Fabric OS v3.1.1
Release Notes

June 19, 2003

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General Information

Fabric OS 3.1.1 is a maintenance release that contains fixes to a small number of additional issues detected during the latter part of the OEM qualification cycle. Aside from these fixes, it is functionally identical to Fabric OS 3.1.0. These Release Notes will refer to "Fabric OS 3.1" when making statements that apply to both Fabric OS 3.1.0 and 3.1.1.

Overview

About This Release

Fabric OS 3.1 represents the first major feature revision to the Fabric OS v3.0.2 firmware. It should be considered an upgrade and replacement for Fabric OS 3.0.2x, which support the SilkWorm 3200 (3534-F08) and SilkWorm 3800 (2109-F16).

Supported Switches

Like Fabric OS 3.1.0, Fabric OS 3.1.1 supports both the SilkWorm 3200 (3534-F08) and the SilkWorm 3800 (2109-F16).

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 and corresponding bar code are provided on the serial number label, as shown below.

Type 2109-M12	Type 2109-F32	Type 2109-F16	Type 3534-F08
S/N PPSSSSS	S/N PPSSSSS	S/N PPSSSSS	S/N PPSSSSS

The serial number label is located as follows:

- *SilkWorm 3200(3534-F08) and 3800(2109-F16) switches:* Front of chassis
- *SilkWorm 3900(2109-F32) switches:* Front of chassis
- *SilkWorm 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 switches:* Provide the switch WWN. Use the **wwn** command to display the switch WWN.

Documentation

Supporting Documentation

Fabric OS 3.1.1 uses the same documentation as Fabric OS 3.1.0.

In addition to these release notes, this release is supported by the following documentation:

IBM switch documentation:

• IBM TotalStorage SAN Switch 2109 Model F16 User's Guide (GC26-7439-03).

• IBM TotalStorage SAN Switch 2109 Model F16 Installation and Service Guide (SY27-7623-03).

• IBM TotalStorage SAN Switch 3534 Model F08 Installation and User's Guide (GC26-7559-00).

Brocade Fabric OS v3.1 software documentation:

• Fabric OS Reference v3.1.0

• Fabric OS Procedures Guide v3.1.0

• QuickLoop User's Guide v3.1.0

• Advanced Zoning User's Guide v3.1.0/v4.1.0

• Advanced Web Tools User's Guide v3.1.0

• Advanced Performance Monitoring User's Guide

• Distributed Fabrics User's Guide v3.1.0/v4.1.0

• Fabric Watch User's Guide v3.1.0

• ISL Trunking User's Guide v3.1.0/v4.1.0

• Secure Fabric OS User's Guide v3.1.0/v4.1.0

• MIB Reference v2.6.1/v3.1.0/v4.1.0

• Diagnostic and System Error Message Reference v3.1.0

These documents can be fount at:

http://www.storage.ibm.com/ibmsan/products/2109/library.html

Release Contents Summary

Fabric OS v3.1 provides the following enhancements and new features in addition to Fabric OS v3.0.2x.

- Support for the optionally licensed Secure Fabric OS product. Secure Fabric OS includes the following features:
    - A new, centralized fabric management model, in which all fabric-wide management operations must originate from the Fabric Configuration Server, or "trusted switch"
    - Management Access Controls to secure and limit all means of switch and fabric management
    - Switch Connection Controls and Device Connection Controls, which strictly control what switches and devices may participate in the fabric.
    - Standards-based authentication (using digital certificates and PKI, or Public Key Infrastructure) of all switches in the fabric, to prevent unauthorized switches from joining the fabric.

    - A workstation-based utility, PKICERT, to acquire and install digital certificates for all switches in the fabric which do not already have them. The digital certificates are required to enable secure mode.
  - Enhanced Manageability
    - Port naming
    - New WebTools switch explorer GUI. Replacement of the Fabric View panel with a "switch explorer" tree – an approach which allows WebTools to handle larger fabrics more efficiently
    - Fabric Watch security and health monitoring. Improved reporting of port and switch uptime statistics
    - API support
    - FDMI (Fabric Device Management Interface) Support for the Fabric Device Management Interface, allowing centralized management of some Host Bus Adapters via the fabric, including the download of new HBA firmware to the HBAs via the fabric.
    - Disabling and enabling of ports and of entire switches may now be made persistent across reboots and power cycles.
- Zoning enhancements:
    - New commands for searching the Zoning data base
    - Improved performance
    - More selective SCNs – they are now sent only to devices in zones where there has been a status change among the online members of those zones.
  - External Time Server Synchronization
    - Synchronizes time among switches in the fabric
    - Fabric time may be set from a CLI session or obtained from an external NTP server
  - Ports may be configured to negotiate directly to R_RDY flow control mode, simplifying operations by allowing the connection of many WAN gateway products without requiring a Remote Switch license.

