Brocade 300

Hardware Reference Manual

BROCADE

Document History

Title	Publication number	Summary of changes	Date
Brocade 300 Hardware Reference Manual	53-1000862-01	New document	March 2008
Brocade 300 Hardware Reference Manual	53-1000862-02	Document update	July 2008

Contents

About This Document

In this chapter

How this document is organized

This document is organized to help you find the particular information that you want as quickly and easily as possible.

The document contains the following components:

- Chapter 1, "Brocade 300 Introduction," provides an overview of the Brocade 300 switch, a feature list, and a look at the appearance of the switch.

- Chapter 2, "Brocade 300 Installation and Configuration," provides the information needed to install the switch into your network.

- Chapter 3, "Brocade 300 Operation," discusses the day-to-day operational procedures for using the switch.

- Appendix A, "Brocade 300 Specifications," provides tables of physical, environmental, and general specifications, helpful for quick lookup.

- The index points you to the exact pages on which specific information is located.

Supported hardware and software

Although many different software and hardware configurations are tested and supported by Brocade Communications Systems, Inc. for Fabric OS v6.1.0, documenting all possible configurations and scenarios is beyond the scope of this document.

This document is specific to the Product Name and Fabric OS v5.0.1. To obtain information about a Fabric OS version other than v5.0.1, see the documentation specific to that OS version.

What's new in this document

Corrections have been made to the original document.

Document conventions

This section describes text formatting conventions and important notice formats used in this document.

Text formatting

The narrative-text formatting conventions that are used in this document are as follows:

bold text	Identifies command names
	Identifies GUI elements
	Identifies keywords and operands
	Identifies text to enter at the GUI or CLI
italic text	Provides emphasis
	Identifies variables
	Identifies paths and Internet addresses
	Identifies document titles
`code` text	Identifies CLI output
	Identifies syntax examples

For readability, command names in the narrative portions of this guide are presented in mixed lettercase: for example, **switchShow**. In actual examples, command lettercase is often all lowercase. Otherwise, this manual specifically notes those cases in which a command is case sensitive.

Command syntax conventions

Command syntax in this manual follows these conventions:

command	Commands are printed in bold.
--**option, option**	Command options are printed in bold.
-**argument,** arg	Arguments.
[ ]	Optional element.
variable	Variables are printed in italics. In the help pages, values are <u>underlined</u> or enclosed in angled brackets < >.
...	Repeat the previous element, for example "member[;member...]"
value	Fixed values following arguments are printed in plain font. For example, --**show** WWN
|	Boolean. Elements are exclusive. Example: --**show** -**mode** egress | ingress

Notes, cautions, and warnings

The following notices and statements are used in this manual. They are listed below in order of increasing severity of potential hazards.

NOTE
A note provides a tip, guidance or advice, emphasizes important information, or provides a reference to related information.

ATTENTION
An Attention statement indicates potential damage to hardware or data.

CAUTION
A statement alerts you to situations that can be potentially hazardous to you.

DANGER
A Danger statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Key Terms

For definitions specific to Brocade and Fibre Channel, refer to the *Brocade Glossary*.

For definitions of SAN-specific terms, visit the Storage Networking Industry Association online dictionary at*:*

http://www.snia.org/education/dictionary

Notice to the reader

This document may contain references to the trademarks of the following corporations. These trademarks are the properties of their respective companies and corporations.

These references are made for informational purposes only.

Corporation	Referenced Trademarks and Products
IBM Corporation	IBM, PowerPC

Additional information

This section lists additional Brocade and industry-specific documentation that you might find helpful.

Brocade resources

To get up-to-the-minute information, join Brocade Connect. It's free! Go to *http://www.brocade.com* and click **Brocade Connect** to register at no cost for a user ID and password.

For practical discussions about SAN design, implementation, and maintenance, you can obtain *Building SANs with Brocade Fabric Switches* through:

> *http://www.amazon.com*

For additional Brocade documentation, visit the Brocade SAN Info Center and click the Resource Library location:

> *http://www.brocade.com*

Release notes are available on the Brocade Connect Web site and are also bundled with the Fabric OS firmware.

Other industry resources

- White papers, online demos, and data sheets are available through the Brocade Web site at *http://www.brocade.com/products/software.jhtml*.
- Best practice guides, white papers, data sheets, and other documentation is available through the Brocade Partner Web site.

For additional resource information, visit the Technical Committee T11 Web site. This Web site provides interface standards for high-performance and mass storage applications for Fibre Channel, storage management, and other applications:

> *http://www.t11.org*

For information about the Fibre Channel industry, visit the Fibre Channel Industry Association Web site:

> *http://www.fibrechannel.org*

Getting technical help

Contact your switch support supplier for hardware, firmware, and software support, including product repairs and part ordering. To expedite your call, have the following information available:

1. General Information

   - Switch model
   - Switch operating system version
   - Error numbers and messages received
   - **supportSave** command output

- Detailed description of the problem, including the switch or fabric behavior immediately following the problem, and specific questions
- Description of any troubleshooting steps already performed and the results
- Serial console and Telnet session logs
- syslog message logs

2. Switch Serial Number

   The switch serial number and corresponding bar code are provided on the serial number label, as illustrated below.:

   FT00X0054E9
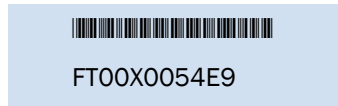
   The serial number label is located as follows:

   - *Brocade 200E*—On the non-port side of the chassis
   - *Brocade 300, 4100, 4900, 5100, 5300, 7500, and Brocade Encryption Switch*—On the switch ID pull-out tab located inside the chassis on the port side on the left
   - *Brocade 5000*—On the switch ID pull-out tab located on the bottom of the port side of the switch
   - *Brocade 7600*—On the bottom of the chassis
   - *Brocade 48000*—Inside the chassis next to the power supply bays
   - *Brocade DCX*—On the bottom right on the port side of the chassis

3. World Wide Name (WWN)

   Use the **wwn** command to display the switch WWN.

   If you cannot use the **wwn** command because the switch is inoperable, you can get the WWN from the same place as the serial number, except for the Brocade DCX. For the Brocade DCX, access the numbers on the WWN cards by removing the Brocade logo plate at the top of the non-port side of the chassis.

Document feedback

Because quality is our first concern at Brocade, we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you. Forward your feedback to:

documentation@brocade.com

Provide the title and version number of the document and as much detail as possible about your comment, including the topic heading and page number and your suggestions for improvement.

Brocade 300 Introduction

In this chapter

Brocade 300 features

The Brocade 300 is a cost-effective and highly-scalable 1, 2, 4, or 8 Gbps switch, designed for small to mid-sized businesses. Like all Brocade switches, the Brocade 300 runs on the Brocade Fabric Operating System (Fabric OS) and is compatible with other Brocade switches, which enables seamless connectivity into heterogeneous SAN environments.

The Brocade 300 is a dual purpose device that you can use either as a full-functioned switch or as an N_Port ID Virtualization (NPIV) access gateway. When functioning as an access gateway, the Brocade 300 provides a single platform for all SAN connectivity.

Because the Brocade 300 is scalable, you can use it as a foundation switch for a small SAN and continue to use it as a building block as the SAN grows.

The Brocade 300 provides the following features:

- 1U chassis that can be installed as a standalone unit or mounted in a standard Electronic Industries Association (EIA) 48.26 cm (19 inches) cabinet.

- One built-in fixed power unit (not a FRU).

- Three built-in fans (there are no fan FRUs) that allows the a single fan failure and permits the switch to continue to function properly.

- On-demand scaling of 8 to 24 8 Gbps ports.

