# Brocade Fabric OS v4.1.1b

# Release Notes v1.0

November 11, 2003

## *Document History*

| Document Title | Summary of Changes | Publication Date |
|---|---|---|
| Brocade Fabric OS v4.1.1b Release Notes_v1.0 | First release | November 11, 2003 |

Copyright © 2003, Brocade Communications Systems, Incorporated.

ALL RIGHTS RESERVED.

BROCADE, the Brocade B weave logo, Brocade: the Intelligent Platform for Networking Storage, SilkWorm, and SilkWorm Express, are trademarks or registered trademarks of Brocade Communications Systems, Inc. or its subsidiaries in the United States and/or in other countries. All other brands, products, or service names are or may be trademarks or service marks of, and are used to identify, products or services of their respective owners.

FICON® is a registered trademark of IBM Corporation in the US and other countries.

Notice: The information in this document is provided "AS IS," without warranty of any kind, including, without limitation, any implied warranty of merchantability, noninfringement or fitness for a particular purpose. Disclosure of information in this material in no way grants a recipient any rights under Brocade's patents, copyrights, trade secrets or other intellectual property rights. Brocade reserves the right to make changes to this document at any time, without notice, and assumes no responsibility for its use.

The authors and Brocade Communications Systems, Inc. shall have no liability or responsibility to any person or entity with respect to any loss, cost, liability, or damages arising from the information contained in this book or the computer programs that accompany it.

Notice: The product described by this document may contain "open source" software covered by the GNU General Public License or other open source license agreements. To find-out which open source software is included in Brocade products, view the licensing terms applicable to the open source software, and obtain a copy of the programming source code, please visit *http://www.brocade.com/support/oscd*.

Export of technical data contained in this document may require an export license from the United States Government.

## TABLE OF CONTENTS

# *Overview*

Fabric OS v4.1.1b is a patch release that contains fixes to a small number of additional issues detected. Brocade software release policy is to carry forward all fixes in patches to subsequent maintenance and feature releases of Fabric OS. Aside from these changes, it is functionally identical to Fabric OS v4.1.1.

## About This Release

Fabric OS v4.1 represents the first major feature revision to the Fabric OS v4.0 firmware. It should be considered an upgrade and replacement for Fabric OS v4.0.0, which shipped initially with the launch of the SilkWorm 12000 (2109-M12) in the first half of 2002, and for Fabric OS v4.0.2, which shipped initially in the second half of 2002, supporting the SilkWorm 3900 (2109-F32) and SilkWorm 12000 (2109-M12).

Fabric OS v4.1.1b includes the following changes:

- Fixes to defects as detailed in the section "Defects Closed in Fabric OS v4.1.1b."
- Correction to Fabric OS v4.1.0*x* and v4.1.1*x* Release Notes. This is not a code change but a documentation correction only.
- Starting in November 2003, Brocade is adding versioning to all Release Notes. This is a documentation format change and does not affect the actual code.

## Supported Switches

This release supports SilkWorm 3900 (2109-F32) and SilkWorm 12000 (2109-M12) switches.

## Technical Support

Contact your switch support supplier for hardware, firmware, and software support, including product repairs and part ordering. To assist your support representative and to expedite your call, have the following three sets of information immediately available when you call:

**1. General Information**

- Technical Support contract number, if applicable
- Switch model
- Switch operating system version
- Error messages received
- **supportshow** command output
- Detailed description of the problem and specific questions
- Description of any troubleshooting steps already performed and results

**2. Switch Serial Number**

The switch serial number is provided on the serial number label, as shown here.

| **Type 2109-M12** | **Type 2109-F32** |
|---|---|
| **S/N PPSSSSS** | **S/N PPSSSSS** |

The serial number label is located as follows:

- *SilkWorm 2000 series (3534-1RU) switches:* Bottom of chassis
- *SilkWorm 3200 (3534-F08) and 3800(2109-F16) switches: Front and bottom* of chassis
- *SilkWorm 3900 (2109-F32) switches: Front and b*ottom of chassis
- *SilkWorm 6400 and 12000 (2109-M12) switches:* Inside front of chassis, on wall to left of ports

**3. Worldwide Name (WWN)**

• *SilkWorm 3900 (2109-F32) and 12000(2109-M12) switches:* Provide the license ID. Use the **licenseidshow** command to display the license ID.

