### Preface

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As part of an effort to improve and enhance the performance and capabilities of its product lines, EMC periodically releases revisions of its hardware and software. Therefore, some functions described in this document may not be supported by all versions of the software or hardware currently in use. For the most up-to-date information on product features, refer to your product release notes.

If a product does not function properly or does not function as described in this document, please contact your EMC representative.

Audience

This document is a hardware reference manual written for system administrators, and technicians experienced with networking, Fibre Channel, and SAN technologies to help them install, set up, configure, operate, maintain, and troubleshoot the DS-300B.

This document presents information on setting up and operating the DS-300B. It is organized in a loosely chronological order, beginning with an overview and ending with removal and replacement procedures of field replaceable components.

Related documentation

Related documents include:

- EMC Connectrix B Series Fabric OS Administrator’s Guide
- EMC Connectrix B Series Fabric OS Command Reference Guide
- EMC Connectrix B Series Fabric OS Fabric Watch Administrator’s Guide
- EMC Connectrix B Series Fabric OS Message Reference Guide
- EMC Connectrix B Series Fabric OS MIB Reference Guide
EMC Connectrix B Series Fabric OS Web Tools Administrator’s Guide

EMC Connectrix B Series Fabric OS Troubleshooting and Diagnostics Guide

For the most up-to-date information, always consult the EMC Support Matrix (ESM), available through E-Lab Interoperability Navigator (ELN) at: http://elabnavigator.EMC.com, under the PDFs and Guides tab.

Instructions on how to best use the ELN (tutorial, queries, wizards) are provided below this Log in window. If you are unfamiliar with finding information on this site, please read these instructions before proceeding any further.

Under the PDFs and Guides tab resides a collection of printable resources for reference or download. All of the matrices, including the ESM (which does not include most software), are subsets of the E-Lab Interoperability Navigator database. Included under this tab are:

- The EMC Support Matrix, a complete guide to interoperable, and supportable, configurations.
- Subset matrices for specific storage families, server families, operating systems or software product.
- Host connectivity guides for complete, authoritative information on how to configure hosts effectively for various storage environments.

Under the PDFs and Guides tab, consult the Internet Protocol pdf under the "Miscellaneous" heading for EMC’s policies and requirements for the EMC Support Matrix.

Conventions used in this document

EMC uses the following conventions for special notices.

Note: A note presents information that is important, but not hazard-related.

CAUTION
A caution contains information essential to avoid data loss or damage to the system or equipment.
IMPORTANT
An important notice contains information essential to operation of the software.

WARNING
A warning contains information essential to avoid a hazard that can cause severe personal injury, death, or substantial property damage if you ignore the warning.

DANGER
A danger notice contains information essential to avoid a hazard that will cause severe personal injury, death, or substantial property damage if you ignore the message.

Typographical conventions
EMC uses the following type style conventions in this document:

Normal
Used in running (nonprocedural) text for:
- Names of interface elements (such as names of windows, dialog boxes, buttons, fields, and menus)
- Names of resources, attributes, pools, Boolean expressions, buttons, DQL statements, keywords, clauses, environment variables, functions, utilities
- URLs, pathnames, filenames, directory names, computer names, filenames, links, groups, service keys, file systems, notifications

Bold
Used in running (nonprocedural) text for:
- Names of commands, daemons, options, programs, processes, services, applications, utilities, kernels, notifications, system calls, man pages

Used in procedures for:
- Names of interface elements (such as names of windows, dialog boxes, buttons, fields, and menus)
- What user specifically selects, clicks, presses, or types

Italic
Used in all text (including procedures) for:
- Full titles of publications referenced in text
- Emphasis (for example a new term)
- Variables
Where to get help

EMC support, product, and licensing information can be obtained as follows.

**Product information** — For documentation, release notes, software updates, or for information about EMC products, licensing, and service, go to the EMC Powerlink website (registration required) at:

http://Powerlink.EMC.com

**Technical support** — For technical support, go to EMC Customer Service on Powerlink. To open a service request through Powerlink, you must have a valid support agreement. Please contact your EMC sales representative for details about obtaining a valid support agreement or to answer any questions about your account.