- ASIC technology supporting 1, 2, 4 and 8 Gbps auto-sensing Fibre Channel ports.

- A flexible design that enables the Brocade 300 to function as either a full-functioned switch or an NPIV access gateway.

- Support of the EZSwitchSetup wizard for setup and basic configuration.

- RJ45 Ethernet management port that in conjunction with EZSwitchSetup, supports switch IP address discovery and configuration.

- USB port that provides storage for firmware updates, output of the **supportSave** command and storage for configuration uploads and downloads.

- A single motherboard design with a 667 MHz PowerPC 440EPx Reduced Instruction Set Computer (RISC) CPU with integrated peripherals.
- Inter-Switch-Link Trunking (licensable) which enables up to eight ports (at 1, 2, 4, or 8 Gbps speeds) between a pair of switches to be combined to form a single, logical ISL switch with a speed of up to 64 Gbps (128 Gbps full duplex) for optimal bandwidth utilization and load balancing.
- Dynamic Path Selection (DPS) which optimizes fabric-wide performance and load balancing by automatically routing data to the most efficient available path in the fabric.

Port side of the Brocade 300

The port side of the Brocade 300 includes the system status LED, console port, Ethernet port and LEDs, USB port, and Fibre Channel ports and the corresponding port status LEDs.

Figure 1 shows the port side of the Brocade 300.
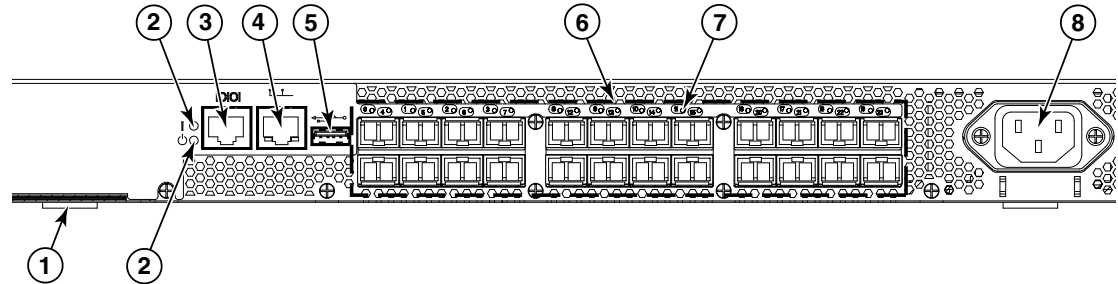
FIGURE 1   Port Side of the Brocade 300

1	Switch ID pull-out tab
2	System status (top) and power (bottom) LEDs
3	System RS232 console port (RJ-45)
4	Ethernet port with two Ethernet status LEDs
5	USB port
6	Fibre Channel port status LEDs
7	Fibre Channel ports (24)
8	AC power receptacle

Non-port side of the Brocade 300

The non-port side of the Brocade 300 is used solely for air flow. There are two labels on the bottom of the chassis. On the right side is the Brocade standard agency label. On the left side is the Brocade standard OEM data label.

Supported fabric configurations

The Brocade 300 is supported as an edge device in fabrics of up to 239 switches.

Ports on Demand license

Brocade 300 can be purchased with 8, 16, or 24 licensed ports. As your needs increase, you can activate unlicensed ports by purchasing and installing the Brocade Ports on Demand (POD) optional licensed product. After it has been installed, the license appears in the **licenseShow** command output as *Ports on Demand license*.

By default, ports 0 through 7 are enabled on the Brocade 300. To enable ports 8 through 16, install a POD license key. To enable ports 16 through 24, install another POD license.

To install a POD license, you can either use the supplied license key or generate a license key. Typically the switch is shipped with a paper pack that specifies the transaction key to use with the Software License Keys link. Use this transaction key on the Brocade Web site at *www.brocade.com/licensekeys* and follow the instructions to generate the key. You can also use this site to generate other license keys for your switch.

After you have installed the license keys, you must enable the ports. You can do so without disrupting switch operation by using the **portEnable** command on each port individually. Alternatively, you can disable and re-enable the switch to activate all ports simultaneously.

For detailed information on enabling additional ports using the POD license, refer to the *Fabric OS Administrator's Guide*.

ISL trunking groups

The Brocade 300 supports Interswitch Link (ISL) Trunking as a licensed feature. When this feature is enabled, you can create trunked groups of up to eight contiguous ports. This means that you can create up to three trunked groups that contain eight ports each.

The Fibre Channel ports on the Brocade 300 are numbered from left to right and color-coded into groups of eight to indicate which ports you can combine into trunked groups.
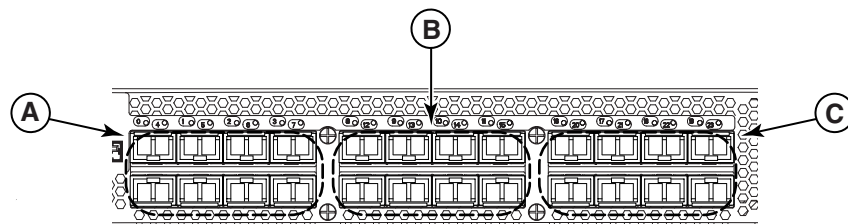
FIGURE 2   Trunking Groups

    A   Trunk group 1: Ports 0 through 7

    B   Trunk group 2: Ports 8 through 15

    C   Trunk group 3: Ports 16 though 23

NOTE

Brocade ISL Trunking is optional software that allows you to create trunking groups of ISLs between adjacent switches. For more information about trunking, refer to the *Fabric OS Administrator's Guide*.

Brocade 300 Installation and Configuration

In this chapter

Items included with the Brocade 300

The following items are included with the standard shipment of the Brocade 300. When you open the Brocade 300 packaging, verify that these items are included in the package and that no damage has occurred during shipping:

- One Brocade 300 Fibre Channel switch
- An accessory kit containing:
  - Serial cable with an RJ-45 connector
  - 6 ft. Power Cord
  - Rubber feet, required for setting up the switch as a standalone unit
  - Brocade Family Documentation CD
  - *Brocade 300 QuickStart Guide*
  - EZSwitch Setup CD
  - *Access Gateway Quick Start Guide*

Installation and safety considerations

You can install the Brocade 300 switch in the following ways:

1. As a standalone unit on a flat surface.
2. In an EIA cabinet using a fixed-rail rack mount kit. The optional fixed-rail rack mount kit can be ordered from your switch retailer.
3. In an EIA cabinet using an optional slide-rail rack mount kit. The optional slide-rail rack mount kit can be ordered from your switch retailer.

Electrical considerations

To install and operate the switch successfully, ensure the following:

- The primary outlet is correctly wired, protected by a circuit breaker, and grounded in accordance with local electrical codes.

- The supply circuit, line fusing, and wire size are adequate, as specified by the electrical rating on the switch nameplate.

- The power supply standards provided in Table 5, "Brocade 300 Power Supply Specifications" on page 24 are met.

Environmental considerations

For successful installation and operation of the switch, ensure that the following environmental requirements are met:

- At a minimum, adequate cooling requires that you install the switch with the non-port side, which contains the air intake vents, facing the cool-air aisle.

- All equipment in the rack should force air in the same direction to avoid intake of exhaust air.

- A minimum of 30.6 cubic meters/hour (18 cubic ft/min) and a maximum of 39.1 cubic meters/hour (23 cubic ft/min) of air flow is available to the air intake vents on the non-port side of the switch.

- The ambient air temperature does not exceed 40° C (104° F) while the switch is operating.

Cabinet considerations

For successful installation and operation of the switch in a cabinet, ensure the following cabinet requirements are met:

- The cabinet must be a standard EIA cabinet.

