

Fabric OS v2.6.1

Release Notes

May 2, 2003

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Overview

Release Contents Summary

Fabric OS v2.6.1 provides the following enhancements in addition to Fabric OS v2.6.0x:

- Expanded security in the mixed fabric environment
- External Time Server Synchronization
- Enhanced code compatibility/manageability for mixed fabric environment
 - Persistent port and switch level enabling/disabling

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:

	SW 2xxx	SW 3200 & 3800	SW 3900 & 12000	Fabric Manager
General compatibility	2.6.0c or later	3.0.2c 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	3.0.2c or later
Recommended adjacent to SW 3900s 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

SilkWorm 2xxx Scalability Limits

Exhaustive testing has demonstrated that SilkWorm 2000 family switches 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 Hot Code Activation

During code activation on a SilkWorm 3900 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

(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&>.

Other Important Notes:

This table lists important information you should be aware of regarding Fabric OS v2.6.1

Area	Description
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.
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.
Web tools, Java bug	Problem: 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 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 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 2800 Hardware Reference Manual

(publication number 53-0001485-03)

Figure 1-1 on page 1-1 of the *SilkWorm 2800 Hardware Reference Manual*, has mis-labeled call-outs. The power supplies 1 and 2 are reversed, and should be labeled as follows:



New commands introduced in v2.6.1

shellFlowControlDisable

Disables XON/XOFF flow control to the shell task.

SYNOPSIS shellFlowControlDisable

AVAILABILITY admin

DESCRIPTION

This command allows an administrator to disable XON/XOFF flow control to the shell task. Disabling XON/XOFF flow control is the recommended behavior for the switch. Flow control will be disabled for both serial port and telnet access into the command shell.

Once disabled, even in the event of a power boundary, the switch will boot up with XON/XOFF flow control DISABLED.

LIMITATIONS None.

OPERANDS None.

EXAMPLE

```
admin> shellFlowControlDisable
```

```
Committing configuration...done.
```

SEE ALSO

ShellFlowControlEnable

shellFlowControlEnable

Enables XON/XOFF flow control to the shell task.

SYNOPSIS shellFlowControlEnable

AVAILABILITY admin

DESCRIPTION

This command allows an administrator to enable XON/XOFF flow control to the shell task. Disabling XON/XOFF flow control is the recommended behavior for the switch; however, if it becomes necessary to enable XON/XOFF flow control, it may be done with this command. Flow control will be enabled for both serial port and telnet access into the command shell.

Once enabled, even in the event of a power boundary, the switch will boot up with XON/XOFF flow control ENABLED.

LIMITATIONS None.

OPERANDS None.

EXAMPLE

```
admin> shellFlowControlEnable
Committing configuration...done.
```

SEE ALSO

ShellFlowControlDisable

Modified command introduced in v2.6.1

configure

Modify system configuration settings.

SYNOPSIS configure

AVAILABILITY admin

DESCRIPTION

Use this command to change the following system configuration settings:

- Fabric parameters
- Virtual channel settings
- Zoning Operation parameters
- RSCN Transmission Mode
- NS Pre-zoning Mode
- Arbitrated Loop parameters
- System services
- Portlog events enable

Note: Do not run this command on an operational switch. First disable the switch using the switchdisable command.

The **configure** command is navigated using a series of menus. Top level menus, and associated submenus consist of a text prompt, a list of acceptable values, and a default value (in brackets). Use the following options to control input:

Return

When entered at a prompt with no preceding input, accepts the default value (if applicable) and moves to the next prompt.

Interrupt (control-C)

Aborts the command immediately and ignores all changes made. This keystroke is common on many computers, but can be different on your system.

End-of-file (control-D)

When entered at a prompt with no preceding input, terminates the command and saves changes made. This keystroke is common on many computers, but may be different on your system.

Fabric Parameters

There are a number of settings which control the overall behavior and operation of the Fabric. Some of these values, such as the domain, are assigned automatically by the Fabric and may differ from one switch to another in the fabric. Other parameters, such as the BB credit, can be changed for specific applications or operating environments, but **must** be in agreement among all switches to allow formation of the fabric.

