# IBM

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Nortel Networks Layer 2-7 GbE Switch Module for IBM @server BladeCenter

Hardware Maintenance Manual and Troubleshooting Guide

IBM

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> **Note**
>
> Before using this information and the product it supports, read Appendix C, "Notices", on page 81.

Second Edition (September 2003)

About this manual

This manual contains diagnostic information, a Symptom-to-FRU index, service information, error codes, error messages, and configuration information for the Nortel Networks Layer 2-7 GbE Switch Module for IBM® @server BladeCenter™.

Note: Throughout this book, the Nortel Networks Layer 2-7 GbE Switch Module for IBM @server BladeCenter is referred to as the GbE switch module.

Important safety information

Be sure to read all caution and danger statements in this book before performing any of the instructions. See "Safety information" on page 47

Leia todas as instruções de cuidado e perigo antes de executar qualquer operação.

在安装本产品之前，请仔细阅读 Safety Information
（安全信息）。

安裝本產品之前，請先閱讀「安全資訊」。

Prenez connaissance de toutes les consignes de type Attention et Danger avant de procéder aux opérations décrites par les instructions.

Lesen Sie alle Sicherheitshinweise, bevor Sie eine Anweisung ausführen.

Accertarsi di leggere tutti gli avvisi di attenzione e di pericolo prima di effettuare qualsiasi operazione.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Lea atentamente todas las declaraciones de precaución y peligro ante de llevar a cabo cualquier operación.

WARNING: Handling the cord on this product or cords associated with accessories sold with this product, will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. *Wash hands after handling.*

ADVERTENCIA: El contacto con el cable de este producto o con cables de accesorios que se venden junto con este producto, pueden exponerle al plomo, un elemento químico que en el estado de California de los Estados Unidos está considerado como un causante de cancer y de defectos congénitos, además de otros riesgos reproductivos. *Lávese las manos después de usar el producto.*

Online support

You can download the most current diagnostic, flash, and device driver files from http://www.ibm.com/pc/support on the World Wide Web.

Support telephone numbers

View support telephone numbers at http://www.ibm.com/planetwide/ on the World Wide Web.

Contents

Chapter 1. Introduction

The GbE switch module is one of up to two GbE switch modules that can be installed in the IBM @server BladeCenter Type 8677, also known as the BladeCenter unit.

You can obtain up-to-date information about your BladeCenter GbE switch module and other IBM server products at http://www.ibm.com/eserver/xseries/.

The product name and serial number are located on the identification label on the side of the GbE switch module. You will need this information when you register your GbE switch module with IBM. The media access control (MAC) address is located on a separate label on the information panel under the external Ethernet port connectors.

See the following illustration for the locations of the identification label and the MAC address label.

Note: The illustrations in this document might differ slightly from your hardware.
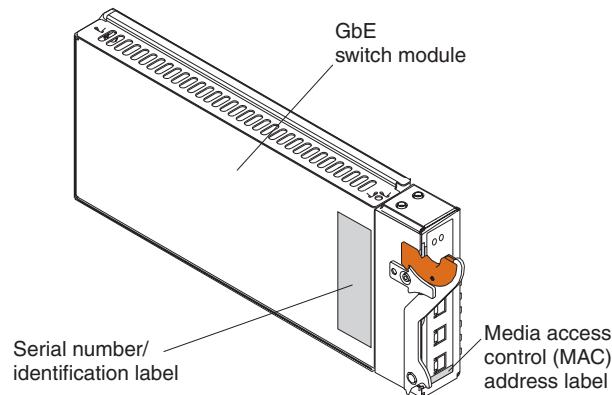
Specifications and features

This section provides a summary of the specifications and features for your Nortel Networks Layer 2-7 GbE Switch Module for IBM @server BladeCenter. For detailed information about the features, see the *Alteon OS 20.0 Application Guide* on the IBM *BladeCenter Documentation* CD.

The Nortel Networks Layer 2-7 GbE Switch Module for IBM @server BladeCenter has the following features:

- Ports
    - Four external 1000BASE-T connectors for making 10/100/1000 Mbps connections to a backbone, end stations, and servers
    - Fourteen internal full-duplex gigabit ports, one connected to each of the blade servers in the BladeCenter unit
    - Two internal full-duplex 10/100 Mbps ports connected to the management module
- Performance features
    - 64 real servers and 256 real services.

- – 64 virtual servers and 256 virtual services.
- – 128 Internet protocol (IP) interfaces.
- – 128 static route entries.
- – 1024 total policy filters.
- – 2048 dynamic route entries.
- – 2048 forwarding database (FDB) entries.
- – 4096 address resolution protocol (ARP) entries.
- – Layer 2 through Layer 7 (L2-L7) support.
- – 300,000 simultaneous Layer 2 through Layer 7 (L2-L7) sessions.
- – 802.1D spanning tree support; can be disabled on the entire switch or on a per-port basis.
- – Support for 16 multiple spanning tree groups.
- – 802.1Q tagged virtual local area network (VLAN) support.
- – Support for 128 VLANs.
- – Denial-of-Service protection.
- – Forwarding table age time: maximum 1 to 65535 seconds. The default is 300 seconds.
- – Content-based load balancing
  - - Hypertext transfer protocol (HTTP).
  - - Real time streaming protocol (RTSP).
  - - Domain name system (DNS).
- – Layer 4 load balancing.
- – HTTP cookie and secure sockets layer (SSL) session ID persistency.
- – Link aggregation with 802.3 support on four external ports for up to two static trunk groups.
- – Media access control (MAC) address learning: Automatic update. Supports 2048 MAC addresses.
- – Packet forwarding rate:
  - - Full-wire speed for all connections. 148800 packets per second (pps) per port (for 100 Mbps).
  - - 1488100 pps per port (for 1000 Mbps).
- – Random-access memory (RAM) buffer: 128 MB.
- – Real server health checking.
- – Routing Information Protocol version 1 (RIPv1), Border Gateway Protocol version 4 (BGPv4), and Open Shortest Path First version 2 (OSPFv2).
- – Transmission method: Store-and-forward.
- • Management
  - – Spanning Tree Protocol (STP) for creation of alternative backup paths and prevention of network loops.
  - – Simple Network Management Protocol (SNMP) version 1.
  - – Fully configurable either in-band or out-of-band control through SNMP-based software.
  - – Flash memory for software upgrades. This can be done through Trivial File Transfer Protocol (TFTP) or Hypertext Transfer Protocol (HTTP) Web interface.
  - – Built-in SNMP management:
    - - Bridge management information base (MIB) (RFC 1493)

- MIB-II (RFC 1213)
- 802.1P/Q MIB (RFC 2674)
- Interface MIB (RFC 2233)
- Browser-based management support
- TFTP support
- Bootstrap protocol (BOOTP) support
- Dynamic Host Configuration Protocol (DHCP) client support
- Password enabled
- Telnet remote-control console

You can also manage the switch by using a Simple Network Management Protocol (SNMP) version 1 interface, as described in the *Alteon OS 20.0 Application Guide* on the IBM *BladeCenter Documentation* CD. The SNMP interface supports the following Internet standards:

- RFC 1155, Structure and identification of management information for TCP/IP-based internets, M. T. Rose, K. McCloghrie. May-01-1990.
- RFC 1157, Simple Network Management Protocol (SNMP). J.D. Case, M. Fedor, M. L. Schoffstall, C. Davin. May-01-1990.
- RFC 1212, Concise MIB definitions. M. T. Rose, K. McCloghrie. Mar-01-1991.
- RFC 1213, Management Information Base for Network Management of TCP/IP-based internets: MIB-II. K. McCloghrie, M. T. Rose. Mar-01-1991.
- RFC 1493, Definitions of Managed Objects for Bridges. E. Decker, P. Langille, A. Rijsinghani, K. McCloghrie. July 1993.
- RFC 1573, Evolution of the Interfaces Group of MIB-II. K. McCloghrie, F. Kastenholz. January 1994.
- RFC 1643, Definitions of Managed Objects for the Ethernet-like Interface Types. F. Kastenholz. July 1994.
- RFC 1657, Definitions of Managed Objects for the Fourth Version of the Border Gateway Protocol (BGP-4) using SMIv2. S. Willis, J. Burruss, J. Chu, Ed. July 1994.
- RFC 1724, RIP Version 2 MIB Extension. G. Malkin, F. Baker. November 1994.
- RFC 1757, Remote Network Monitoring Management Information Base. S. Waldbusser. February 1995.
- RFC 1850, OSPF Version 2 Management Information Base. F. Baker, R. Coltun. November 1995.
- RFC 2021, Remote Network Monitoring Management Information Base Version 2 using SMIv2. S. Waldbusser. January 1997 (partial support).
- RFC 2037, Entity MIB using SMIv2. K. McCloghrie, A. Bierman. October 1996 (partial support).
- Network cables:
  - 10BASE-T:
    - UTP Category 3, 4, 5 (100 meters maximum)
    - 100-ohm STP (100 meters maximum)
  - 100BASE-TX:
    - UTP Category 5 (100 meters maximum)
    - EIA/TIA-568 100-ohm STP (100 meters maximum)
  - 1000BASE-T:

- UTP Category 6 (standard for 1 GB devices)
- UTP Category 5e (100 meters maximum)
- UTP Category 5 (100 meters maximum)
- EIA/TIA-568B 100-ohm STP (100 meters maximum)

Standards

The GbE switch module supports the following standards:
- IEEE standards
  - IEEE 802.1d Spanning Tree Protocol
  - IEEE 802.1P Tagged Packets
  - IEEE 802.1Q Tagged VLAN (frame tagging on all ports when VLANs are enabled)
  - IEEE 802.2 Logical Link Control
  - IEEE 802.3 10BASE-T Ethernet
  - IEEE 802.3u 100BASE-TX Fast Ethernet
  - IEEE 802.3x Full-duplex Flow Control
  - IEEE 802.3z
    - 1000BASE-SX Gigabit Ethernet
    - Link Negotiation

Related publications

This *Hardware Maintenance Manual and Troubleshooting Guide* is provided in PDF on the WEB at http://www.ibm.com/pc/support. It contains information to help you solve problems yourself or to provide helpful information to a service technician.

In addition to this *Hardware Maintenance Manual and Troubleshooting Guide*, the following related documentation comes with your GbE switch module:
- *Rack Installation Instructions*

  This printed publication contains the instructions to install your BladeCenter unit in a rack.
- *Safety Information*

  This publication is in Portable Document Format (PDF) on the IBM *BladeCenter Documentation* CD. It contains translated caution and danger statements. Each caution and danger statement that appears in the documentation has a number that you can use to locate the corresponding statement in your language in the *Safety Information* book.
- *@server BladeCenter Type 8677 Installation and User's Guide*

  This publication is in PDF on the IBM *BladeCenter Documentation* CD. It contains general information about your BladeCenter unit, including:
  - Information about features
  - How to set up, cable, and start your BladeCenter unit
  - How to install options in your BladeCenter unit
  - How to configure your BladeCenter unit
  - How to perform basic troubleshooting of your BladeCenter unit
  - How to get help
- *BladeCenter Management Module User's Guide*

This publication is in PDF on the IBM *BladeCenter Documentation* CD. It provides general information about the management module, including:

– Information about features
– How to start the management module
– How to install the management module
– How to configure and use the management module
– How to get help

- *BladeCenter Management Module Installation Guide*

  This publication is in PDF on the IBM *BladeCenter Documentation* CD. It provides general information about the management module, including:

  – How to set up and start the management module
  – How to install the management module
  – How to configure the management module
  – How to get help

- *BladeCenter HS20 Installation and User's Guide* for each blade server type

  These publications are in PDF on the IBM *BladeCenter Documentation* CD. Each provides general information about a blade server, including:

  – Information about features
  – How to set up and start your blade server
  – How to install options in your blade server
  – How to configure your blade server
  – How to install an operating system on your blade server
  – How to perform basic troubleshooting of your blade server
  – How to get help

- *Alteon OS 20.0 Application Guide Layer 2-7 GbE Switch Module for IBM @server BladeCenter*

  This Nortel Networks publication is in PDF on the IBM *BladeCenter Documentation* CD. This publication contains detailed setup and installation instructions for the GbE switch module. It provides:

  – Configuration instructions for your GbE switch module
  – Information about features
  – Information about getting help
  – Guidance for planning, implementing, and administering LAN operating system (LAN OS) software
  – Usage examples
  – Troubleshooting information for your GbE switch module

- *Alteon OS 20.0 Browser-Based Interface Quick Guide Layer 2-7 GbE Switch Module for IBM @server BladeCenter*

  This Nortel Networks publication is in PDF on the IBM *BladeCenter Documentation* CD. It contains information about the browser-based interface that you can use to:

  – Access switch information
  – Calculate and obtain statistical data
  – Perform switch configuration

- *Alteon OS 20.0 Command Reference Layer 2-7 GbE Switch Module for IBM @server BladeCenter*

This Nortel Networks publication is in PDF on the IBM *BladeCenter Documentation* CD. It includes:

– Information about getting started
– Information about first-time connection to the GbE switch module
– Telnet program interface requirements
– Browser-based network interface requirements
– Command Line Interface (CLI) operations
– Maintenance menus
– Statistics
– Supported SNMP MIBs
– Syslog messages
– Usage examples

Depending on your blade server model, additional publications might be included on the IBM *BladeCenter Documentation* CD.

In addition to reviewing the publications in this library, be sure to review the following publication for information to help you prepare for system installation and configuration: *IBM BladeCenter Planning and Installation Guide* at http://www.ibm.com/pc/eserver/bladecenter

Note: If you install more then two GbE switch module, you must install an 1800 watt power supply.

If you plan to install a GbE switch module in I/O-module bay 3 or 4 of your BladeCenter unit, you must also install an I/O expansion card (also known as an Ethernet expansion card) in the applicable blade server to support the GbE switch modules in these bays. For information about the types of compatible I/O expansion cards for the blade servers, contact your IBM authorized reseller. For details about I/O expansion cards, see Chapter 2, "Installing and removing a switch module", on page 9 and the *IBM @server BladeCenter Gigabit Ethernet Expansion Card Installation Guide* on the IBM *BladeCenter Documentation* CD.

Notices and statements used in this book

The caution and danger statements that appear in this book are also in the multilingual *Safety Information* book, which is on the IBM *BladeCenter Documentation* CD. Each statement is numbered for reference to the corresponding statement in the *Safety Information* book.

The following types of notices and statements are used in this book:

• **Note:** These notices provide important tips, guidance, or advice.
• **Important:** These notices provide information or advice that might help you avoid inconvenient or problem situations.
• **Attention:** These notices indicate possible damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage could occur.
• **Caution:** These statements indicate situations that can be potentially hazardous to you. A caution statement is placed just before the description of a potentially hazardous procedure step or situation.

- **Danger:** These statements indicate situations that can be potentially lethal or extremely hazardous to you. A danger statement is placed just before the description of a potentially lethal or extremely hazardous procedure step or situation.

Major components of the GbE switch module

The orange color on the release latch on your GbE switch module identifies this device as a hot-swap component. You can install or remove this component while the BladeCenter unit is running.

The following illustration shows the major components of your GbE switch module.

Note: The illustrations in this document might differ slightly from your hardware.
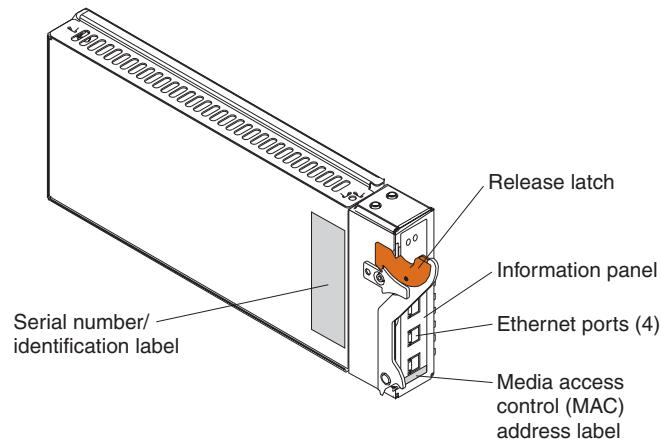
For more information about the components of the information panel, see Chapter 3, "Information panel LEDs and external ports", on page 17 For more information about the MAC address, see the *Alteon OS 20.0 Application Guide* on the IBM *BladeCenter Documentation* CD.

Chapter 2. Installing and removing a switch module

The following illustration shows the I/O-module bay locations in the BladeCenter unit.