Working with customer support

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

- General information
  - Technical Support contract number, if applicable
  - Switch model
  - Switch operating system version
  - Error numbers and messages received
  - **supportSave** command output
Detailed description of the problem and specific questions
Description of any troubleshooting steps already performed and results
Serial console and telnet session logs
syslog message logs

Switch Serial Number

The switch serial number and corresponding bar code are provided on the serial number label, as shown here:

*FT00X0054E9*
FT00X0054E9

The serial number label is located as follows:

- **AP-7600B**—On the bottom of the chassis
- **DS-220B**—Nonport side of the chassis
- **DS-300B, DS-4100B, DS-4900B, DS-5100B, DS-5300B, and MP-7500B**—On the switch ID pull-out tab located inside the chassis on the port side on the left
- **DS-5000B**—On the switch ID pull-out tab located on the bottom of the port side of the switch.
- **ED-48000B**—Inside the chassis next to the power supply bays
- **ED-DCX-B**—On the bottom right on the port side of the chassis.

World Wide Name (WWN) is obtained by providing the license ID. Use the `licenseIdShow` command to display the license ID.

Your comments

Your suggestions will help us continue to improve the accuracy, organization, and overall quality of the user publications. Please send your opinion of this document to:

techpubcomments@EMC.com
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Connectrix DS-300B overview

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

The DS-300B 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 DS-300B provides a single platform for all SAN connectivity.

**Note:** At the time of this writing, the Access Gateway features of the DS-300B are not supported.

Because the DS-300B 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.
DS-300B features

The DS-300B provides the following features:

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

- **One built-in fixed power unit (not a FRU)**
  Three built-in fans (there are no fan FRUs)
  The DS-300B is cooled by a 2-1 redundant fan configuration, which means that it can sustain a single fan failure and continue to function properly.

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

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

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

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

- **Support of the EZSwitchSetup wizard for setup and basic 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 1G, 2G, 4G, or 8G speeds) between a pair of switches to be combined to form a single, logical ISL switch with a speed of up to 64 Gbits/sec (128 Gbits/sec 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**
Introducing the Connectrix DS-300B

Port side of the DS-300B

Figure 1 shows the port side of the DS-300B.

All LEDs are on the port side of the switch; the nonport side is used to allow the free flow of air. The DS-300B enclosure has forced-air cooling, with the fans pushing the air from the nonport side of the chassis through the enclosure, and exhausting to the port side.

For a complete description of the locations and interpretations of these LEDs, refer to “Interpreting LED activity” on page 37.

Figure 1 Port side of the DS-300B

1. System status (top) and power (bottom) LEDs
2. System RS232 console port (RJ-45)
3. Ethernet port with two Ethernet status LEDs
4. USB port
5. Fibre Channel status LEDs
6. Fibre Channel Ports (24)
7. AC power receptacle
Nonport side of the DS-300B

The nonport side of the DS-300B 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 EMC customized standard OEM data label.
Supported fabric configurations

The DS-300B is supported as an edge device in fabrics of up to 239 switches.
Ports on demand license

The DS-300B can be purchased with 8, 16, or 24 licensed ports. As your needs increase, you can activate unlicensed ports by purchasing and installing the Ports on Demand optional licensed product. After it has been installed, the license appears under the `licenseShow` command as *Ports on Demand license*.

By default, ports 0 through 7 are enabled on the DS-300B. To enable ports 8 through 16, install a Ports on Demand license key. To enable ports 16 through 24, install another Ports on Demand license.

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 Ports on Demand license, see the *EMC Connectrix B Series Fabric OS Administrator’s Guide*. 
The DS-300B supports Interswitch Link (ISL) Trunking as a licensed feature. When this feature is enabled, you can create Trunked groups of up to 8 contiguous ports. This means that you can create up to three trunked groups that contain 8 ports each.

The Fibre Channel ports on the DS-300B 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** illustrates a DS-300B with three Trunked groups of 8 ports.

- A. Trunk group 1: Ports 0 through 7
- B. Trunk Group 2: Ports 8 through 15
- C. Trunk group 3: Ports 16 through 23

**Figure 2**  Trunking groups

**Note:** 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 *EMC Connectrix B Series Fabric OS Administrator’s Guide.*
This chapter contains the following information:

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Items included with the DS-300B

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

- One DS-300B Fibre Channel switch
- An accessory kit containing:
  - Serial cable with an RJ-45 connector
  - 6 ft. country-specific power cord
  - Rubber Feet, required for setting up the switch as a standalone unit
  - Connectrix DS-300B QuickStart Guide
  - EZSwitch Setup CD
  - Fabric Manager Evaluation CD (not required for installation)
  - Optional SFP transceivers
Installation and safety considerations

You can install the DS-300B switch in the following ways:

1. As a standalone unit on a flat surface.
2. In an EIA cabinet using an optional fixed rack mount kit, slide rack mount kit, or mid-mount rack kit.