The Fabric parameters are as follows:

<i>1.1..1.1.1 Configure Command Fabric Parameters</i>		
Field	Default	Range
Domain	110	1..239
BB Credit	16	1 to 27
R_A_TOV	10000	4000 to 120000
E_D_TOV	2000	1000 to 5000
WAN_TOV	0	1000 to 120000
Data Field Size	2112	256 to 2112
Sequence Level Switching	0	0 or 1
Disable Device Probing	0	0 or 1
Suppress Class F Traffic	0	0 or 1
Sync IO Mode	0	0 or 1
VC Encoded Address Mode	0	0 or 1
Core Switch PID Format	1	0 or 1
Per-frame Route Priority	0	0 or 1
Long Distance Fabric	0	0 or 1

Descriptions of the switch fabric setting fields are as follows:

Domain	The domain number uniquely identifies the switch in a Fabric. This value is automatically assigned by the Fabric. The range of valid values varies depending on the switch model and other system parameter settings (refer to VC Encoded Address Mode).
BB Credit	The buffer-to-buffer (BB) credit represents the number of buffers available to attached devices for frame receipt. The range of allowed values varies depending on other system settings.
R_A_TOV	<p>The Resource Allocation Time Out Value (R_A_TOV) is displayed in milliseconds. This variable works with the variable E_D_TOV to determine switch actions when presented with an error condition.</p> <p>Allocated circuit resources with detected errors are not released until the time value has expired. If the condition is resolved prior to the time out, the internal time out clock resets and waits for the next error condition.</p>
E_D_TOV	Error Detect Time Out Value (E_D_TOV) is displayed in milliseconds. This timer is used to flag a potential error condition when an expected response is not received (an acknowledgment or reply in response to packet receipt, for example) within the set time limit. If the time for an expected response exceeds the set value, then an error condition occurs.
WAN_TOV	Wide Area Network Time Out Value (R_A_TOV) is displayed in milliseconds. Valid values are 1000 to 120000.
Data Field Size	The data field size specifies the largest possible value, in bytes, and advertises this value to other switches in the fabric during construction of the fabric as well as to other devices when they connect to the fabric. Setting this to a value smaller than 2112 may result in decreased performance.
Sequence Level Switching	<p>When Sequence Level Switching is set to 1, frames of the same sequence from a particular source are transmitted together as a group. When this feature is set to 0, frames are transmitted interleaved among multiple sequences.</p> <p>Under normal conditions, Sequence Level Switching should be disabled for better performance. However, some host adapters have performance issues when receiving interleaved frames from multiple sequences. When there are such devices attached to the fabric, Sequence Level Switching should be enabled.</p>
Disable Device Probing	When Disable Device Probing is set to 1, devices that do not register with the Name Server are not present in the Name Server data base. Set this mode only if the switch N_Port discovery process (PLOGI, PRLI, INQUIRY) causes an attached device to fail.
Suppress Class F Traffic	When this mode is set to 1, all class F interswitch frames are transmitted as class 2 frames. This is to support remote fabrics which involve ATM gateways which don't support class F traffic.
Sync IO Mode	When Sync IO mode is set to 1, FSPF frames are sent in synchronous mode (expecting ACKs back from the other side for every frame) which helps in detecting the failures in the link between the ATM gateways in remote fabrics.

VC Encoded Address Mode

When VC Encoded Address Mode is set to 1, frame source and destination address utilize an address format compatible with SilkWorm 1000 switches. Set this mode only if the fabric includes this type of switch. VC Encoded Address mode cannot be set in security mode. Also, when this mode is set, security mode cannot be enabled.

Core Switch PID Format

This is used to set the 256 port PID format that is used for core switches. This option enables single Domain port density higher than 16. This parameter must be set the same on all switches in the fabric. If your fabric contains 2000 series switches disable Core Switch PID format. By default Fabric OS 4.x switches have this PID format enabled.

VC Encoded Address Mode and Core Switch PID Format are mutually exclusive. They cannot both be enabled at the same time.

