

Brocade 4 GB SAN Switch Module

Installation Guide

NOVASCALÉ BLADE



REFERENCE
86 A1 98ER 00

NOVASCAL BLADE

Brocade 4 GB SAN Switch Module

Installation Guide

Hardware

March 2006

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FRANCE

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NovaScale Blade Safety and Regulatory 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.

Important Safety Instructions

Read all caution and safety statements in this document before performing any of the instructions. Read the manual *NovaScale Blade Series Boards and Chassis Safety Information*.

Consignes de sécurité

Lisez attentivement toutes les consignes de sécurité et les mises en garde indiquées dans ce document avant de suivre toute instruction. Consultez le manuel *NovaScale Blade Series Boards and Chassis Safety Information*.

Wichtige Sicherheitshinweise

Lesen Sie zunächst sämtliche Warn- und Sicherheitshinweise in diesem Dokument, bevor Sie eine der Anweisungen ausführen. Beachten Sie auch dem Buch *NovaScale Blade Series Boards and Chassis Safety Information*.

Importanti istruzioni sulla sicurezza

Leggere attentamente tutte le istruzioni sulla sicurezza contenute nel presente documento prima di eseguire qualsiasi operazione. Vedere il manuale *NovaScale Blade Series Boards and Chassis Safety Information*.

Instrucciones de seguridad importantes

Lea todas las declaraciones de seguridad y precaución de este documento antes de realizar cualquiera de las instrucciones. Vea el documento *NovaScale Blade Series Boards and Chassis Safety Information*.

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 object that weighs more than 16 kg (35lb) or any object that you think is too heavy for you.
- Do not perform any action that causes hazards to the customer, or 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 server system power cords, telecommunication systems, networks, and modems before you open the server covers, unless instructed otherwise in the installation and configuration procedures.

⇒ Important: Observe the following rules when working on electrical equipment.

- Use only approved tools and test equipment. Some hand tools have handles covered with a soft material that does not protect you when working with live electrical currents.
- Many customers have rubber floor mats (near their equipment) that contain small conductive fibers to decrease electrostatic discharges. Do not use this type of mat to protect yourself from electrical shock.
- Find the emergency power-off (EPO) switch, disconnect switch, or electrical outlet in the room. If an electrical accident occurs, you can quickly turn off the switch or unplug the power cord.
- 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 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 the 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 inspection mirror. The surface is conductive; such touching can cause personal injury and machine damage.
- When the power is on and power supply units, blowers and fans are removed from their normal operating position in a machine, do not attempt to service the units. This practice ensures correct grounding of the units.
- If an electrical accident occurs, use caution:
 - Switch power off
 - Send another person to get help/medical aid

Handling electrostatic discharge-sensitive devices

Any computer part containing transistors or integrated circuits (IC) 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.

⇒ NOTE

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

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.



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 procedures.**
- **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
<ol style="list-style-type: none"> 1. Turn everything OFF. 2. First, attach all cables to devices. 3. Attach signal cables to connectors. 4. Attach power cords to outlet. 5. Turn device ON. 	<ol style="list-style-type: none"> 1. Turn everything OFF. 2. First, remove power cords from outlet. 3. Remove signal cables from connectors. 4. Remove all cables from devices.

**CAUTION:**

If your system has a module containing a lithium battery, replace it only with the same 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.

**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.



≥18 kg (37 lbs)



≥32 kg (70.5 lbs)



≥55 kg (121.2 lbs)

CAUTION:

Use safe practices when lifting.



CAUTION:

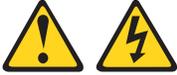
The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power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



CAUTION:

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





CAUTION:

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



CAUTION:

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



CAUTION:

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

Regulatory specifications and disclaimers

Safety compliance:	
USA:	UL 60950 - 3rd Edition/CSA 22.2. No. 60950
Canada:	cUL certified - 3rd Edition/CSA 22.2. No. 60950- for Canada (product bears the single cUL mark for U.S. and Canada)
Europe:	Low Voltage Directive, 73/23/EEC TUV/GS to EN60950 2nd Edition with Amendments, A1 = A2+A3+A4
International:	UL/CB to IEC 60950 3rd Edition UL/CB - EN60 950 3rd Edition UL/CB - EMKO-TSE (74-SEC) 207/94
Australia/New Zealand:	CB Report to IEC 60950, 3rd Edition plus international deviations

Electromagnetic compatibility (ECM)	
USA:	FCC CFR 47 Part 2 and 15, Verified Class A Limit
Canada:	IC ICES-003 Class A Limit
Europe:	EMC Directive, 89/336/EEC EN55022, Class A Limit, Radiated & Conducted Emissions EN55024 ITE Specific Immunity Standard EN61000-4-2 ESD Immunity (Level 2 Contact Discharge, Level 3 Air Discharge) EN61000-4-3 Radiated Immunity (Level 2) EN61000-4-4 Electrical Fast Transient (Level 2) EN61000-4-5 AC Surge EN61000-4-6 Conducted RF EN61000-4-8 Power Frequency Magnetic Fields EN61000-4-11 Voltage Dips and Interrupts EN6100-3-3 Voltage Flicker
Japan:	VCCI Class A ITE (CISPR 22, Class A Limit) IEC 1000-3-2 Limit for Harmonic Current Emissions
Australia/New Zealand:	AS/NZS 3548, Class A Limit
Taiwan:	BSMI Approval
Korea:	RRL Approval
Russia:	GOST Approval
International:	CISPR 22, Class A Limit

Electromagnetic compatibility notices (USA)

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/her own expense.

⇒ **NOTE**

Class A device definition: If a Class A device is installed within the is system, then the system is to be considered a Class A system. In this configuration, operation of this equipment in a residential area is likely to cause harmful interference.

⇒ **NOTE**

This product is intended to be installed with CAT5 cable, or equivalent, to minimize electrical interference.

Electromagnetic compatibility notices (International)

Europe (CE Declaration of Conformity): This product has been tested in accordance too, and complies with the Low Voltage Directive (73/23/EEC) and EMC Directive (89/336/EEC). The product has been marked with the CE Mark to illustrate its compliance.

Japan EMC Compatibility:

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。

English translation of the notice above: This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

ICES-003 (Canada): Cet appareil numérique respecte les limites bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques", NMB-003 édictée par le Ministre Canadien des Communications.

English translation of the notice above: This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Canadian Department of Communications.

BSMI (Taiwan): The BSMI Certification number and the following warning is located on the product safety label which is located visibly on the external chassis.

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。

RRL Korea:

기종별	사용자안내문
A급 기기	이 기기는 업무용으로 전자파 적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며 만약 잘못판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.
B급 기기	이 기기는 가정용으로 전자파 적합등록을 한 기기로서 주거지역에서는 물론 모든 지역에서 사용할 수 있습니다.

※ 비고

A급 기기 : 업무용 정보통신기기를 말한다.

B급 기기 : 가정용 정보통신기기를 말한다.

English translation of the notice above:

Device	User's Information
Class A device	This device complies with RRL EMC and is operated in commercial environment so that distributors or users pay attention to this point. If the product is sold or purchased improperly, please exchange this product to what can be used at home.
Class B device	This device complies with RRL EMC and is operated in a residential area so that it can be used at all other location as well as residential area.
note: Class A device: operated in a commercial area. Class B device: operated in a residential area.	

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1 The Brocade 4 Gb SAN switch module

This *Installation Guide* contains instructions for and information about:

- Setting up and installing or replacing the Brocade* 4 Gb SAN Switch Module in a NovaScale Blade Chassis
- Configuring the switch module through the Telnet interface
- Configuring the switch module through the Advanced Web Tools interface

For hardware installation details, see Chapter 2, “Installing and replacing a switch module,” on page 9. For additional information about switch modules and other NovaScale Blade Server components, see the instructions in your NovaScale Blade Server documentation.