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.
- Verify that a minimum of 47 cubic feet/minute (79.8 cubic meters/hour) of air flow is available to the air intake vents on the nonport side of the switch.
- The power supply standards provided in “System specifications” on page 59 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 nonport 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 intaking exhaust air.
- A minimum of 24 cubic ft/min of air flow is available to the air intake vents on the nonport 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 that the following cabinet requirements are met:

- The cabinet must be a standard EIA cabinet.
- Plan a cabinet space that is 1 rack unit (1.75 in.; 4.45 cm) high, 19 in. (48.3 cm) 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.

Items required for installation

The following items are required for configuring and connecting the DS-300B for use in a network and fabric:

- DS-300B installed and connected to a power source
- 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 DS-300B

To install the DS-300B as a standalone unit:

1. Unpack the DS-300B and verify the items listed on “Items required for installation” on page 24.

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 “Powering the DS-300B on and off” on page 36.

**Note:** 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 “Configuring the DS-300B” on page 28.
Installing a DS-300B into an EIA cabinet

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 nonport 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 3 in. (7.62 cm) 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.
Recommendations for cable management

The minimum bend radius for a 50 micron cable is 2 in. under full tensile load and 1.2 in. 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:

- Plan for rack space required for cable management before installing the switch.
- Leave at least 3.28 ft (1 m) 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 ISL Trunking, consider grouping cables by trunking groups. The cables used in trunking groups must meet specific requirements, as described in the “Data transmission ranges” on page 53.
- 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 Velcro straps to secure and organize fibre optic cables. Do not use tie wraps on fiber optic cables, because wraps are easily overtightened and can damage the optic fibers.
Configuring the DS-300B

- “Using EZSwitch Setup (optional)” on page 28
- “Providing power to the switch” on page 28
- “Creating a serial connection” on page 29
- “Setting the switch IP address” on page 29
- “Setting the date and time” on page 30

Using EZSwitch Setup (optional)

Once you have set up the DS-300B 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 DS-300B in a single-switch setup, you can use EZSwitchSetup to complete the basic configuration.

See the EZSwitchSetup CD, included with DS-300B for more information. You can also use the Connectrix DS-300B Quick Start Guide.

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

Providing power to the switch

1. Connect the power cord to the power receptacle on the port side of the DS-300B, and then to the power source. Ensure that the cord has a minimum service loop of 6 in. available and is routed to avoid stress.

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

The status LEDs display amber until 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.

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  |
     | Databits        | 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 DS-300B 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 disabled by default. The DS-300B supports both IPv4 and IPv6.
Using DHCP

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

Setting the date and time

The DS-300B 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 DS-300B 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.

Setting the date
1. If you are not already logged into the switch, do so now using the default password, which is password.
2. Enter the **date** command, using the following syntax:

   ```
   date "mmddHHMMyy"
   ```

   The values represent the following:
   
   - **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 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 *EMC Connectrix B Series Fabric OS Command Reference Guide*.

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.

The following procedure describes how to set the time zone for a switch. 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.

1. If you are not already logged into the switch; do so now 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**

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.

For more information on using an NTP server, and so IPv6 considerations, see the *Fabric OS Administrator’s Guide*.

1. If you are not already logged into the switch; do so now 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.

   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 will be 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.