- Plan a cabinet space that is 1 rack unit - 4.45 cm (1.75 inches) high, 48.3 cm (19 inches) wide.

- Ground all equipment in the cabinet through a reliable branch circuit connection and maintain ground at all times. Do not rely on a secondary connection to a branch circuit, such as a power strip.

- Ensure that airflow and temperature requirements are met on an ongoing basis, particularly if the switch is installed in a closed or multicabinet assembly.

- Verify that the additional weight of the switch does not exceed the cabinet's weight limits or unbalance the cabinet in any way.

- Secure the cabinet to ensure stability in case of unexpected movement, such as an earthquake.

Recommendations for cable management

The minimum bend radius for a 50 micron cable is 5.08 cm (2 inches) under full tensile load and 3.05 cm (1.2 inches) with no tensile load.

Cables can be organized and managed in a variety of ways: for example, using cable channels on the sides of the cabinet or patch panels to minimize cable management. Following is a list of recommendations:

NOTE
You should not use tie wraps with optical cables because they are easy to over tighten.

- Plan for rack space required for cable management before installing the switch.

- Leave at least 1 m (3.28 ft) of slack for each port cable. This provides room to remove and replace the switch, allows for inadvertent movement of the rack, and helps prevent the cables from being bent to less than the minimum bend radius.

- If you are using Brocade ISL Trunking, consider grouping cables by trunking groups. The cables used in trunking groups must meet specific requirements, as described in the *Fabric OS Administrator's Guide*.

- For easier maintenance, label the fiber optic cables and record the devices to which they are connected.

- Keep LEDs visible by routing port cables and other cables away from the LEDs.

- Use hook and loop straps to secure and organize fiber optic cables.

Items required for installation

The following items are required for installing and connecting the Brocade 300 for use in a network and fabric:

- Workstation with an installed terminal emulator, such as HyperTerminal

- Unused IP address and corresponding subnet mask and gateway address

- Serial cable (provided)

- Ethernet cable

- SFPs and compatible cables, as required

- Access to an FTP server for backing up the switch configuration (optional)

Installing a standalone Brocade 300

Perform this task to install the Brocade 300 as a standalone unit.

1. Unpack the Brocade 300.

2. Apply the adhesive rubber feet. Applying the rubber feet onto the switch helps prevent the switch from sliding off the supporting surface.

   a. Clean the indentations at each corner of the bottom of the switch to ensure that they are free of dust or other debris that might lessen the adhesion of the feet.

   b. With the adhesive side against the chassis, place one rubber foot in each indentation and press into place.

3. Place the switch on a flat, sturdy surface.

4. Provide power to the switch as described in "Providing power to the switch" on page 9.

ATTENTION
Do not connect the switch to the network until the IP address is correctly set. For instructions on how to set the IP address, see "Brocade 300 configuration."

EIA cabinet installation for a Brocade 300

The rack mount kit can be installed in two ways:

- To allow the port side of the switch to slide out of the exhaust-air side of the cabinet.
  In this installation, the port side of the switch is flush with the edge of the cabinet.

- To allow the non-port side of the switch to slide out the cool-air side of the cabinet.
  In this installation, the port side of the switch is set 7.62 cm (3 inches) back from the edge of the cabinet, allowing a more gradual bend in the fiber optic cables.

Whichever mounting method you choose, follow the installation instructions shipped with the appropriate rack mount kit:

- To install the switch into a fixed-rail rack, refer to the *Fixed Rack Mount Kit Installation Procedure*.

- To install the switch into a slide-rail rack, refer to the *Slide Rack Mount Kit Installation Procedure*.

- To install the switch into mid-mount rack, refer to the *Mid-Mount Rack Mount Kit (Switch) Installation Procedure*.

Brocade 300 configuration

Once you have set up the Brocade 300 in a rack or as a standalone switch, it is time to give it power and a basic configuration. If you are going to use the Brocade 300 in a single-switch setup, you can use EZSwitchSetup to complete the basic configuration.

See the *EZSwitchSetup CD*, included with the Brocade 300 for more information. You can also use the *Brocade 300 Quick Start Guide*.

If you do not want to use EZSwitch Setup, follow the instructions in the rest of this section.

Providing power to the switch

Perform the following steps to provide power to the switch.

1. Connect the power cord to the power receptacle on the port side of the Brocade 300, and then to the power source. Ensure that the cord has a minimum service loop of 15.24 cm (6 inches) available and is routed to avoid stress.

   The Brocade 300 does not have an on/off switch. This means that power is supplied to the Brocade 300 as soon as you connect it to an AC power source.

   The status LEDs display amber until Power On Self Test (POST) is complete, and then change to green. The switch usually requires from 1 to 3 minutes to boot and complete POST.

2. After POST is complete, verify that the switch power and status LEDs on the left of the port side of the switch are green.

Creating a serial connection

You will perform all basic configuration tasks in this guide using a serial connection. Complete the following steps to create a serial connection.

1. Connect the serial cable to the serial port on the switch and to an RS-232 serial port on the workstation.

   If the serial port on the workstation is RJ-45 instead of RS-232, remove the adapter on the end of the serial cable and insert the exposed RJ-45 connector into the RJ-45 serial port on the workstation.

2. Open a terminal emulator application (such as HyperTerminal on a PC, or TERM, TIP, or Kermit in a UNIX environment), and configure the application as follows:

   - In a Windows environment:

Parameter	Value
Bits per second	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

   - In a UNIX environment, enter the following string at the prompt:

     `tip /dev/ttyb -9600.`

     If ttyb is already in use, use `ttya` instead and enter the following string at the prompt:

     `tip /dev/ttya -9600`

Setting the switch IP address

You can configure the Brocade 300 with a static IP address, or you can use a DHCP (Dynamic Host Configuration Protocol) server to set the IP address of the switch. DHCP is enabled by default. The Brocade 300 supports both IPv4 and IPv6.

Using DHCP to set the IP address

When using DHCP, the Brocade 300 obtains its IP address, subnet mask, and default gateway address from the DHCP server. The DHCP client can only connect to a DHCP server that is on the same subnet as the switch. If your DHCP server is not on the same subnet as the Brocade 300, use a static IP address.

Setting a static IP address

1. Log into the switch using the default password, which is password.

2. Use the **ipaddrset** command to set the Ethernet IP address.

   If you are going to use an IPv4 IP address, enter the IP address in dotted decimal notation as prompted.

   ```
   Ethernet IP Address: [192.168.74.102]
   ```

   If you are going to use an IPv6 address, enter the network information in semicolon-separated notation as prompted.

   ```
   switch:admin> ipaddrset -ipv6 --add 1080::8:800:200C:417A/64
   IP address is being changed...Done.
   ```

3. Complete the rest of the network information as prompted.

   ```
   Ethernet Subnetmask: [255.255.255.0]
   Ethernet IP Address: [192.168.74.102]
   Ethernet Subnetmask: [255.255.255.0]
   ```

4. Enter off to Disable DHCP when prompted.

   ```
   DHCP [OFF]: off
   ```

Date and time settings

The Brocade 300 maintains the current date and time inside a battery-backed real-time clock (RTC) circuit. Date and time are used for logging events. Switch operation does not depend on the date and time; a Brocade 300 with an incorrect date and time value still functions properly. However, because the date and time are used for logging, error detection, and troubleshooting, you should set them correctly.

Time zones

You can set the time zone for the switch by name. You can also set country, city or time zone parameters.

If the time zone is not set with the new options, the switch retains the offset time zone settings. The **tsTimeZone** command includes an option to revert to the prior time zone format. For more information about the --**old** option, see the *Fabric OS Command Reference Manual*.