Note:

- *The Brocade 4 Gb SAN Switch Module, 4 Gbps is referred to throughout this document as the Brocade switch module, switch module, or I/O module.*
- *The illustrations in this document might differ slightly from your hardware.*
- *The sample screens that appear in this document might differ slightly from the screens that are displayed by your system. Screen content varies according to the type of NovaScale Blade Chassis that you are using and the firmware versions and options that are installed.*

The switch module is a Fibre Channel component that consists of 20 ports:

- 6 external Fibre Channel user ports with which to connect to external Fibre Channel devices
- 14 internal ports to connect to the blade server bays in the chassis

The Brocade 4 Gb SAN switch module has 10 ports (seven internal and three external ports). You can upgrade the Brocade 4 Gb SAN switch module by purchasing optional license keys that provide 5-port capability.

Note: *As shipped, 10 ports are enabled. To enable the remaining 10 ports for a full 20-port capacity, you must purchase two license keys. Each license key enables 5 ports.*

You can manage and configure the switch module through multiple interfaces.

- A Telnet connection to the embedded command-line interface (CLI)
For more information, see Chapter 4, “Configuring the switch module through the Telnet interface,” on page 19.
- A Web browser (Advanced Web Tools) interface
For more information, see Chapter 5, “Configuring the switch module through the Advanced Web Tools interface,” on page 23.

Record information about your switch module in the following table. You will need this information when you register the switch module.

Product name	Brocade 4 Gb SAN Switch Module
Model number	_____
Serial number	_____
Media access control (MAC) address	_____
Worldwide name (WWN)	_____

The switch module has the following labels:

- One product name label at the right side of the switch module
- One serial number label, which contains the product part number and serial number, at the left side of the switch module
- One safety certification label at the left side of the switch module
- One media access control/worldwide name (MAC address/WWN) label at the left side of the switch module
- One media access control address (MAC address) label at the bottom of the information panel

See “Major components of the switch module” on page 8 for the locations of the labels that contain the MAC address/WWN and serial number information.

Features and specifications

This section provides a summary of the features and specifications of the switch module. The switch module has the following features:

- One PPC405GP processor that operates at 200 MHz
- One 256 Kb serial electrically erasable programmable read-only memory (SEEPROM)
- One real-time clock with a 10-year battery
- Two temperature sensors
- Six external autosensing Fibre Channel ports that operate at a maximum of 4 Gbps (gigabits per second)
- Fourteen internal fixed-speed Fibre Channel ports that operate at a maximum of 4 Gbps
- Two internal full-duplex 100 Mbps Ethernet interfaces, terminated at a single MAC
- Power-on diagnostics and status reporting
- Standard Ethernet and Fibre Channel management information base (MIB) support
- External ports that can be configured as F_ports (fabric ports), FL_ports (fabric loop ports), or E_ports (expansion ports)
- Internal ports that are configured as F_ports at 2 Gbps or 4 Gbps
- Frame-filtering technology that enables advanced zoning and monitoring capabilities
- Optional small form-factor pluggable (SFP) modules

The following software features come with the switch module:

- Brocade* Advanced Web Tools
- Brocade Advanced Zoning
- Two 5-port licenses
- Support for Brocade Fabric Access API and API Scripting Toolkit

For information about the standard software features, see the Brocade documentation on the CD-ROM "*Bull NovaScale Blade Resource CD*". See "Related documentation" on page 5 for descriptions of these documents.

For information about optional advanced software features, see Chapter 6, "Optional features of the Brocade 4 Gb SAN switch modules," on page 27.

The following table contains the specifications of the I/O module.

Table 1. Fibre Channel switch-module specifications

Fibre Channel switch-module standards and protocols:	Fibre Channel switch-module standards and protocols (continued):	Switch maintainability:
<p>Fibre Channel standards:</p> <ul style="list-style-type: none"> • FC-AL ANSI X3.272: • FC-AL-2 NCIT S 33: • FC-FLA NCIT S TR-20: • FC-GS-3 NCITS 348-2000 Rev 7.01 • FC-FG ANSI X3.289: • FC-FS Rev 1.7 • FC-PH ANSI X3.230: • FC-PH-2 ANSI X3.297: • FC-PH-3 ANSI X3.303: • FC-PLDA NCIT S TR-19: • FC-SW-2 Rev 5.3 • FC-VI Rev 1.61 • IPFC RFC 2625 • SANmark compliance SCD-3001 v2a1... • FC-MI, Rev 1.92 • FC-SB-3 ANSI/INCITS 374:2003 • FC-BB-2 Rev 5.3 <p>Fibre Channel protocols:</p> <ul style="list-style-type: none"> • Fibre Channel service classes: Class 2 and class 3. • Operation modes: Fibre Channel class 2 and class 3, connectionless • External port type: <ul style="list-style-type: none"> — F_port — FL_port — E_port — Self-discovery based on switch type U_port, an optional port type • Internal port type: 2 Gbps is the default setting 	<p>Fibre Channel protocols (continued):</p> <ul style="list-style-type: none"> • Port characteristics: External ports are automatically detected and self-configuring • Number of Fibre Channel ports: 6 external ports and 14 internal ports <p><i>Note: As shipped, 10 ports are enabled. To enable the remaining 10 ports for a full 20-port capacity, you must purchase two license keys. Each license key enables 5 ports.</i></p> <ul style="list-style-type: none"> • Scalability: 239 switches maximum depending on the configuration • Buffer credits: 16 buffer credits per port • Media type: Small form-factor pluggable (SFP) module • Fabric port speed: 1.0625, 2.125, or 4.2506 Gbps (gigabits per second) • Maximum frame size: 2148 bytes (2112-byte payload) • System processor: PPC405GP • Fabric latency: Less than 2 µsec from any port to any port with no contention • Fabric point-to-point bandwidth: 8 Gbps maximum full duplex per port • Fabric aggregate bandwidth: 160 Gb • Nonblocking architecture shared-memory switch to prevent latency 	<ul style="list-style-type: none"> • Diagnosis: Power-on self-test (POST) is performed on all functional components except the SFP module. Port operational tests include internal, external, and online tests. • User interface: Light-emitting diode (LED) indicators <p>Fabric management:</p> <ul style="list-style-type: none"> • Management methods: <ul style="list-style-type: none"> — Web interface through Advanced Web Tools — Command-line interface (CLI) through Telnet program — Application program interface (API) • Brocade Fabric Manager advanced feature options: Provides Java*-based application program to help manage the storage area network (SAN) fabric • Management information base (MIB) • Switch simple network management protocol (SNMP) agent: Enables a network management workstation to receive configuration values, traffic information, and Fibre Channel failure data through SNMP and the Ethernet interface

Table 1. Fibre Channel switch-module specifications (continued)