• *All other SilkWorm (1RU/S08/S16/F08/F16) switches:* Provide the switch WWN. Use the **wwn** command to display the switch WWN.

## Information About Secure Fabric OS

Brocade Secure Fabric OS® is a comprehensive security product that requires some planning and specific steps to set up. For this purpose, the following document should be reviewed as a minimum of preparation prior to starting:

- *Brocade Secure Fabric OS QuickStart Guide*

More detailed product information can be obtained from the *Brocade Secure Fabric OS User's Guide*.

## Supporting Documentation

SilkWorm switch hardware documentation:

- *SilkWorm 3900 QuickStart Guide (provided as hardcopy with the switch)*
- *SilkWorm 3900 Hardware Reference Manual*
- *SilkWorm 12000 Hardware Reference Manual*
- *SilkWorm 12000 QuickStart Guide*

Brocade Fabric OS v4.1 software documentation:

- *Brocade Fabric OS Reference*
- *Brocade Fabric OS Procedures Guide*
- *Brocade Advanced Zoning User's Guide*
- *Brocade Advanced Web Tools User's Guide*
- *Brocade Advanced Performance Monitoring User's Guide*
- *Brocade Distributed Fabrics User's Guide*
- *Brocade Fabric Watch User's Guide*
- *Brocade ISL Trunking User's Guide*
- *Brocade Secure Fabric OS User's Guide*
- *Brocade MIB Reference*
- *Brocade Diagnostic and System Error Message Reference*

## Standards Compliance

Brocade Fabric OS v4.1 is compliant with the following Fibre Channel Standards:

• FC-AL ANSI X3.272: 1996
• FC-AL-2 NCIT S 332: 1999
• FC-FLA NCIT S TR-20: 1998
• FC-GS-3 NCITS 348-2000 Rev 7.01
• FC-FG ANSI X3.289: 1996
• FC-PH ANSI X3.230: 1994
• FC-PH-2 ANSI X3.297: 1997
• FC-PH-3 ANSI X3.303: 1998

- FC-PLDA NCIT S TR-19: 1998
- FC-SW-2 Rev 5.3
- FC-VI Rev 1.61
- FC-MI Rev 1.92
- FC-SB-2 Rev 2.1 (FICON support)
- FC-BB Rev 4.7
- FC-FS Rev 1.7 (still in draft)
- FC-BB-2 Rev 5.3 (still in draft)
- IPFC RFC 2625
- FCP ANSI X3.269: 1996
- FCP-2 Rev 7

## *Documentation Addendum*

### Brocade Fabric OS Procedures Guide v4.1.0

**(publication number 53-0000518-02)**

The following information should be added to Step 7 of the procedure for "Upgrading the Firmware on the SilkWorm 12000 (2109-M12)," in Chapter 4.

“When the v4.1.0 firmware is unzipped, it creates a folder and a set of firmware files. Use the following directory and file name when downloading this firmware to the switch: /v4.1.0/release.plist.

For the User prompt, enter a User ID that has an account on the FTP server.”

## *Requirements and Compatibility*

Brocade Fabric OS v4.1.0 and v4.1.1 can be installed and run on the SilkWorm 3900 and SilkWorm 12000.

The following table summarizes the versions of Brocade firmware and software that are supported in conjunction with these releases.

| | 2109 S08/S16 & 3534-1RU | 2109-F16 3534-F08 | 2109-F32 | 2109-M12 | Fabric Manager |
|---|---|---|---|---|---|
| General compatibility | 2.6.0c or later | 3.0.2c or later | 4.0.2 or later | 4.0.0c or later | 3.0.2c or later |
| With Secure Fabric OS enabled | 2.6.1 or later | 3.1.0 or later | 4.1.0 or later | 4.1.0 or later | 3.0.2c or later |
| Recommended adjacent to 2109-F32 running 4.1.0 or later | 2.6.1 or later | 3.1.0 or later | 4.1.0 or later | 4.1.0 or later | 3.0.2c or later |

**Note:** For Fabric OS v2.x or v3.x switches, the Core Switch PID Format must be enabled (that is, set to 1) using the **configure** command before it can interconnect with the SilkWorm 3900 (2109-F32) and SilkWorm 12000 (2109-M12) . For more information regarding the Core Switch PID Format, refer to “Updating the Core PID Format” in the *Fabric OS Procedures Guide*.