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

   ```
   switch:admin> tsclockserver
   132.163.135.131
   ```
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.
```
This chapter contains the following information:

- Powering the DS-300B on and off ....................................................... 36
- Interpreting LED activity .................................................................... 37
- LED patterns ........................................................................................ 39
- POST and boot specifications .............................................................. 42
- Interpreting POST results ................................................................. 43
- DS-300B FRU units ............................................................................ 44
- Maintaining the DS-300B ............................................................... 45
- Managing the DS-300B ................................................................. 47
Powering the DS-300B on and off

To power on the DS-300B, 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 DS-300B, 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.

The DS-300B has the following LEDs:

- **system power LED**
  One LED (green) to indicate system power.

- **system status LED**
  One LED (green/amber) to indicate system status.

- **Ethernet status LEDs**
  Two LEDs to indicate speed and link status.

- **port status LEDs**
  24 LEDs (green/amber) to indicate status for each port.

LED locations

All DS-300B LEDs are located on the port side.

Figure 3 on page 38 shows the LEDs on the DS-300B.
A  System status LED (green)  D  Link speed LED
B  System status LED (green/amber)  E  Port status LED for port 3
C  Link status LED)  F  Port status LED for port 7

Figure 3  Detailed view, DS-300B LEDs
LED patterns

Table 1 through Table 4 summarize the state of the DS-300B LEDs as well as any recommended user response.

Power status LED patterns

The power status LED patterns are shown in Table 1.

Table 1  Power Status LED Patterns

<table>
<thead>
<tr>
<th>LED Name, Location</th>
<th>LED Color</th>
<th>Status of Hardware</th>
<th>Recommended Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Status LED</td>
<td>No light</td>
<td>Primary power cord is disconnected or is not actively powered, or power supply has failed.</td>
<td>Verify switch is on and has completed booting.</td>
</tr>
<tr>
<td></td>
<td>Steady green</td>
<td>Switch is on and power supply is functioning properly.</td>
<td>No action is required.</td>
</tr>
</tbody>
</table>

System status LED patterns

The system status LED patterns are shown in Table 2.

Table 2  System Status LED Patterns During Normal Operation

<table>
<thead>
<tr>
<th>LED Name, Location</th>
<th>LED Color</th>
<th>Status of Hardware</th>
<th>Recommended Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Status LED</td>
<td>No light</td>
<td>Switch is off, boot is not complete, or boot failed.</td>
<td>Verify switch is on and has completed booting.</td>
</tr>
<tr>
<td></td>
<td>Steady green</td>
<td>Switch is operational.</td>
<td>No action is required.</td>
</tr>
<tr>
<td></td>
<td>Slow-flashing green (on 1 second, off 1 second)</td>
<td>One or both of the following are true: One or more environmental ranges are exceeded. Error log contains one or more port diagnostic error messages.</td>
<td>Check environmental conditions, error log, Port Status LEDs, SFPs, cables, and loopback plugs. Correct error condition. Clear error log. Rerun diagnostics to verify fix.</td>
</tr>
<tr>
<td></td>
<td>Amber</td>
<td>Switch is faulty, or initializing.</td>
<td>Wait a few moments to verify that the switch is not initializing.</td>
</tr>
</tbody>
</table>
Port LED patterns

The system port LED patterns are shown in Table 3.

<table>
<thead>
<tr>
<th>LED Name, Location</th>
<th>LED Color</th>
<th>Status of Hardware</th>
<th>Recommended Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Status</td>
<td>No light</td>
<td>No light or signal carrier (SFP or cable) detected.</td>
<td>Check SFP and cable.</td>
</tr>
<tr>
<td>Steady green</td>
<td>Port is online (connected to external device) but has no traffic.</td>
<td>No action is required.</td>
<td></td>
</tr>
<tr>
<td>Slow-flashing green (on 1 second, off 1 second)</td>