<p>Dimensions:</p> <ul style="list-style-type: none"> • Width: 112 mm (4.41 in.) • Height: 29 mm (1.14 in.) • Depth: 260.3 mm (10.25 in.) • Weight: Approximately .91 kg (2 lb) <p>Environmental:</p> <ul style="list-style-type: none"> • Temperature and altitude: <ul style="list-style-type: none"> — Operating: <ul style="list-style-type: none"> – 10°C to 52°C (50°F to 125.6°F) at an altitude of 0 to 914 m (0 to 3 000 ft) – 10°C to 49°C (50°F to 120.2°F) at an altitude of 0 to 3 000 m (0 to 10 000 ft) — Non-operating: -40°C to 65°C (-40°F to 149°F) at an altitude of 0 to 12 000 m (0 to 39 370 ft) • Humidity: <ul style="list-style-type: none"> — Operating: 8% to 80%, noncondensing — Non-operating: 5% to 80%, noncondensing 	<p>Switch regulatory certifications:</p> <ul style="list-style-type: none"> • Electrical requirements: <ul style="list-style-type: none"> — Power source loading: 3.75 amps maximum at 12 V dc — Approximate heat output in British thermal units (Btu) per hour: 85.3 Btu (25 watts) — Operating voltage: 12 V dc — Circuit protection: Internally fused with over-current protection • Safety standards: <ul style="list-style-type: none"> — As a listed accessory by UL (USA) — As a component by TUV 	<p>Switch regulatory certifications (continued):</p> <ul style="list-style-type: none"> • Emissions standards: <ul style="list-style-type: none"> — FCC part 15B Class A (USA) — VCCI Class A ITE (Japan) — ICES-003 issue 3 (Canada) — A4EN55022 level A (EC) — Voltage fluctuations: EN 61000-3-3 — Harmonics: EN 61000-3-2 — Immunity: EN55024: 1998 — Marking: <ul style="list-style-type: none"> – FCC part 15 – UL (United States) – cUL (Canada) – TUV – VCCI – CE
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Related documentation

This *Installation Guide* contains setup and installation instructions for the switch module. This documentation also provides general information about the switch module, including getting started, how to configure the switch module, and how to access and use online help.

In addition to this *Installation Guide*, the following related documentation is provided in Portable Document Format (PDF) on the CD-ROM "*Bull NovaScale Blade Resource CD*" that comes with the switch module:

- *Installation and User's Guide(s)* that came with your NovaScale Blade products: these documents contain instructions for setting up and configuring the NovaScale Blade server and basic instructions for installing some options in the NovaScale Blade server. It also contains general information about the NovaScale Blade server.
- *Hardware Maintenance Manual and Troubleshooting Guide* that came with your NovaScale Blade products: These documents contain information to help you solve NovaScale Blade problems yourself, and they contain information for service technicians.

- *Management Module Installation Guide* that came with your NovaScale Blade products: This document contains instructions for installing, setting up, starting, and configuring the management module.
- *Management Module User's Guide* that came with your NovaScale Blade products: This document contains instructions for installing, starting, configuring, and using the management module. It also provides general information about the management module and contains a description of the management module features.
- *Management Module Command Line Interface Reference Guide* that came with your NovaScale Blade products: This document contains instructions for installing, starting, configuring, and using the NovaScale Blade Server management-module command-line interface. It also provides general information about the management-module command-line interface and contains a description of its features.
- *4 Gb Fibre Channel Expansion Card Installation and User's Guide*: This document contains instructions for installing and configuring the 4 Gb Fibre Channel Expansion Card in NovaScale Blade products. It also contains information about updating the basic input/output system (BIOS) and device drivers of the 4 Gb Fibre Channel Expansion Card.
- *Brocade Fabric OS Administrator's Guide*: This document is a valuable resource for storage area network (SAN) administrators. This document provides a single location for detailed instructions to perform the most common administrative fabric and switch procedures.
- *Brocade Fabric OS Command Reference Manual*: This document contains detailed information about the commands that are available with the Brocade command-line interface through the Telnet program.
- *Release Notes for Brocade 4 Gb SAN Switch Module*. This document contains updates, changes, issues, and work-arounds with respect to the switch modules. Read this document for the latest information that might not be included in the Brocade reference manuals.
- *Brocade Fabric OS System Error Message Reference Manual*: This document contains diagnostic information, error-message descriptions, and troubleshooting procedures for the Brocade switch modules.
- *Brocade Fabric OS MIB Reference Manual*: This document contains information about the Brocade management information base (MIB).
- *Brocade Secure Fabric OS Administrator's Guide*: This document helps a SAN administrator set up and manage a Brocade Secure Fabric OS SAN.
- *Brocade Web Tools Administrator's Guide*: This document contains information about the Brocade Advanced Web Tools graphical management feature. This feature comes with the switch module.
- *Brocade Fabric Watch Administrator's Guide*: This document contains information about the Brocade Fabric Watch SAN health monitoring feature. This feature comes with the switch module.
- *Brocade Fabric Manager Administrator's Guide*: This document contains information to help the administrator monitor, configure, and manage the SAN. Read this document for an introduction to the Fabric Manager, installation monitoring, management information, and reporting.

Depending on your blade server model, additional documentation might be included on the CD-ROM "*Bull NovaScale Blade Resource CD*" included with your NovaScale Blade products.

Note: You need to install an I/O expansion card on appropriate blade servers to initialize the switch module in certain I/O-module bays of the NovaScale Blade Chassis.

Inventory checklist

Make sure that the shipping carton contains the following items:

- One Fibre Channel switch module: Brocade 4 Gb SAN Switch Module for NovaScale Blade Chassis
- The *Brocade 4 Gb SAN Switch Module Installation Guide*
- The CD-ROM "*Bull NovaScale Blade Resource CD*"
- One diagnostic wrap plug
- Safety flyer
- End User License Agreement

Notices and statements in this document

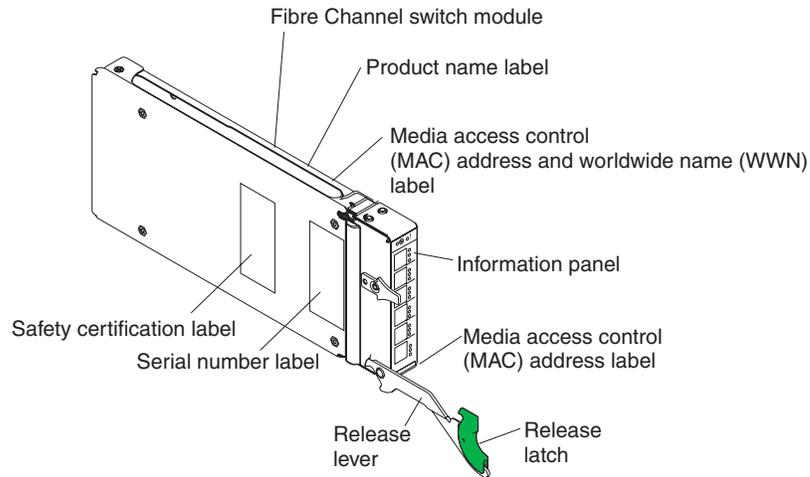
The following notices and statements are used in this document:

- **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 potential 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 switch module

The following illustration shows the major components of the 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 Fibre Channel ports,” on page 15. For more information about the MAC address, see the *Brocade Fabric OS Administrator’s Guide* on the CD-ROM “*Bull NovaScale Blade Resource CD*”.

2 Installing and replacing a switch module

This chapter provides instructions for installing a switch module in the NovaScale Blade Chassis, and for removing a switch module from the blade server chassis.

You must install Fibre Channel switch modules only in I/O-module bays 3 and 4 of the NovaScale Blade Chassis. The Fibre Channel Expansion Card has two 4 Gbps Fibre Channel ports. At least one switch module is required when you install the Fibre Channel Expansion Card in the blade server chassis.

Installing a switch module in I/O-module bay 3 or bay 4 provides the first connection to any installed Fibre Channel expansion card in the blade server chassis. Installing a second switch module enables a second connection to a Fibre Channel expansion card in the blade server chassis. Adding a second switch module provides a redundant path and a separate Fibre Channel connection from the blade server chassis to the external Fibre Channel network and SAN.