For more information about configuring SilkWorm 2000 (S08/S16/1RU)- or 3000 (F08/F16) series switches or the SilkWorm 6400 integrated fabric to interoperate in the same fabric with the SilkWorm 3900 (F32) and SilkWorm 12000 (M12) switches, contact your switch provider.

## *Important Notes*

This section includes the following topics:

- Security
- SilkWorm 2000 (S08/S16/1RU) Series Scalability Support
- Maximizing Fabric Availability During SW 3900 (2109-F32) Hot Code Activation
- Microsoft Internet Explorer Issue
- Interpreting Ambient and Internal Temperatures
- Other Important Notes

### Security

A security problem was observed in which an invalid certificate was not detected and the **secmodeenable** command completed successfully. (Copying the certificate file into itself created the invalid certificate.)

### SilkWorm 2000 (S08/S16/1RU) Series Scalability Support

Exhaustive testing has demonstrated that SilkWorm 2000 (S08/S16/1RU) series switches should not be deployed in fabrics that exceed 728 SAN devices.

### Maximizing Fabric Availability During SW 3900 (F32) Hot Code Activation

During code activation on a SilkWorm 3900 (2109-F32) running Fabric OS 4.1.0 or later, data keeps flowing between hosts and storage devices. However, fabric services are unavailable for a period of approximately 50-55 seconds. Possible disruption of the fabric can be minimized by ensuring that switches logically adjacent to the SW 3900 (2109-F32 directly connected via an ISL) are running Fabric OS v2.6.1 or later, v3.1.0 or later, or v4.1.0 or later. More information is available in the "Firmware Download" section of the *Fabric OS Procedures Guide*.

### Microsoft Internet Explorer Issue

An issue has been identified with Microsoft Internet Explorer 5.0 and 5.5 running on Windows NT 4.0. Normally, when you launch a copy of the Switch Explorer applet, the left panel displays a tree of switches in your fabric. Clicking on a tree node will cause the right panels to refresh to the currently selected switch. However, under NT 4.0 and IE 5.0/5.5, the right panel will *not* update for the second and subsequent instance of the Switch Explorer. Only the first instance works.

This issue has been identified and confirmed by Microsoft. For details, see the URL http://support.microsoft.com/default.aspx?scid=KB;en-us;242167&.

Workaround: There are two workarounds for this:

1. Always use a single instance of Switch Explorer on NT 4.0 and IE 5.0/5.5.
2. Install IE 6.0 SP1.

Alternatively, you might obtain a workaround directly from Microsoft for this problem. Please contact Microsoft support and supply them the information in the defect as described in the URL http://support.microsoft.com/default.aspx?scid=KB;en-us;242167&.

### Interpreting Ambient and Internal Temperatures

Brocade SilkWorm fabric switches are instrumented with temperature sensors to monitor the operating characteristics of the products and their environment. The following table explains how to interpret the various temperature readings that might be reported via Fabric OS v4.1.x and monitored via the Fabric Watch optional licensed firmware product. All temperatures are degrees C.

| Sensor | Minimum | Maximum | Comments |
|---|---|---|---|
| SilkWorm 12000 (2109-M12) | | | |
| Blowers | 0 | 40 | Sensor on each blower measures inlet (ambient) air temperature. |
| Port Blades | 0 | 74 | Each port blade has its own temperature sensor. Warning at 75° C.; blade shutdown at 80° C. |
| CP Blades | 0 | 74 | Each CP blade has its own temperature sensor. Warning at 75° C.; CP will be faulted at 80° C. |
| SilkWorm 3900 (2109-F32) | | | |
| Switch | 0 | 69 | Switch sends warning at internal temperature of 67° C. Switch begins 2-minute controlled shutdown at 69° C. |

## Other Important Notes

This table lists important information you should be aware of regarding Fabric OS v4.1.x.