I/O module bay 3

I/O module bay 1

I/O module bay 2
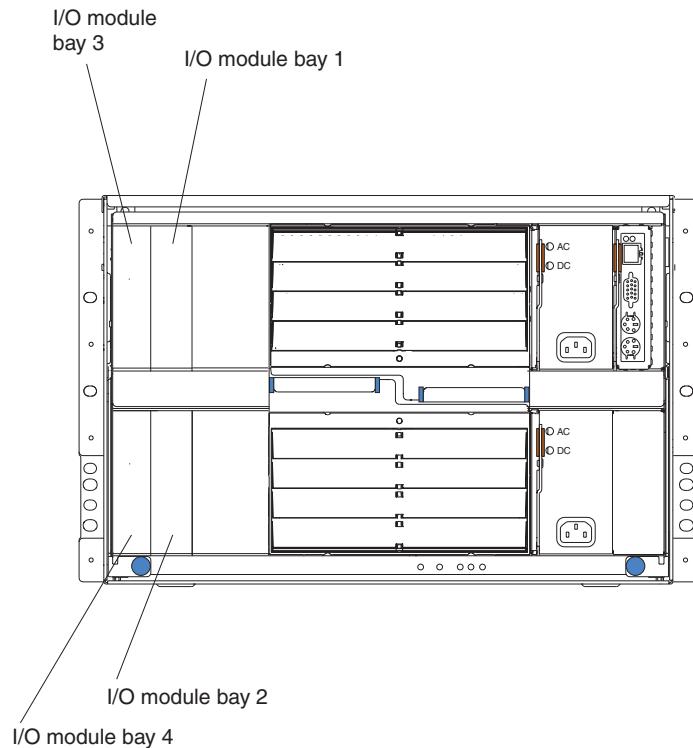
I/O module bay 4

Attention: To maintain proper system cooling, each I/O-module bay must contain either a module or a filler module; each blade bay must contain either a blade or a filler blade.

Your BladeCenter unit supports a minimum of one hot-plug GbE switch module, in I/O-module bay 1. The GbE switch modules in I/O-module bays 1 and 2 are for the integrated Ethernet controllers in the applicable blade server. The GbE switch modules in I/O-module bays 3 and 4 are for the Ethernet controllers on the I/O expansion card on any applicable blade server.

For additional information about the location of the switch module, see the *BladeCenter Type 8677 Installation and User's Guide* on the IBM *BladeCenter Documentation* CD. For details about network interface requirements and expansion options, see the following books:

- *IBM BladeCenter Planning and Installation Guide* at http://www.ibm.com/pc/eserver/bladecenter
- @server *BladeCenter Type 8677 Installation and User's Guide* on the IBM *BladeCenter Documentation* CD
- *BladeCenter HS20 Installation and User's Guide* for each blade server type on the IBM *BladeCenter Documentation* CD

Installation guidelines

Before you begin to install the GbE switch module in your BladeCenter unit, read the following information:

- Read the safety information beginning on page 47 and the guidelines in "Handling static-sensitive devices" on page 11, and read the safety statements in the BladeCenter unit option publications.

- The orange color on the release latch on your GbE switch module identifies this device as a hot-swap component. You can install or remove this component while the BladeCenter unit is on. See the instructions in this chapter for more information about installing or removing hot-swap or hot-plug components.

- You do not need to turn off the BladeCenter unit to install or replace any of the hot-swap modules on the rear of the BladeCenter unit.

- If you plan to install a GbE switch module in I/O-module bay 3 or 4 of your BladeCenter unit, you must also install an I/O expansion card in the applicable blade server to support the GbE switch modules in these bays.

System reliability considerations

To help ensure proper cooling and system reliability, make sure that:

- Each of the I/O-module bays on the rear of the BladeCenter unit has either a module or filler module installed.

- A removed hot-swap module is replaced with another module or filler module within 1 minute of removal.

- A removed hot-swap blade is replaced with another blade or filler blade within 1 minute of removal.

- Cables for the optional modules are routed according to the illustrations and instructions in this book.

Handling static-sensitive devices

Attention: Static electricity can damage electronic devices and your system. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

To reduce the possibility of electrostatic discharge, observe the following precautions:

- Limit your movement. Movement can cause static electricity to build up around you.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed printed circuitry.
- Do not leave the device where others can handle and damage it.
- While the device is still in its static-protective package, touch it to any *unpainted* metal surface of the BladeCenter chassis or any *unpainted* metal surface on any other grounded rack component for at least 2 seconds. (This drains static electricity from the package and from your body.)
- Remove the device from its package and install it directly into your BladeCenter unit without setting it down. If it is necessary to set down the device, put it back into its static-protective package. Do not place the device on your BladeCenter chassis or on a metal surface.
- Take additional care when handling devices during cold weather. Heating reduces indoor humidity and increases static electricity.

Installing a switch module

Statement 8:

CAUTION:
Never remove the cover on a power supply or any part that has the following label attached.

Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

The following illustration shows how to install a switch module in the rear of the BladeCenter unit.

Switch module

Release latch
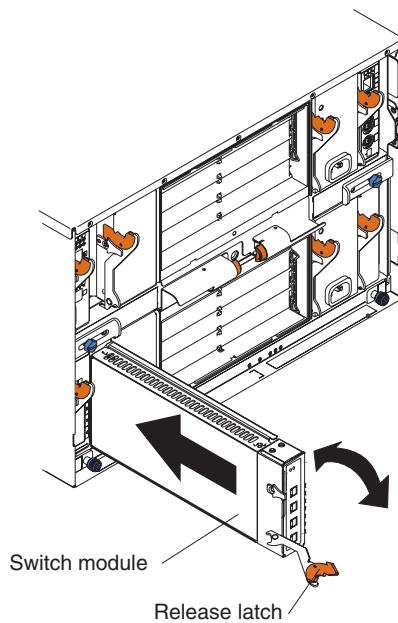
Complete the following steps to install a switch module:

1. Read the safety information beginning on page 47 and "Installation guidelines" on page 10.

2. Remove the acoustic attenuation module, if one is installed, from the rear of the BladeCenter unit.

Acoustic module

Locking handle
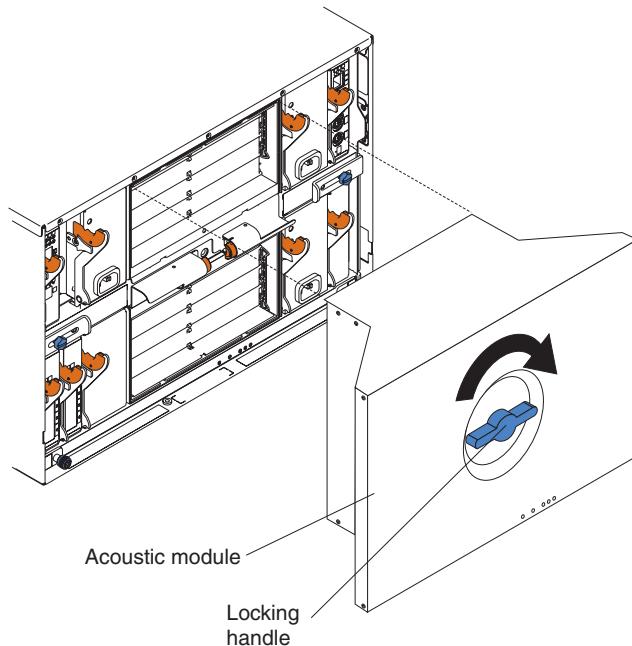
3. Select an I/O-module bay in which to install the GbE switch module.

   Note: For details about I/O-module bay requirements, see the BladeCenter books that are listed on page 9.

4. Remove the filler module from the selected bay. Store the filler module for future use.

5. If you have not already done so, touch the static-protective package that contains the switch module to any *unpainted* metal surface of the BladeCenter chassis or any *unpainted* metal surface on any other grounded rack component for at least 2 seconds.

6. Remove the switch module from its static-protective package.

7. Ensure that the release latch on the switch module is in the open position (perpendicular to the module).

8. Slide the switch module into the applicable I/O-module bay until it stops.

9. Push the release latch on the front of the switch module to the closed position. After you insert and lock the switch module, it is turned on, and a power-on self-test (POST) occurs to verify that the switch module is operating correctly.

10. The POST results are displayed by the status LEDs. Make sure that the LEDs on the switch module indicate that it is operating correctly. Make sure that the OK LED on each switch module is lit. See Chapter 3, "Information panel LEDs and external ports", on page 17 for a more detailed description of the operation of these LEDs.

    For additional information, see Chapter 6, "Diagnostic information", on page 39.

11. If you have other switch modules to install, do so now; otherwise, go to step 12.

12. Attach any cables or cords required by the switch module. For the location of the connectors on the BladeCenter unit, see the *BladeCenter Type 8677 Installation and User's Guide* on the IBM *BladeCenter Documentation* CD. For cable requirements, see page 3.

13. Replace the acoustic attenuation module, if you removed it in step 2 on page 14.

Removing a switch module

Attention: To maintain proper cooling and system reliability, each I/O-module bay on the rear of the BladeCenter unit must have either a module or filler module installed. If you remove a hot-swap module, you must replace it with another module or filler module within 1 minute of removal.

Statement 8:

CAUTION:
Never remove the cover on a power supply or any part that has the following label attached.

Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

Complete the following steps to remove a switch module:

1. Read the safety information beginning on page 47 and "Installation guidelines" on page 10.

2. Remove the acoustic attenuation module, if one is installed, from the rear of the BladeCenter unit (see step 2 on page 14 for location).

3. Disconnect any cables from the switch module that you are removing.

4. Pull the release latch toward the bottom of the switch module as shown in the following illustration. The module moves out of the bay approximately 0.64 cm (0.25 inch).

Switch module

Release latch
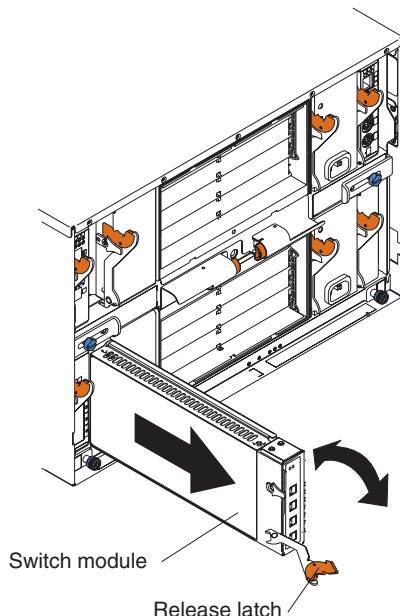
5. Slide the switch module out of the bay and set it aside.

6. Place either another switch module or a filler module in the bay within 1 minute.

7. If you placed another switch module in the bay, reconnect any cables that you disconnected in step 3.

8. Replace the acoustic attenuation module option, if you removed it in step 2.

Chapter 3. Information panel LEDs and external ports

This chapter describes the information panel and LEDs on the GbE switch module. This chapter also identifies the external ports on the information panel.

Information panel

As shown in the following illustration, the information panel of the GbE switch module contains:

- Comprehensive LEDs, which display the status of the GbE switch module and the network (see "LEDs").
- Four external 1000BASE-T Ethernet ports for 10/100/1000 Mbps connections to external Ethernet devices, such as backbones, end stations, and servers. These ports are respectively identified as EXT1, EXT2, EXT3, and EXT4 in the switch configuration menus and are labeled 1 through 4 (from top to bottom) on the GbE switch module.
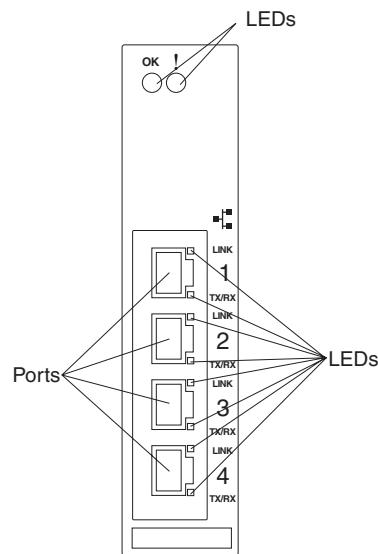
LEDs

The LEDs on the information panel of the GbE switch module are OK and GbE switch module error (fault). In addition, each external port on the GbE switch module contains an Ethernet link OK LED and an Ethernet Tx/Rx LED. The following illustration shows the LEDs on the GbE switch module. A description of each LED follows the illustration.

LEDs

OK

LINK
1
TX/RX
LINK
2
TX/RX
LINK
3
TX/RX
LINK
4
TX/RX

Ports
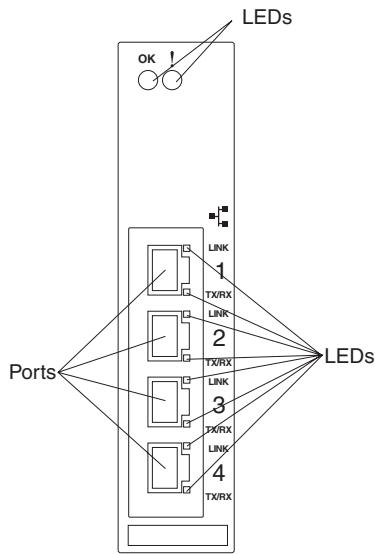
LEDs

Notes:

1. The illustrations in this document might differ slightly from your hardware.
2. An amber LED is lit when a system error or event has occurred. To identify the error or event, check the LEDs on the information panel of the GbE switch module. For additional information, see Chapter 6, "Diagnostic information", on page 39.

OK: This green LED is on the left side of the information panel, above the four external 10/100/1000 Mbps ports. When this LED it lit, it indicates that the GbE switch module has passed the power-on self-test (POST) with no critical faults and is operational.

GbE switch module error (fault): This amber LED is on the right side of the information panel, above the four external 10/100/1000 Mbps ports. When this LED it lit, it indicates that the GbE switch module has a fault. If the GbE switch module fails the POST or detects an operational fault, this LED will be lit.

Note: When this LED is lit, the system-error LED on the BladeCenter unit will also be lit.

Ethernet link OK: This green link status LED is at the top of each external 10/100/1000 Mbps port. When this LED is lit on a port, it indicates that there is a connection (or link) to a device on that connector.

Ethernet Tx/Rx: This green activity LED is at the bottom of each external 10/100/1000 Mbps port. When this LED blinks on a port, it indicates that data is being transmitted or received (that is, activity is occurring) between that port and another device on the network link. The blink frequency is proportional to the amount of traffic on the network link.

Chapter 4. Configuring the GbE switch module

The GbE switch module supports two remote-access modes for management through Ethernet connections. The GbE switch module has an internal Ethernet path to the management module and the four external Ethernet ports on the GbE switch module. You can select the mode that is best suited for your BladeCenter environment.

- The default mode uses the internal path to the management module only. In this mode, the remote-access link to the management console must be attached to the 10/100 Mbps Ethernet connector on the management module. The IP addresses and SNMP parameters of the GbE switch modules can be automatically assigned by the IBM Director BladeCenter Deployment wizard when available or you must manually assign them through the BladeCenter Management Configuration Program. This mode enables the system administrator to provide a secure LAN for management of the BladeCenter subsystems separately from the data network. See "Establishing a TCP/IP session for the GbE switch through the management module" on page 21 for additional information.

    Important: In this mode, the GbE switch module does not respond to remote-management commands through the four external Ethernet ports on the GbE switch module.

    See the applicable *BladeCenter Installation and User's Guide* on the IBM *BladeCenter Documentation* CD for additional instructions for configuring the GbE switch module for this mode of operation.

- The system administrator can choose to enable remote management of the GbE switch module through the four external ports on the GbE switch module, instead of or in addition to access through the management module. This mode can be enabled only through the management module configuration interface. When this mode is enabled, the external Ethernet ports will support both management traffic and BladeCenter application data traffic. See "Enabling the external ports" on page 22 for additional information.

- This mode enables the GbE switch module IP addresses to be on a different IP subnet than the management modules. This is useful when the GbE switch modules are to be managed and controlled as part of the overall network infrastructure, while secure management of other BladeCenter subsystems is maintained through the management module. However, management-module access to the Gigabit switch-module link will be lost if the GbE switch module IP address is not on the same IP subnet as the management module. The *Alteon OS 20.0 Application Guide* on the IBM *BladeCenter Documentation* CD contains additional instructions for configuring the GbE switch module for this mode of operation. See "Establishing a TCP/IP session for the switch through the external switch-module connectors" on page 24 for additional information.

Important:

1. Before you configure your GbE switch module, be sure that the management modules in your BladeCenter unit are properly configured. See the applicable *BladeCenter Installation and User's Guide* publications on the IBM *BladeCenter Documentation* CD for more information.

2. The default IP address of the GbE switch module is 10.90.90.9*x*, where *x* is the switch bay identifier.

3. If you change the IP address of the GbE switch module and restart the BladeCenter unit, the GbE switch module will maintain this new IP address as its default value.

4. The management module and the GbE switch module can communicate with each other only if they are on the same IP subnet.

5. When you use the management module Web interface to update the GbE switch module configuration, the management module firmware saves the new configuration in its internal non-volatile random-access memory (NVRAM). If the switch module restarts, the management module applies the saved configuration to the switch module.

   If, for some reason, the switch module restarts and the management module cannot apply the saved configuration to the switch module, the switch module defaults to using the configuration that it had previously saved. If the subnet IP address of the switch module does not match the subnet IP address of the management module, you might not be able to manage the switch module any more.

6. For switch communication with a remote management station, such as the IBM Director server, through the management module external Ethernet port, the switch module internal network interface and the management module internal and external interfaces must be on the same IP subnet.