When interoperability mode is enabled, the "core switch PID format" parameter is set automatically. This enables a switch to work with other manufacturer's switches, as well as with core switches that have more than 16 ports. If a switch needs to be in the same fabric with other manufacturer's switches as well as with other switches that do not support 256-port PID format, that is, those before v2.4.1f, the "core switch PID format" parameter can be turned off using the configure command after the interopmode command is used to enable interoperability.

When interoperability mode is disabled, the "core switch PID format" parameter is automatically set to the opposite of the "VC Encoded Address Mode" parameter value. These two parameters are mutually exclusive and should not both be enabled. Make sure they are not both enabled inadvertently using the configure command. For more information on **interopmode** refer to the *Fabric OS Procedures Guide*.

Per-frame Route Priority

In addition to the eight virtual channels used in frame routing priority, support is also available for per-frame based prioritization when this value is set. When Per-frame Route Priority is set to 1, the virtual channel ID is used in conjunction with a frame header to form the final virtual channel ID.

Long Distance Fabric

When this mode is set to 1, ISLs in a fabric can be up to 100Km long. The exact distance level is determined by the per-port configuration on the E_Ports of each ISL. Both E_Ports in an ISL must be configured to run the same long distance level, otherwise, the fabric will be segmented. The Extended Fabric License is required to set this mode.

Virtual Channel Settings

The switch enables fine tuning for a specific application, by configuring the parameters for eight virtual channels. The first two virtual channels are reserved for switch internal functions and are not available for modification.

The default virtual channel settings have already been optimized for switch performance. Changing the default values can improve switch performance, but can also degrade performance. Do not change these settings without fully understanding the effects of the changes.

The Virtual Channel Setting fields are as follows:

1.1.1.1.2 Configure Command Virtual Channel Settings		
Field	Default	Range

VC Priority 2	2	2 to 3
VC Priority 3	2	2 to 3
VC Priority 4	2	2 to 3
VC Priority 5	2	2 to 3
VC Priority 6	3	2 to 3
VC Priority 7	3	2 to 3

Descriptions of the Virtual Channel Setting fields are as follows:

VC Priority Specifies the class of frame traffic given priority for a Virtual Channel.

Zoning Operation Parameters

The Zoning Operation Parameter fields are as follows:

Disable NodeName Zone Checking

Specify 1 to disable using Node WWN when specifying nodes in the zone database, or specify 0 to enable using Node WWN when specifying nodes in the zone data. The default value is 0. This value must be set to 1 for interoperability.

RSCN Transmission Mode

The RSCN Transmission Mode fields are as follows:

End-device RSCN Transmission Mode

Specify 0 for RSCN with single PID, 1 for RSCN with multiple PIDs, or 2 for Fabric RSCN. The default value is 0.

NS Operation Parameters

The NS Pre-zoning Mode fields are as follows:

Pre-zoned responses Mode

Specify 0 for Standard Mode, or 1 for Pre-zoning On. The default value is 0.

Arbitrated Loop Parameters

The Arbitrated Loop Setting fields are as follows:

<i>1.1.1.1.3 Configure Command Arbitrated Loop Settings</i>		
Field	Default	Range
Send FAN frames?	0	0 or 1
Always send RSCN?	0	0 or 1

Enable CLOSE on OPEN received?	0	0 through 4
--------------------------------	---	-------------

Descriptions of the Arbitrated Loop Parameter fields are as follows:

Send FAN frames?

Specifies that fabric address notification (FAN) frames be sent to public loop devices to notify them of their node ID and address. When set to 1, frames are sent; when set to 0 frames are not sent.

Always send RSCN?

Following the completion of loop initialization, a remote state change notification (RSCN) is issued when FL_Ports detect the presence of new devices or the absence of pre-existing devices. When set, a RSCN is issued upon completion of loop initialization, regardless of the presence or absence of new or preexisting devices.

Enable CLOSE on OPEN received?

If this is set, a CLS is returned immediately to an OPN if no buffers are available. This is required for TachLite.

System Services

The System Services fields are as follows:

<i>1.1..1.1.4 Configure Command System Services Parameters</i>		
Field	Default	Range
rstatd	Off	On/Off
rusersd	Off	On/Off
rapid	On	On/Off
thad	On	On/Off
Disable RLS probing	On	On/Off

Descriptions of the system service setting fields are as follows:

rstatd Dynamically enables or disables a server that returns information about system operation information through remote procedure calls (RPC). The protocol provides for a wide-range of system statistics.