| Area | Description |
|---|---|
| Ethernet port IP addresses | **NOTE:** When a SilkWorm 12000 (M12) fails over to its Standby CP for any reason, the IP addresses for the two logical switches move to that CP blade's Ethernet port. This might cause informational ARP address reassignment messages to appear on other switches in the fabric. This is normal behavior, since the association between the IP addresses and MAC addresses has changed. |
| Fabric OS CLI commands, failover and port disable | **NOTE:** Changing port configurations during a failover might cause ports to be in a disabled state. Reissue the command after the failover is complete to bring the port online. |
| Fabric OS commands | **Problem:** Under the root account, issuing Fabric OS commands in parallel through scripts could cause the Kernel task to consume excessive memory.<br>**Solution:** When using scripts to issue Fabric OS commands, it is always a good practice to wait for the command to finish before issuing another command. |
| Fabric OS switch beaconing | **NOTE:** Switch beaconing is not preserved across a failover. If you start beaconing, a failover will cause all lights to stop flashing.<br>**Solution:** If this occurs, reissue the command to resume switch beaconing. |
| Fabric OS, switch reboot and blade repair | **Problem:** Switch reboot will fail in the SilkWorm 12000 (M12) if there are faulty port blades.<br>**CAUTION: Verify all blades are in working order before performing a switch reboot. Switch reboot is meant to be issued after all repairs are complete. If you do a switch reboot and find a faulty blade, remove the blade and reboot will continue.**<br>**Solution:** Identify and remove the faulty blade using the **slotshow** command to reboot successfully. |
| Fabric routing, Fabric Manager: domain overlap | **NOTE:** Issuing a **configdefault** command followed by reboot or switch disable/enable will cause the fabric to segment due to possible domain overlap.<br>**Solution:** Before rebooting the fabric, ensure all switches are properly configured to avoid domain overlap between the logical switches. |
| Fabric Device Management Interface (FDMI) | **NOTE**: An HBA will be allowed to register even though the originating port is not in the HBA's registered port list. This is intended behavior included in order to test error cases. |

| Area | Description |
|---|---|
| Firmware download | **NOTE:** Review the "Firmware Download" section of the *Fabric OS Procedures Guide* before upgrading your firmware. |
| Firmware download | **Problem:** During a firmware download, rebooting or power cycling the CPs could cause the compact flash to be corrupted.<br><br>**CAUTION: Do not attempt to power off the CP board during firmware download to avoid high risk of corrupting your flash.** |
| HA switch reboot failure | **NOTE:** When a switch reboot or a failover occurs before POST is complete, the HA resynchronization will be disrupted. HA will not resynchronize until POST completes.<br><br>**CAUTION: Allow POST to complete before performing a switch reboot or failover to avoid disruptive failover.** |
| IP addresses | **CAUTION:** Do not set a switch or CP IP address for the Ethernet interface to 0.0.0.0. |
| IP addresses | **NOTE:** Supernetting of IP addresses, also known as CIDR, is not supported in Fabric OS. |
| License removal | **NOTE:** When a user removes a license from the switch, the feature is not disabled until the switch is rebooted or a switch disable/enable is performed. |
| LTO 2 tape drive support | When using the LTO 2 Tape Drive, the user must perform the following command on both Fabric OS 3.x and 4.x:<br><br>switch> portcfggport *port# where drive is plugged into*<br><br>This will allow the tape drive to function in point-to-point mode rather than in loop. |
| OS - hardware | **NOTE:** Bringing up port blades during a failover could cause the port cards to come up in a disabled state. This is a rare occurrence; when this happens, redo the port blade bringup after the failover on the SilkWorm 12000 (M12). |
| Security | **NOTE:** If HTTP_Policy is empty, you will not be able to log in and will receive a "Page not found" error. This is expected behavior for this policy. |
| Security, FCC list | **NOTE:** Adding switches to the FCC list does not automatically join the switches in a secure fabric. Add the switches to the FCC list and either reset the E_Ports or perform a switch disable and enable for the switches to join. |
| Security, PKICERT utility | **NOTE:** Before using the PKICERT utility to prepare a CSR, ensure that there are no spaces in the switch names of any switches in the fabric. The Web site that processes the CSRs and generates the digital certificates does not accept switch names containing spaces, and any CSRs that do not conform to this requirement will be rejected. |
| Security, SLAP fail counter and 2 switches | **NOTE:** The SLAP counter is designed to work when all the switches in the fabric are in secure mode. All the switches in the fabric must be in secure mode for accurate SLAP statistics. |
| Security, SSH login | **NOTE:** To properly connect SSH login, wait for Secure Mode to complete before rebooting or doing HA failover on the SilkWorm 12000 (M12). If Secure Mode is enabled and a reboot occurs before Secure Mode completes, SSH login will not connect and will go to the wrong MAC address because the active CP would change after a HA failover. |