You can set the time zone for a switch using the **tsTimeZone** command. The **tsTimeZone** command allows you to perform the following tasks:

- Display all of the time zones supported in the firmware
- Set the time zone based on a country and city combination or based on a time zone ID such as PST

The time zone setting has the following characteristics:

- You can view the time zone settings. However, only those with administrative permissions can set the time zones.
- The **tsTimeZone** setting automatically adjusts for Daylight Savings Time.
- Changing the time zone on a switch updates the local time zone setup and is reflected in local time calculations.
- By default, all switches are in the GMT time zone (0,0). If all switches in a fabric are in one time zone, it is possible for you to keep the time zone setup at the default setting.
- System services that have already started will reflect the time zone changes only after the next reboot.
- Time zone settings persist across failover for high availability.

Local time synchronization

You can synchronize the local time of the principal or primary fabric configuration server (FCS) switch to a maximum of eight external network time protocol (NTP) servers. To keep the time in your SAN current, it is recommended that the principal or primary FCS switch has its time synchronized with at least one external NTP server. The other switches in the fabric will automatically take their time from the principal or primary FCS switch.

All switches in the fabric maintain the current clock server value in non-volatile memory. By default, this value is the local clock server <LOCL> of the principal or primary FCS switch. Changes to the clock server value on the principal or primary FCS switch are propagated to all switches in the fabric.

When a new switch enters the fabric, the time server daemon of the principal or primary FCS switch sends out the addresses of all existing clock servers and the time to the new switch. If a switch with v5.3.0 or later has entered the fabric it will be able to store the list and the active servers; pre-5.3.0 Fabric OS switches will ignore the new list parameter in the payload and will update only the active server address.

If the active NTP server configured is IPv6, then distributing the same in the fabric will not be possible to switches earlier than v5.3.0 because IPv6 is supported for Fabric OS version 5.3.0 and later. The default value LOCL will be distributed to pre-5.3.0 switches.

The **tsClockServer** command accepts multiple server addresses in either IPv4, IPv6, or DNS name formats. When multiple NTP server addresses are passed, **tsclockserver** sets the first obtainable address as the active NTP server. The rest are stored as backup servers that can take over if the active NTP server fails. The principal or primary FCS switch synchronizes its time with the NTP server every 64 seconds.

Setting the date

1. Log into the switch using the default password, which is password.
2. Enter the **date** command, using the following syntax:

```
date "mmddHHMMyy"
```

The values are:

- mm is the month; valid values are 01 through 12.
- dd is the date; valid values are 01 through 31.
- HH is the hour; valid values are 00 through 23.
- MM is minutes; valid values are 00 through 59.
- yy is the year; valid values are 00 through 99 (values greater than 69 are interpreted as 1970 through 1999, and values less than 70 are interpreted as 2000-2069).

```
switch:admin> date
Fri Sep 29 17:01:48 UTC 2007
switch:admin> date "0927123007"
Thu Sep 27 12:30:00 UTC 2007
switch:admin>
```

Setting time zones

You must perform the procedure on *all* switches for which the time zone must be set. However, you only need to set the time zone once on each switch, because the value is written to nonvolatile memory.

Use one of the two following procedures to set the time zone.

The following procedure describes how to set the current time zone using timezone_fmt mode to Central Standard time.

1. Log into the switch using the default password, which is password.

2. Enter the **tsTimeZone** command as follows:

```
switch:admin> tstimezone [--interactive]/ [, timezone_fmt]
```

Use **timezone_fmt** to set the time zone by Country/City or by time zone ID, such as PST.

The following example shows how to change the time zone to US/Central.

```
switch:admin> tstimezone
Time Zone : US/Pacific
switch:admin> tstimezone US/Central
switch:admin> tstimezone
Time Zone : US/Central
```

The following procedure describes how to set the current time zone using interactive mode to Pacific Standard Time.

1. Type the **tsTimeZone** command as follows:

```
switch:admin> tstimezone --interactive
```

2. You are prompted to select a general location.

```
Please identify a location so that time zone rules can be set correctly.
```

3. Enter the appropriate **number** or **Ctrl-D** to quit.

4. At the prompt, select a **country location**.

5. At the prompt, enter the appropriate **number** to specify the time zone region or **Ctrl-D** to quit.

Synchronizing local time using NTP

Perform the following steps to synchronize the local time using NTP.

1. Log into the switch using the default password, which is password.

2. Enter the **tsClockServer** command:

   ```
   switch:admin> tsclockserver "<ntp1;ntp2>"
   ```

   where *ntp1* is the IP address or DNS name of the first NTP server, which the switch must be able to access. The second *ntp2* is the second NTP server and is optional. The operand "<ntp1;ntp2>" is optional; by default, this value is LOCL, which uses the local clock of the principal or primary switch as the clock server.

   ```
   switch:admin> tsclockserver
   LOCL
   switch:admin> tsclockserver "132.163.135.131"

   switch:admin> tsclockserver
   132.163.135.131
   switch:admin>
   ```

   The following example shows how to set up more than one NTP server using a DNS name:

   ```
   switch:admin> tsclockserver "10.32.170.1;10.32.170.2;ntp.localdomain.net"
   Updating Clock Server configuration...done.
   Updated with the NTP servers

   Changes to the clock server value on the principal or primary FCS switch are
   propagated to all switches in the fabric.
   ```

Brocade 300 Operation

In this chapter

Powering the Brocade 300 on and off

To power on the Brocade 300, connect the power cable to the AC receptacle on the switch and to a power source. The switch runs POST by default each time it is powered on, reset, or rebooted, and requires a up to three minutes to run.

To end the flow of power to the Brocade 300, remove the power cord from the power source.

Interpreting LED activity

System activity and status can be determined through the activity of the LEDs on the switch. There are three possible LED states: no light, a steady light, and a flashing light. The steady lights and flashing lights can be green or amber.

The LEDs flash either of these colors during boot, POST, or other diagnostic tests. This is normal and does not indicate a problem unless the LEDs do not indicate a healthy state after all boot processes and diagnostic tests are complete.

Brocade 300 LEDs

- One system status LED (above) on the left side
- One power status LED (below) on the left side
- Two Ethernet port status LEDs, one for speed and one for link status
- 24 port status LEDs, one for each port, located above the ports

LED locations

All Brocade 300 LEDs are located on the port side.