<td>Port is online but segmented, indicating a loopback cable or incompatible switch.</td>
<td>Verify that the correct device is connected to the port and that the switch and port settings are correct.</td>
<td></td>
</tr>
<tr>
<td>Fast-flashing green (on 1/4 second, off 1/4 second)</td>
<td>Port is in internal loopback (diagnostic).</td>
<td>No action is required.</td>
<td></td>
</tr>
<tr>
<td>Flickering green</td>
<td>Port is online, with traffic flowing through port.</td>
<td>No action is required.</td>
<td></td>
</tr>
<tr>
<td>Steady amber</td>
<td>Port is receiving light or signal carrier but is not yet online.</td>
<td>No action is required.</td>
<td></td>
</tr>
<tr>
<td>Slow-flashing amber (on 1 second, off 1 second)</td>
<td>Port is disabled as the result of diagnostics or <strong>portDisable</strong> command. If all ports are slow-flashing amber, the switch could be disabled.</td>
<td>Enable the port using the <strong>portEnable</strong> command; refer to <em>Fabric OS Command Reference Manual</em> for more information. If all ports are slow-flashing amber, enable the switch (<strong>switchEnable</strong> command).</td>
<td></td>
</tr>
<tr>
<td>Fast-flashing amber (on 1/4 second, off 1/4 second)</td>
<td>Port is faulty.</td>
<td>Check the Port Status LEDs, error log, SFP, and cable or loopback plug. Clear the error log. Rerun the diagnostics to verify that the error condition is fixed.</td>
<td></td>
</tr>
<tr>
<td>Alternating green and amber</td>
<td>Port is bypassed.</td>
<td>Check configuration of Fibre Channel loop.</td>
<td></td>
</tr>
</tbody>
</table>
Ethernet LED patterns

Each Ethernet port has two LEDs. The LEDs are described in Table 4.

Table 4  Ethernet LED Patterns

<table>
<thead>
<tr>
<th>LED Name, Location</th>
<th>LED Color</th>
<th>Status of Hardware</th>
<th>Recommended Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet speed LED (right)</td>
<td>No light</td>
<td>Port speed is 10 Mbps.</td>
<td>No action is required.</td>
</tr>
<tr>
<td></td>
<td>Steady green</td>
<td>Port speed is 100 Mbps.</td>
<td>No action is required.</td>
</tr>
<tr>
<td>Ethernet link LED (left)</td>
<td>Solid Amber</td>
<td>Link is bad.</td>
<td>Action is required.</td>
</tr>
<tr>
<td></td>
<td>Blinking amber</td>
<td>Traffic is flowing.</td>
<td>No action is required.</td>
</tr>
<tr>
<td></td>
<td>No light</td>
<td>No link detected</td>
<td>Action is required.</td>
</tr>
</tbody>
</table>
POST and boot specifications

When the switch is turned on or rebooted, the switch performs POST. Total boot time with POST is up to 3 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 EMC Connectrix B Series 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 on page 39 through Table 4 on page 41 for description and interpretation 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 EMC Customer Service representative 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 *EMC Connectrix B Series Fabric OS Administrator’s Guide*. For information about error messages, refer to the *EMC Connectrix B Series Fabric OS System Error Message Reference Manual*. 
DS-300B FRU units

In the DS-300B, 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.
Maintaining the DS-300B

The DS-300B 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 23 are met. This helps prevent failure of the switch due to distress or abuse.

Installing an SFP

The DS-300B only supports Brocade-branded SFPs. If you use an unqualified SFP, the switchShow command output will show the port in an Mod_Init state. Fabric OS will also log 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 on page 46.
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.
Diagnostic tests

In addition to POST, Fabric OS includes diagnostic tests to help troubleshoot the hardware and the firmware. This includes tests of internal connections and circuitry, fixed media, and the SFPs 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, SFP, and cable.

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

**Note:** 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 *EMC Connectrix B Series Fabric OS Administrator’s Guide.*
Managing the DS-300B

You can use the management functions built into the DS-300B to monitor the fabric topology, port status, physical status, and other information to help you analyze switch performance and to accelerate system debugging. The DS-300B 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 42.