Important: *The switch modules in I/O-module bays 3 and 4 and all blade server expansion cards in the blade server chassis must use the same interface type. Therefore, you must install Fibre Channel expansion cards when you install Fibre Channel switch modules into the blade server chassis.*

The following table summarizes the application for each switch module.

Bay	Fibre Channel switch-module function
3	Port 0 connection on the NovaScale Blade Fibre Channel Expansion Card, 4 Gbps in the NovaScale Blade Chassis
4	Port 1 connection on the NovaScale Blade Fibre Channel Expansion Card, 4 Gbps in the NovaScale Blade Chassis

The second switch-module port connection allows for dual paths from the blade server to external Fibre Channel devices.

Installation guidelines

Before you install the switch module in the blade server, read the following information:

- Read the safety information beginning on page iii, “Handling static-sensitive devices” on page 11, and the safety statements in your blade server chassis documentation. This information will help you work safely with the blade server, blade server chassis, and options.
- Observe good housekeeping in the area where you are working. Place removed covers and other parts in a safe place.
- Blue on a component indicates touch points, where you can grip the component to remove it from or install it in the I/O module, blade server, or blade server chassis, open or close a latch, and so on.
- Green on a component or a green label on or near a component on the I/O module, blade server, or blade server chassis indicates that the component can be hot-swapped. This means that if the blade server chassis and operating system support hot-swap capability, you can remove or install the component while the NovaScale Blade Chassis is running. Green also indicates touch points on hot-swap components. See the instructions in this guide and the *Installation and User’s Guide(s)* on your CD-ROM "Bull NovaScale Blade Resource CD" for removing or installing a specific hot-swap component for any additional procedures that you might have to perform before you remove or install the component.
- You do not have to turn off the blade server chassis to install or replace any of the hot-swap modules on the rear of the blade server chassis.
- When you are finished working on the blade server or the blade server chassis, reinstall all safety shields, guards, labels, and ground wires.

System reliability considerations

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

- Each of the module bays on the rear of the blade server chassis has either a module or filler module installed.
- A removed hot-swap module is replaced with an identical module or a filler module within 1 minute of removal.
- A removed hot-swap blade server is replaced with another blade server or filler blade within 1 minute of removal.
- The ventilation areas on the sides of the switch module are not blocked.
- You have followed the reliability guidelines in the documentation that comes with the blade server chassis.

Handling static-sensitive devices

Attention: *Static electricity can damage your blade server chassis and other electronic devices. 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 possibly damage the device.
- While the device is still in its static-protective package, touch it to any *unpainted* metal surface of the blade server chassis or any *unpainted* metal surface on any other grounded rack component in the rack you are installing the device into 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 the blade server chassis without setting it down. If it is necessary to set down the device, place it in its static-protective package. Do not set the device on your blade center 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

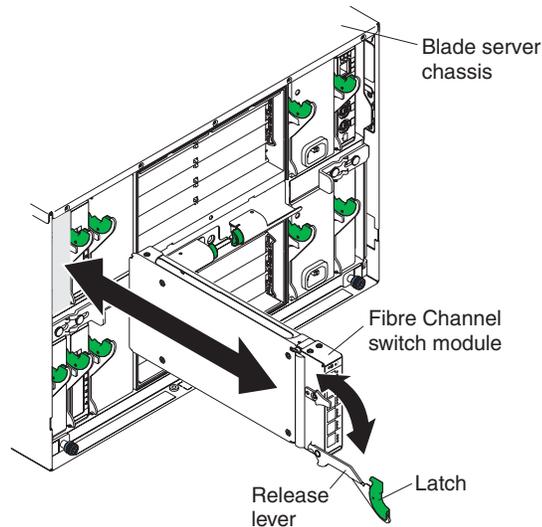
To install a switch module, complete the following steps:

1. Read the safety information that begins on page iii and “Installation guidelines” on page 10 through “Handling static-sensitive devices” on page 11.
2. Touch the static-protective package that contains the I/O module to any *unpainted* metal surface of the blade server chassis or any *unpainted* metal surface on any other grounded rack component in the rack in which you are installing the I/O module for at least 2 seconds.
3. Remove the acoustic attenuation module option, if one is installed, from the rear of the blade server chassis. For more information, see the documentation that came with your blade server chassis.
4. Select only I/O-module bay 3 or bay 4 in which to install the switch module.

Note: *For details about I/O-module bay requirements and bay locations, see the documentation for your blade server chassis and blade servers.*

5. Remove the filler module from the selected bay. Store the filler module for future use.
6. Remove the switch module from its static-protective package.
7. Make sure that the release lever 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.
The following example shows a vertical orientation for installing a Fibre Channel switch module in the blade server chassis.



9. Push the release lever on the front of the switch module to the closed position.
10. Power on the switch module. POST occurs to verify that the switch module is operating correctly.

Note: To maintain proper airflow, make sure that the ventilation areas on the sides of the switch module are not blocked.

Note: The switch module takes approximately 60 seconds to complete the POST. When the switch module is powered on, an LED test occurs. All LEDs are lit and remain lit for approximately 5 seconds; then, all the LEDs except the OK LED will turn off. The Power LED flashes to indicate a normal POST condition; then, POST proceeds as described in the next step.

11. Make sure that the LEDs on the switch module indicate that it is operating correctly (see “Information LEDs” on page 16).
 - When the POST starts, make sure that the green Power LED on the switch module is flashing. The POST tests the condition of firmware, memory, data paths, and switch logic and uses the fault LED to indicate pass or fail conditions.
 - Make sure that the green Power LED on the switch module stops flashing to indicate that the switch logic has completed POST.
12. If you have a second switch module to install, repeat step 5 on page 11 through step 11; otherwise, go to step 13
13. If you are using the external switch-module ports, you can connect an SFP module option to external Fibre Channel port 0 and Fibre Channel ports 15 through 19. For SFP module installation instructions, see the documentation that comes with the SFP module.

Note: SFP module options do not come with the switch module but are required if you want to use external switch module ports.

14. Use LC-LC or LC-SC fiber-optic cables to connect the switch-module external ports to external Fibre Channel devices. For more information, see the documentation that comes with the cable options.

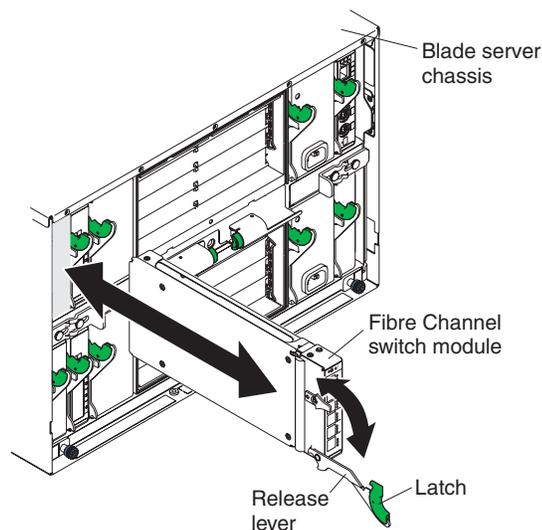
Note: You can remove and replace an SFP module while the switch module is operating without damaging the switch module or the SFP module. However, transmission on the affected port will be interrupted until the SFP module and cables are installed. See the documentation that comes with the connected Fibre Channel device for information about installation, configuration, and startup sequence.

15. Replace the acoustic attenuation module, if you removed it in step 3 on page 11
16. Make sure that the ports on the switch module are enabled (click **I/O Module Tasks > Management > Advanced Management > Advanced Setup** in the management-module Web-based interface).