Figure 3 shows the LEDs on the Brocade 300.
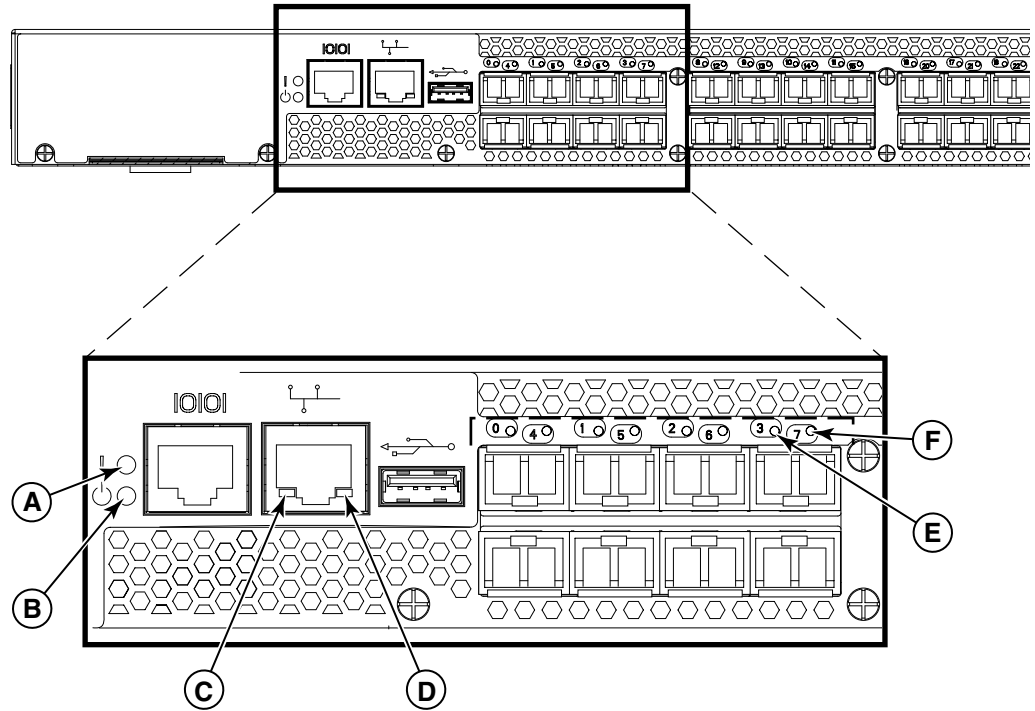
FIGURE 3   Detailed View, Brocade 300 LEDs

A	System power LED (green)
B	System status LED (green/amber)
C	Link status LED
D	Link speed LED
E	Port status LED for port 3
F	Port status LED for port 7

LED patterns

Table 1 summarizes the state of the Brocade 300 LEDs as well as recommended user responses.

TABLE 1   Product Name LED Patterns During Normal Operation

LED Name	LED Color	Status of Hardware	Recommended Action
Power Supply Status (right)	No light	Primary power cord is disconnected or is not actively powered, or power supply has failed.	Verify the power supply is on and seated and the power cord is connected to a functioning power source.
	Steady green	Power supply is operating normally.	No action required.

TABLE 1   Product Name LED Patterns During Normal Operation (Continued)

LED Name	LED Color	Status of Hardware	Recommended Action
Power Status	No light	System is off or there is an internal power supply failure.	Verify the system is on. If the system is on, the unit is faulty. Contact Technical Support.
	Steady green	System is on and power supplies are functioning properly.	No action required.
System Status	No light	System is off, boot is not complete, or boot failed.	Verify the system is on and has completed booting.
	Steady green	System is on and power supplies are functioning properly.	No action required.
	Steady amber (for more than five seconds)	Boot failed, the system is faulty.	Perform the following steps: Connect a serial cable to the system. Reboot the system. Check the failure indicated on the system console. Contact Technical Support.
	Flashing amber/green	Attention is required. A number of variables can cause this status including a single power supply failure, a fan failure, or one or more environmental ranges has exceeded.	Check the management interface and the error log for details on the cause of status. Contact Technical Support if required.
Ethernet Speed	No light	Port speed is 10 Mbps.	No action required.
	Steady green	Port speed is 100 Mbps.	No action required.
Ethernet Link	No light	There is no link.	Verify the Ethernet cable is connected correctly.
	Steady amber	There is a link.	No action required.
	Flickering amber	There is link activity (traffic).	No action required.

TABLE 1   Product Name LED Patterns During Normal Operation (Continued)

LED Name	LED Color	Status of Hardware	Recommended Action
Port Status	No light	No signal or light carrier (media or cable) detected.	Check transceiver and cable.
	Slow flashing green (flashing in two-second intervals)	Port is online but segmented because of a loopback cable or incompatible switch connection.	No action required.
	Fast flashing green (flashing in half-second intervals)	Port is online and an internal loopback diagnostic test is running.	No action required.
	Flickering green (steady with random flashes)	Port is online and frames are flowing through the port.	No action required.
	Steady green	Port is online (connected to external device) but has no traffic.	No action required.
	Slow flashing amber (flashing in two-second intervals)	Port is disabled (because of diagnostics or the **portDisable** command).	Verify the diagnostic tests are not running. Reenable the port using the **portEnable** command.
	Fast flashing amber (flashing in half-second intervals)	Port is faulty.	Check the management interface and the error log for details on the cause of status. Contact Technical Support if required.
	Steady amber (for more than five seconds)	Port is receiving light or signal carrier at 4 Gbps; but is not yet online.	No action required.

POST and boot specifications

When the switch is turned on or rebooted, the switch performs POST (power on, self test). Total boot time with POST can be several minutes. POST can be omitted after subsequent reboots by using the **fastboot** command or entering the **diagDisablePost** command to persistently disable POST.

For more information about these commands, refer to the *Fabric OS Command Reference Manual*.

POST

The success or failure results of the diagnostic tests that run during POST can be monitored through the error log or the command line interface.

POST includes the following steps:

1. Preliminary POST diagnostics are run.

2. Operating system is initialized.

3. Hardware is initialized.

4. Diagnostic tests are run on several functions, including circuitry, port functionality, memory, statistics counters, and serialization.

Boot

In addition to POST, boot includes the following steps after POST is complete:

1. Universal port configuration is performed.

2. Links are initialized.

3. Fabric is analyzed, and if any ports are connected to other switches, the switch participates in a fabric configuration.

4. Switch obtains a domain ID and assigns port addresses.

5. Unicast routing tables are constructed.

6. Normal port operation is enabled.

Interpreting POST results

POST is a system check that is performed each time the switch is powered on, rebooted, or reset. During POST, the LEDs flash either amber or green. Any errors that occur during POST are listed in the error log.

To determine that POST completed successfully and whether or not any errors were detected:

1. Verify that the switch LEDs indicate that all components are healthy.

   See Table 1 for descriptions and interpretations of LED patterns. If one or more LEDs do not display a healthy state, verify that the LEDs on the switch are not set to "beacon" by entering the **switchShow** command to detect if beaconing is active.

2. Verify that the switch prompt displays on the terminal of a computer workstation connected to the switch.

   If there is no switch prompt when POST completes, press **Enter**. If the switch prompt still does not display, try opening a Telnet session or accessing through another management tool. If this is not successful, the switch did not successfully complete POST; contact your switch supplier for repair.

3. Review the switch system log for errors. Any errors detected during POST are written to the system log, accessible through the **errShow** command.

For information about all referenced commands, and on accessing the error log, refer to the *Fabric OS Administrator's Guide*. For information about error messages, refer to the *Fabric OS Message Reference Manual*.

Maintaining the Brocade 300

The Brocade 300 does not require any regular physical maintenance; it was designed to minimize the chance of failure.

Ensure that the environmental conditions, described in "Environmental considerations" on page 6 are met. This helps prevent failure of the switch due to distress or abuse.

Installing an SFP

The Brocade 300 supports only Brocade-branded SFPs. If you use an unqualified SFP, the switchShow command output shows the port in a Mod_Inv state. Fabric OS also logs the issue in the system error log.

Follow these instructions to install an SFP.

1. Making sure that the bail (wire handle) is in the unlocked position, place the SFP in the correctly oriented position on the port as shown in Figure 4.