For information about upgrading the version of Fabric OS installed on your switch, refer to the Connectrix B Series Fabric OS Administrator’s Guide.

You can manage the DS-300B using any of the management options listed in Table 5.

Table 5 Management Options for the DS-300B Switch

<table>
<thead>
<tr>
<th>Management Tool</th>
<th>Out-of-band Support</th>
<th>In-band Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command line interface (CLI)</td>
<td>Ethernet or serial connection</td>
<td>IP over Fibre Channel</td>
</tr>
<tr>
<td>Up to two admin sessions and four user sessions simultaneously. For more information, refer to the Connectrix B Series Fabric OS Administrator’s Guide and the Connectrix B Series Fabric OS Command Reference Manual.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web Tools</td>
<td>Ethernet or serial connection</td>
<td>IP over Fibre Channel</td>
</tr>
<tr>
<td>For information, refer to the Connectrix B Series Web Tools Administrator’s Guide.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard SNMP applications</td>
<td>Ethernet or serial connection</td>
<td>IP over Fibre Channel</td>
</tr>
<tr>
<td>For information, refer to the Connectrix B Series MIB Reference Manual.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brocade Fabric Manager (option to purchase)</td>
<td>Ethernet or serial connection</td>
<td>IP over Fibre Channel</td>
</tr>
<tr>
<td>For information, refer to the Brocade Fabric Manager Administrator’s Guide.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management Server</td>
<td>Ethernet or serial connection</td>
<td>Native in-band interface (over HBA only)</td>
</tr>
<tr>
<td>Connectrix Manager (EFCM) (option to purchase)</td>
<td>Ethernet or serial connection</td>
<td>IP over Fibre Channel</td>
</tr>
<tr>
<td>For information, refer to the Connectrix Manager User’s Guide.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.
This appendix contains the following information:

- Weight and physical dimensions ..................................................... 50
- Memory specifications ................................................................. 51
- Facility requirements ................................................................... 52
- Data transmission ranges ............................................................. 53
- Environmental requirements ....................................................... 54
- Fibre Channel port specifications ................................................. 55
- Serial port specifications ............................................................. 56
- Power supply specifications ......................................................... 57
- Supported SFPs and HBAs ........................................................... 58
- System specifications ................................................................. 59
- Regulatory compliance .............................................................. 61
Weight and physical dimensions

Table 6 lists the weight and physical dimensions of the DS-300B switch.

<table>
<thead>
<tr>
<th></th>
<th>DS-300B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>1.69 in. (4.29 cm)</td>
</tr>
<tr>
<td>Width</td>
<td>16.88 in. (42.88 cm)</td>
</tr>
<tr>
<td>Depth</td>
<td>12.07 in. (30.6 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>9.3 lbs (4.35kgs)</td>
</tr>
</tbody>
</table>
Memory specifications

The DS-300B memory specifications are shown in Table 7.

<table>
<thead>
<tr>
<th>Memory Type</th>
<th>Installed Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main memory (SDRAM)</td>
<td>512 MB</td>
</tr>
<tr>
<td>Compact flash</td>
<td>1 GB</td>
</tr>
</tbody>
</table>

Table 7 Memory Specifications
### Facility requirements

Table 8 provides the facilities requirements that must be met for the DS-300B.

**Table 8 Facility Requirements**

<table>
<thead>
<tr>
<th>Type</th>
<th>Requirements</th>
</tr>
</thead>
</table>
| **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 12 on page 59 for complete power supply specifications.                                                               |