See the following publications on the IBM *BladeCenter Documentation* CD for specific details about configuring the GbE switch module:

- The applicable *BladeCenter Installation and User's Guide* publications
- *Alteon OS 20.0 Application Guide*
- *Alteon OS 20.0 Browser-Based Interface Quick Guide*
- *Alteon OS 20.0 Command Reference*

In addition to reviewing the publications in this library, be sure to review the following publications for information to help you prepare for system installation and configuration:

- *BladeCenter Management Module User's Guide* on the IBM *BladeCenter Documentation* CD
- *BladeCenter Management Module Installation Guide* on the IBM *BladeCenter Documentation* CD
- *IBM BladeCenter Planning and Installation Guide* at http://www.ibm.com/pc/eserver/bladecenter

You can manage and configure the GbE switch using the management module or an external GbE switch interface. The following figure is used as an example of establishing a TCP/IP session through the management module or through the external interface.

When the GbE switch module is set to use the factory default configuration, it can only be accessed through the management module VLAN.

"Client A " manages the GbE switch module through the default management module configuration interface. The management module is always enabled and always a member of VLAN 4095 and interface 128. VLAN 4095 and interface 128 can never be disabled. You can always manage the GbE switch module over this interface, provided that the IP addresses of the client, the management module, and the GbE switch module are on the same subnet, as shown in the following table.

Network entity	IP address
Client A	192.168.70.1

Network entity	IP address
Management module	192.168.70.125
GbE switch module	192.168.70.127

Notes:

1. IF 128 defines a subnet to which the GbE, MM eth0, MM eth1 and Client A MUST all belong. Client A on this subnet is used to access the MM BBI by setting the browser to 192.168.70.125.

2. IF 1 allows Client B to access the Gbe management user interfaces (e.g. telnet, BBI, SNMP).

Client A

HTTP

192.168.70.1

eth0
192.168.70.125

MM

Default Vlan
Vlan 1

Client B

Telnet

10.10.1.2

EXT1 17
EXT2 18
EXT3 19
EXT4 20

IF 128 => 192.168.70.127

10.10.1.1 <= IF 1

GbE

15 MGT1

eth1
192.168.70.126

Mgmt VLAN
Vlan 4095

## Establishing a TCP/IP session for the GbE switch through the management module

Complete the following steps to establish a TCP/IP session for the switch through the management module:

1. Access and log on to the management module as described in the *BladeCenter Management Module User's Guide* on the IBM *BladeCenter Documentation* CD. If necessary, obtain the IP address of the management module from your system administrator. The login window opens.

   If you do not have an assigned user identifier (ID) and initial password, type the default user ID (USERID) in the **User ID** field and the default password (PASSW0RD) in the **Password** field (where the sixth alphanumeric character is the number zero, not the letter *O*) and click **OK**. The main page in the management module opens.

   Note: Capital letters are required; these fields are both case-sensitive. To increase system security, change the password after you log on for the first time.

2. Select **Management** on the **I/O Module Tasks** menu on the left side of the BladeCenter Management Module window.

3. From the **I/O Module Management** portion of the window, click the bay number that corresponds to the location of the GbE switch module that you installed. The applicable bay number (in this example, bay 1) appears in the bottom portion of the window, followed by other related switch-module information, including the IP address. The switch-module information is divided under two headings: **Current IP Configuration** and **New Static IP Configuration**.
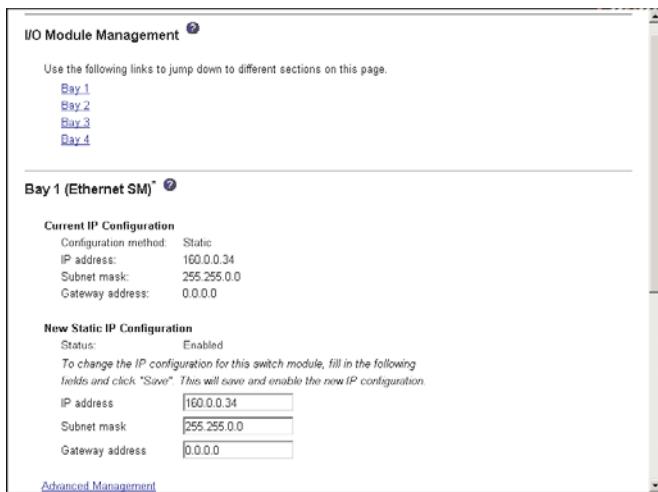
4. To change the IP address of the GbE switch module, use the Tab key to reach the **IP address** data field under the **New Static IP Configuration** heading; then, type the new IP address and click **Save**.

5. Click **Advanced Management** under the applicable bay information (in this example, bay 1) in the BladeCenter Management Module window. You can now start a browser-based interface session, a Telnet session, or a Secure Shell (SSH) session.

> **Note:** The default setting for the SSH session is disabled. To enable this setting, you must use the CLI.

The browser-based interface and the Telnet program are different ways to access the same internal switching software and configure it. Thus, all the settings that you encounter in browser-based management are the same as those found in the Telnet program.

- If your system application requires that you use the browser-based interface program, see "Configuring through the browser-based interface" on page 29 for additional information.

- If your system application requires that you use the Telnet program, see "Configuring through the Telnet interface" on page 27 for additional information.

- For information about running an SSH session, see the *Alteon OS 20.0 Command Reference* on the IBM *BladeCenter Documentation* CD.

Enabling the external ports

To access and manage your GbE switch module from an external environment, you must enable certain features, such as the external ports (ports) and external management over all ports, through the management module. After you enable these features, you can establish a TCP/IP session for the switch through the external GbE switch module connection as described in "Establishing a TCP/IP session for the switch through the external switch-module connectors" on page 24.

Complete the following steps to configure the external Ethernet interface and to enable the external ports:

1. Access and log on to the management module as described in the *BladeCenter Management Module User's Guide* on the IBM *BladeCenter Documentation* CD. If necessary, obtain the IP address of the management module from your system administrator. The login window opens.

Enter your user ID and password.

If you do not have an assigned user ID and initial password, type the default user ID (USERID) in the **User ID** field and the default password (PASSW0RD) in the **Password** field (where the sixth alphanumeric character is the number zero, not the letter *O*) and click **OK**. The main page in the management module opens.

Note: Capital letters are required; these fields are both case-sensitive. To increase system security, change the password after you log on for the first time.

2. Select **Management** on the **I/O Module Tasks** menu on the left side of the BladeCenter Management Module window.
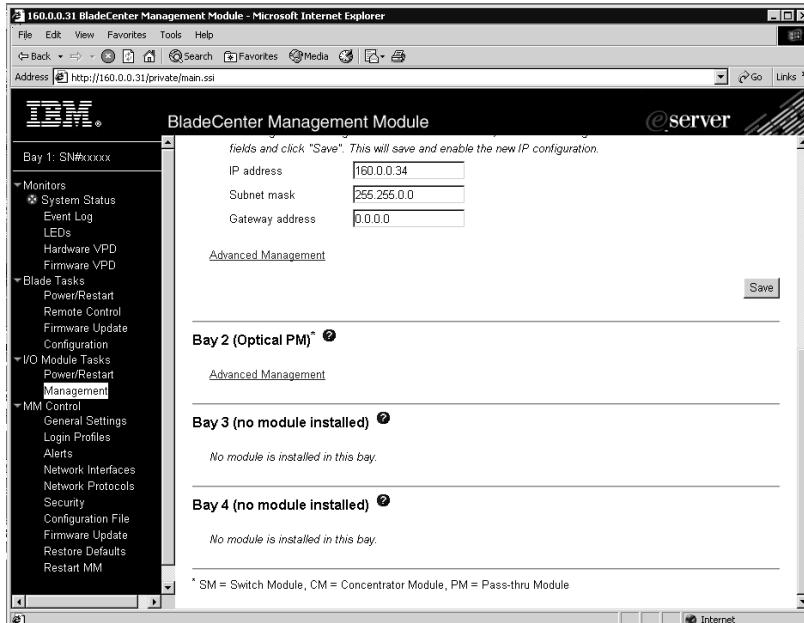
3. Make sure that the following GbE switch-module features are enabled (**I/O Module Tasks → Management → Advanced Management** in the management module browser-based user interface):

   a. External ports

   b. External management over all ports

   The default value is **Disabled** for both features. If these features are not already enabled, change the value to **Enabled**. Then, click **Save**.
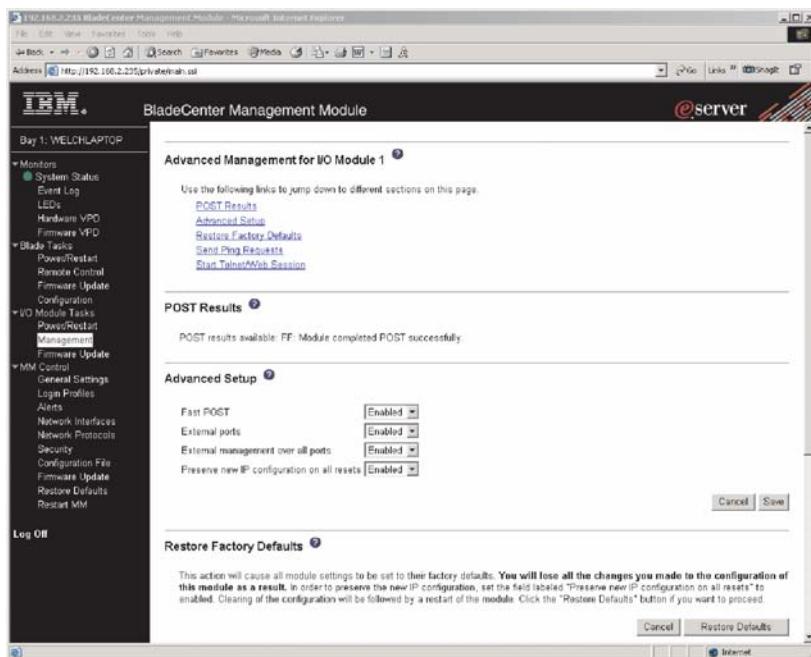
> **Note:** See the applicable *BladeCenter Installation and User's Guide* publications on the IBM *BladeCenter Documentation* CD for additional information about enabling external management over all ports.

4. Click **Advanced Management** under the applicable bay information in the BladeCenter Management Module window.

   You can now start a browser-based interface session, a Telnet session, or a Secure Shell (SSH) session. Otherwise, continue with "Establishing a TCP/IP session for the switch through the external switch-module connectors".

Establishing a TCP/IP session for the switch through the external switch-module connectors

To establish a TCP/IP session for the switch through the external GbE switch-module connectors, you must provide a connection to the Ethernet network through the GbE switch module. To do this, you must first enable the external interfaces as described in "Enabling the external ports" on page 22, and then set up the TCP/IP address for the GbE switch module.

Complete the following steps:

1. Access and log on to the management module as described in the *BladeCenter Management Module User's Guide* on the IBM *BladeCenter Documentation* CD. If necessary, obtain the IP address of the management module from your system administrator. The login window opens.

   If you do not have an assigned user ID and initial password, type the default user ID (USERID) in the **User ID** field and the default password (PASSW0RD) in the **Password** field (where the sixth alphanumeric character is the number zero, not the letter *O*) and click **OK**. The main page in the management module opens.

   > **Note:** Capital letters are required; these fields are both case-sensitive. To increase system security, change the password after you log on for the first time.

2. Select **Management** on the **I/O Module Tasks** menu on the left side of the BladeCenter Management Module window.

3. From the **I/O Module Management** portion of the window, click the bay number that corresponds to the location of the GbE switch module that you installed. The applicable bay number appears in the bottom portion of the window, followed by other related switch-module information, including the IP address. The switch-module information is divided under two headings: **Current IP Configuration** and **New Static IP Configuration**.

4. To change the IP address of the GbE switch module, use the Tab key to reach the **IP address** data field under the **New Static IP Configuration** heading; then, type the new IP address and click **Save**.

You can set up the TCP/IP address for the GbE switch module in one of two ways:

- Use the default TCP/IP address.
- Obtain a valid, unique TCP/IP address from your system administrator.

If you obtain a valid, unique TCP/IP address from your system administrator, you can set up the new TCP/IP address for the GbE switch module from the management module, as shown in the following window:
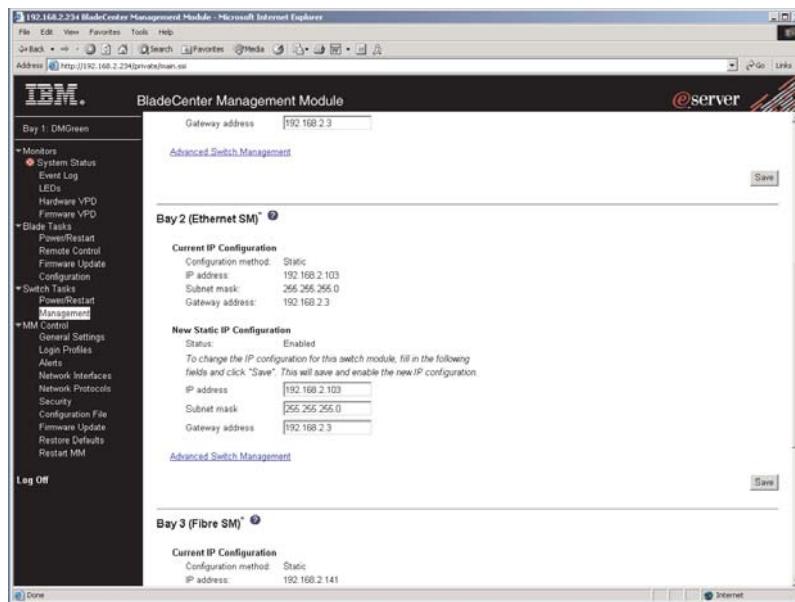

Type the new TCP/IP address of the GbE switch module in the **IP address** data field under the **New Static IP Configuration** heading; then, click **Save**. You are now ready to set up the GbE switch.

Externally managing the GbE switch module

The following procedure describes how to configure the GbE switch module to enable management through the external ports (EXT1 to EXT4). See the following illustration for an example topology for enabling external management of the GbE switch module. In this illustration, "Client B" manages the GbE switch using the

external interface
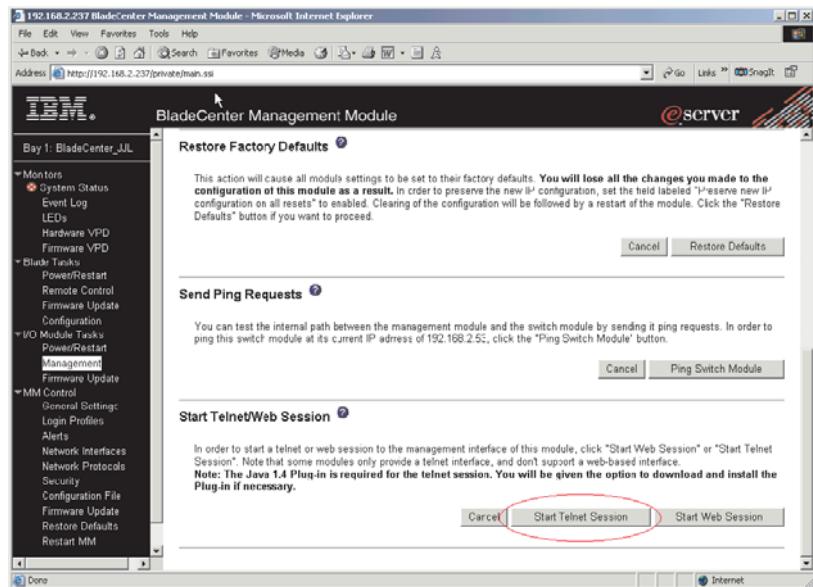
Start a Telnet session with the GbE switch module. Click **Start Telnet Session**, as shown in the following illustration. For additional information, see "Configuring through the Telnet interface" on page 27.

After the Telnet session is established, you will use the CLI of the GbE switch module to enter commands. To externally manage the GbE switch module, you will establish a layer 3 IP address and mask to communicate with your management client ("Client B" in the previous illustration). You will also define a layer 2 VLAN and an interface over which the client can communicate with the GbE switch module. You can choose the VLAN and interface for your external management client, or use the default values. There is a maximum of 128 available interfaces for VLANs. You can assign the management IP address to the VLAN ID from 1 to 4094 to any of these interfaces.

The following example shows how to create this configuration using the CLI:

```
/cfg/13/if 1/mask 255.255.255.0

/cfg/13/if 1/addr 10.10.1.1

/cfg/13/if 1/vlan 1

/cfg/13/if 1/ena

apply

save
```

"Client B" now has access to manage the GbE switch module.

See the following publications on the IBM *BladeCenter Documentation* CD for specific details about configuring the GbE switch module:
- *Alteon OS 20.0 Application Guide*
- *Alteon OS 20.0 Browser-Based Interface Quick Guide*
- *Alteon OS 20.0 Command Reference*

For additional information about the management module, see the *BladeCenter Management Module User's Guide* on the IBM *BladeCenter Documentation* CD. For additional information about establishing a remote external Ethernet connection, see the *BladeCenter Management Module Installation Guide* on the IBM *BladeCenter Documentation* CD.

The browser-based interface and the Telnet program are different ways to access the same internal switching software and configure it. Thus, all the settings that you encounter in browser-based management are the same as those found in the Telnet program.
- If your system application requires that you use the browser-based interface program, see "Configuring through the browser-based interface" on page 29 for additional information.
- If your system application requires that you use the Telnet program, see "Configuring through the Telnet interface" for additional information.
- For information about running an SSH session, see the *Alteon OS 20.0 Command Reference* on the IBM *BladeCenter Documentation* CD.