2. Slide the SFP into the port until you feel it click into place; then close the bail.

NOTE
Each SFP has a 10-pad gold-plated PCB-edge connector on the bottom. The correct position to insert an SFP into the upper row of ports is with the gold edge down. The correct position to insert an SFP into the lower row of ports is with the gold edge up. Figure 4 shows the correct orientation for installing an SFP in an upper row port slot.
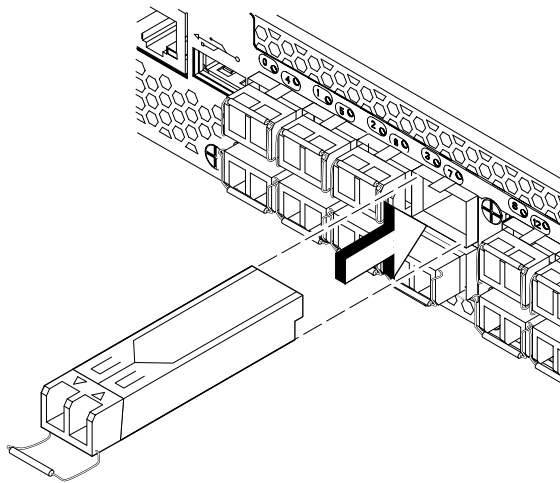
FIGURE 4   **Installing an SFP in the upper row of port slot**

Diagnostic tests

In addition to POST, the Fabric OS includes diagnostic tests to help you troubleshoot the hardware and firmware. This includes tests of internal connections and circuitry, fixed media, and the transceivers and cables in use.

The tests are implemented by command, either through a Telnet session or through a terminal set up for a serial connection to the switch. Some tests require the ports to be connected by external cables, to allow diagnostics to verify the serializer/deserializer interface, transceiver, and cable. Some tests require loopback plugs.

All diagnostic tests are run at link speeds of 1, 2, 4, and 8 Gbps, depending on the speed of the link being tested.

ATTENTION
Diagnostic tests can temporarily lock the transmit and receive speed of the links during diagnostic testing.

For information about specific diagnostic tests, refer to the *Fabric OS Troubleshooting and Diagnostics Guide*.

Field Replaceable Units (FRUs)

In the Brocade 300, the only parts that are field replaceable are the SFPs. The entire switch is a FRU.

The fan units and power supply are not field replaceable in this switch.

Managing the Brocade 300

You can use the management functions built into the Product Name to monitor the fabric topology, port status, physical status, and other information to help you analyze switch performance and to accelerate system debugging.

The Product Name automatically performs power-on-self-test (POST) each time it is turned on. Any errors are recorded in the error log. For more information about POST, see "POST and boot specifications" on page 18.

For information about upgrading the version of Fabric OS installed on your switch, refer to the *Fabric OS Administrator's Guide.*

You can manage the Brocade 300 using any of the management options listed in Table 2.

TABLE 2   Management Options for the Product Name Switch

Management Tool	Out-of-band Support	In-band Support
Command line interface (CLI) Up to two admin sessions and four user sessions simultaneously. For more information, refer to the *Fabric OS Administrator's Guide* and the *Fabric OS Command Reference Manual*.	Ethernet or serial connection	IP over Fibre Channel
Brocade Web Tools For information, refer to the *Web Tools Administrator's Guide*.	Ethernet or serial connection	IP over Fibre Channel
Standard SNMP applications For information, refer to the *MIB Reference Manual*.	Ethernet or serial connection	IP over Fibre Channel
Brocade Fabric Manager (option to purchase) For information, refer to the *Fabric Manager Administrator's Guide*.	Ethernet or serial connection	IP over Fibre Channel
Management Server For information, refer to the *Fabric OS Administrator's Guide* and the *Fabric OS Command Reference Manual*.	Ethernet or serial connection	Native in-band interface (over HBA only)
EFCM (option to purchase) For information, refer to the EFCM documentation set.	Ethernet or serial connection	IP over Fibre Channel

NOTE
To achieve in-band support for IP over Fibre Channel, the software must be run on both the HBA and the switch, and it must be supported by both the HBA and HBA driver

Brocade 300 Specifications

In this appendix

Switch components

The Brocade 300 switch includes the following components:

• Cabinet-mountable 1U chassis, designed for a 19-inch cabinet space, with forced-air cooling that flows from the non-port side of the switch to the port side.

• 24 Fibre Channel ports, compatible with short wavelength (SWL), long wavelength (LWL), and extended long wavelength (ELWL) SFP transceivers

• One RJ-45 serial port on the port side of the switch

• One IEEE-compliant RJ-45 connector on the port side of the switch for use with 10/100 Mbps Ethernet

• 24 port LEDs, 1 switch power LED, 1 switch status LED, and 2 Ethernet LEDs

• One USB port for system log file downloads or firmware upgrades

• One universal AC input and three integrated fans

Weight and physical dimensions

Table 3 lists the weight and physical dimensions of the Brocade 300 switch.

TABLE 3   Switch Specifications

	Brocade 300
Height	42.9 mm (1.69 inches)
Depth	306.6 mm (12.07 inches)
Width	428.75 mm (16.88 inches)
Weight	4.2 kg (9.3 lbs)

Facility requirements

Table 4 provides the facilities requirements that must be met for the Brocade 300.

TABLE 4   Facility Requirements

Type	Requirements
Electrical	• Primary AC input 100-240 VAC, 2.0A, 47-63 Hz; switch autosenses input voltage • Adequate supply circuit, line fusing, and wire size, as specified by the electrical rating on the switch nameplate • Circuit protected by a circuit breaker and grounded in accordance with local electrical codes Refer to Table 5 on page 24 for complete power supply specifications.
Thermal	• A minimum air flow of 39.1 cubic meters/hour (23 cubic ft/min.) available in the immediate vicinity of the switch • Ambient air temperature not exceeding 40° C (104° F) while the switch is operating
Cabinet (when rack-mounted)	• One rack unit (1U) in a 48.3 cm (19-inches) cabinet • All equipment in cabinet grounded through a reliable branch circuit connection • Additional weight of switch not to exceed the cabinet's weight limits • Cabinet secured to ensure stability in case of unexpected movement

Power supply specifications

The power supply is universal and capable of functioning worldwide without using voltage jumpers or switches. It meets IEC 61000-4-5 surge voltage requirements and is autoranging in terms of accommodating input voltages and line frequencies. The power supply has its own built-in fan for cooling, pushing the air toward the port side of the switch. The power supply is not removable.

Table 5 lists the power supply specifications for the Brocade 300.

TABLE 5   Brocade 300 Power Supply Specifications

Specification	Value
Inlet	C13
Maximum output from the power supply	75 watts
System power consumption	48 watts nominal, 57 watts maximum

TABLE 5   Brocade 300 Power Supply Specifications (Continued)

Specification	Value
Input voltage	85 - 264 VAC, universal
Input line frequency	47 - 63 Hz
BTU rating	277 BTU/hr
Inrush current	21.5 Amps at 240 Vac Cold Start

Environmental requirements

Table 6 lists the acceptable environment for both operating and nonoperating (such as during transportation or storage) conditions.

TABLE 6   Environmental Requirements

Condition	Acceptable Range During Operation	Acceptable Range During Non-Operation
Ambient Temperature	-10° to +40° C (14° to 104° F)	-25° to 70° C (-13° to 158° F)
Humidity	10% to 85% RH noncondensing, at 40°C, with maximum gradient of 10% per hour	10% to 90% RH noncondensing, at 70° C
Altitude	0 to 3 km (9,842 ft) above sea level	0 to 12 km (39,370 ft) above sea level
Shock	20 G, 6 ms duration, half sine wave	33 G, 11 ms duration, half sine
Vibration	0.5 G, 5-500 Hz	2.0 G, 5-500 Hz
Air flow	High speed: 39.1 CMH (23 CFM) Low speed: 30.6 CMH (18 CFM)	None required

NOTE
The -10° to 40° Celsius range applies to the ambient air temperature at the air intake vents on the non-port side of the switch. The temperature inside the switch can be up to 80° Celsius during switch operation.

If the internal temperature range exceeds the operating ranges of the components, the LEDs, error messages, and Fabric Watch alerts indicate a problem. Enter the **tempShow** or Fabric Watch commands to view temperature status.