| Area | Description |
|---|---|
| Security: empty policies | **CAUTION: If telnet, API, and serial port access policies are empty, the user will not be able to talk to the switch.**<br><br>**Solution:** Contact switch provider for the recovery procedure. |
| Security: error counter | **NOTE:** The telnet security error counter will count each violation as 1 and will add 1 for each auto-retry the telnet software executes. |
| Security: secure mode | **NOTE:** When in Secure Mode, if you upgrade from Fabric OS version 4.0 to 4.1, then downgrade to Fabric OS version 4.0, and upgrade back to Fabric OS version 4.1, the system prompt will ask the user to reset the Secure Mode password. |
| Security: secure mode, passwd telnet | **CAUTION: Using the passwd telnet command in Secure Mode to change the password results in all sessions using that password being logged out, including the session that changed the session.**<br><br>**This is expected behavior. The session will terminate if you change the password in Secure Mode.** |
| Web Tools and CLI commands | **NOTE:** If you use Web Tools to change the switch name, the SilkWorm 12000 (M12) telnet console prompt will not update to the new name until a new telnet window is opened. |
| Web tools, java bug | **Problem:** If a dialog box is displayed from the switch admin window of Web Tools and the user selects another dialog box from Web Tools, this causes a window display error.<br><br>**NOTE:** This is a known defect in Java 1.3 documented at www.java.sun.com, bug ID 4763605. To avoid the display error, open only one dialog box at a time or launch another switch admin session in a separate window. |
| WWN card FRU repair | **Problem:** If an HA failover or power cycle occurs during a FRU on the WWN card, the SilkWorm 12000 (M12) will become nonoperational.<br><br>**CAUTION: When performing a FRU on a WWN card, complete the FRU procedure before attempting an HA failover or power cycling the chassis.** |
| Zoning | **NOTE:** To use Zoning in a non-RCS (Reliable Commit Service) mode fabric (that is, in a fabric containing switches with firmware version other than v2.6.x, v3.1 and v4.1), it is recommended that all appropriate Zoning licenses are installed on all the switches in the fabric before attempting to bring a switch in to the fabric. Furthermore, if the Zoning license is to be removed, the user must make sure it is reinstalled properly on the affected switch before attempting the **cfgenable** zoning operation. Failure to follow these steps can cause inconsistency of Zoning configuration on the affected switches should a zoning operation be attempted from a remote switch in the fabric. On the affected switches, an error message will appear on the console or telnet session (can also be seen by doing **errShow**, **errDump**), indicating that zoning license was missing. |
| Zoning | **Problem:** Domain 0 in a zoning configuration file is illegal but was not previously enforced.<br><br>**NOTE:** Prior to upgrading a switch to v4.1, ensure that the fabric's zoning configuration does not contain the Domain ID 0 used for zoning. This is specific only to v4.x switches. |

