall include a server in this Agreement.

7. “Reproduction and Other Exploitation” shall mean reproduction, transfer, distribution, lease, public transmission, presentation, exhibition, adaptation and any other exploitation.

8. “Recipient” shall mean anyone who receives the Licensed Program under this Agreement, including one that receives the Licensed Program from a Recipient.

Article 2 (Grant of License)

The Licensor grants to the Recipient a license to use the Licensed Program in any and all countries in accordance with each of the provisions set forth in this Agreement. However, any and all rights underlying in the Licensed Program shall be held by the Licensor. In no sense is this Agreement intended to transfer any right relating to the Licensed Program held by the Licensor except as specifically set forth herein or any right relating to any trademark, trade name, or service mark to the Recipient.

1. The Recipient may install the Licensed Program on any number of Computers and use the same in accordance with the provisions set forth in this Agreement.

2. The Recipient may use the Licensed Program, with or without modification in printed materials or in Digital Content as an expression of character texts or the like.

3. The Recipient may conduct Reproduction and Other Exploitation of the printed materials and Digital Content created in accordance with the preceding Paragraph, for commercial or non-commercial purposes and in any form of media including but not limited to broadcasting, communication and various recording media.

4. If any Recipient extracts Embedded Fonts from a Digital Document File to create a Derived Program, such Derived Program shall be subject to the terms of this agreement.

5. If any Recipient performs Reproduction or Other Exploitation of a Digital Document File in which Embedded Fonts of the Licensed Program are used only for rendering the Digital Content within such Digital Document File then such Recipient shall have no further obligations under this Agreement in relation to such actions.

6. The Recipient may reproduce the Licensed Program as is without modification and transfer such copies, publicly transmit or otherwise redistribute the Licensed Program to a third party for commercial or non-commercial purposes ("Redistribute"), in accordance with the provisions set forth in Article 3 Paragraph 2.

7. The Recipient may create, use, reproduce and/or Redistribute a Derived Program under the terms stated above for the Licensed Program: provided, that the Recipient shall follow the provisions set forth in Article 3 Paragraph 1 when Redistributing the Derived Program.

Article 3 (Restriction)

The license granted in the preceding Article shall be subject to the following restrictions:

1. If a Derived Program is Redistributed pursuant to Paragraph 4 and 7 of the preceding Article, the following conditions must be met :

* (1)The following must be also Redistributed together with the Derived Program, or be made available online or by means of mailing mechanisms in exchange for a cost which does not exceed the total costs of postage, storage medium and handling fees:

o (a)a copy of the Derived Program; and

o (b)any additional file created by the font developing program in the course of creating the Derived Program that can be used for further modification of the Derived Program, if any.

* (2)It is required to also Redistribute means to enable recipients of the Derived Program to replace the Derived Program with the Licensed Program first released under this License (the "Original Program"). Such means may be to provide a difference file from the Original Program, or instructions setting out a method to replace the Derived Program with the Original Program.

* (3)The Recipient must license the Derived Program under the terms and conditions of this Agreement.

* (4)No one may use or include the name of the Licensed Program as a program name, font name or file name of the Derived Program.

* (5) Any material to be made available online or by means of mailing a medium to satisfy the requirements of this paragraph may be provided, verbatim, by any party wishing to do so.

2. If the Recipient Redistributes the Licensed Program pursuant to Paragraph 6 of the preceding Article, the Recipient shall meet all of the following conditions:

*** (1)The Recipient may not change the name of the Licensed Program.**

*** (2)The Recipient may not alter or otherwise modify the Licensed Program.**

*** (3)The Recipient must attach a copy of this Agreement to the Licensed Program.**

3. THIS LICENSED PROGRAM IS PROVIDED BY THE LICENSOR "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTY AS TO THE LICENSED PROGRAM OR ANY DERIVED PROGRAM, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE, ARE DISCLAIMED. IN NO EVENT SHALL THE LICENSOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXTENDED, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO; PROCUREMENT OF SUBSTITUTED GOODS OR SERVICE; DAMAGES ARISING FROM SYSTEM FAILURE; LOSS OR CORRUPTION OF EXISTING DATA OR PROGRAM; LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE INSTALLATION, USE, THE REPRODUCTION OR OTHER EXPLOITATION OF THE LICENSED PROGRAM OR ANY DERIVED PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

4. The Licensor is under no obligation to respond to any technical questions or inquiries, or provide any other user support in connection with the installation, use or the Reproduction and Other Exploitation of the Licensed Program or Derived Programs thereof.

Article 4 (Termination of Agreement)

1. The term of this Agreement shall begin from the time of receipt of the Licensed Program by the Recipient and shall continue as long as the Recipient retains any such Licensed Program in any way.

2. Notwithstanding the provision set forth in the preceding Paragraph, in the event of the breach of any of the provisions set forth in this Agreement by the Recipient, this Agreement shall automatically terminate without any notice. In the case of such termination, the Recipient may not use or conduct Reproduction and Other Exploitation of the Licensed Program or a Derived Program: provided that such termination shall not affect any rights of any other Recipient receiving the Licensed Program or the Derived Program from such Recipient who breached this Agreement.