For more details of these features, please refer to the user manuals.

Information About Secure Fabric OS

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

- *Secure Fabric OS Quick Start Guide*

More detailed product information may be obtained from the *Secure Fabric OS Users Guide*.

Important Notes

OS Requirements

The following table summarizes the versions of firmware and software that are supported in conjunction with this release:

	S08/S16 & 1RU	**2109-F16 & 3534-F08**	**2109-F32 & 2109-M12**	**Fabric Manager**
General compatibility	2.6.0c or later	3.0.2c or later	4.0.2d 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	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	3.0.2c or later

Note: For the Fabric OS v2.x switches or Fabric OS 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, please refer to "Updating the Core PID Format" in the *Fabric OS Procedures Guide*.

For more information about configuring SilkWorm 2000 series (2108-S08/S16 & 3534-1RU), SilkWorm 3000 series (2109-F16 & 3534-F08) or the SilkWorm 6400 integrated fabric to inter-operate in the same fabric with the SilkWorm 3900 (2109-F32) and SilkWorm 12000 (2109-M12) switches, contact IBM.

SilkWorm 2xxx Scalability Limits

Exhaustive testing has demonstrated that SilkWorm 2000 family switches (2108-S08/S16 & 3534-1RU) should not be deployed in fabrics whose size exceeds 500 user ports (device ports). Such switches will not be supported in fabrics that exceed this size, regardless of Fabric OS version.

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 2.6.1 or later, 3.1.0 or later, or 4.1.0 or later. More information is available in the Firmware Download section of the Fabric OS Procedures manual.

Microsoft Internet Explorer Issue

An issue has been identified with Microsoft Internet Explorer 5.0 and 5.5 running on Windows NT 4.0. The problem is as follows. Normally, when you launch a copy of the Switch Explorer applet, the left hand panel displays a tree of switches in your fabric. Clicking on a tree node will cause the right hand panels to refresh to the currently selected switch. However, under NT/4.0 and IE 5.0/5.5, the right hand panel will NOT update for the 2nd 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 2 workarounds for this:
1. Always use a single instance of the SwitchExplorer on NT/4.0 and IE 5.0/5.5
2. Install IE 6.0 SP1

Alternatively, it is possible that you can 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

SilkWorm fabric switches are instrumented with temperature sensors to monitor the operating characteristics of the products and their environment. The ambient temperature or environmental temperature is the recommended room temperature at which the switch is placed. It is the air intake of the chassis. Individual components within the switch may have a higher range. The command *tempShow* and Fabric Watch show temperature status of all components within the switch. The following table shows the ambient temperature and internal switch temperature ranges.

Sensor	Minimum	Maximum	Comments
SilkWorm 3200 (3534-F08)			
Ambient temperature	0° C	40° C	Recommended room temperature at which the switch is placed. Power supply may shutdown if room ambient is above 65° C
Switch temperature	0° C	74° C	Switch sends warning when internal temperature is higher than 74° C.
SilkWorm 3800 (2109-F16)			
Ambient temperature	0° C	40° C	Recommended room temperature at which the switch is placed. Power supply may shutdown if room ambient is above 55° C
Switch temperature	0° C	74° C	Switch sends warning at internal temperature above 74° C.

Other Important Notes:

This table lists important information you should be aware of regarding Fabric OS v3.1.0

Area	Description
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: switch> portcfggport *port# where drive is plugged into* This will allow the tape drive to function in point to point mode rather than in loop.
Security, PKICERT utility	**NOTE:** Before using the PKICERT utility to prepare a Certificate Signing Request (CSR), please 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: Secure mode, passwd telnet	**NOTE**: Using the passwd telnet command in Secure Mode to change the password results in all sessions using that password to be logged out including the session that changed the session. This is expected behavior. The session will terminate if you change the password in secure mode.