Configuring through the Telnet interface

Your GbE switch module supports a management interface that you can use to set up and control the GbE switch module over the network using the Telnet protocol. You can use this facility to perform many basic network management functions. In addition, you can use the Telnet interface to configure the GbE switch module for management using an SNMP-based network management system. The following sections describe how to use the Telnet interface to access the GbE switch module, change its settings, and monitor its operation.

Connecting to the GbE switch module

When you know the IP address for your switch module and provided that you have an existing network connection, you can use the Telnet program (in VT-100 compatible terminal mode) to access and control the GbE switch module. The Telnet program and your switch module must be on the same network. If you need to obtain the IP address for your switch module or establish a network connection,

contact your system or network administrator. Be sure to use the correct IP address in the required command, as specified in "Accessing the main menu".

Telnet usage conventions

The Telnet interface uses the following conventions:

- Items in angle brackets (< >) can be toggled among several choices through the spacebar.
- Items in square brackets ([ ]) can be changed by typing a new value. You can use the Backspace and Delete keys to erase characters behind and in front of the cursor.
- The Up Arrow and Down Arrow keys, the Left Arrow and Right Arrow keys, the Tab key, and the Backspace key can be used to move between selected items.
- Items in uppercase are commands. Moving the selection to a command and pressing Enter will process that command.

Important: The command APPLY makes changes to the switch configuration for the current session only. If you want your changes to be permanent, select **Save Changes** from the main menu. Selecting **Save Changes** enters the current switch configuration, including all changes, into NVRAM and then restarts the GbE switch module.

Accessing the main menu

Complete the following steps to connect to the GbE switch module through the Telnet interface:

1. From a DOS prompt command line, type `telnet` *x* and press Enter (where *x* is the IP address for your switch module).

2. If you do not have an assigned initial password, type the default password (`admin`) in the **Password** field and click **OK**.

3. Press Enter, and you will be given access to the main menu, shown in the following illustration.
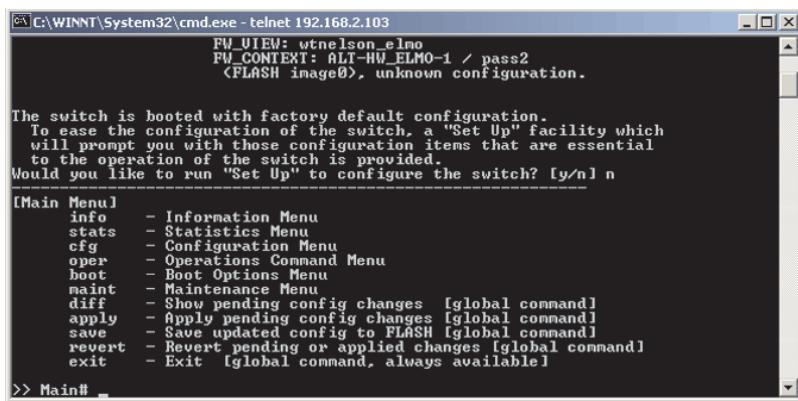
Note: The first user automatically gets root privileges. Create at least one root-level user for the GbE switch module when you set up your user accounts. See the *Alteon OS 20.0 Application Guide* on the IBM *BladeCenter Documentation* CD for complete details.

Logging on to the GbE switch module

To log in after you have created a registered user, complete the following steps from the login window (see "First-time connection to the GbE switch module" on page 29 for additional information):

1. Type your user ID and press Enter.
2. Type your password and press Enter. The main menu window opens based on your access level or privilege.

After you log on to the GbE switch module, you can perform the tasks that are described in the *Alteon OS 20.0 Application Guide* and other books on the IBM *BladeCenter Documentation* CD.

First-time connection to the GbE switch module

The GbE switch module supports user-based security that enables you to prevent unauthorized users from accessing the GbE switch module or changing its settings. This section describes how to log on to the GbE switch module.

The first time that you turn on the GbE switch module, you must set the date and time, either through the browser-based interface or the Telnet interface. Because the GbE switch module does not contain a battery-backed real-time clock, you also must manually reset the date and time whenever any of the following conditions exists:

- The GbE switch module is turned off and then back on
- The GbE switch module is restarted
- The GbE switch module software is updated

The following illustration shows how to set the date and time through the Telnet interface.

```
Command Prompt - telnet 192.168.2.53                          _ □ ×
    stats    - Statistics Menu
    cfg      - Configuration Menu
    oper     - Operations Command Menu
    boot     - Boot Options Menu
    maint    - Maintenance Menu
    diff     - Show pending config changes  [global command]
    apply    - Apply pending config changes [global command]
    save     - Save updated config to FLASH [global command]
    revert   - Revert pending or applied changes [global command]
    exit     - Exit  [global command, always available]

>> Main# /cfg/sys/date
Enter year [2070]:      2003
Enter month [1]:        8
Enter day [1]:          7
System clock set to  1:28:00 Thu Aug  7, 2003.

>> System# time
Enter hour in 24-hour format [1]: 12
Enter minutes [28]:     38
Enter seconds [4]:      30
System clock set to 12:38:00 Thu Aug  7, 2003.

>> System#
```

Configuring through the browser-based interface

This section describes how to use the browser-based interface to access and configure the internal switching software.

This section also describes some of the browser-based GbE switch module management features. For more detailed information about configuring your GbE switch module, see the *Alteon OS 20.0 Application Guide* and the *Alteon OS 20.0 Browser-Based Interface Quick Guide* on the IBM *BladeCenter Documentation* CD.

The GbE switch module offers an embedded HTML, browser-based interface that you can use to manage the switch through a standard browser, such as Opera, Netscape Navigator/Communicator, or Microsoft® Internet Explorer. The Web

browser acts as an access tool and can communicate directly with the switch using HTTP. Your browser window might vary from the window illustrations in this book.

Note: This browser-based interface does not accept Chinese language input (or other double-byte character-set languages).

The browser-based interface contains these features:
- Since the browser-based interface is a built-in component of the Alteon OS switch software, you do not have to install a separate interface program.
- Two levels of password protection.
- User-friendly design.
- The same configuration and monitoring functions as in the command-line interface (CLI).
- Upgradeable upon the availability of future Alteon OS switch software updates.

Before you can access and start the browser-based interface, you must have:
- Installed the GbE switch module in the BladeCenter unit
- Verified that the Alteon OS switch software is installed on the GbE switch module
- Configured at least one IP interface on the switch module
- A computer or workstation with network access to the switch module
- A frame-capable Web-browser program, such as Internet Explorer (version 6.0x or later) or Netscape Navigator (version 4.7x or later)
- Enabled the frames and the JavaScript™ program in your Web browser
- Enabled access to the browser-based interface

To enable access to the browser-based interface, use this command from the CLI:
>> Main# **/cfg/sys/http** <**enable** (or just **e**)>

See the *Alteon OS 20.0 Command Reference* on the IBM *BladeCenter Documentation* CD for details about:
- Configuring IP interfaces through the CLI
- Accessing and configuring the switch module through the CLI

To verify that the latest Alteon OS switch software is installed on the GbE switch module or to update the software, see Chapter 5, "Updating the GbE switch software", on page 33.

To start the browser-based interface, enter the IP address of the switch module in the address field of your browser, in the format http://*xxx.xxx.xxx.xxx*.

The login window opens.

If you do not have an assigned user ID and initial password, type the default user ID (`admin`) in the **User Name** field and the default password (`admin`) in the **Password** field and click **OK**.

Notes:
1. The passwords used to access the GbE switch module are case-sensitive.
2. To increase system security, change the password after you log on for the first time.

A window similar to the one in the following illustration opens. The left-side panel contains the main menu. The top panel shows a real-time information-panel display of the GbE switch module. These items are described in detail in the *Alteon OS 20.0 Application Guide* on the IBM *BladeCenter Documentation* CD.
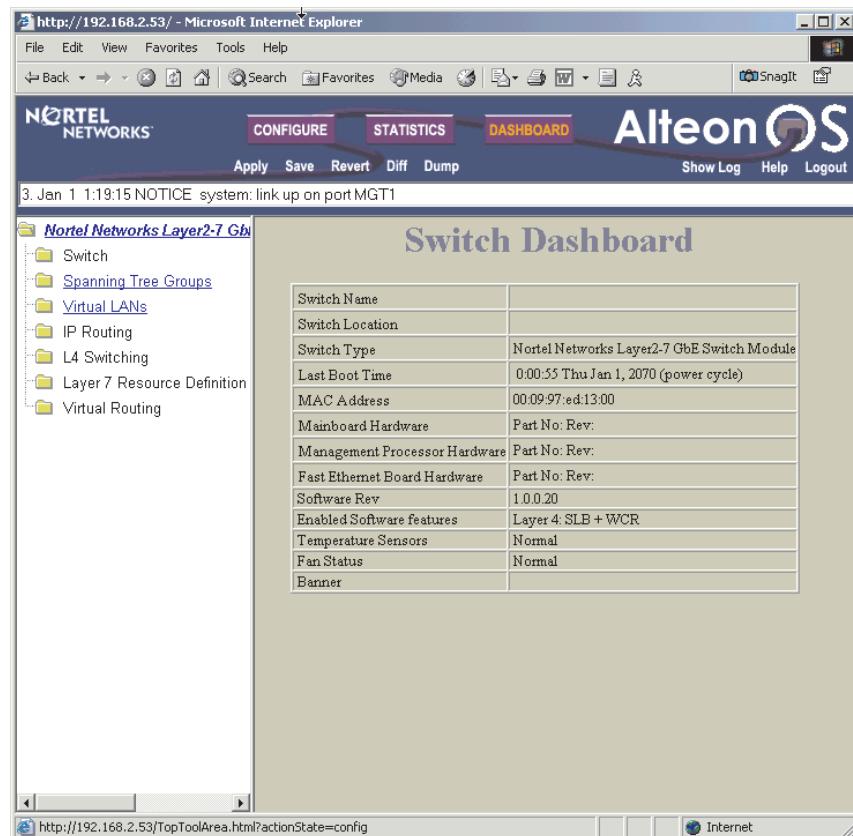
Chapter 5. Updating the GbE switch software

This chapter describes how to determine the level of the software that is installed on the GbE switch module, how to obtain the latest level of switch software, how to upgrade the switch software, and how to reset the switch module to activate the software upgrade.

Determining the level of GbE switch software

After you install the GbE switch module in your BladeCenter unit, make sure that the latest Alteon OS switch software is installed on the GbE switch module. To determine the level of the Alteon OS switch software that is installed on the GbE switch module, complete the following steps:

1. Access and log on to the management module as described in the *BladeCenter Management Module User's Guide* on the IBM *BladeCenter Documentation* CD. If necessary, obtain the IP address of the management module from your system administrator. The login window opens.

   If you do not have an assigned user identifier (ID) and initial password, type the default user ID (USERID) in the **User ID** field and the default password (PASSW0RD) in the **Password** field (where the sixth alphanumeric character is the number zero, not the letter *O*) and click **OK**. The main page in the management module opens.

   Note: Capital letters are required; these fields are both case-sensitive. To increase system security, change the password after you log on for the first time.

2. Select **Firmware VPD** on the **Monitors** menu on the left side of the BladeCenter Management Module window. The Firmware VPD window opens.

3. On the Firmware VPD window, locate the **I/O Module Firmware VPD** heading between the **Blade Server Firmware VPD** and **Management Module Firmware VPD** headings. Page down to the number of the I/O module bay that contains the GbE switch module that you just installed; then, note the corresponding level of the software for the switch module.

Obtaining the latest level of switch software

To determine the latest level of the Alteon OS switch software that is available from IBM, complete the following steps:

1. Go to http://www.ibm.com/pc/support/; then, click **Support & downloads**.

2. Type the switch model number. A window opens, displaying the latest level of available software.

3. Compare the level of software that you noted in the **I/O Module Firmware VPD** section of the Firmware VPD window to the latest level of available software. If the two software levels do not match, download the latest level from the World Wide Web to your switch module.

The GbE switch module contains two software operating-system images. Therefore, you can always return to a previous image if the current download process fails.

Upgrading the switch software

The switch software is upgraded through a TFTP server application. Typically, this software runs as an application under your operating system. Make sure that this software is installed on your server; then, download the software images from the IBM Web site into a directory on your TFTP server. Enable the TFTP server and set its default directory to the one where the image is.

To transfer the software image files from the TFTP server to the switch, you must establish a Telnet session through the management module. The Telnet session will work correctly only if all three network entities (TFTP server, management module, and switch IP addresses) are on the same subnet. Use the management module graphical user interface (GUI) to configure the IP addresses of the management module external interface (eth0) and the GbE switch module so that they both are on the same subnet as the TFTP server.
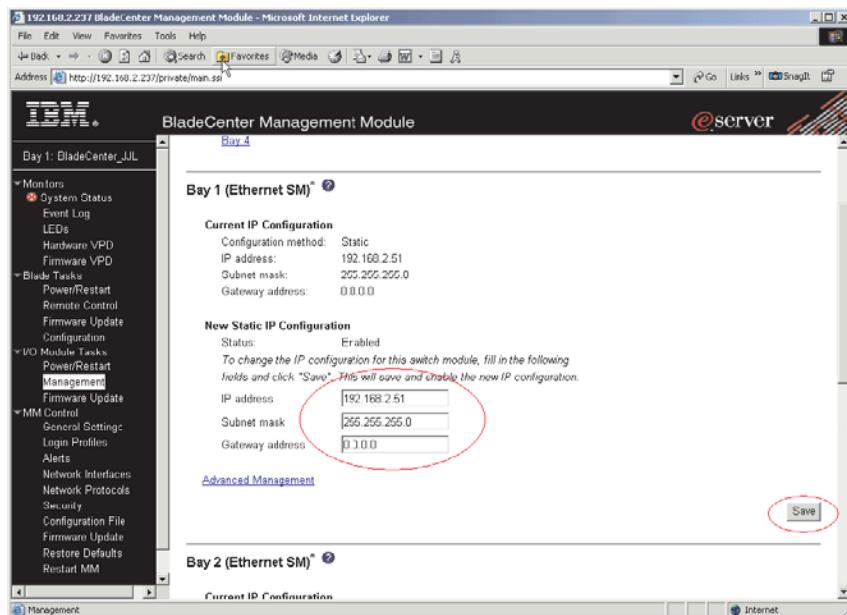
In this illustration, the IP addresses and masks in the following table are used.

Network entity	IP address	Mask
TFTP server	192.168.2.178	255.255.255.0
Management module (eth0)	192.168.2.237	255.255.255.0
GbE switch current IP configuration	192.168.2.51	255.255.255.0

**Note:** With this configuration, you can ping the GbE switch module.

Use the management module GUI to start a Telnet session, as described in the following steps. The requirements for running a Telnet session are described in Chapter 4, "Configuring the GbE switch module", on page 19.

1. Access and log on to the management module as described in the *BladeCenter Management Module User's Guide* on the IBM *BladeCenter Documentation* CD. The login window opens.

   If you do not have an assigned user identifier (ID) and initial password, type the default user ID (USERID) in the **User ID** field and the default password (PASSW0RD) in the **Password** field (where the sixth alphanumeric character is the number zero, not the letter *O*) and click **OK**. Type n when asked if you want to run setup. The main page in the management module opens.

   Note: Capital letters are required; these fields are both case-sensitive. To increase system security, change the password after you log on for the first time.

2. Select **Management** on the **I/O Module Tasks** menu on the left side of the BladeCenter Management Module window. The I/O Module Tasks window opens.

3. Start a Telnet session. Click **Start Telnet Session**, as shown in the following illustration.
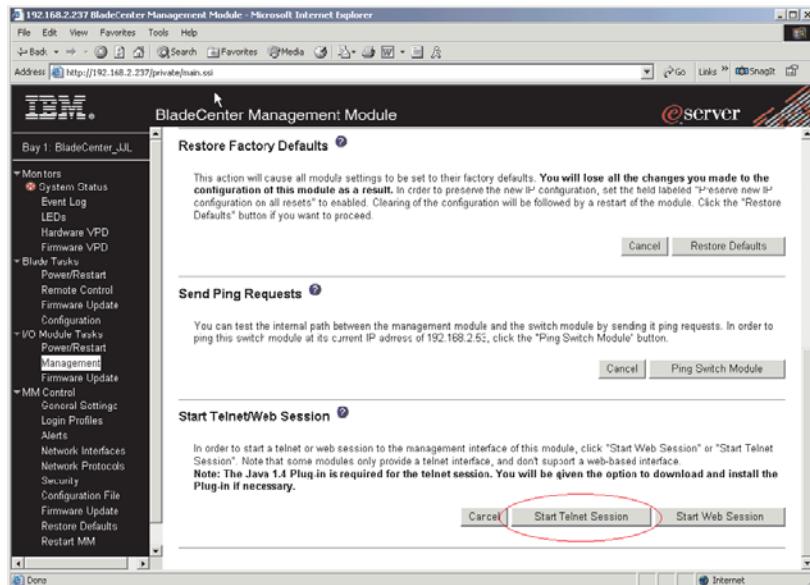
The following illustration shows the TFTP window for the software download to the GbE switch module. Complete the following steps to upgrade the switch software:

1. Using the CLI, type the following command and press Enter:

   `/boot/gtimg imageX TADDR zzzzz` (where `imageX` is the image to be installed and `zzzzz` is the operating-system image software; for example, GbE-1.0.0.20-os.img).