General specifications

Table 7 lists the system specifications for the Brocade 300.

TABLE 7   General Specifications

Specification	Description
Autoconfiguring port types	F_Port, FL_Port, M_Port, N_Port, and E_Port
System architecture	Nonblocking shared-memory switch
System processor	Power PC 440EPx,667 MHz CPU

TABLE 7   General Specifications (Continued)

ANSI Fibre Channel protocol	FC-PH (Fibre Channel Physical and Signaling Interface standard)
Modes of operation	Fibre Channel Class 2, Class 3, Class F
Fabric initialization	Complies with FC-SW-2 6.6
FC-IP (Fibre Channel over IP)	Complies with FC-IP 2.3 of FCA profile
Aggregate switch I/O bandwidth	384 Gbps if all 24 ports running at 8 Gbps, full duplex
Port-to-port latency	Less than 700 nanoseconds with no contention (destination port is free)

Table 8 lists the EMC (electromagnetic compatibility) for the Brocade 300.

TABLE 8   EMC specifications

Country	Safety	EMC
United States	Bi_Nat UL/CSA 60950-1 1st Ed or latest	ANSI C63.4
Canada	Bi_Nat UL/CSA 60950-1 1st Ed or latest	ICES-003 Class A
Japan		CISPR22 and JEIDA (Harmonics)
European Community	EN60950-1 or latest	EN55022 and EN55024
Australia/New Zealand		EN55022 or CISPR22 or AS/NZS CISPR22
Argentina	IEC60950-1 or latest	
Russian Federation	IEC60950-1 or latest	51318.22-99 and 51318.24.99
Korea		KN22 and KN24
China (PS only)	GB4943-2001 and GB9254-1998 or latest	GB17625.1-2003 or latest
Taiwan (PS only)	CNS 14336(94) or latest	CNS 13438(95) or latest

Data transmission ranges

Table 9 provides the data transmission ranges for different cable types and port speeds.

TABLE 9   Laser Data Transmission Ranges

Port Speed	Cable Size (microns)	Short Wavelength (SWL)	Long Wavelength (LWL)	Extended Long Wavelength (ELWL)
1 Gbps	50	500 m (1,640 ft) (OM2) 860 m (2,821 ft) (OM3)	NA	NA
	62.5	300 m (984 ft)	NA	NA
	9	NA	10 km (6.2 miles)	40 km (24.8 miles)
2 Gbps	50	300 m (984 ft) (OM2) 500 m (1,640 ft) (OM3)	NA	NA
	62.5	150 m (492 ft)	NA	NA
	9	NA	NA	40 km (24.8 miles)
4 Gbps	50	150 m (492 ft) (OM2) 380 m (1,246 ft) (OM3)	NA	NA
	62.5	70 m (230 ft)	NA	NA
	9	NA	NA	NA
8 Gbps	50	50 m (164 ft) (OM2) 150 m (492 ft) (OM3)	NA	NA
	62.5	21 m (69 ft)	NA	NA
	9	NA	10 km (6.2 miles)	NA

Memory specifications

The Brocade 300 memory specifications are shown in Table 10.

TABLE 10   Memory Specifications

Memory Type	Installed Memory
Main memory (SDRAM)	512 MB
Compact flash	1 GB

Fibre Channel port specifications

The Fibre Channel ports in the Brocade 300 are compatible with SWL, LWL, and ELWL SFPs. The strength of the signal is determined by the type of SFP in use.

The ports meet all required safety standards. For more information about these standards, see "Regulatory compliance" on page 28.

The ports are capable of operating at 1, 2, 4 and 8 Gbps, and are able to autonegotiate the highest speed capable for all attached devices.

Serial port specifications

The serial port is located on the port side of the switch as a RJ-45 connector, designed to connect to a DTE port.

Use the serial port to connect to a computer workstation to configure the switch IP address without connecting to the fabric. The serial port's parameters are 9600 baud, 8 data bits, no parity, 1 stop bit, and no flow control.

Supported SFPs and HBAs

When you receive the Brocade 300, your package contains at least 8 Brocade-branded SFPs for the base configuration. Use only SFPs that are tested and supported.

For the most up to date list of supported SFPs and HBAs for the Brocade 300, check Brocade Connect. Using a web browser, connect to *www.brocade.com* and click the Brocade Connect link.

Regulatory compliance

This section describes the regulatory compliance requirements for the Brocade 300. It contains:

- "FCC warning (USA only)," next
- "MIC statement (Republic of Korea)" on page 29
- "VCCI statement Japan" on page 29
- "CE statement" on page 29
- "Canadian requirements" on page 30
- "Laser compliance" on page 30
- "RTC battery" on page 30
- "Electrical safety" on page 30
- "Regulatory certifications" on page 31

FCC warning (USA only)

This equipment has been tested and complies with the limits for a Class A computing 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, might 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 the user's own expense.

MIC statement (Republic of Korea)

사용자 안내문 : A 급기기

이 기기는 업무용으로 전자파 적합 등록을 받은 기기
이오니, 판매자 또는 사용자는 이점을 주의하시기
바라며, 만약 잘못 구입하셨을 때에는 구입한 곳에
서 비업무용으로 교환하시기 바랍니다.

VCCI statement Japan

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 might arise. When such trouble occurs, the user might be required to take corrective actions.

　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
るように要求されることがあります。

Power cords (Japan Denan)

CE statement

ATTENTION
This is a Class A product. In a domestic environment, this product might cause radio interference, and the user might be required to take corrective measures.

The standards compliance label on the Brocade 300 contains the CE mark which indicates that this system conforms to the provisions of the following European Council directives, laws, and standards:

• Electromagnetic Compatibility (EMC) Directive 2004/108/EEC

- Low Voltage Directive (LVD) 2006/95/EC
- EN50082-2/EN55024:1998 (European Immunity Requirements)
    - EN61000-3-2/JEIDA (European and Japanese Harmonics Spec)
    - EN61000-3-3

Canadian requirements

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations, ICES-003 Class A.

Laser compliance

This equipment contains Class 1 laser products and complies with FDA Radiation Performance Standards, 21 CFR Subchapter I and the international laser safety standard IEC 825-2.

ATTENTION

Use only optical transceivers that are qualified by Brocade Communications Systems, Inc. and comply with the FDA Class 1 radiation performance requirements defined in 21 CFR Subchapter I, and with IEC 825-2. Optical products that do not comply with these standards might emit light that is hazardous to the eyes.

RTC battery

ATTENTION

Do not attempt to replace the real-time clock (RTC) battery. There is danger of explosion if the battery is incorrectly replaced or disposed of. Contact your switch supplier if the real-time clock begins to lose time.

Electrical safety

ATTENTION

Connect the power cord only to a grounded outlet.

ATTENTION

This product is designed for an IT power system with phase-to-phase voltage of 230V. After operation of the protective device, the equipment is still under voltage if it is connected to an IT power system.

Regulatory certifications

Table 11 lists the regulatory compliance standards for which the Brocade 300 is certified.

TABLE 11   Regulatory compliance standards

Country	Standards		Agency Certifications and Markings	
	Safety	**EMC**	**Safety**	**EMC**
United States	Bi-Nat UL/CSA 60950-1 1st Ed or latest	ANSI C63.4	cCSAus	FCC Class A and Statement
Canada	Bi-Nat UL/CSA 60950-1 1st Ed or latest	ICES-003 Class A	cCSAus	ICES A and Statement
Japan		CISPR22 and JEIDA (Harmonics)		VCCI-A and Statement
European Union	EN60950-1 or latest	EN55022 and EN55024	TUV-GS, N	CE marking
Australia, New Zealand		EN55022 or CISPR22 or AS/NZS CISPR22		C-Tick mark
Argentina	IEC60950-1 or latest		"S" mark	
Russia	IEC60950-1 or latest	51318.22-99 and 51318.24.99 or latest	GOST mark	GOST mark
Korea		KN22 and KN24		MIC mark Class A

Environmental regulation compliance

This section describes the "China RoHS," environmental regulatory compliance requirements for the Brocade 300 switch.