Removing or replacing a switch module

To replace a switch module, complete the following steps:

1. Read the safety information that begins on page iii and “Installation guidelines” on page 10 through “Handling static-sensitive devices” on page 11.
2. If your blade server chassis has an acoustic attenuation module installed, remove it. See the documentation for your blade server chassis for instructions.
3. Disconnect the LC-LC or LC-SC fiber-optic cables from the two external ports on the SFP module. Removing these cables disrupts the network connection from the external Fibre Channel port to any connected external Fibre Channel devices. For removal instructions, see the documentation that comes with the cable options.
4. Remove any SFP modules from the switch-module external Fibre Channel ports. For SFP-module removal instructions, see the documentation that comes with the SFP module.
5. 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 0.6 cm (0.25 inch).



6. Slide the switch module out of the bay and set it aside.
7. Place either another switch module or a filler module in the bay within 1 minute (see steps 9 and 11 on page 12 for more information).
8. If you placed another switch module into the bay and if you are using the external switch-module ports, you can insert any SFP modules that you removed in step 4 on page 13 into external Fibre Channel port 0 and Fibre Channel ports 15 through 19. For SFP-module installation instructions, see the documentation that comes with the SFP module.
9. Use LC-LC or LC-SC fiber-optic cables to connect the switch-module external ports to external Fibre Channel devices. For more information, see the documentation that comes with the cable options.
10. Replace the acoustic attenuation module, if you removed it in step 2 on page 13.

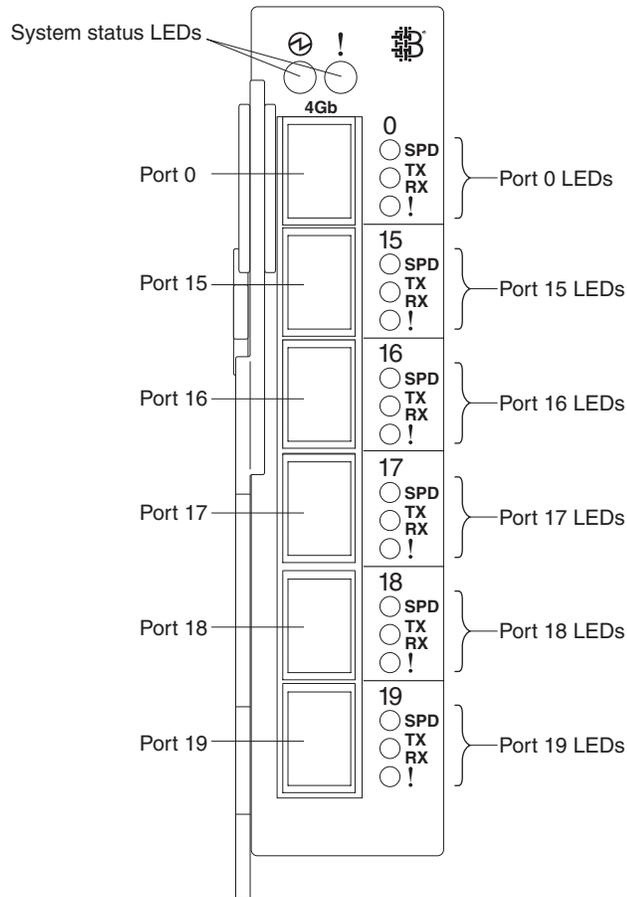
3 Information panel LEDs and external Fibre Channel ports

This chapter describes the information panel and LEDs on the switch module and identifies the external Fibre Channel ports on the information panel.

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

Information panel

The front panel of the switch module contains information LEDs and six Fibre Channel ports, as shown in the following illustration.



The switch-module information panel contains the following components:

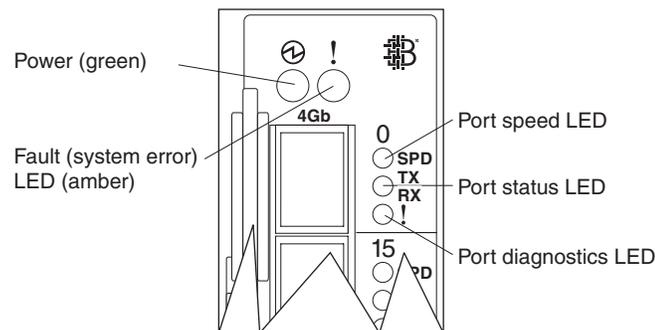
- LEDs that display the status of the switch module and its network connection. For more details on LEDs, see “Information LEDs” on page 16.
- Six external Fibre Channel ports to connect Fibre Channel devices, such as disk subsystems, tape drives, and other servers; and SAN devices, such as Fibre Channel switches, extenders, and gateways. These connectors are identified as ports 0, 15, 16, 17, 18, and 19 in the I/O-module configuration menus and are labeled 0, 15, 16, 17, 18, and 19 (from top to bottom) on the switch module. The internal connectors are numbered 1 through 14.

Note: *As shipped, 10 ports are enabled (three external, seven internal). To enable the remaining 10 ports for a full 20-port capacity, you must purchase two license keys. Each license key enables 5 ports.*

Information LEDs

The front panel of the Fibre Channel switch module has multiple sets of LEDs. The first row of LEDs at the top of the switch module represent the switch module status. The remaining sets of LEDs represent status for the external Fibre Channel ports. The port LEDs include port speed, port status, and port diagnostics.

The following illustration shows the locations of these LEDs on the switch module. A description of each LED and corresponding activity follows the illustration.



Note:

- An amber LED is lit when a system error or event has occurred. To identify the error or event, check the other LEDs on the information panel of the switch module.
- An LED test occurs whenever the switch module is powered on. All LEDs are lit and remain lit for approximately 5 seconds during POST and then all the LEDs except the Power LED will turn off. The Power LED flashes to indicate a normal POST condition; then, POST proceeds as described in step 11 on page 12.

After you install the switch module in the blade server chassis, the switch-module LEDs become active. There are four possible LED states: off, lit, flickering, and flashing. The lit (steady) LEDs and flashing LEDs can be green or amber. A flickering LED can only be green.

The LEDs might display any of these states and colors during startup, POST, or other diagnostic tests. This is typical and does not indicate a problem, unless the LEDs do not indicate a healthy state after all the startup (boot) processes and diagnostic tests have been completed. If one or more LEDs do not display a healthy state, make sure that the LEDs are not set to beacon. For information about how to turn beaconing on and off, see the *Brocade Fabric OS Procedures Guide* or the *Brocade Advanced Web Tools Administrator's Guide* on the CD-ROM "Bull NovaScale Blade Resource CD".

Any errors that are detected during POST are written to the system log. This log is accessible through the **errShow** command. For information about this command, see the *Brocade Fabric OS Procedures Guide* on the CD-ROM "Bull NovaScale Blade Resource CD". For information about error messages, see the *Brocade Fabric OS System Error Message Reference Manual* on the CD-ROM "Bull NovaScale Blade Resource CD".

Note: You can also use the management module to make sure that the switch module is operating correctly. For more information, see your *NovaScale Blade Chassis Installation and User's Guide* and the *Hardware Maintenance Manual and Troubleshooting Guide* on the CD-ROM "Bull NovaScale Blade Resource CD".

Switch module status LEDs

The two LEDs in the first row at the top of the switch module represent the switch module status. The green LED to the left is the Power LED and indicates the switch module is on, off, or receiving power. The amber LED to the right is the fault LED and indicates that an error has occurred on the switch module.

Power LED

This green LED is at the top left of the switch module on the front panel. When this LED is

- Green and steady, it indicates the switch module is on and the power modules in the blade server chassis are correctly operating.
- Green and flashing, the switch module has passed the POST and is operational.
- Not lit, and the amber LED is lit, it indicates a critical alert. If the amber LED is also not lit, it indicates that the switch module is not receiving power.