2. Reset and restart the GbE switch module as described in "Resetting and restarting the GbE switch module".

3. Using the CLI, type the following command and press Enter:

   `/boot/gtimg boot TADDR yyyyy` (where `yyyyy` is the boot image software; for example, GbE-1.0.0.24-boot.img).

4. Reset and restart the GbE switch module as described in "Resetting and restarting the GbE switch module".

Note: There might only be one image to install.
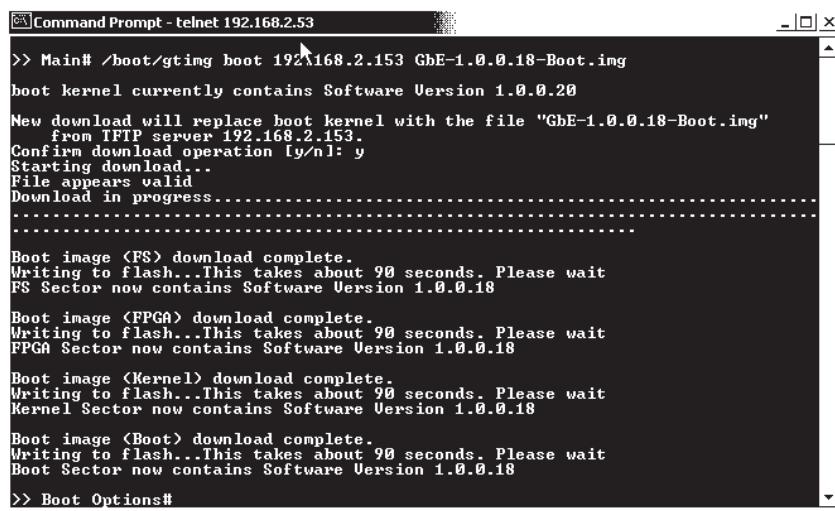
```
Command Prompt - telnet 192.168.2.53                        _ | □ | x |

>> Main# /boot/gtimg boot 192.168.2.153 GbE-1.0.0.18-Boot.img

boot kernel currently contains Software Version 1.0.0.20

New download will replace boot kernel with the file "GbE-1.0.0.18-Boot.img"
    from TFTP server 192.168.2.153.
Confirm download operation [y/n]: y
Starting download...
File appears valid
Download in progress.................................................................
.....................................................................................
.............................................................

Boot image (FS) download complete.
Writing to flash...This takes about 90 seconds. Please wait
FS Sector now contains Software Version 1.0.0.18

Boot image (FPGA) download complete.
Writing to flash...This takes about 90 seconds. Please wait
FPGA Sector now contains Software Version 1.0.0.18

Boot image (Kernel) download complete.
Writing to flash...This takes about 90 seconds. Please wait
Kernel Sector now contains Software Version 1.0.0.18

Boot image (Boot) download complete.
Writing to flash...This takes about 90 seconds. Please wait
Boot Sector now contains Software Version 1.0.0.18

>> Boot Options#
```

Resetting and restarting the GbE switch module

To activate the new image or images, you must reset the GbE switch module through the management module GUI. Complete the following steps to reset the GbE switch module:

1. Select **Management** on the **I/O Module Tasks** menu on the left side of the BladeCenter Management Module window. The I/O Module Tasks window opens.

2. Select the I/O module bay on which the software update was just installed.

3. From the I/O Module Tasks window, select **Power/Restart**.

4. Click **POWER OFF SWITCH MODULE**.

5. Select the I/O module bay on which the software update was just installed.

6. Click **POWER ON SWITCH MODULE**.

7. Wait 70 seconds for POST to be completed.

8. Make sure that the latest Alteon OS switch software was correctly installed on the GbE switch module. Select **Firmware VPD** on the **Monitors** menu on the left side of the BladeCenter Management Module window. The Firmware VPD window opens.

9. On the Firmware VPD window, locate the **I/O Module Firmware VPD** heading between the **Blade Server Firmware VPD** and **Management Module**

Firmware VPD headings. Page down to the number of the I/O module bay that contains the GbE switch module that you just installed; then, note the corresponding level of the software for the switch module.

10. Make sure that the latest Alteon OS switch software was correctly installed on the GbE switch module.

Chapter 6. Diagnostic information

If you are having a problem, use the following information and the to help you determine the cause of the problem and the action to take. The *Alteon OS 20.0 Application Guide* on the IBM *BladeCenter Documentation* CD contain more information about troubleshooting the GbE switch module.

Running POST

To ensure that it is fully operational, the GbE switch module processes a series of tests during power-up or a restart (power-on self-test or POST). These tests take approximately 1 minute to complete. The management module reads the test results and displays them for you. During normal operation, these tests are completed without error, and the green OK LED is lit. However, if POST fails, the amber GbE switch module error (fault) LED and the system-error LED on the BladeCenter unit will be lit. An event is stored in the event log in the System Status panel of the management module. The specific failure is displayed on the System Status I/O Module panel of the management module. The following illustrations are examples of the windows that will be displayed if a POST error occurs.

Note: For the location and description of the GbE switch module LEDs, see Chapter 3, "Information panel LEDs and external ports", on page 17.

POST errors

There are two types of errors: noncritical and critical. Noncritical errors apply to one port, and the GbE switch module is operational. You can continue to operate the GbE switch module; however, you must replace it as soon as possible. When critical errors occur, the GbE switch module does not operate. If a critical error occurs, complete the following steps:

1. Open the Management Module Switch Information window.
2. Turn off the GbE switch module; then, turn it back on.
3. After POST is completed, the management module displays the results. Refresh the window to view the POST results. If the error remains, the GbE switch module is defective. Replace the GbE switch module.

The following table describes the basic critical and noncritical failures. This abbreviated list is representative; it is not intended as an exhaustive list. An error code is associated with each failure. Error codes appear on the Management Module Switch Information window. Be sure to note the applicable error code and corresponding failure. You might need to provide this information when you call the IBM HelpCenter®. For more details, see Appendix A, "Getting help and technical assistance", on page 45.

Note: Before replacing a GbE switch module, restart the module and run the extended diagnostic program through the management module interface.

Table 1. POST error codes

POST error code (in hex)	Failing functional area	Failure criticality	FRU/action
00 to 7F	Basic internal functions.	Critical	**Replace the GbE switch module.**
80 to 9F	Internal interface errors.	Noncritical	**Replace the GbE switch module.**
A0 to AF	External interface errors.	Noncritical	**Replace the GbE switch module.**

Table 1. POST error codes (continued)

POST error code (in hex)	Failing functional area	Failure criticality	FRU/action
B0 to FE	Reserved	Noncritical	**Replace the switch module.**
FF	No error found, the switch is good.	Operational	**N/A**

Chapter 7. Parts listing

This parts listing supports the Nortel Networks Layer 2-7 GbE Switch Module for IBM @server BladeCenter.

Note: Field replaceable units (FRUs) should be serviced only by qualified field service technicians. Customer replaceable units can be replaced by the customer.

Nortel Networks Layer 2-7 GbE Switch Module for IBM @server BladeCenter
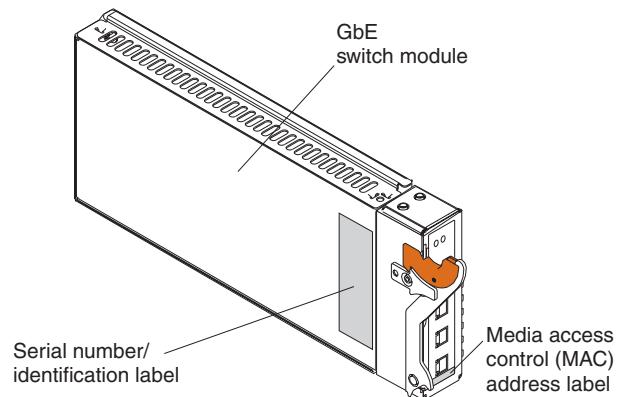
Option	FRU No.	CRU/FRU
GbE switch module assembly	73P9044	CRU

Appendix A. Getting help and technical assistance

If you need help, service, or technical assistance or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. This appendix contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your BladeCenter unit, and whom to call for service, if it is necessary.

Before you call

Before you call, make sure that you have taken these steps to try to solve the problem yourself:

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system is turned on.
- Use the troubleshooting information in your system documentation, and use the diagnostic tools that come with your system.
- Go to the IBM Support Web site at http://www.ibm.com/pc/support to check for technical information, hints, tips, and new device drivers.
- Use an IBM discussion forum on the IBM Web site to ask questions.

You can solve many problems without outside assistance by following the troubleshooting procedures that IBM provides in the online help or in the publications that are provided with your system and software. The information that comes with your system also describes the diagnostic tests that you can perform. Most xSeries and IntelliStation® systems, operating systems, and programs come with information that contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the information for the operating system or program.

Using the documentation

Information about your IBM xSeries or IntelliStation system and preinstalled software, if any, is available in the documentation that comes with your system. That documentation includes printed books, online books, README files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to http://www.ibm.com/pc/support and follow the instructions. Also, you can order publications through the IBM Publications Ordering System at
http://www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi.

Getting help and information from the World Wide Web

On the World Wide Web, the IBM Web site has up-to-date information about IBM xSeries and IntelliStation products, services, and support. The address for IBM xSeries information is http://www.ibm.com/eserver/xseries/. The address for IBM IntelliStation information is http://www.ibm.com/pc/intellistation/.

You can find service information for your IBM products, including supported options, at http://www.ibm.com/pc/support. If you click **Profile** from the support page, you

can create a customized support page. The support page has many sources of information and ways for you to solve problems, including:

- Diagnosing problems, using the IBM Online Assistant
- Downloading the latest device drivers and updates for your products
- Viewing Frequently Asked Questions (FAQ)
- Viewing hints and tips to help you solve problems
- Participating in IBM discussion forums
- Setting up e-mail notification of technical updates about your products

Software service and support

Through IBM Support Line, you can get telephone assistance, for a fee, with usage, configuration, and software problems with xSeries servers, IntelliStation workstations, and appliances. For information about which products are supported by Support Line in your country or region, go to http://www.ibm.com/services/sl/products/.

For more information about Support Line and other IBM services, go to http://www.ibm.com/services/, or go to http://www.ibm.com/planetwide/ for support telephone numbers.

Hardware service and support

You can receive hardware service through IBM Integrated Technology Services or through your IBM reseller, if your reseller is authorized by IBM to provide warranty service. Go to http://www.ibm.com/planetwide/ for support telephone numbers.

In the U.S. and Canada, hardware service and support is available 24 hours a day, 7 days a week. In the U.K., these services are available Monday through Friday, from 9 a.m. to 6 p.m.

Appendix B. Related service information

Note: The service procedures are designed to help you isolate problems. They are written with the assumption that you have model-specific training on all computers, or that you are familiar with the computers, functions, terminology, and service information provided in this manual.

Safety information

The following section contains the safety information that you need to be familiar with before servicing an IBM computer.

General safety

Follow these rules to ensure general safety:

- Observe good housekeeping in the area of the machines during and after maintenance.
- When lifting any heavy object:
  1. Ensure you can stand safely without slipping.
  2. Distribute the weight of the object equally between your feet.
  3. Use a slow lifting force. Never move suddenly or twist when you attempt to lift.
  4. Lift by standing or by pushing up with your leg muscles; this action removes the strain from the muscles in your back. *Do not attempt to lift any objects that weigh more than 16 kg (35 lb) or objects that you think are too heavy for you.*
- Do not perform any action that causes hazards to the customer, or that makes the equipment unsafe.
- Before you start the machine, ensure that other service representatives and the customer's personnel are not in a hazardous position.
- Place removed covers and other parts in a safe place, away from all personnel, while you are servicing the machine.
- Keep your tool case away from walk areas so that other people will not trip over it.
- Do not wear loose clothing that can be trapped in the moving parts of a machine. Ensure that your sleeves are fastened or rolled up above your elbows. If your hair is long, fasten it.
- Insert the ends of your necktie or scarf inside clothing or fasten it with a nonconductive clip, approximately 8 centimeters (3 inches) from the end.
- Do not wear jewelry, chains, metal-frame eyeglasses, or metal fasteners for your clothing.

  Remember: Metal objects are good electrical conductors.
- Wear safety glasses when you are: hammering, drilling soldering, cutting wire, attaching springs, using solvents, or working in any other conditions that might be hazardous to your eyes.
- After service, reinstall all safety shields, guards, labels, and ground wires. Replace any safety device that is worn or defective.
- Reinstall all covers correctly before returning the machine to the customer.

Electrical safety

CAUTION:
Electrical current from power, telephone, and communication cables can be hazardous. To avoid personal injury or equipment damage, disconnect the attached power cords, telecommunication systems, networks, and modems before you open the server covers, unless instructed otherwise in the installation and configuration procedures.

Observe the following rules when working on electrical equipment.

Important: Use only approved tools and test equipment. Some hand tools have handles covered with a soft material that do not insulate you when working with live electrical currents.

Many customers have, near their equipment, rubber floor mats that contain small conductive fibers to decrease electrostatic discharges. Do not use this type of mat to protect yourself from electrical shock.

- Find the room emergency power-off (EPO) switch, disconnecting switch, or electrical outlet. If an electrical accident occurs, you can then operate the switch or unplug the power cord quickly.
- Do not work alone under hazardous conditions or near equipment that has hazardous voltages.
- Disconnect all power before:
  - Performing a mechanical inspection
  - Working near power supplies
  - Removing or installing main units
- Before you start to work on the machine, unplug the power cord. If you cannot unplug it, ask the customer to power-off the wall box that supplies power to the machine and to lock the wall box in the off position.
- If you need to work on a machine that has exposed electrical circuits, observe the following precautions:
  - Ensure that another person, familiar with the power-off controls, is near you.
    Remember: Another person must be there to switch off the power, if necessary.
  - Use only one hand when working with powered-on electrical equipment; keep the other hand in your pocket or behind your back.
    Remember: There must be a complete circuit to cause electrical shock. By observing the above rule, you may prevent a current from passing through your body.
  - When using testers, set the controls correctly and use the approved probe leads and accessories for that tester.
  - Stand on suitable rubber mats (obtained locally, if necessary) to insulate you from grounds such as metal floor strips and machine frames.

  Observe the special safety precautions when you work with very high voltages; these instructions are in the safety sections of maintenance information. Use extreme care when measuring high voltages.
- Regularly inspect and maintain your electrical hand tools for safe operational condition.
- Do not use worn or broken tools and testers.

- *Never assume* that power has been disconnected from a circuit. First, *check* that it has been powered-off.
- Always look carefully for possible hazards in your work area. Examples of these hazards are moist floors, nongrounded power extension cables, power surges, and missing safety grounds.
- Do not touch live electrical circuits with the reflective surface of a plastic dental mirror. The surface is conductive; such touching can cause personal injury and machine damage.
- Do not service the following parts with the power on when they are removed from their normal operating places in a machine:
  - Power supply units
  - Pumps
  - Blowers and fans
  - Motor generators and similar units. (This practice ensures correct grounding of the units.)
- If an electrical accident occurs:
  - Use caution; do not become a victim yourself.
  - Switch off power.
  - Send another person to get medical aid.

Safety inspection guide

The intent of this inspection guide is to assist you in identifying potentially unsafe conditions on these products. Each machine, as it was designed and built, had required safety items installed to protect users and service personnel from injury. This guide addresses only those items. However, good judgment should be used to identify potential safety hazards due to attachment of non-IBM features or options not covered by this inspection guide.

If any unsafe conditions are present, you must determine how serious the apparent hazard could be and whether you can continue without first correcting the problem.

Consider these conditions and the safety hazards they present:
- Electrical hazards, especially primary power (primary voltage on the frame can cause serious or fatal electrical shock).
- Explosive hazards, such as a damaged CRT face or bulging capacitor
- Mechanical hazards, such as loose or missing hardware

The guide consists of a series of steps presented in a checklist. Begin the checks with the power off, and the power cord disconnected.

Checklist:
1. Check exterior covers for damage (loose, broken, or sharp edges).
2. Turn off the computer. Disconnect the power cord.
3. Check the power cord for:
   a. A third-wire ground connector in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and frame ground.
   b. The power cord should be the appropriate type as specified in the parts listings.
   c. Insulation must not be frayed or worn.

4. Remove the cover.

5. Check for any obvious non-IBM alterations. Use good judgment as to the safety of any non-IBM alterations.

6. Check inside the unit for any obvious unsafe conditions, such as metal filings, contamination, water or other liquids, or signs of fire or smoke damage.

7. Check for worn, frayed, or pinched cables.

8. Check that the power-supply cover fasteners (screws or rivets) have not been removed or tampered with.

Handling electrostatic discharge-sensitive devices

Any computer part containing transistors or integrated circuits (Is) should be considered sensitive to electrostatic discharge (ESD). ESD damage can occur when there is a difference in charge between objects. Protect against ESD damage by equalizing the charge so that the server, the part, the work mat, and the person handling the part are all at the same charge.