| **Thermal**                 | A minimum air flow of 24 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 in a 19-in. (48.3 cm) 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, such as an earthquake                                              |
## Data transmission ranges

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

<table>
<thead>
<tr>
<th>Port Speed</th>
<th>Cable</th>
<th>Short Wavelength</th>
<th>Long Wavelength</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Gbps</td>
<td>50µ / 500 MHz (OM2)</td>
<td>500 m (1,640 ft)</td>
<td>NA</td>
</tr>
<tr>
<td>1 Gbps</td>
<td>50µ / 2000 MHz (OM3)</td>
<td>860 m (2,821 ft)</td>
<td>NA</td>
</tr>
<tr>
<td>1 Gbps</td>
<td>62.5µ / 200 MHz (OM1)</td>
<td>300 m (984 ft)</td>
<td>NA</td>
</tr>
<tr>
<td>1 Gbps</td>
<td>9µ</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>2 Gbps</td>
<td>50µ / 500 MHz (OM2)</td>
<td>300 m (984 ft)</td>
<td>NA</td>
</tr>
<tr>
<td>2 Gbps</td>
<td>50µ / 2000 MHz (OM3)</td>
<td>500 m (1,640 ft)</td>
<td>NA</td>
</tr>
<tr>
<td>2 Gbps</td>
<td>62.5µ / 200 MHz (OM1)</td>
<td>150 m (492 ft)</td>
<td>NA</td>
</tr>
<tr>
<td>2 Gbps</td>
<td>9µ</td>
<td>NA</td>
<td>30 Km</td>
</tr>
<tr>
<td>4 Gbps</td>
<td>50µ / 500 MHz (OM2)</td>
<td>150 m (492 ft)</td>
<td>NA</td>
</tr>
<tr>
<td>4 Gbps</td>
<td>50µ / 2000 MHz (OM3)</td>
<td>380 m (1,246 ft)</td>
<td>NA</td>
</tr>
<tr>
<td>4 Gbps</td>
<td>62.9µ / 200 MHz (OM1)</td>
<td>70 m (230 ft)</td>
<td>NA</td>
</tr>
<tr>
<td>4 Gbps</td>
<td>9µ</td>
<td>NA</td>
<td>30 Km</td>
</tr>
<tr>
<td>8 Gbps</td>
<td>50µm / 500 MHz (OM2)</td>
<td>50m (164 ft)</td>
<td>NA</td>
</tr>
<tr>
<td>8 Gbps</td>
<td>50µ / 2000 MHz (OM3)</td>
<td>150 m (492 ft)</td>
<td>NA</td>
</tr>
<tr>
<td>8 Gbps</td>
<td>62.5µm / 200 MHz (OM1)</td>
<td>21m (68 ft)</td>
<td>NA</td>
</tr>
<tr>
<td>8 Gbps</td>
<td>9µ</td>
<td>NA</td>
<td>10km (6.2 miles)</td>
</tr>
<tr>
<td>10 Gbps</td>
<td>50µ / 500 MHz (OM2)</td>
<td>82 m (269 ft)</td>
<td>N/A</td>
</tr>
<tr>
<td>10 Gbps</td>
<td>50µ / 2000 MHz (OM3)</td>
<td>300 m (984 ft)</td>
<td>N/A</td>
</tr>
<tr>
<td>10 Gbps</td>
<td>62.5µ / 200 MHz (OM1)</td>
<td>33 m (108 ft)</td>
<td>N/A</td>
</tr>
<tr>
<td>10 Gbps</td>
<td>9µ</td>
<td>N/A</td>
<td>10 Km (6.2 miles)</td>
</tr>
</tbody>
</table>
Environmental requirements

Table 10 list the acceptable environment for both operating and nonoperating conditions.

### Table 10  Environmental Requirements

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

Note: The -10° to 40° Celsius range applies to the ambient air temperature at the air intake vents on the nonport 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.
Fibre Channel port specifications

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

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

The ports meet all required safety standards. For more information about these standards, see “Regulatory compliance” on page 61.
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.
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 11 lists the power supply specifications for the DS-300B.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet C13</td>
<td></td>
</tr>
<tr>
<td>Maximum output from the power supply</td>
<td>75 watts</td>
</tr>
<tr>
<td>System power consumption</td>
<td>48 watts nominal, 57 watts maximum</td>
</tr>
<tr>
<td>Input voltage</td>
<td>85 - 264 VAC, universal</td>
</tr>
<tr>
<td>Input line frequency</td>
<td>47 - 63 Hz</td>
</tr>
<tr>
<td>BTU rating</td>
<td>277 BTU/hr</td>
</tr>
<tr>
<td>Inrush current</td>
<td>21.5 Amps at 240 Vac Cold Start</td>
</tr>
</tbody>
</table>
Specifications

Supported SFPs and HBAs

When you receive the DS-300B, 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 DS-300B, refer to the *EMC Support Matrix* (ESM), available through E-Lab Interoperability Navigator (ELN) at: [http://elabnavigator.EMC.com](http://elabnavigator.EMC.com), under the **PDFs and Guides** tab.
Table 12 lists the system specifications for the DS-300B.

### Table 12 General Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoconfiguring port types</td>
<td>F_Port, FL_Port, M_Port, N_Port, and E_Port</td>
</tr>
<tr>
<td>System architecture</td>
<td>Nonblocking shared-memory switch</td>
</tr>
<tr>
<td>System processor</td>
<td>IBM PowerPC 440EPx, 667 MHz</td>
</tr>
<tr>
<td>SDRAM</td>
<td>512 MB DDR2 SDRAM onboard memory operating at 133 MHz</td>
</tr>
<tr>
<td>Compact flash</td>
<td>1 Gigabyte</td>
</tr>
<tr>