Fault LED

This amber LED is at the top right of the switch module on the front panel. When this LED is

- Not lit, and the green LED is lit, it indicates a healthy switch. If the green LED is also not lit, it indicates that the switch module is not receiving power.
- Amber and steady, it indicates a POST failure or critical alert.

Note: When the Fault LED is lit, the system-error LED on the blade server chassis is also lit.

Fibre channel port status LEDs

There are three port lights located directly to the right of each of the six Fibre Channel external ports on the front panel of the switch module. These lights indicate the speed, status, and diagnostics of that Fibre Channel external port.

Port speed LED

This green LED is located at the top of the three LEDs. When this LED is

- Green and steady, the indicated port is operating at 4 Gbps.
- Not lit, the indicated port is operating at 1 Gbps or 2 Gbps.

Port status LED

This green LED is located in the middle of the three LEDs. When this LED is:

- Green and steady, the indicated port is online.
- Green and flickering, the indicated port is connected and Fibre Channel activity is occurring on that port.
- Green and flashing slowly, the indicated port is online but segmented from the connected switch or device.
- Green and flashing rapidly, the indicated port is in the internal loopback mode because of diagnostics.
- Not lit, indicates that there is no signal or the port diagnostics LED is active on the indicated port.

Port diagnostics LED

This amber LED is located at the bottom of the three LEDs. When this LED is

- Amber and steady, the indicated port signal is present but not online.
- Amber and flashing slowly, the indicated port has been disabled, or switch beaconing is on.
- Amber and flashing rapidly, indicates the port-diagnostics program has discover an error (port fault).
- Not lit, indicates there are no faults on the indicated port.

4 Configuring the switch module through the Telnet interface

The switch module contains a Telnet server. This server enables a Telnet client to establish a Telnet session with the Fibre Channel switch module to retrieve information or to configure parameters through the command-line interface (CLI). You can perform a variety of fabric and switch-management tasks through an Ethernet connection by using the CLI.

You can access the Telnet interface in two ways:

- In the blade server chassis management-module Web interface
- In a command-line window on a network-management workstation

To configure the switch module through the Web interface, the Internet protocol (IP) address and subnet masks must be compatible, and the following configuration settings in the management module must be enabled:

- Switch-module external ports
- External management for external ports

To access a switch module from a network-management workstation, make sure it is connected to an external blade server chassis management-module Ethernet port.

To enable the configuration settings in the management-module Web interface, click **I/O Module Tasks :: Admin/Power/Restart**.

Important: Before configuring the switch module, make sure that the management modules in the blade server chassis are correctly configured. In addition, to access and manage the switch module from an external environment, you might have to enable certain features, such as the external ports and external management over all ports. See your NovaScale Blade Chassis Installation and User's Guide on the CD-ROM "Bull NovaScale Blade Resource CD" for more information. For information about configuring the switch module, see the Brocade Fabric OS Command Reference Manual on the CD-ROM "Bull NovaScale Blade Resource CD".

Note: Throughout this document, the user name is also known as the login name, user identifier, or user ID for logging onto interfaces or programs.

The sample screens that appear in this document might differ slightly from the screens that are displayed by your system.

Connecting to the switch module

To use the Telnet program (in VT100-compatible terminal mode) to access and control the switch module, you must know the IP address for the switch module and have an existing network connection. If you need to obtain the IP address for the switch module or establish a network connection, contact your system or network administrator. Be sure to use the correct IP address in the required commands.

Establishing a Telnet session through the management module

To establish a Telnet session through the blade management module, complete the following steps:

Note: The sample screens that appear in this document might differ slightly from the screens that are displayed by your system. Screen content varies according to the firmware versions and options that are installed.

1. In the address bar of your browser type `http://xxx.xxx.xxx.xxx`, where `xxx.xxx.xxx.xxx` is the IP address of the blade management module interface. Click **GO** or press Enter. The Enter Network Password window opens.

Note: The default IP address for the blade management module is `192.168.70.125`.

2. In the **User Name** field, type the initial default user name, `USERID`. In the **Password** field, type the initial default password, `PASSWORD` (the sixth character is a zero, not the letter *O*). The user name and password are case sensitive.

The management-module Welcome window opens.

3. In the **Inactive session timeout value** field, select the timeout value for this Web session and click **Continue**.

The management-module main window opens.

4. In the left navigation pane, under **I/O Module Tasks**, click **Management**.

The I/O Module Management window opens.

5. Click the link for either Bay 3 or Bay 4.

The Management window opens.

6. Make sure that the IP address is the same in the **Current IP Configuration** and **New Static IP Configuration** sections.

7. Click **Advanced Management**. The Switch Management window opens.

8. To start a Telnet session, scroll down to the **Start Telnet/Web Session** section and click **Start Telnet Session**.

The management-module command-prompt window opens.

9. At the `login` prompt, type the initial default user name, `USERID`, and press Enter. At the `password` prompt, type the initial default password, `PASSWORD` (the sixth character is a zero, not the letter *O*), and press Enter. The user name and password are case sensitive.

10. If you are accessing the switch module for the first time, press Enter to change the switch passwords. You are prompted for a password for the root, factory, and user accounts.

To open online help to view the available commands, type `help` and press Enter.

For more information about using the CLI, see the *Brocade Fabric OS Command Reference Manual* on the CD-ROM "*Bull NovaScale Blade Resource CD*".

Establishing a Telnet session in a command-line window

You can access the switch module by IP-enabled devices that are connected to the blade server chassis management module. An Ethernet connection to the management-module external ports on the blade server chassis is required. For more information, see the following documents on the CD-ROM "Bull NovaScale Blade Resource CD":

- *NovaScale Blade Chassis Installation and User's Guide*
- *NovaScale Blade Chassis Management Module User's Guide*
- *NovaScale Blade Chassis Management Module Installation Guide*

To establish a Telnet session through a command-line window, complete the following steps:

Note: *The IP addresses in these commands are the default IP addresses of the switch module.*

1. Open a command-line window on the network-management workstation.
2. Type one of the following commands and press Enter.

For the switch module in I/O bay 3:

```
telnet 192.168.70.129
```

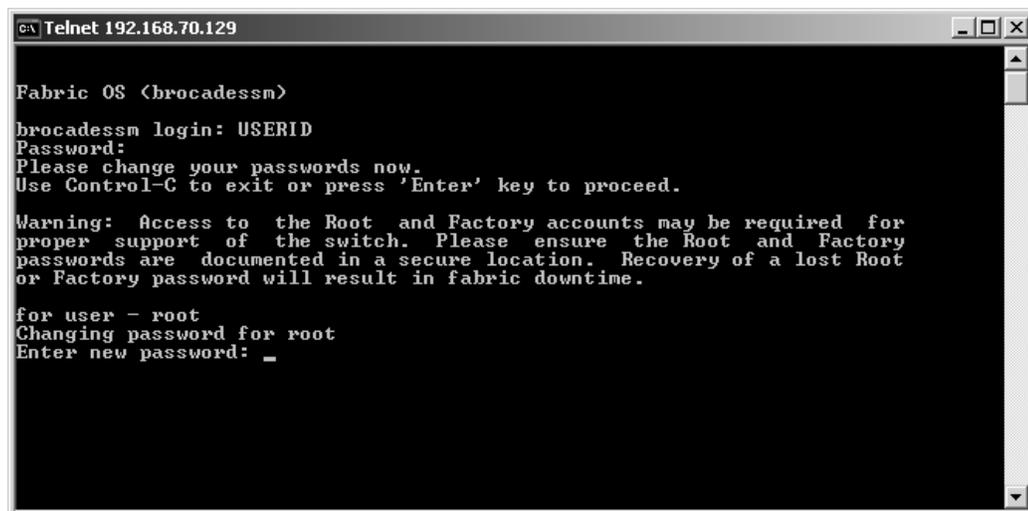
For the switch module in I/O bay 4:

```
telnet 192.168.70.130
```

A Telnet command-prompt window opens.