Notes:

1. Use product-specific ESD procedures when they exceed the requirements noted here.

2. Make sure that the ESD-protective devices you use have been certified (ISO 9000) as fully effective.

When handling ESD-sensitive parts:

- Keep the parts in protective packages until they are inserted into the product.
- Avoid contact with other people.
- Wear a grounded wrist strap against your skin to eliminate static on your body.
- Prevent the part from touching your clothing. Most clothing is insulative and retains a charge even when you are wearing a wrist strap.
- Use the black side of a grounded work mat to provide a static-free work surface. The mat is especially useful when handling ESD-sensitive devices.
- Select a grounding system, such as those in the following list, to provide protection that meets the specific service requirement.

  Note: The use of a grounding system is desirable but not required to protect against ESD damage.

  – Attach the ESD ground clip to any frame ground, ground braid, or green-wire ground.

  – Use an ESD common ground or reference point when working on a double-insulated or battery-operated system. You can use coax or connector-outside shells on these systems.

  – Use the round ground-prong of the ac plug on ac-operated computers.

Grounding requirements

Electrical grounding of the computer is required for operator safety and correct system function. Proper grounding of the electrical outlet can be verified by a certified electrician.

Safety notices (multi-lingual translations)

The caution and danger safety notices in this section are provided in the following languages:

- English

- Brazilian/Portuguese
- Chinese
- French
- German
- Italian
- Japanese
- Korean
- Spanish

Important: All caution and danger statements in this IBM documentation begin with a number. This number is used to cross reference an English caution or danger statement with translated versions of the caution or danger statement in this section.

For example, if a caution statement begins with a number 1, translations for that caution statement appear in this section under statement 1.

Be sure to read all caution and danger statements before performing any of the instructions.

- Statement 1

DANGER

Electrical current from power, telephone and communication cables is hazardous.

To avoid a shock hazard:
- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet.**
- **Connect to properly wired outlets any equipment that will be attached to this product.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedure**s.
- **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect	To Disconnect
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	

• Statement 2

.

CAUTION:
When replacing the lithium battery, use only IBM Part Number 33F8354 or an equivalent type battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

Do not:
• **Throw or immerse into water**
• **Heat to more than 100°C (212°F)**
• **Repair or disassemble**

Dispose of the battery as required by local ordinances or regulations.
• Statement 3

.

CAUTION:
When laser products (such as CD-ROMs, DVD-ROM drives, fiber optic devices, or transmitters) are installed, note the following:
• **Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.**
• **Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.**

.

DANGER: Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following:

Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

Class 1 Laser Product
• Statement 4

.

≥18 kg (37 lbs)   ≥32 kg (70.5 lbs)   ≥55 kg (121.2 lbs)

CAUTION:
Use safe practices when lifting.
• Statement 5

.

CAUTION:
The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

• Statement 10

CAUTION:

Do not place any object weighing more than 82 kg (180 lbs.) on top of rack-mounted devices.

• Statement 20

.
CAUTION:

To avoid personal injury, before lifting the unit, remove all the blades to reduce the weight.

• Statement 21

CAUTION:

Hazardous energy is present when the blade is connected to the power source. Always replace the blade cover before installing the blade.

Importante:

Todas as instruções de cuidado e perigo da IBM documentation começam com um número. Este número é utilizado para fazer referência cruzada de uma instrução de cuidado ou perigo no idioma inglês com as versões traduzidas das instruções de cuidado ou perigo encontradas nesta seção.

Por exemplo, se uma instrução de cuidado é iniciada com o número 1, as traduções para aquela instrução de cuidado aparecem nesta seção sob a instrução 1.

Certifique-se de ler todas as instruções de cuidado e perigo antes de executar qualquer operação.

Instrução 1

PERIGO

A corrente elétrica proveniente de cabos de alimentação, de telefone e de comunicações é perigosa.

Para evitar risco de choque:
- Não conecte ou desconecte cabos e não realize instalação, manutenção ou reconfiguração deste produto durante uma tempestade com raios.
- Conecte todos os cabos de alimentação a tomadas elétricas corretamente instaladas e aterradas.
- Conecte todos os equipamentos ao qual esse produto será conectado a tomadas corretamente instaladas.
- Sempre que possível, utilize apenas uma das mãos para conectar ou desconectar cabos de sinal.
- Nunca ligue qualquer equipamento quando existir evidência de danos por fogo, água ou na estrutura.
- Desconecte cabos de alimentação, sistemas de telecomunicação, redes e modems antes de abrir as tampas dos dispositivos, a menos que especificado de maneira diferente nos procedimentos de instalação e configuração.
- Conecte e desconecte cabos conforme descrito na seguinte tabela, ao instalar ou movimentar este produto ou os dispositivos conectados, ou ao abrir suas tampas.

Para Conectar:	Para Desconectar:
1. DESLIGUE Tudo.	1. DESLIGUE Tudo.
2. Primeiramente, conecte todos os cabos aos dispositivos.	2. Primeiramente, remova os cabos de alimentação das tomadas.
3. Conecte os cabos de sinal aos conectores.	3. Remova os cabos de sinal dos conectores.
4. Conecte os cabos de alimentação às tomadas.	4. Remova todos os cabos dos dispositivos.
5. LIGUE os dispositivos.	

Instrução 2

.

CUIDADO:

Ao substituir a bateria de lítio, utilize apenas uma bateria IBM, Número de Peça 33F8354 ou uma bateria de tipo equivalente, recomendada pelo fabricante. Se o seu sistema possui um móídulo com uma bateria de lítio, substitua-o apenas pelo mesmo tipo de mídulo, do mesmo fabricante. A bateria contém lítio e pode explodir se não for utilizada, manuseada e descartada de maneira correta.

Não:
- Jogue ou coloque na água
- Aqueça a mais de 100°C (212°F)
- Conserte nem desmonte

Para descartar a bateria, entre em contato com a área de atendimento a clientes IBM, pelo telefone (011) 889-8986, para obter informações sobre como enviar a bateria pelo correio para a IBM.

Instrução 3

.

PRECAUCIÓN:

Quando produtos a laser (unidades de CD-ROM, unidades de DVD, dispositivos de fibra ítica, transmissores, etc.) estiverem instalados, observe o seguinte:
- Não remova as tampas. A remoção das tampas de um produto a laser pode resultar em exposição prejudicial à radiação de laser. Nenhuma peça localizada no interior do dispositivo pode ser consertada.
- A utilização de controles ou ajustes ou a execução de procedimentos diferentes dos especificados aqui pode resultar em exposição prejudicial à radiação.

PERIGO

Alguns produtos a laser contêm um diodo laser da Classe 3A ou Classe 3B embutido. Observe o seguinte:

Radiação de laser quando aberto. Não olhe diretamente para o raio a olho nu ou com instrumentos íticos, e evite exposição direta ao raio.

Laser Klasse 1.

Instrução 4

.

≥18 kg (37 lbs)　　≥32 kg (70.5 lbs)　　≥55 kg (121.2 lbs)

CUIDADO:

Ao levantar a máquina, faça-o com segurança.

Instrução 5

CUIDADO:

Os botões Liga/Desliga localizados no dispositivo e na fonte de alimentação não desligam a corrente elétrica fornecida ao dispositivo. O dispositivo também pode ter mais de um cabo de alimentação. Para remover toda a corrente elétrica do dispositivo, assegure que todos os cabos de alimentação estejam desconectados da fonte de energia elétrica.

CUIDADO:

Instrução 10

.

CUIDADO:

.

Não coloque nenhum objeto com peso superior a 82 kg (180 lbs.) sobre dispositivos montados em rack.

Instrução 20

.

CUIDADO:

Para prevenir acidentes, antes de erguer a unidade, remova todas as láminas para reduzir o peso.

Instrução 21

.

CUIDADO:

A energia é uma ameaça quando a lâmina estiver conectada à fonte de alimentação. Sempre substitua a cobertura da lâmina antes de efetuar a instalação.

重要：

Server Library 中的所有提醒和危险条款前都有一个数字标识。该数字是用来交叉引用一个英文的提醒和危险条款及本部分中的与之对应的已翻译成其它文字的提醒和危险条款。

例如，如果一个提醒条款前的数字为 1，则本部分中相应的译文也带有标号 1。

在执行任何指示的操作之前，请确保您已经阅读了全部提醒和危险条款。

声明 1

危险

電源、電話和通信電纜中帶有危險電流。

為避免電擊：

雷電期間不要拆接電纜或安裝、維修及重新配置本產品。

將所有電源線連接至正確布線並已安全接地的電源插座上。

將應與本產品連接的所有設備連接至正確布線的插座上。

盡量只使用單手拆接信號電纜。

有水、火及結構損壞迹象時，請勿打開任何設備。

除非在安裝配置過程中有明確指示，否則，打開設備機蓋前應先斷開與電源線、遠程通信系統、網絡和調制解調器的所有連接。

安裝、移動或打開本產品及其附帶設備的機蓋時，應按下表所述連接和斷開電纜。

連接時：	斷開連接時：
1. 關閉所有設備。	1. 關閉所有設備。
2. 首先將所有電纜連接至設備。	2. 首先從插座中拔出電源線。
3. 將信號電纜連接至接口。	3. 從接口上拔下信號電纜。
4. 將電源線連接至插座。	

声明 2

警告：

更换锂电池时，只能使用 IBM 产品号 33F8354 或者是厂商推荐的等同
类型的电池。

如果系统模块中含有锂电池，则只能使用同一厂商制造的同一类型的模
块进行更换。电池中含有锂，如果使用、拿放或处理不当，可能会发生
爆炸。

请勿对电池进行下列操作：
扔入或浸入水电
加热超过 100 （212 F）
进行修理或分解
请按本地法规要求处理电池。

声明 3

警告：

安装激光产品（如 CD-ROM、DVD 驱动器、光纤设备或送话器）时，应注
意以下事项：

不要拆除外盖。拆除激光产品的外盖可能会导致激光辐射的危险，本设备中
没有用户可维修的部件。

非此处指定的其它控制、调整或与性能有关的操作都有可能导致激光辐射的
危险。

危险

某些激光产品中包含内嵌的 3A 级或 3B 级激光二极管，请注意以下事项。

打开时会产生激光辐射。不要直视光束，不要使用光学仪器直接观看光束，
避免直接暴露于光束之下。

Laser Klass 1.

声明 4

≥18 kg (37 磅)　≥32 kg (70.5 磅)　≥ 55 kg (121.2 磅)

警告：
抬起时请采用安全操作方法。

声明 5

警告，

使用设备上的电源控制按钮和电源上的开关都不能断开本设备上的电流。
另外，本设备可能带有多条电源线。如要断开设备上的所有电流，请确
保所有电源线均已与电源断开连接。
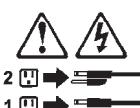
声明 6

警告：

如果在电源线连接设备的一端安装了固定松紧夹，则必须将电源线的另一端连接至
使用方便的电源。

声明 7

⚠️

警告：

如果设备带有外门，则在移动或抬起设备前应将其拆除或固定
以避免造成人员伤害。外门支撑不了设备的重量。

声明 8

⚠️

警告：
不要拆除电源外盖或贴有下列标签的任何部件。

⊗ ⚠️

贴有此标签的组件内部存在高电压、高电流的危险。这些组件中
没有用户可维修的部件。如果怀疑其中的部件存在问题，应与服
务技术人员联系。

声明 9

⚠️

警告：

为避免人员伤害，拆除设备上的风扇前应拨下热插拨风扇电缆。

声明 10

⚠️

警告：

机柜安装的设备上面不能放置重于 82kg（180 磅）的物品。

> 82 kg (180 磅)

声明 11

警告：

下面的标签表明附近有锋利的边、角或接头。

声明 12

警告：
下面的标签表明附近有高热表面。

• 声明 20

警告：
为避免人身伤害，请在抬起设备之前卸下所有刀片服务器以减轻重量。

• 声明 21

警告：
当刀片服务器连接到电源时会有危险的能量，请始终在安装刀片服务器之前重新装上刀片服务器机盖。

重要資訊：

Server Library 中所有「注意」及「危險」的聲明均以數字開
始。此一數字是用來作為交互參考之用，英文「注意」或「危險」聲
明可在本節中找到相同內容的「注意」或「危險」聲明的譯文。

例如，有一「危險」聲明以數字 1 開始，則該「危險」聲明的譯文將
出現在本節的「聲明」1 中。

執行任何指示之前，請詳讀所有「注意」及「危險」的聲明。

聲明 1

危險

電源、電話及通信電纜上所產生的電流均有危險性。

欲避免電擊危險：

－在雷雨期間，請勿連接或切斷本產品上的任何電纜線，或安裝、維修及重新架
　構本產品。
－請將電源線接至接線及接地正確的電源插座。
－請將本產品隨附的設備連接至接線正確的插座。
－儘可能使用單手來連接或切斷信號電纜線。
－當設備有火燒或泡水的痕跡，或有結構性損害時，請勿開啟該設備的電源。
－在安裝及架構之時，若非非常熟悉，在開啟裝置蓋子之前，請切斷電源線、電
　信系統、網路及數據機。
－在安裝、移動本產品或附加裝置，或開啟其蓋子時，請依照下表中「連接」及
　「切斷」電纜線的步驟執行。

連接：	切斷：
1. 關閉所有開關。	1. 關閉所有開關。
2. 先將所有電纜線接上裝置。	2. 先自電源插座拔掉電源線。
3. 將信號電纜接上接頭。	3. 拔掉接頭上的所有信號電纜。
4. 再將電源線接上電源插座。	4. 再拔掉裝置上的所有電纜線。
5. 開啟裝置的電源。	

聲明 2

注意：
更換鋰電池時，只可使用 IBM 零件編號 33F8354 的電池，或製造商建議之相
當類型的電池。若系統中具有包含鋰電池的模組，在更換此模組時，請使用相同
廠商製造的相同模組類型。如未正確使用、處理或丟棄含有鋰的電池時，可能會
引發爆炸。

請勿將電池：
－ 丟入或浸入水中
－ 加熱超過 100 ℃ (212 °F)
－ 修理或拆開

請遵照當地法令規章處理廢棄電池。

聲明 3

注意：
安裝雷射產品 (如 CD-ROM、DVD 光碟機、光纖裝置或發射器) 時，請注意下列
事項：
－ 請勿移開蓋子。移開雷射產品的蓋子，您可能會暴露於危險的雷射輻射之下。
　裝置中沒有需要維修的組件。
－ 不依此處所指示的控制、調整或處理步驟，您可能會暴露於危險的輻射之下。

危險

有些雷射產品含有內嵌式 Class 3A 或 Class 3B 雷射二極體。請注意
下列事項：

開啟時會產生雷射輻射。請勿凝視光束，不要使用光學儀器直接觀
察，且應避免直接暴露在光束下。

Luokan 1 Laserlaite

聲明 4

≥ 18 公斤 (37 磅) ≥ 32 公斤 (70.5 磅) ≥ 55 公斤 (121.2 磅)

注意：
抬起裝置時，請注意安全措施。

聲明 5

注意：
裝置上的電源控制按鈕及電源供應器上的電源開關均無法關閉裝置上的電流。
本裝置可能有一條以上的電源線。如要移除裝置上的所有電流，請確認所有電源線已與電源分離。
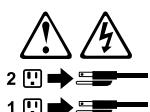
聲明 10

注意：
請勿將任何重量超過 82 公斤 (180 磅) 的物品置於已安裝機架的裝置上方。

➤82 公斤 (180 磅)

聲明 20

警告：
為了避免人身傷害，抬起裝置之前，請先卸下所有的螺旋槳，以便減輕重量。

聲明 21

警告：
當螺旋槳連到電源時可能會有危險之虞。安裝螺旋槳之前，請先更換螺旋槳外蓋。

Important:

Toutes les consignes Attention et Danger indiquées dans la bibliothèque IBM documentation sont précédées d'un numéro. Ce dernier permet de mettre en correspondance la consigne en anglais avec ses versions traduites dans la présente section.

Par exemple, si une consigne de type Attention est précédée du chiffre 1, ses traductions sont également précédées du chiffre 1 dans la présente section.

Prenez connaissance de toutes les consignes de type Attention et Danger avant de procéder aux opérations décrites par les instructions.

Notice n° 1

.

DANGER

Le courant électrique passant dans les câbles de communication, ou les cordons téléphoniques et d'alimentation peut être dangereux.

Pour éviter tout risque de choc électrique:
*   Ne manipulez aucun câble et n'effectuez aucune opération d'installation, d'entretien ou de reconfiguration de ce produit au cours d'un orage.
*   Branchez tous les cordons d'alimentation sur un socle de prise de courant correctement câblé et mis à la terre.
*   Branchez sur des socles de prise de courant correctement câblés tout équipement connecté à ce produit.
*   Lorsque cela est possible, n'utilisez qu'une seule main pour connecter ou déconnecter les câbles d'interface.
*   Ne mettez jamais un équipement sous tension en cas d'incendie ou d'inondation, ou en présence de dommages matériels.
*   Avant de retirer les carters de l'unité, mettez celle-ci hors tension et déconnectez ses cordons d'alimentation, ainsi que les câbles qui la relient aux réseaux, aux systèmes de télécommunication et aux modems (sauf instruction contraire mentionnée dans les procédures d'installation et de configuration).
*   Lorsque vous installez ou que vous déplacez le présent produit ou des périphériques qui lui sont raccordés, reportez-vous aux instructions ci-dessous pour connecter et déconnecter les différents cordons.