<td>ANSI Fibre Channel protocol</td>
<td>FC-PH (Fibre Channel Physical and Signaling Interface standard)</td>
</tr>
<tr>
<td>Modes of operation</td>
<td>Fibre Channel Class 2, Class 3, Class F</td>
</tr>
<tr>
<td>Fabric initialization</td>
<td>Complies with FC-SW-2 6.6</td>
</tr>
<tr>
<td>Ethernet port</td>
<td>One 10/100BaseT Ethernet port; accessed through RJ45 connector</td>
</tr>
<tr>
<td>Terminal port</td>
<td>One UART interface for terminal, accessed through RJ-45 connector</td>
</tr>
<tr>
<td>ASIC</td>
<td>Goldeneye-2 ASIC for Fibre Channel Switching</td>
</tr>
<tr>
<td>Port Status LEDs</td>
<td>24 LEDs (green/amber) to indicate status for each port</td>
</tr>
<tr>
<td>System Power LED</td>
<td>One LED (green) to indicate system power</td>
</tr>
<tr>
<td>System Status LED</td>
<td>One LED (green/amber) to indicate system status</td>
</tr>
<tr>
<td>Ethernet LEDs</td>
<td>Two Ethernet LEDs to indicate speed and link status</td>
</tr>
<tr>
<td>Power supply</td>
<td>One fixed power supply (not a FRU)</td>
</tr>
<tr>
<td>Fans</td>
<td>Three fixed fans operating at dual speeds (not a FRU).</td>
</tr>
<tr>
<td>FC-IP (IP over Fibre Channel)</td>
<td>Complies with FC-IP 2.3 of FCA profile</td>
</tr>
<tr>
<td>Aggregate switch I/O bandwidth</td>
<td>384 Gbps if all 24 ports running at 8 Gbps, full duplex</td>
</tr>
<tr>
<td>Port-to-port latency</td>
<td>Less than 700 nanoseconds with no contention (destination port is free)</td>
</tr>
</tbody>
</table>
Table 13 lists the EMC (electromagnetic compatibility) for the DS-300B.

### Table 13  Electromagnetic compatibility

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

This section describes the regulatory compliance requirements for the DS-300B. It contains:

“FCC warning (USA only)” on page 61
“VCCI statement Japan” on page 62
“CE statement” on page 62
“Canadian requirements” on page 63
“Laser compliance” on page 63
“RTC battery” on page 63
“Electrical safety” on page 63
“Regulatory certifications” on page 64

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

이기기는 엽무용으로 전자파 적합등록을 받은 기기 이오니, 판매자 또는 사용자는 이점을 주의하시기 바라며, 만약 잘못 구입하였을 때에는 구입한 곳에서 비업무용으로 교환하시기 바랍니다.
Specifications

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（V C C I）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Power cords (Japan Denan)

注意 - 添付の電源コードを他の装置や用途に使用しない。
添付の電源コードは本装置に接続し、使用することを目的として設計され、その安全性が確認されているものです。決して他の装置や用途に使用しないでください。火災や感電の原因となる恐れがあります。

CE statement

Note: 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 DS-300B contains the CE mark which indicates that this system conforms to the provisions of the following European Council directives, laws, and standards:

- 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.

**CAUTION**

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**

**CAUTION**

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**

**CAUTION**

This switch might have more than one power cord. To reduce the risk of electric shock, disconnect both power cords before servicing.
CAUTION

Connect the power cord only to a grounded outlet.

CAUTION

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 14 lists the regulatory compliance standards for which the DS-300B is certified.

Table 14: Regulatory compliance standards

<table>
<thead>
<tr>
<th>Country</th>
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<th>Agency Certifications and Markings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>EMC</td>
<td>Safety</td>
</tr>
<tr>
<td>United States</td>
<td>Bi-Nat UL/CSA 60950-1 1st Ed or latest</td>
<td>ANSI C63.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EMC</td>
</tr>
<tr>
<td>Canada</td>
<td>Bi-Nat UL/CSA 60950-1 1st Ed or latest</td>
<td>ICES-003 Class A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td></td>
<td>CISPR22 and JEIDA (Harmonics)</td>
</tr>
<tr>
<td>European Union</td>
<td>EN60950-1 or latest</td>
<td>EN55022 and EN55024</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia, New Zealand</td>
<td>EN55022 or CISPR22 or AS/NZS CISPR22</td>
<td>C-Tick mark</td>
</tr>
<tr>
<td>Argentina</td>
<td>IEC60950-1 or latest</td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td>IEC60950-1 or latest</td>
<td>51318.22-99 and 51318.24.99 or latest</td>
</tr>
<tr>
<td>Korea</td>
<td></td>
<td>KN22 and KN24</td>
</tr>
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