3. At the Login prompt, type the initial default user name, USERID, and press Enter. At the Password prompt, type the initial default password, PASSWORD (the sixth character is a zero, not the letter O). The user name and password are case sensitive.
4. If you are accessing the switch module for the first time, press Enter to change the switch passwords. You are prompted for a password for the root, factory, and user accounts.

A Telnet password-change window opens.



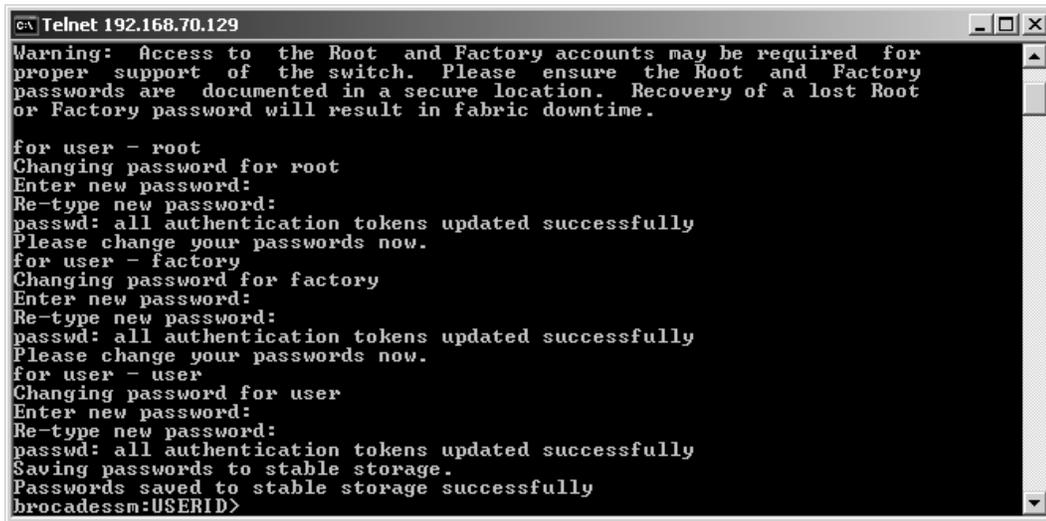
```
GV\ Telnet 192.168.70.129

Fabric OS <brocadessm>
brocadessm login: USERID
Password:
Please change your passwords now.
Use Control-C to exit or press 'Enter' key to proceed.

Warning: Access to the Root and Factory accounts may be required for
proper support of the switch. Please ensure the Root and Factory
passwords are documented in a secure location. Recovery of a lost Root
or Factory password will result in fabric downtime.

for user - root
Changing password for root
Enter new password: _
```

After you have changed all of the passwords, the command prompt is displayed in the Telnet window.



```
ca Telnet 192.168.70.129
Warning: Access to the Root and Factory accounts may be required for
proper support of the switch. Please ensure the Root and Factory
passwords are documented in a secure location. Recovery of a lost Root
or Factory password will result in fabric downtime.

for user - root
Changing password for root
Enter new password:
Re-type new password:
passwd: all authentication tokens updated successfully
Please change your passwords now.
for user - factory
Changing password for factory
Enter new password:
Re-type new password:
passwd: all authentication tokens updated successfully
Please change your passwords now.
for user - user
Changing password for user
Enter new password:
Re-type new password:
passwd: all authentication tokens updated successfully
Saving passwords to stable storage.
Passwords saved to stable storage successfully
brocadessm:USERID>
```

5 Configuring the switch module through the Advanced Web Tools interface

The switch module contains a Web server interface known as Advanced Web Tools. This server enables a Web-based client to establish a Web-interface session with the Fibre Channel switch module to retrieve information or to configure parameters through a Web browser. You can perform a variety of fabric and switch-management tasks through an Ethernet connection by using a Web browser.

Advanced Web Tools is a graphical interface that requires a Web browser to view and manage the switch. For information about system requirements and supported Web browsers, see the *Brocade Advanced Web Tools Administrator's Guide* on the CD-ROM "Bull NovaScale Blade Resource CD".

You can access the management-module Web interface in two ways:

- In the management-module Web interface
- Through a Web browser on a network-management workstation

To configure the switch module through the Web interface, the IP address and subnet masks must be compatible, and the following configuration settings in the management module must be enabled:

- Switch-module external ports
- External management for external port

To access a switch module from a network management workstation, make sure that it is connected to an external blade server chassis management module Ethernet port.

To enable the configuration settings in the management-module Web interface, click **I/O Module Tasks** ∴ **Admin/Power/Restart**.

Important: Before configuring the switch module, make sure that the management modules in the blade server chassis are correctly configured. In addition, to access and manage the switch module from an external environment, you might have to enable certain features, such as the external ports and external management over all ports. See your NovaScale Blade Chassis Installation and User's Guide on the CD-ROM "Bull NovaScale Blade Resource CD" for more information. For information about configuring the switch module, see the Brocade Advanced Web Tools Administrator's Guide on the CD-ROM "Bull NovaScale Blade Resource CD".

Note: Throughout this document, the user name is also known as the login name, user identifier, or user ID for logging onto interfaces or programs.

The sample screens that appear in this document might differ slightly from the screens that are displayed by your system. Screen content varies based on the firmware versions and options that are installed.

Connecting to the switch module

To use the Advanced Web Tools interface to access and control the switch module, you must know the IP address for the switch module and have an existing network connection. If you have to obtain the IP address for the switch module or establish a network connection, contact your system or network administrator.

Establishing a Web-interface session through the management module

To establish a Web-interface session through the blade server chassis management module, complete the following steps:

1. In your browser, in the address field, type `http://xxx.xxx.xxx.xxx`, where `xxx.xxx.xxx.xxx` is the IP address of the blade server chassis management-module interface. Click **GO** or press Enter. The Enter Network Password window opens.

Note: The default IP address for the blade server chassis management module is `192.168.70.125`.

2. In the **User Name** field, type the initial default user name, `USERID`. In the **Password** field, type the initial default password, `PASSWORD` (the sixth character is a zero, not the letter *O*). The user name and password are case sensitive.

The management-module Welcome window opens.

3. In the **Inactive session timeout value** field, select the timeout value for this Web session and click **Start New Session**.

The management-module main window opens.

4. In the left navigation pane, under **I/O Module Tasks**, click **Management**.

The I/O Module Management window opens.

5. Click the link for either Bay 3 or Bay 4.

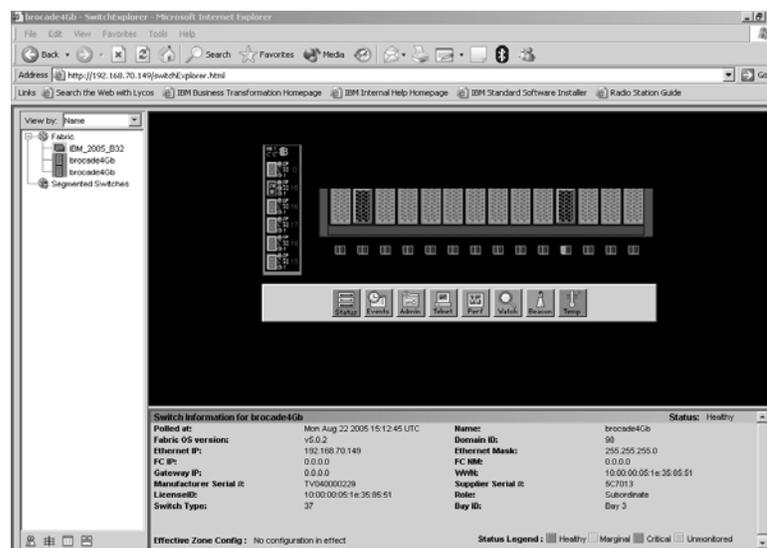
The Management window opens.