Connexion	Déconnexion
1. Mettez les unités hors tension.	1. Mettez les unités hors tension.
2. Commencez par brancher tous les cordons sur les unités.	2. Débranchez les cordons d'alimentation des prises.
3. Branchez les câbles d'interface sur des connecteurs.	3. Débranchez les câbles d'interface des connecteurs.
4. Branchez les cordons d'alimentation sur des prises.	4. Débranchez tous les câbles des unités.
5. Mettez les unités sous tension.	

.

Notice n° 2

ATTENTION:

Remplacez la pile au lithium usagée par une pile de référence identique exclusivement - voir la référence IBM - ou par une pile équivalente recommandée par le fabricant. Si votre système est doté d'un module contenant une pile au lithium, vous devez le remplacer uniquement par un module identique, produit par le même fabricant. La pile contient du lithium et présente donc un risque d'explosion en cas de mauvaise manipulation ou utilisation.

- **Ne la jetez pas à l'eau.**
- **Ne l'exposez pas à une température supérieure à 100° C.**
- **Ne cherchez pas à la réparer ou à la démonter.**

Pour la mise au rebut, reportez-vous à la réglementation en vigueur.

.

Notice n° 3

ATTENTION:

Si des produits laser sont installés (tels que des unités de CD-ROM ou de DVD, des périphériques contenant des fibres optiques ou des émetteurs-récepteurs), prenez connaissance des informations suivantes:

- **N'ouvrez pas ces produits pour éviter une exposition directe au rayon laser. Vous ne pouvez effectuer aucune opération de maintenance à l'intérieur.**
- **Pour éviter tout risque d'exposition au rayon laser, respectez les consignes de réglage et d'utilisation des commandes, ainsi que les procédures décrites dans le présent document.**

.

DANGER

Certains produits laser contiennent une diode laser de classe 3A ou 3B. Prenez connaissance des informations suivantes:

Rayonnement laser lorsque le carter est ouvert. évitez de regarder fixement le faisceau ou de l'observer à l'aide d'instruments optiques. évitez une exposition directe au rayon.

Appareil A Laser de Classe 1.

Notice n° 4

.

≥18 kg (37 lbs)   ≥32 kg (70.5 lbs)   ≥55 kg (121.2 lbs)

ATTENTION:

Faites-vous aider pour soulever ce produit.

Notice n° 5

.   .

ATTENTION:

**Le bouton de mise sous tension/hors tension de l'unité et l'interrupteur
d'alimentation du bloc d'alimentation ne coupent pas l'arrivée de courant
électrique à l'intérieur de la machine. Il se peut que votre unité dispose de
plusieurs cordons d'alimentation. Pour isoler totalement l'unité du réseau
électrique, débranchez tous les cordons d'alimentation des socles de prise de
courant.**

Notice n° 10

.

.

ATTENTION:

Ne posez pas d'objet dont le poids dépasse 82 kg sur les unités montées en
armoire.

Notice n° 20

.

ATTENTION:

Pour éviter tout risque de blessure, retirez tous les Serveurs lame de l'unité avant
de la soulever.

Notice n° 21

.   .

ATTENTION:

Un courant électrique dangereux est présent lorsque le Serveur lame est connecté
á une source d'alimentation. Remettez toujours en place le carter du Serveur lame
avant d'installer le Serveur lame.

Wichtig:

Alle Sicherheitshinweise in dieser IBM documentation beginnen mit einer Nummer. Diese Nummer verweist auf einen englischen Sicherheitshinweis mit den übersetzten Versionen dieses Hinweises in diesem Abschnitt.

Wenn z. B. ein Sicherheitshinweis mit der Nummer 1 beginnt, so erscheint die übersetzung für diesen Sicherheitshinweis in diesem Abschnitt unter dem Hinweis 1.

Lesen Sie alle Sicherheitshinweise, bevor Sie eine Anweisung ausführen.

Hinweis 1

VORSICHT

Elektrische Spannungen von Netz-, Telefon- und Datenübertragungsleitungen sind gefährlich.

Aus Sicherheitsgründen:
- Bei Gewitter an diesem Gerät keine Kabel anschließen oder lösen. Ferner keine Installations-, Wartungs- oder Rekonfigurationsarbeiten durchführen.
- Gerät nur an eine Schutzkontaktsteckdose mit ordnungsgemäß geerdetem Schutzkontakt anschließen.
- Alle angeschlossenen Geräte ebenfalls an Schutzkontaktsteckdosen mit ordnungsgemäß geerdetem Schutzkontakt anschließen.
- Signalkabel möglichst einhändig anschließen oder lösen.
- Keine Geräte einschalten, wenn die Gefahr einer Beschädigung durch Feuer, Wasser oder andere Einflüsse besteht.
- Die Verbindung zu den angeschlossenen Netzkabeln, Telekommunikationssystemen, Netzwerken und Modems ist vor dem öffnen des Gehäuses zu unterbrechen. Es sei denn, dies ist in den zugehörigen Installations- und Konfigurationsprozeduren anders angegeben.
- Nur nach den nachfolgend aufgeführten Anweisungen arbeiten, die für Installation, Transport oder öffnen von Gehäusen von Personal Computern oder angeschlossenen Einheiten gelten.

Kabel anschlie*β*en:	Kabel lösen:
1. Alle Geräte ausschalten und Netzstecker ziehen.	1. Alle Geräte ausschalten.
2. Zuerst alle Kabel an Einheiten anschließen.	2. Zuerst Netzstecker von Steckdose lösen.
3. Signalkabel an Anschlußbuchsen anschließen.	3. Signalkabel von Anschlußbuchsen lösen.
4. Netzstecker an Steckdose anschließen.	4. Alle Kabel von Einheiten lösen.
5. Gerät einschalten.	

Hinweis 2

ACHTUNG:

Eine verbrauchte Batterie nur durch eine Batterie mit der IBM Teilenummer 33F8354 oder durch eine vom Hersteller empfohlene Batterie ersetzen. Wenn Ihr System ein Modul mit einer Lithium-Batterie enthält, ersetzen Sie es immer mit dem selben Modultyp vom selben Hersteller. Die Batterie enthält Lithium und kann bei unsachgemäßer Verwendung, Handhabung oder Entsorgung explodieren.

Die Batterie nicht:
- mit Wasser in Berührung bringen.
- über 100 C erhitzen.
- reparieren oder zerlegen.

Die örtlichen Bestimmungen für die Entsorgung von Sondermüll beachten.

Hinweis 3

.

ACHTUNG:

Wenn ein Laserprodukt (z. B. CD-ROM-Laufwerke, DVD-Laufwerke, Einheiten mit Glasfaserkabeln oder Transmitter) installiert ist, beachten Sie folgendes.
- Das Entfernen der Abdeckungen des CD-ROM-Laufwerks kann zu gefährlicher Laserstrahlung führen. Es befinden sich keine Teile innerhalb des CD-ROM-Laufwerks, die vom Benutzer gewartet werden müssen. Die Verkleidung des CD-ROM-Laufwerks nicht öffnen.
- Steuer- und Einstellelemente sowie Verfahren nur entsprechend den Anweisungen im vorliegenden Handbuch einsetzen. Andernfalls kann gefährliche Laserstrahlung auftreten.

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VORSICHT

Manche CD-ROM-Laufwerke enthalten eine eingebaute Laserdiode der Klasse 3A oder 3B. Die nachfolgend aufgeführten Punkte beachten.

Laserstrahlung bei geöffneter Tür. Niemals direkt in den Laserstrahl sehen, nicht direkt mit optischen Instrumenten betrachten und den Strahlungsbereich meiden.

Hinweis 4

.

≥18 kg   ≥32 kg   ≥55 kg

ACHTUNG:

Beim Anheben der Maschine die vorgeschriebenen Sicherheitsbestimmungen beachten.

Hinweis 5

.

ACHTUNG:

Mit dem Betriebsspannungsschalter an der Vorderseite des Servers und dem Betriebsspannungsschalter am Netzteil wird die Stromversorgung für den Server nicht unterbrochen. Der Server könnte auch mehr als ein Netzkabel aufweisen. Um die gesamte Stromversorgung des Servers auszuschalten, muß sichergestellt werden, daß alle Netzkabel aus den Netzsteckdosen herausgezogen wurden.

Hinweis 10

ACHTUNG:

Keine Gegenstände, die mehr als 82 kg wiegen, auf Rack-Einheiten ablegen.

Hinweis 20

ACHTUNG:

Um Verletzungen zu vermeiden, entfernen Sie vor dem Anheben der Einheit zur Verringerung des Gewichts alle Blades.

Hinweis 21

ACHTUNG:

Wenn das Blade an eine Stromquelle angeschlossen ist, besteht die Gefahr eines Stromschlags. Bringen Sie die Abdeckung der Blades immer an, bevor Sie sie installieren.

Importante:

Tutti gli avvisi di attenzione e di pericolo riportati nella pubblicazione IBM documentation iniziano con un numero. Questo numero viene utilizzato per confrontare avvisi di attenzione o di pericolo in inglese con le versioni tradotte riportate in questa sezione.

Ad esempio, se un avviso di attenzione inizia con il numero 1, la relativa versione tradotta è presente in questa sezione con la stessa numerazione.

Prima di eseguire una qualsiasi istruzione, accertarsi di leggere tutti gli avvisi di attenzione e di pericolo.

Avviso 1

.   .

PERICOLO

La corrente elettrica circolante nei cavi di alimentazione, del telefono e di segnale è pericolosa.

Per evitare il pericolo di scosse elettriche:
- Non collegare o scollegare i cavi, non effettuare l'installazione, la manutenzione o la riconfigurazione di questo prodotto durante i temporali.
- Collegare tutti i cavi di alimentazione ad una presa elettrica correttamente cablata e munita di terra di sicurezza.
- Collegare qualsiasi apparecchiatura collegata a questo prodotto ad una presa elettrica correttamente cablata e munita di terra di sicurezza.
- Quando possibile, collegare o scollegare i cavi di segnale con una sola mano.
- Non accendere qualsiasi apparecchiatura in presenza di fuoco, acqua o se sono presenti danni all'apparecchiatura stessa.
- Scollegare i cavi di alimentazione, i sistemi di telecomunicazioni, le reti e i modem prima di aprire i coperchi delle unità, se non diversamente indicato nelle procedure di installazione e configurazione.
- Collegare e scollegare i cavi come descritto nella seguente tabella quando si effettuano l'installazione, la rimozione o l'apertura dei coperchi di questo prodotto o delle unità collegate.

Per collegare:	Per scollegare:
1. SPEGNERE tutti i dispositivi.	1. SPEGNERE tutti i dispositivi.
2. Collegare prima tutti i cavi alle unità.	2. Rimuovere prima i cavi di alimentazione dalle prese elettriche.
3. Collegare i cavi di segnale ai connettori.	3. Rimuovere i cavi di segnale dai connettori.
4. Collegare i cavi di alimentazione alle prese elettriche.	4. Rimuovere tutti i cavi dalle unità.
5. ACCENDERE le unità.	

Avviso 2

.

ATTENZIONE:

Quando si sostituisce la batteria al litio, utilizzare solo una batteria IBM con numero parte 33F8354 o batterie dello stesso tipo o di tipo equivalente consigliate dal produttore. Se il sistema di cui si dispone è provvisto di un modulo contenente una batteria al litio, sostituire tale batteria solo con un tipo di modulo uguale a quello fornito dal produttore. La batteria contiene litio e può esplodere se utilizzata, maneggiata o smaltita impropriamente.

Evitare di:
• Gettarla o immergerla in acqua
• Riscaldarla ad una temperatura superiore ai 100°C
• Cercare di ripararla o smontarla

Smaltire secondo la normativa in vigore (D.Lgs 22 del 5/2/9) e successive disposizioni nazionali e locali.

Avviso 3

.

ATTENZIONE:

Quando si installano prodotti laser come, ad esempio, le unità DVD, CD-ROM, a fibre ottiche o trasmettitori, prestare attenzione a quanto segue:
• Non rimuovere i coperchi. L'apertura dei coperchi di prodotti laser può determinare l'esposizione a radiazioni laser pericolose. All'interno delle unità non vi sono parti su cui effettuare l'assistenza tecnica.
• L'utilizzo di controlli, regolazioni o l'esecuzione di procedure non descritti nel presente manuale possono provocare l'esposizione a radiazioni pericolose.

.

PERICOLO

Alcuni prodotti laser contengono all'interno un diodo laser di Classe 3A o Classe 3B. Prestare attenzione a quanto segue:

Aprendo l'unità vengono emesse radiazioni laser. Non fissare il fascio, non guardarlo direttamente con strumenti ottici ed evitare l'esposizione diretta al fascio.

Avviso 4

.

| ≥18 kg | ≥32 kg | ≥55 kg |

ATTENZIONE:

Durante il sollevamento della macchina seguire delle norme di sicurezza.

Avviso 5

.

ATTENZIONE:

Il pulsante del controllo dell'alimentazione situato sull'unità e l'interruttore di alimentazione posto sull'alimentatore non disattiva la corrente elettrica fornita all'unità. L'unità potrebbe disporre di più di un cavo di alimentazione. Per disattivare la corrente elettrica dall'unità, accertarsi che tutti i cavi di alimentazione siano scollegati dalla sorgente di alimentazione.

Avviso 10

.

ATTENZIONE:

Non poggiare oggetti che pesano più di 82 kg sulla parte superiore delle unità montate in rack.

Avviso 20

.

ATTENZIONE:

Per evitare incidenti, prima di sollevare l'unità, rimuovere tutte le lame in modo da ridurre il peso.

Avviso 21

.

ATTENZIONE:

Quando la lama è collegata alla sorgente elettrica è presente una tensione pericolosa. Sostituire sempre il coperchio della lama prima di installarla.

重要：

Netfinity Server ライブラリーにあるすべての注意および危険の記述は
数字で始まります。この数字は、英語版の注意および危険の記述と翻訳さ
れた注意および危険の記述を相互参照するために使用します。

例えば、もし注意の記述が数字の 1 で始まってる場合は、その注意の翻訳は、
記述 1 の下にあります。

手順を実施する前に、すべての注意.

・記述 1

⚠ 危険

感電を防止するため、雷の発生時には、いかなるケーブルの
取り付けまたは取り外しも行わないでください。また導入、
保守、再構成などの作業も行わないでください。

感電を防止するため：

   − 電源コードは正しく接地および配線が行われている
     電源に接続してください。

   − 本製品が接続されるすべての装置もまた正しく配線
     された電源に接続されている必要があります。

できれば、信号ケーブルに取り付けまたは取り外しのとき
は片方の手のみで行うようにしてください。これにより、
電位差がある二つの表面に触ることによる感電を防ぐことが
できます。

電源コード、電話ケーブル、通信ケーブルからの電流は身体に
危険を及ぼします。設置、移動、または製品のカバーを開けたり
装置を接続したりするときには、以下のようにケーブルの接続 、
取り外しを行ってください。

接続するには	取り外すには
1. すべての電源を切る	1. すべての電源を切る
2. まず、装置にすべての ケーブルを接続する。	2. まず、電源コンセントから 電源コードを取り外す
3. 次に、通信ケーブルを コネクターに接続する	3. 次に、通信ケーブルを コネクターから取り外す。
4. その後、電源コンセントに 電源コードを接続する	4. その後、装置からすべての ケーブルを取り外す
5. 装置の電源を入れる。	

・記述 2

⚠ 注意

本製品には、システム・ボード上にリチウム電池が使用さ
れています。電池の交換方法や取り扱いを誤ると、発熱、
発火、破裂のおそれがあります。
電池の交換には、IBM部品番号33F8354の電池またはメーカー
推奨の同等の電池を使用してください。
交換用電池の購入については、お買い求めの販売店または
弊社の営業担当までお問い合わせください。
電池は幼児の手の届かない所に置いてください。
万一、幼児が電池を飲み込んだときは、直ちに医師に相談
してください。
以下の行為は絶対にしないでください。
ー水にぬらすこと
ー100度C 以上の過熱や焼却
ー分解や充電
ーショート
電池を廃棄する場合、および保存する場合にはテープなど
で絶縁してください。他の金属や電池と混ざると発火、
破裂の原因となります。電池は地方自治体の条例、または
規則に従って廃棄してください。ごみ廃棄場で処分される
ごみの中に捨てないでください。

・記述 3

⚠ 注意

レーザー製品（ CD-ROM、DVD、または光ファイバー装置または
送信器など）が組み込まれている場合は、下記に御注意ください。

- – ここに記載されている制御方法、調整方法、または性能を超えて使用
  すると、危険な放射線を浴びる可能性があります。

- – ドライブのカバーを開けると、危険な放射線を浴びる可能性があります。
  ドライブの内部に修理のために交換可能な部品はありません。カバーを
  開けないでください。

⚠ 危険

> 一部 CD-ROM ドライブは、Class 3A または Class 3B レーザー・
> ダイオードを使用しています。次の点に注意してください。
>
> CD-ROMドライブのカバーを開けるとレーザーが放射されます。
> 光線をみつめたり、光学器械を使って直接見たりしないで
> ください。また直接光線を浴びないようにしてください。

・記述 4

⚠ 注意

18Kg 以上　　32Kg 以上　　55Kg 以上

装置を持ち上げる場合は、安全に持ち上げる方法に従ってください。

・記述 5

⚠ 注意 ⚡

サーバーの前面にある電源制御ボタンは、サーバーに供給された
電流を遮断しません。
サーバーには、複数の電源コードが接続されているかもしれません。
サーバーから電流を完全に遮断するために、すべての電源コードが
電源から取り外されていることを確認してください。

⚠ ⚡

2 ⇨
1 ⇨
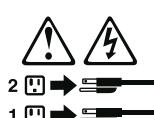
・記述 10

⚠ 注意

ラック・モデルのサーバーの上に 82 Kg 以上の物を置かないで
ください。

⊘

・記述 20

⚠

危険：
怪我を避けるため、ユニットを持ち上げる場合は、その前にすべてのブレード・
サーバーを取り外して重量を軽くしてください。

- 記述 21

危険：
ブレード・サーバーを差し込んだ状態では感電する危険性があります。
ブレードを差し込む前に、ブレードのカバーは必ず取り付けておいてください。

중요:

본 *Server Library*에 있는 모든 주의 및 위험 경고문은 번호로
시작합니다. 이 번호는 영문 주의 혹은 위험 경고문과 이 절에 나오는
번역된 버전의 주의 혹은 위험 경고문을 상호 참조하는 데 사용됩니다.