Article 5 (Governing Law)

1. IPA may publish revised and/or new versions of this License. In such an event, the Recipient may select either this Agreement or any subsequent version of the Agreement in using, conducting the Reproduction and Other Exploitation of, or Redistributing the Licensed Program or a Derived Program. Other matters not specified above shall be subject to the Copyright Law of Japan and other related laws and regulations of Japan.

2. This Agreement shall be construed under the laws of Japan.

■ Oracle Code sample License Note

[Oracle Code sample] Copyright © 2008, 2010 Oracle and/or its affiliates. All rights reserved. Use is subject to license terms.

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of Oracle Corporation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

■ ntpd

The following copyright notice applies to all files collectively called the Network Time Protocol Version 4 Distribution. Unless specifically declared otherwise in an individual file, this notice applies as if the text was explicitly included in the file.

```
*********************************************************************
*                                                                   *
* Copyright (c) University of Delaware 1992-2012                    *
*                                                                   *
* Permission to use, copy, modify, and distribute this software and *
* its documentation for any purpose with or without fee is hereby   *
* granted, provided that the above copyright notice appears in all  *
* copies and that both the copyright notice and this permission     *
* notice appear in supporting documentation, and that the name      *
* University of Delaware not be used in advertising or publicity    *
* pertaining to distribution of the software without specific,      *
* written prior permission. The University of Delaware makes no     *
* representations about the suitability this software for any       *
* purpose. It is provided "as is" without express or implied        *
* warranty.                                                         *
*                                                                   *
*********************************************************************
```

■ selinux

This is the Debian packe for libselinux, and it is built from sources obtained
from: http://www.nsa.gov/selinux/code/download5.cfm. This package was debianized by Colin Walters on
Thu, 3 Jul 2003 17:10:57 -0400.
This library (libselinux) is public domain software, i.e. not copyrighted.
Warranty Exclusion ----------
You agree that this software is a non-commercially developed program that may contain "bugs"
(as that term is used in the industry) and that it may not function as intended. The software is licensed
"as is". NSA makes no, and hereby expressly disclaims all, warranties, express, implied, statutory,
or otherwise with respect to the software, including noninfringement and the implied warranties of
merchantability and fitness for a particular purpose.
Limitation of Liability ----------
In no event will NSA be liable for any damages, including loss of data, lost profits, cost of cover,
or other special, incidental, consequential, direct or indirect damages arising from the software or
the use thereof, however caused and on any theory of liability.
This limitation will apply even if NSA has been advised of the possibility of such damage.
You acknowledge that this is a reasonable allocation of risk.

In addition, The Debian specific package was modified to include an excerpt from the GNU libc package
in the file utils/ia64-inline-syscall.h.
The GNU C Library is distributed under the terms of the GNU Lesser General Public License as published
by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.
You should have received a copy of the GNU Lesser General Public License along with the GNU C Library;
if not, write to Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301,
USA.
On Debian systems, the complete text of the GNU Library General Public License can be found in
`/usr/share/common-licenses/LGPL-2.1'.

This package is maintained by Manoj Srivastava . The Debian specific changes are 息 2005, 2006,
Manoj Srivastava , and distributed under the terms of the GNU General Public License, version 2.
On Debian GNU/Linux systems, the complete text of the GNU General Public License can be found
in `/usr/share/common-licenses/GPL'. A copy of the GNU General Public License is also available at .
You may also obtain it by writing to the Free Software Foundation, Inc., 51 Franklin St, Fifth Floor,
Boston,
MA 02110-1301, USA. Manoj Srivastava arch-tag: d4250e44-a0e0-4ee0-adb9-2bd74f6eeb27

■ libcap

This package was debianized by Michael Vogt on Tue, 25 Jul 2000 19:28:22 +0200.
It was downloaded from ftp://ftp.kernel.org/pub/linux/libs/security/linux-privs/Upstream
Author: Andrew G. Morgan Copyright: Unless otherwise *explicitly* stated, the following text describes
the licensed conditions under which the contents of this libcap release may be used and distributed:

Redistribution and use in source and binary forms of libcap, with or without modification, are
permitted provided that the following conditions are met:

1. Redistributions of source code must retain any existing copyright notice, and this entire permission notice in its entirety, including the disclaimer of warranties.
2. Redistributions in binary form must reproduce all prior and current copyright notices, this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name of any author may not be used to endorse or promote products derived from this software without their specific prior written permission.

ALTERNATIVELY, this product may be distributed under the terms of the GNU General Public License,
in which case the provisions of the GNU GPL are required INSTEAD OF the above restrictions.
(This clause is necessary due to a potential conflict between the GNU GPL and the restrictions contained
in a BSD-style copyright.)
THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND
FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR(S)
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING
IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.

You can find the GPL in /usr/share/common-licenses/GPL