China RoHS

The contents included in this section are per the requirements of the People's Republic of China-Management Methods for Controlling Pollution by Electronic Information products.

遵守环境法规
中国 **RoHS**
本节中包含的内容都遵守了中华人民共和国《电子信息产品污染控制管理办法》的
要求。

Environmental protection use period (EPUP) disclaimer

In no event do the EPUP logos shown on the product and FRUs alter or expand that warranty that Brocade provides with respect to its products as set forth in the applicable contract between Brocade and its customer. Brocade hereby disclaims all other warranties and representations with respect to the information contained on this CD including the implied warranties of merchantability, fitness for a particular purposes and non-infringement.

The EPUP assumes that the product will be used under normal conditions in accordance with the operating manual of the product.

环保使用期限 **(EPUP)** 免责声明：

EPUP 标志不会出现在产品和 FRU 的改装产品中，也不会对 Brocade 所提供的相关产品保修条款（该保修条款在 Brocade 及其客户间达成的适用合同中列出）进行增补。对于此 CD 上包含的相关信息，如适销性、针对特定用途的适用性和非侵权性的暗示保证，Brocade 在此郑重声明本公司对于与上述信息相关的所有其他保证和陈述概不负责。EPUP 假设在"产品操作手册"中注明的常规条件下使用该产品。

TS/HS dual language sheet

In accordance with China's Management Measures on the Control of Pollution caused by Electronic Information products (Decree No. 39 by the Ministry of Information Industry), the following information is provided regarding the names and concentration level of Hazardous substances (HS) which may be contained in this product.

TABLE 12   China ROHS hazardous substances/toxic substances (HS/TS) concentration chart

Name of the Component	Hazardous/Toxic Substance/Elements					
	Lead (PB)	Mercury (Hg)	Cadium (CD)	Hexavalent Chromium (CR6+)	Polybrominated Biphenyl (PBB)	Polybrominated Diphenyl Ether (PBDE)
Fibre Channel Switch	X	O	O	O	O	O
Fan, Blower assemblies	X	O	O	O	O	O
PCBA cards	X	O	O	O	O	O
Power Supply kit	X	O	O	O	O	O
SFPs (optical cable connectors)	X	O	O	O	O	O
Sheet Metal	X	O	O	O	O	O
Chassis Assembly	X	O	O	O	O	O
Mechanical brackets and Slides	X	O	O	O	O	O
Slot Filler	X	O	O	O	O	O

TABLE 12 China ROHS hazardous substances/toxic substances (HS/TS) concentration chart

Name of the Component	Hazardous/Toxic Substance/Elements					
	Lead (PB)	Mercury (Hg)	Cadium (CD)	Hexavalent Chromium (CR6+)	Polybrominated Biphenyl (PBB)	Polybrominated Diphenyl Ether (PBDE)
Cable management tray	X	O	O	O	O	O
Cable Comb	O	O	O	O	O	O
Cables and power cords	O	O	O	O	O	O
Replacement Doors	X	O	O	O	O	O
Software/ Documentation CDs	O	O	O	O	O	O

X indicates that the concentration of such hazardous/toxic substance in all the units of homogeneous material of such component is higher than the SJ/T11363-2006 Requirements for Concentration Limits.

O indicates that no such substances are used or that the concentration is within the aforementioned limits.

CHINA ROHS 有害物质/有毒物质(HS/TS)限量列表

有毒与有害物质或元素的名称及含量

根据中国的<<电子信息产品污染控制管理办法>> (信息产业部第 39 号令)，本公司提供以下有关产品中可能含有的有害物质(HS)的名称及含量水平的信息。

主要部件名称	有害/有毒物质或元素					
	铅 （Pb）	汞 （Hg）	镉 （Cd）	六价铬 （CR6+）	多溴联苯 （PBB）	多溴二苯醚 （PBDE）
光纤通道交换机	X	O	O	O	O	O
风扇/冷却组装件	X	O	O	O	O	O
线路板部件	X	O	O	O	O	O
USB 闪存器	O	O	O	O	O	O
电源	X	O	O	O	O	O
㉑ SFP（光纤接头）	X	O	O	O	O	O
钣金件	X	O	O	O	O	O
机箱部件	X	O	O	O	O	O
机械支架及滑轨	X	O	O	O	O	O
插槽填充物	X	O	O	O	O	O
电缆整理盘	X	O	O	O	O	O
梳状线缆	O	O	O	O	O	O
㉑ 线束及电源线	O	O	O	O	O	O
替换门	X	O	O	O	O	O
软件/文档光盘	O	O	O	O	O	O

X   表示此类部件内同质材料中的有害/有毒含量高于 SJ/T11363-2006 的限量要求。

O   表示未使用此类物质或其含量低于上述限量要求。

Index

A

access
    NTP, *13*

B

Brocade 300 features, *1*
Brocade Advanced Web Tools, *22*
Brocade Fabric Manager, *22*

C

cable management, *6*
Canadian requirements, *30*
CE statement, *29*
China RoHS, *31*
Command line interface (CLI), *22*
components, switch, *23*
configuring
    date and time, *10*
    NTP, *13*
configuring the Brocade 300, *8*

D

data transmission ranges, *26*
date, *11*
date and time, *10*

E

electrical safety, *30*
environmental requirements, *25*
event
    date and time, *10*

F

Fabric Manager, *22*
facility requirements, *24*
FCC warning (USA only), *28*
Fibre Channel port specifications, *27*

I

installation
    cabinet, *8*
    standalone, *8*
installation and safety considerations, *5*
installing a Brocade 300 into an EIA cabinet, *8*
installing a standalone Brocade 300, *8*
installing an SFP, *20*
interpreting LED activity, *15*
interpreting POST results, *19*
ISL trunking groups, *3*
items included with the Brocade 300, *5*
items required for installation, *7*

L

laser compliance, *30*
LED activity, *16*
LED location, *16*
local clock, *13*
LOCL, *13*
logging
    timestamp, *10*

M

maintaining the Brocade 300, *19*
Management Server, *22*
memory specifications, *27*

N

non-port side of Brocade 300, *2*
NTP
    access, *13*

P

port
    Ethernet port, *23*
    serial port, *23*
port side of the Brocade 300, *2*
port status LEDs, *15*
POST and boot specifications, *18*
power status LED, *15*
power supply specifications, *24*
powering the Brocade 300 on and off, *15*
provide power to the switch, *9*

R

recommendations for cable management, *6*
regulatory certifications, *31*
regulatory compliance, *28*
RJ-45 connector, *23*
RS-232 connector, *23*
RTC battery, *30*

S

serial port specifications, *28*
setting
    time zone, *12*
setting the date and time, *10*
setting the IP address, *10*
setting the switch date and time, *10*
Setting time zones, *10, 12*
settings
    date and time, *10*
SNMP, *22*
supported SFPs, *28*
switch
    components, *23*
switch configuration, *8*
system specifications, *25*
system status LED, *15*

T

time, *10*
time and date, *10*
time zones, *10*
tsclockserver, *12, 13*
tsTimeZone, *12*

V

VCCI statement, *29*

W

weight and physical dimensions, *24*