예를 들어, 주의 경고문이 번호 1로 시작하면, 번역된 해당 주의
경고문을 본 절의 경고문 1에서 찾아볼 수 있습니다.

모든 지시사항을 수행하기 전에 반드시 모든 주의 및 위험 경고문을
읽으십시오.

경고문 1

위험

전원, 전화 및 통신 케이블로부터 흘러 나오는 전류는
위험합니다.

전기 충격을 피하려면:

- 뇌우를 동반할 때는 케이블의 연결이나 철수, 이 제품의
  설치, 유지보수 또는 재구성을 하지 마십시오.

- 모든 전원 코드를 적절히 배선 및 접지해야 합니다.

- 이 제품에 연결될 모든 장비를 적절하게 배선된 콘센트에
  연결하십시오.

- 가능한한 신호 케이블을 한 손으로 연결하거나
  끊으십시오.

- 화재, 수해 또는 구조상의 손상이 있을 경우 장비를 켜지
  마십시오.

- 설치 및 구성 프로시저에 다른 설명이 없는 한, 장치 덮개를
  열기 전에 연결된 전원 코드, 원거리 통신 시스템, 네트워크
  및 모뎀을 끊어 주십시오.

- 제품 또는 접속된 장치를 설치, 이동 및 덮개를 열 때
  다음 설명에 따라 케이블을 연결하거나 끊도록 하십시오.

연결하려면:	연결을 끊으려면:
1. 모든 스위치를 끕니다.	1. 모든 스위치를 끕니다.
2. 먼저 모든 케이블을 장치에 연결합니다.	2. 먼저 콘센트에서 전원 코드를 뽑습니다.
3. 신호 케이블을 커넥터에 연결합니다.	3. 신호 케이블을 커넥터에서 제거합니다.
4. 콘센트에 전원 코드를 연결합니다.	4. 장치에서 모든 케이블을 제거합니다.
5. 장치 스위치를 켭니다.	

경고문 2

주의:

리튬 배터리를 교체할 때는 IBM 부품 번호 33F8354 또는 제조업체에서
권장하는 동등한 유형의 배터리를 사용하십시오. 시스템에 리튬 배터리를
갖고 있는 모듈이 있으면 동일한 제조업체에서 생산된 동일한 모듈
유형으로 교체하십시오. 배터리에 리튬이 있을 경우 제대로 사용, 처리
또는 처분하지 않으면 폭발할 수 있습니다.

다음을 주의하십시오.

- 던지거나 물에 담그지 않도록 하십시오.
- 100°C(212°F) 이상으로 가열하지 마십시오.
- 수리하거나 분해하지 마십시오.

지역 법령이나 규정의 요구에 따라 배터리를 처분하십시오.

경고문 3

주의:

레이저 제품(CD-ROMs, DVD 드라이브, 광 장치 또는 트랜스미터 등과
같은)이 설치되어 있을 경우 다음을 유의하십시오.

- 덮개를 제거하지 마십시오. 레이저 제품의 덮개를 제거했을 경우
위험한 레이저 광선에 노출될 수 있습니다. 이 장치 안에는 서비스를
받을 수 있는 부품이 없습니다.

- 여기에서 지정하지 않은 방식의 제어, 조절 또는 실행으로 인해 위험한
레이저 광선에 노출될 수 있습니다.

위험

일부 레이저 제품에는 클래서 3A 또는 클래스 3B 레이저
다이오드가 들어 있습니다. 다음을 주의하십시오.

열면 레이저 광선에 노출됩니다. 광선을 주시하거나 광학 기계를
직접 쳐다보지 않도록 하고 광선에 노출되지 않도록 하십시오.

경고문 4

≥18 kg (37 lbs)   ≥ 32 kg (70.5 lbs)   ≥ 55 kg (121.2 lbs)

주의:
기계를 들 때는 안전하게 들어 올리십시오.

경고문 5

주의:
장치의 전원 제어 버튼 및 전원 공급기의 전원 스위치는 장치에
공급되는 전류를 차단하지 않습니다. 장치에 둘 이상의 전원 코드가
연결되어 있을 수도 있습니다. 장치에서 모든 전류를 차단하려면
모든 전원 코드가 전원으로부터 차단되어 있는 지 확인하십시오.
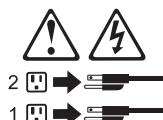
경고문 10

주의:
서랍형 모델의 장치 상단에 82 kg(180 lbs.)이 넘는 물체를 올려
놓지 마십시오.

> 82 kg (180 lbs)

경고문 20

주의:
부품을 들어올리기 전에 모든 블레이드를 제거하여 무게를 줄여야 위험하지
않습니다.

경고문 21

주의:
블레이드를 전원에 연결할 때 감전 등의 위험이 있을 수 있습니다.
블레이드를 설치하기 전에 항상 블레이드 덮개를 교체하십시오.

Importante:

Todas las declaraciones de precauciín de esta IBM documentation empiezan con un número. Dicho número se emplea para establecer una referencia cruzada de una declaraciín de precauciín o peligro en inglés con las versiones traducidas que de dichas declaraciones pueden encontrarse en esta secciín.

Por ejemplo, si una declaraciín de peligro empieza con el número 1, las traducciones de esta declaraciín de precauciín aparecen en esta secciín bajo Declaraciín 1.

Lea atentamente todas las declaraciones de precauciín y peligro antes de llevar a cabo cualquier operaciín.

Declaración 1

PELIGRO

La corriente eléctrica de los cables telefínicos, de alimentaciín y de comunicaciones es perjudicial.

Para evitar una descarga eléctrica:
* No conecte ni desconecte ningún cable ni realice las operaciones de instalaciín, mantenimiento o reconfiguraciín de este producto durante una tormenta.
* Conecte cada cable de alimentaciín a una toma de alimentaciín eléctrica con conexiín a tierra y cableado correctos.
* Conecte a tomas de alimentaciín con un cableado correcto cualquier equipo que vaya a estar conectado a este producto.
* Si es posible, utilice una sola mano cuando conecte o desconecte los cables de sent.al.
* No encienda nunca un equipo cuando haya riesgos de incendio, de inundaciín o de daños estructurales.
* Desconecte los cables de alimentaciín, sistemas de telecomunicaciones, redes y mídems conectados antes de abrir las cubiertas del dispositivo a menos que se indique lo contrario en los procedimientos de instalaciín y configuraciín.
* Conecte y desconecte los cables tal como se describe en la tabla siguiente cuando desee realizar una operaciín de instalaciín, de traslado o de apertura de las cubiertas para este producto o para los dispositivos conectados.

Para la conexin	Para la desconexiín
1. APÁGUELO todo.	1. APÁGUELO todo.
2. En primer lugar, conecte los cables a los dispositivos.	2. En primer lugar, retire cada cable de alimentaciín de la toma de alimentaciín.
3. Conecte los cables de señal a los conectores.	3. Retire los cables de señal de los conectores.
4. Conecte cada cable de alimentaciín a la toma de alimentaciín.	4. Retire los cables de los dispositivos.
5. ENCIENDA el dispositivo.	

Declaración 2

.

PRECAUCIÓN:

Cuando desee sustituir la batería de litio, utilice únicamente el número de pieza 33F8354 de IBM o cualquier tipo de batería equivalente que recomiende el fabricante. Si el sistema tiene un mídulo que contiene una batería de litio, sustitúyalo únicamente por el mismo tipo de mídulo, que ha de estar creado por el mismo fabricante. La batería contiene litio y puede explotar si el usuario no la utiliza ni la maneja de forma adecuada o si no se desprende de la misma como corresponde.

No realice las acciones siguientes:
* Arrojarla al agua o sumergirla
* Calentarla a una temperatura que supere los 100°C (212°F)
* Repararla o desmontarla

Despréndase de la batería siguiendo los requisitos que exija el reglamento o la legislaciín local.

Declaración 3

.

PRECAUCIÓN:

Cuando instale productos láser (como, por ejemplo, CD-ROM, unidades DVD, dispositivos de fibra íptica o transmisores), tenga en cuenta las advertencias siguientes:
* No retire las cubiertas. Si retira las cubiertas del producto láser, puede quedar expuesto a radiaciín láser perjudicial. Dentro del dispositivo no existe ninguna pieza que requiera mantenimiento.
* El uso de controles o ajustes o la realizaciín de procedimientos que no sean los que se han especificado aquí pueden dar como resultado una exposiciín perjudicial a las radiaciones.

.

PELIGRO

Algunos productos láser contienen un diodo de láser incorporado de Clase 3A o de Clase 3B. Tenga en cuenta la advertencia siguiente.

Cuando se abre, hay radiaciín láser. No mire fijamente el rayo ni lleve a cabo ningún examen directamente con instrumentos ípticos; evite la exposiciín directa al rayo.

Declaración 4

.

≥18 kg   ≥32 kg   ≥55 kg

PRECAUCIÓN:

Tome medidas de seguridad al levantar el producto.

Declaración 5

.   .

PRECAUCIÓN:

El botín de control de alimentaciín del dispositivo y el interruptor de alimentaciín de la fuente de alimentaciín no apagan la corriente eléctrica suministrada al dispositivo. Es posible también que el dispositivo tenga más de un cable de alimentaciín. Para eliminar la corriente eléctrica del dispositivo, asegúrese de desconectar todos los cables de alimentaciín de la fuente de alimentaciín.

Declaración 10

.

PRECAUCIÓN:

No coloque ningún objeto que pese más de 82 kg (180 libras) encima de los dispositivos montados en bastidor.

Declaración 20

.

PRECAUCIÓN:

Para prevenir ferimentos pessoais, antes de levantar a unidade retire todas as lâminas para diminuir o peso.

Declaración 21

.   .

PRECAUCIÓN:

Existe energia perigosa quando a lâmina está ligada à fonte de alimentação. Substitua sempre a cobertura da lâmina antes de instalar a mesma.

Appendix C. Notices

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Important notes

Processor speeds indicate the internal clock speed of the microprocessor; other factors also affect application performance.

CD-ROM drive speeds list the variable read rate. Actual speeds vary and are often less than the maximum possible.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for approximately 1000 bytes, MB stands for approximately 1 000 000 bytes, and GB stands for approximately 1 000 000 000 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity may vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard disk drive bays with the largest currently supported drives available from IBM.

Maximum memory may require replacement of the standard memory with an optional memory module.

IBM makes no representation or warranties regarding non-IBM products and services that are ServerProven®, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. These products are offered and warranted solely by third parties.

IBM makes no representations or warranties with respect to non-IBM products. Support (if any) for the non-IBM products is provided by the third party, not IBM.

Some software may differ from its retail version (if available), and may not include user manuals or all program functionality.

Product recycling and disposal

This unit contains materials such as circuit boards, cables, electromagnetic compatibility gaskets, and connectors which may contain lead and copper/beryllium alloys that require special handling and disposal at end of life. Before this unit is disposed of, these materials must be removed and recycled or discarded according to applicable regulations. IBM offers product-return programs in several countries. Information on product recycling offerings can be found on IBM's Internet site at http://www.ibm.com/ibm/environment/products/prp.shtml.

Battery return program

This product may contain a sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries outside the United States, go to http://www.ibm.com/ibm/environment/products/batteryrecycle.shtml or contact your local waste disposal facility.

In the United States, IBM has established a collection process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and battery packs from IBM equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Have the IBM part number listed on the battery available prior to your call.

In the Netherlands, the following applies.

Electronic emission notices

Federal Communications Commission (FCC) statement

Note: 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.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits.IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class A emission compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Australia and New Zealand Class A statement

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

United Kingdom telecommunications safety requirement

Notice to Customers

This apparatus is approved under approval number NS/G/1234/J/100003 for indirect connection to public telecommunication systems in the United Kingdom.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a nonrecommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

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

Taiwanese Class A warning 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。

Chinese Class A warning statement

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。

Japanese Voluntary Control Council for Interference (VCCI) statement

この装置は、情報処理装置等電波障害自主規制協議会(VCCI)の基準に
基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を
引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求
されることがあります。

Power cords

For your safety, IBM provides a power cord with a grounded attachment plug to use with this IBM product. To avoid electrical shock, always use the power cord and plug with a properly grounded outlet.

IBM power cords used in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA).

For units intended to be operated at 115 volts: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 15 amperes, 125 volts.

For units intended to be operated at 230 volts (U.S. use): Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a tandem blade, grounding-type attachment plug rated 15 amperes, 250 volts.

For units intended to be operated at 230 volts (outside the U.S.): Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

IBM power cords for a specific country or region are usually available only in that country or region.

IBM power cord part number	Used in these countries and regions
02K0546	China
13F9940	Australia, Fiji, Kiribati, Nauru, New Zealand, Papua New Guinea
13F9979	Afghanistan, Albania, Algeria, Andorra, Angola, Armenia, Austria, Azerbaijan, Belarus, Belgium, Benin, Bosnia and Herzegovina, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo (Democratic Republic of), Congo (Republic of), Cote D'Ivoire (Ivory Coast), Croatia (Republic of), Czech Republic, Dahomey, Djibouti, Egypt, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Finland, France, French Guyana, French Polynesia, Germany, Greece, Guadeloupe, Guinea, Guinea Bissau, Hungary, Iceland, Indonesia, Iran, Kazakhstan, Kyrgyzstan, Laos (People's Democratic Republic of), Latvia, Lebanon, Lithuania, Luxembourg, Macedonia (former Yugoslav Republic of), Madagascar, Mali, Martinique, Mauritania, Mauritius, Mayotte, Moldova (Republic of), Monaco, Mongolia, Morocco, Mozambique, Netherlands, New Caledonia, Niger, Norway, Poland, Portugal, Reunion, Romania, Russian Federation, Rwanda, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Slovakia, Slovenia (Republic of), Somalia, Spain, Suriname, Sweden, Syrian Arab Republic, Tajikistan, Tahiti, Togo, Tunisia, Turkey, Turkmenistan, Ukraine, Upper Volta, Uzbekistan, Vanuatu, Vietnam, Wallis and Futuna, Yugoslavia (Federal Republic of), Zaire
13F9997	Denmark
14F0015	Bangladesh, Lesotho, Maceo, Maldives, Namibia, Nepal, Pakistan, Samoa, South Africa, Sri Lanka, Swaziland, Uganda
14F0033	Abu Dhabi, Bahrain, Botswana, Brunei Darussalam, Channel Islands, China (Hong Kong S.A.R.), Cyprus, Dominica, Gambia, Ghana, Grenada, Iraq, Ireland, Jordan, Kenya, Kuwait, Liberia, Malawi, Malaysia, Malta, Myanmar (Burma), Nigeria, Oman, Polynesia, Qatar, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Seychelles, Sierra Leone, Singapore, Sudan, Tanzania (United Republic of), Trinidad and Tobago, United Arab Emirates (Dubai), United Kingdom, Yemen, Zambia, Zimbabwe

IBM power cord part number	Used in these countries and regions
14F0051	Liechtenstein, Switzerland
14F0069	Chile, Italy, Libyan Arab Jamahiriya
14F0087	Israel
1838574	Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Brazil, Caicos Islands, Canada, Cayman Islands, Costa Rica, Colombia, Cuba, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Jamaica, Japan, Mexico, Micronesia (Federal States of), Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Taiwan, United States of America, Venezuela
24P6858	Korea (Democratic People's Republic of), Korea (Republic of)
34G0232	Japan
36L8880	Argentina, Paraguay, Uruguay
49P2078	India
49P2110	Brazil
6952300	Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Caicos Islands, Canada, Cayman Islands, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Jamaica, Mexico, Micronesia (Federal States of), Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Saudi Arabia, Thailand, Taiwan, United States of America, Venezuela

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