## *Defects Closed in Fabric OS v4.1.1b*

| Defects Closed In Fabric OS v4.1.1b | | |
|---|---|---|
| **Defect ID** | **Severity** | **Description** |
| DEFECT000035172 | High | Summary: Failure to de-link file descriptor and access log rotation caused compact flash full.<br><br>Customer Symptom: Under the Fabric OS v4.1.x code stream there is a possibility for the compact flash to become full as a result of the Apache web server implementation. If the compact flash does become full, any process that attempts to write to the compact flash has a high probability of corrupting an open file. Compact flash full can cause a fail over. If a fail over does occur, the same risk is present in the new active CP in the SilkWorm 12000 (M12), which may cause the switch to go down.<br><br>Solution: Disable Web Tools access logging.<br><br>SR ID: RQST00000025348 |
| DEFECT000035187 | High | Summary: Add code to assist Hardware Watchdog debug.<br><br>Customer Symptom: The symptom seen for the watchdog is an unscheduled automatic reboot on a SilkWorm 3900 (M12) accompanied with the following error messages in the switch error log.<br><br>Error 02<br>--------<br>0x236 (fabos): Nov 05 16:26:43<br>Switch: 0, Info HAM-REBOOT_REASON, 4, Switch reboot, reason: Unknown<br><br>Error 01<br>--------<br>0x20c (fabos): Nov 05 16:26:05<br>Switch: 0, Info PD_TRACE-GENERIC, 4, Watchdog Register Contains: 0xf4000000<br><br>Note: The switch error log with watchdog register value should be ignored in the case when the user initiates a power cycle of the switch rather than the switch reboots on its own. Such error log should not be interpreted as a watchdog condition.<br><br>Solution: Add instrumentation code to capture the CPU snapshot to assist with fault isolation when a hardware watchdog is encountered.<br><br>Note: A hardware watchdog is a feature on the central processing unit (CPU) to monitor the state of the software and/or hardware. The |

| Defects Closed In Fabric OS v4.1.1b | | |
|---|---|---|
| **Defect ID** | **Severity** | **Description** |
| | | hardware watchdog checks in, or refreshes a certain register at a regular interval. When the hardware watchdog timer register did not get refreshed in a given time window, the switch is reset.<br><br>SR ID: RQST00000025100 |

## *Defects Closed in Fabric OS v4.1.1a*

| Defects Closed In Fabric OS v4.1.1a | | |
|---|---|---|
| **Defect ID** | **Severity** | **Description** |
| DEFECT000026554 | Critical | Summary: 3800 (F32) switch port is left INSYNC after a reboot of the array<br><br>Symptom: When a loop capable device negotiates to the F-port briefly, and NOS happens, the switch port does not complete port initialization at LIP phase. The port is left in the IN_SYNC state.<br><br>Solution: Enable the LPSM_OPEN_INIT_RCVD interrupt when appropriate, to prevent the port from hanging during port initialization. |
| DEFECT000026397 | High | Summary: Incorrect behavior in FOS 4.0.2c after ABTS is sent to the Name Server<br><br>Symptom: When HBA accepts first RSCN, and then communicates to the name server to get new information. Another RSCN is sent, which the HBA accepts and sends ABTS to the name server for the previous query. The name server accepts but then sends the reply to the query that's not needed.<br><br>Solution: Drop the iu if the sequence has been aborted. |
| DEFECT000026431 | High | Summary: The servers in the SAN failed to recover any drives when many drivers are power up at the same time.<br><br>Symptom: In a fabric with zoning turned on, the LTO tape subsystem was powered down. After the SAN stabilized, the LTO was powered up. After 8 to 10 minutes, the servers that connected to the switch (Fabric OS v4.0.0x) with the tape subsystem successfully recovered all drives. However, the servers that connected to other switches in the SAN failed to recover any drives.<br><br>Solution: From the traces, it shows that many PLOGIs were sent from the server after receiving the RSCNs, but only three of the PLOGI ACC were received back, other ACC to the PLOGI were dropped. The PLOGI and ACC were trapped by different filters. The solution is to update and synchronize the different filters to avoid this issue. |

| Defects Closed In Fabric OS v4.1.1a | | |
|---|---|---|
| **Defect ID** | **Severity** | **Description** |
| DEFECT000026615 | High | Summary: CP timeout during firmware upgrade<br><br>Symptom: During the firmware upgrade from Fabric OS 4.0.x to 4.1.1, the active control processor (CP) with 4.1.1 resets the other CP while the other CP is in the middle of upgrading firmware. This reset either corrupts the other CP's PROM or causes failure to the other CP's upgrade process.<br><br>Solution: Use the same time window for detecting heartbeat as Fabric OS 4.0.x. |
| DEFECT000033165 | High | Summary: Firmware download failed on Silkworm3900 (F32) when using Webtools to upgrade firmware from v4.0.2c to v4.1.1<br><br>Symptom: Using Web Tools to upgrade firmware from v4.0.2c to v4.1.1 causes ASSERT panic. Web Tools cannot abort the firmware download after the switch reboots. Subsequently, the user cannot restart another firmware download.<br><br>Solution: In single CP case, ASSERT is not needed. Removed the ASSERT. |