Area	Description
Web tools, Java bug	**Issue:** If a dialog box is displayed from the switch admin window of the Web Tools and the user selects another dialog box from Web Tools, this causes a windows display error. **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.
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, v3.1.0 and v4.1.0, 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 re-installed back properly on the affected switch before attempting **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.

Documentation Addendum

SilkWorm 3800 Hardware Reference Manual

(publication number 53-0001576-06)

The following statement should be added to the Port Status LED information for when the port status is "offline" in Table 3-1 "Port Side LED Patterns During Normal Operation", on page 3-2.

"When a Port Status LED indicator light is off, another possible hardware status is offline."

ISL Trunking User's Guide, v3.1.0/4.1.0

(publication number 53-0000520-02)

Page 1-3 of the ISL Trunking User's Guide, v3.1.0/4.1.0 contains the following statement:

"... ISL Trunking does not support the "LE", "L1", or "L2" **portcfglongdistance** modes. For information about these modes and Extended Fabrics in general, refer to the *Distributed Fabrics User's Guide*."

This statement should be modified to say the following:

"...Trunking is supported for normal E_Ports (referred to as L0 in the **portcfglongdistance** command) with LWL media up to 5km at the full speed permitted by the link. With LWL media, the throughput begins to fall off beyond 5km, due to normal latency effects. ISL Trunking does not support the "LE", "L1", or "L2" **portcfglongdistance** modes. For information about these modes and Extended Fabrics in general, refer to the *Distributed Fabrics User's Guide*."

Defects Closed Since Fabric OS 3.1.0

This table lists the defects that have been closed since the last GA release.

Defects Closed Since Fabric OS 3.1.0		
Defect ID	**Severity**	**Description**
DEFECT000024585	High	**Summary:** Watchdog reset the 2109-F16 switch due to Bus error **Symptom:** During hard HA reset on the 2109-M12, 2109-F16 switch got reset. The reason of the switch reboot was: "Watchdog reset the 2109-F16 switch due to Bus error"
DEFECT000025614	High	**Summary:** Problem with DCC policies on 2109-F16 and HP UX **Symptom:** Secure Fabric OS: With primary switch being the target side switch (storage units) running HP-UX, with policy that restricts the host to a specific port. By removing the cable from the port, a security violation is seen as expected. When plug back the cable to the original port, a security violation is seen as opposed to having data flow as normal like the Fabric OS v4.1.
DEFECT000025649	High	**Summary:** SCALABILITY: a bus error causes a switch to drop out of the fabric when doing zone propagation **Symptom:** A bus error causes a switch to drop out of the fabric when doing zone propagation
DEFECT000025701	High	**Summary:** QuickLoop Zoning in secure fabric mode when disabled, should log a warning log message to warn user that all QuickLoop devices can see each other. **Symptom:** This is a limitation of QuickLoop in specific cases where there is shared access to a QuickLoop device with no pure QuickLoop Zones present. In a Zoning configuration that contains one or more zones thathave both QuickLoop devices and fabric devices, fabric devices can access the QuickLoop devices in the same zone, and all QuickLoop devices in the same QuickLoop can access to each other. It is possible that during user configuration changes (i.e. adding/removing private hosts or storage, qldisabling a port, changing the zoning configuration, or adding/removing switches either by connecting or removing ISLs either explicitly or due to a device or ISL outage), there may be cases where QuickLoop Zoning can be disabled. **Solution:** Added a warning log message whenever QL zoning is disabled for any reason and an additional QuickLoop Zoning enable info log message.