6. Make sure that the IP address is the same in the **Current IP Configuration** and **New Static IP Configuration** sections.

7. Click **Advanced Management**. The Switch Management window opens.

8. To start a Web-interface session, scroll down to the **Start Telnet/Web Session** section and click **Start Web Session**.

The I/O-module Advanced Web Tools interface window opens.



- To perform switch-module administrative tasks, click **Admin**, and log in to the switch. In the **User Name** field, type the initial default user name, USERID. In the **Password** field, type the initial default password, PASSWORD (the sixth character is a zero, not the letter O). The user name and password are case sensitive.

For more information about using the Advanced Web Tools interface, see the *Brocade Advanced Web Tools Administrator's Guide* on the CD-ROM "Bull NovaScale Blade Resource CD".

Establishing a Web-interface session through a Web browser

You can access the switch module by IP-enabled devices that are connected to the blade server chassis management module. An Ethernet connection to the management-module external ports on the blade server chassis is required. For more information, see the following documents on the CD-ROM "Bull NovaScale Blade Resource CD":

- NovaScale Blade Chassis Installation and User's Guide*
- NovaScale Blade Chassis Management Module User's Guide*
- NovaScale Blade Chassis Management Module Installation Guide*

To establish a Web-interface session through a Web browser, complete the following steps:

- Open a supported Web browser on the network-management workstation.
- Type one of the following Web addresses in the address field and press Enter. These Web addresses contain default IP addresses.

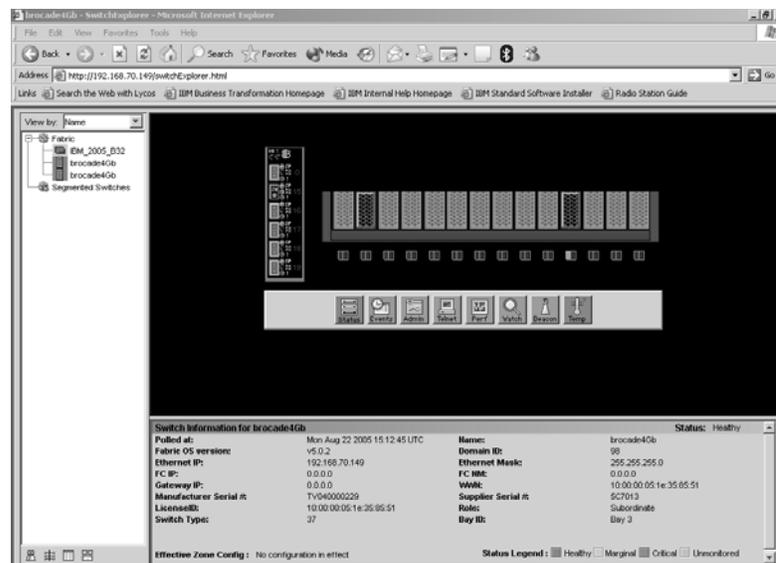
For I/O bay 3:

`http://192.168.70.129`

For I/O bay 4:

`http://192.168.70.130`

- Press Enter. The I/O-module Advanced Web Tools interface window opens.



4. To perform switch-module administrative tasks, click **Admin**, and log in to the switch. In the **User Name** field, type the initial default user name, `USERID`. In the **Password** field, type the initial default password, `PASSWORD` (the sixth character is a zero, not the letter *O*). The user name and password are case sensitive.

For more information about using the Advanced Web Tools interface, see the *Brocade Advanced Web Tools Administrator's Guide* on the CD-ROM "*Bull NovaScale Blade Resource CD*".

6 Optional features of the Brocade 4 Gb SAN switch modules

You can upgrade the switch module to use the following optional features after you purchase them.

Table 2. *Optional features*

Optional feature	Description
Brocade Advanced Performance Monitoring	<ul style="list-style-type: none"> • Provides advanced performance-monitoring procedures through the Brocade switch module: <ul style="list-style-type: none"> — End-to-end operations — Small computer system interface (SCSI) read operations — SCSI write operations — SCSI read/write operations — SCSI versus IP traffic-usage comparisons • Enables performance tuning of the Brocade 4 Gb SAN.
Brocade ISL Trunking	<ul style="list-style-type: none"> • Logically combines the external switch-module ports into two 12 Gb trunk links when the ports are connected (inter-switch linked) to another Brocade switch module. • Ensures optimum performance for servers that use this trunk.
Brocade Performance Bundle	Includes both the Advanced Performance Monitoring and ISL Trunking advanced features.
Brocade Extended Fabrics	<p>Enables full bandwidth performance at extended distances up to 100 km (62.14 miles).</p> <p>For more information about configuring this feature, see the <i>Brocade switch module Release Notes</i> on the CD-ROM "<i>Bull NovaScale Blade Resource CD</i>".</p>
Brocade Fabric Watch	Enables health diagnostics utilities for 4 Gb modules.
Brocade Advanced Security (Secure OS)	Provides increased security for the Brocade 4 Gb SAN through encryption, digital certificates, digital signatures, and various access-control lists.
Brocade 5-port Upgrade	Upgrades the switch module from seven internal ports and three external ports to nine internal ports and six external ports. A second 5-port key upgrades the switch module to 14 internal ports and six external ports.

To activate and use these optional software features, you must purchase the corresponding license keys. To purchase and obtain a license key for an optional feature, contact your support representative. A license key will be provided through the Web site that is described in the documentation that you receive after you purchase the feature.

Before you can upgrade and install a new license key, you must determine the license identifier (ID) of the switch module. Use the Telnet program to log in to the switch module as described in Chapter 4, “Configuring the switch module through the Telnet interface,” on page 19, and run the **licenseidshow** command to determine this value. Record the license ID value for future reference. For information about this command, see the *Brocade Fabric OS Command Reference Manual* on the CD-ROM “*Bull NovaScale Blade Resource CD*”.

To install an optional feature on the switch, you must add the corresponding license to the list of current features for the switch. Use the Telnet program to log in to the switch module as described in Chapter 4, “Configuring the switch module through the Telnet interface,” on page 19, and run the **licenseadd** *key* command, where *key* is the license key for the new feature. For information about this command, see the *Brocade Fabric OS Command Reference Manual* on the CD-ROM “*Bull NovaScale Blade Resource CD*”.

To make sure that the license has been successfully added to the switch key, run the **licenseshow** command. For information about this command, see the *Brocade Fabric OS Command Reference Manual* on the CD-ROM “*Bull NovaScale Blade Resource CD*”.

A Getting Help and Technical Assistance

This appendix contains information about where to go for additional information on NovaScale Blade products, what to do if you experience a problem with your server platform, 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.

You can solve many problems without outside assistance by following the troubleshooting procedures that Bull provides in the publications that are provided on the CD-ROM "*Bull NovaScale Blade Resource CD*" that ships with your system and software. The documentation also describes the diagnostic tests that you can perform. Most 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 server platform and pre installed software, if any, is available on the CD-ROM "*Bull NovaScale Blade Resource CD*" that comes with your system. This Resource CD includes user manuals, maintenance manuals and troubleshooting guides. 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. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software.

Hardware and software service and support

Contact your Support Representative for hardware and software service and support.

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