Defects Closed Since Fabric OS 3.1.0		
Defect ID	**Severity**	**Description**
DEFECT000025816	High	**Summary:** 3.1 switch in InterOp fabric with McData 5000 panics when trying to open NS Table from Webtools **Symptom:** Opening Name Server table from Webtools for a 2109-F16 switch that is part of an InterOp fabric, causes the switch to panic. The switch at this point has to be power cycled.
DEFECT000025859	High	**Summary:** CRITICAL SYS-NOMEM, No memory on 2109-F16 and 3534-F08 switches while doing cfgenable and cfgdisable repeatedly **Symptom:** Doing cfgenable <different cfgfile>, sleep 300 seconds, cfgdisable, and sleep 30 seconds in a loop caused 2109-F16 and 3534-F08 switches to have no memory error. The defect usually happens within 7 cycles.
DEFECT000024911	Medium	**Summary:** CRITICAL FCPH-EXCHBAD, 1, bad xid 0x2aa, x: when traffic is running without effective zoning configuration in the fabric. **Symptom:** Running traffic without effective zoning configuration in the fabric resulted in seeing CRITICAL FCPH-EXCHBAD error
DEFECT000025020	Medium	**Summary:** Improper error code is returned -87 (ERR_SWITCH_ALLOCATION_FAILURE) when calling GetObjects() w/ OID for an HBA that has dropped out of the fabric
DEFECT000025048	Medium	**Summary:** Memory leak in changing switch name **Symptom:** The amount of leak is very small (32 Bytes) and will not have significant impact to the switch functions.
DEFECT000025059	Medium	**Summary:** Mail Server address and Domain Name are not persistently removed using the Remove option in dnsconfig command **Symptom:** Using option 3 of dnsconfig command to remove mail server address and domain name does not persistently remove those values. After a switch fastboot and reboot, the mail server address and domain name are still there.

Defects Closed Since Fabric OS 3.1.0		
Defect ID	**Severity**	**Description**
DEFECT000025148	Medium	**Summary:** Unable to get Telnet Parity or SwitchSupportLog when the target switch Ethernet cable is disconnected. The GET call returns –1 (ERR_INVALID_FABRICLIST) or –56 (ERR_ACCESS_ERROR). **Symptom:** Unable to get Telnet Parity or SwitchSupportLog when the target switch Ethernet cable is disconnected.
DEFECT000025230	Medium	**Summary:** 1G Storage port is slow to FLOGI with AN speed setting **Symptom:** Storage is delayed in logging in
DEFECT000025232	Medium	**Symptom:** API is able to download zoneset using CfgDownload
DEFECT000025311	Medium	**Symptom:** When generating a lot of Fabric Watch events on non-proxy switches, certain set of operations on the switch side with unconfiguring Fabric Watch values through API, causing traceBack Messages on v3.1 switch.
DEFECT000025314	Medium	**Summary:** After downloading v3.1.0 firmware in secure mode, the two switches segment out of the fabric **Symptom:** After firmware downloading in secure mode, fabricshow shows 14 switches in the fabric, while secfabricshow shows 15 switches in the fabric. After a while, the fabric segments.
DEFECT000025321	Medium	**Summary:** GetSingleObject on SwitchEnclosure of 2109-F16 running Fabric OS v3.1.0 returns Power Supply state as FAULTY when state reported by telnet is OK. **Symptom:** API running on Fabric OS v3.1.0 returns Power Supply state as FAULTY when state reported by telnet is OK.
DEFECT000025369	Medium	**Summary:** HBAFirmwareDownload fails unexpectedly over short and/or long time periods with error -1000. **Solution:** Need to make HBA Download CT-Hash thread safe.
DEFECT000025513	Medium	**Summary:** Switch panic when using FCIP **Symptom:** Switch panic and reboot when using FC IP to obtain management information of a fabric (in-band management).
DEFECT000025555	Medium	**Summary:** FM:185: GEN:Event # for v3.1 switch should start with "1" not "0" **Symptom:** In the FM Event table, the event number for switches with Fabric OS v3.1.0 code starts with "0" instead of the expected "1". From telnet, event log starts from count number 1. This behavior is not consistent with Fabric OS v4.1.0. or, v2.6.1 which start with "1".

Defects Closed Since Fabric OS 3.1.0		
Defect ID	**Severity**	**Description**
DEFECT000025568	Medium	**Summary:** 3.1: Unable to set EmailAddress of FWClass object, when EmailStatus is set to ENABLED. **Symptom:** Unable to set EmailAddress of FWClass object through API, when EmailStatus is set to ENABLED. This attribute should be set whether EmailStatus is Disabled or Enabled. **Solution:** Currently mail alert is automatically disabled in mailCfgSetMenu() The solution is to disable email alert only if there is a change in email addresses
DEFECT000025589	Medium	**Summary:** SCALABILITY: message "CRITICAL MQ-QWRITE, 1, mqWrite, queue = as_q, ..." shows up in a large fabric configuration. **Symptom:** Message "CRITICAL MQ-QWRITE, 1, mqWrite, queue = as_q, ..." is seen in a large fabric configuration (2+4+28 mixed configuration, which has 6 SilkWorm 12000, 6 SilkWorm 3800s, 22 SilkWorm 3900s, approximately 700 device ports, 95Kbytes zone size, and traffic.)
DEFECT000025621	Medium	**Summary:** Continuous HBAFirmwareDownload to same HBA fails around the 40th iteration.
DEFECT000025623	Medium	**Symptom:** some of 3.1 switches do not receiving HBA related events
DEFECT000025631	Medium	**Summary:** REGRESSION: AddAttributes() - Setting Portname on set of 10 Port OIDS fails.
DEFECT000025697	Medium	**Summary:** When RLSServiceEnable attribute of Switch Object is DISABLED, GetObjects on PortErrorsOID of NPort object should return error, still succeeds. **Solution:** Add check for disableRLS to interface functions.
DEFECT000025708	Medium	**Summary:** The 2109-F16 switch comes up as a QLoop when no license existed **Symptom:** Quickloop is turned on after upgrade from 3.0.2j to 3.1 despite the fact that no license existed. **Solution:** Make sure from software that 2109-F16 switch does not need a fabric license.
DEFECT000025733	Medium	**Symptom:** Unzoned Name Server (MS) should reject any registrations or deregistration command codes

Defects Closed Since Fabric OS 3.1.0		
Defect ID	**Severity**	**Description**
DEFECT000025753	Medium	**Summary:** Port LED behavior with segmented trunk ports **Symptom:** GUI -- In a segmented fabric due to a domain ID conflict, a "switchshow" shows "domain overlap" as the reason for the segmentation. The GUI only displays 'segmented' when the user clicks on the port for status. It does not list domain overlap as the reason.
DEFECT000025780	Medium	**Summary:** 3.1 code fail where port goes in sync while on 3.02x tree this symptom doesn't happen. **Symptom:** Ports went off-line and report no_sync on the port status. The ports can be re-activated by rebooting the switch or re-seating the GBIC on that port.
DEFECT000025831	Medium	**Summary:** CRITICAL MQ-QWRITE, 1, mqWrite, queue = fru_q, queue ID = 11ebade0 at task fcph **Symptom:** when running a script doing the following: 1. telnet to the swich 2. switcheanble 3. mqshow 4.logout start the loop again and continue for a while, the following message is displayed: 0x102af130 (tFcph): May 21 20:01:04 CRITICAL MQ-QWRITE, 1, mqWrite, queue = fru_q, queue ID = 11ebade0, msg = 102af440, errno = 0x3d0002 Traceback: _mqWrite+0x204 (0x104e0954) _scnPostMore+0xcc (0x104e471c) _scnPostMore+0x70 (0x104e46c0) _fcphTask+0x30 (0x104d2080) _vxTaskEntry+0x10 (0x108b88a4)
DEFECT000025842	Medium	**Summary:** Unable to get SwitchSupportLog when the target switch Ethernet cable is disconnected. The GET call returns -56 (ERR_ACCESS_ERROR).
DEFECT000025851	Medium	**Summary:** There is no online help page for command in v3.1.1_rc1 **Symptom:** When issue help with the command as argument, the output will show that no help is available.

Defects Closed Since Fabric OS 3.1.0		
Defect ID	**Severity**	**Description**
DEFECT000025852	Medium	**Summary:** JBOD disk disappearing after reboot. **Solution:** During loop init, our LISM timeout period is a fix value of 100 msec. In this particular setup, the JBOD will sometimes response to our LISM frames just after the timeout period when our switch port already entered LIP state. Once our switch received our own LIP, we enter LISM and the device will response to our LISM after 100 msec. This behavior will repeat itself indefinitely. We have changed the LISM timeout to vary from 100 msec to 400 msec, and wraps around