The retrieval of this information is supported by a number of operating systems which support RPC. Most UNIX-based systems (HP-UX, Irix, Linux, Solaris, etc.) use the rup and rsysinfo commands to retrieve the information. See your local system documentation for the appropriate usage of these or equivalent commands.

rusersd Dynamically enables or disables a server that returns information about the user logged into the system through remote procedure calls (RPC). The information returned includes user login name, the system name, login protocol or type, login time, idle time, and remote login location (if applicable).

The retrieval of this information is supported by a number of operating systems

which support RPC. On most UNIX-based systems (HP-UX, Irix, Linux, Solaris, etc.) the command to retrieve the information is rusers. See your local system documentation for the appropriate usage of this or equivalent command.

- rapid Dynamically enables or disables a service that handles RPC requests for the API server.
- thad Dynamically enables or disables the threshold monitor.
- Disable RLS probing
This disables Read Link Error Status probing of the ALPAs.

Portlog Events Enable

Use these parameters to specify which events create an entry in the port log. The Portlog Events fields are as follows:

<i>1.1..1.1.5 Configure Command Portlog Events parameters</i>	
Field	(Valid Values) Default Value
start: a switch start or re-start event	(on, off): [on]
disable: a port is disabled	(on, off): [on]
enable: a port is enabled	(on, off): [on]
ioctl: a port I/O control is executed	(on, off): [on]
Tx: a frame is transmitted	(on, off): [on]
Tx1: a frame is transmitted, class 1	(on, off): [on]
Tx2: a frame is transmitted, class 2	(on, off): [on]
Tx3: a frame is transmitted, class 3	(on, off): [on]
Rx: a frame is received	(on, off): [on]
Rx1: a frame is received, class 1	(on, off): [on]
Rx2: a frame is received, class 2	(on, off): [on]
Rx3: a frame is received, class 3	(on, off): [on]
stats: port status or statistics	(on, off): [on]
scn: a state change notification	(on, off): [on]
pstate: a port changes physical state	(on, off): [on]
reject: a received frame is rejected	(on, off): [on]
busy: a received frame is busied	(on, off): [on]
ctin: a CT based request is received	(on, off): [on]

ctout: a CT based response is transmitted	(on, off): [on]
errlog: a message is added to the error log	(on, off): [on]
loopsn: a loop state change notification	(on, off): [on]
create: a task is created	(on, off): [on]
debug: generic debug info	(on, off): [on]
nbrfsm: neighbor state transition	(on, off): [on]
timer: timer	(on, off): [on]
sn: speed negotiation state	(on, off): [on]
nsRemQ: inter-sw NS query	(on, off): [on]
nsRemR: inter-sw NS response	(on, off): [on]
rscn: RSCN	(on, off): [on]
reconf: fabric reconfiguration	(on, off): [on]
LR1: LR2	(on, off): [on]

OPERANDS None.

EXAMPLE

To set the configuration parameters for a switch:

```

switch:admin> configure
Configure...
Fabric parameters (yes, y, no, n): [no] y
Domain: (1..239) [14] 50
BB credit: (1..27) [5]
R_A_TOV: (4000..120000) [10000]
E_D_TOV: (1000..5000) [2000]
WAN_TOV: (1000..120000) [0]
Data field size: (256..2112) [2112]
Sequence Level Switching: (0..1) [0]
Disable Device Probing: (0..1) [0]
Suppress Class F Traffic: (0..1) [0]
SYNC IO mode: (0..1) [0]
VC Encoded Address Mode: (0..1) [0]
Core Switch PID Format: (0..1) [1]
Per-frame Route Priority: (0..1) [0]
Long Distance Fabric: (0..1) [0]

Virtual Channel parameters (yes, y, no, n): [no] y
VC Priority 2: (2..3) [2]
VC Priority 3: (2..3) [2]
VC Priority 4: (2..3) [2]

```

VC Priority 5: (2..3) [2]
 VC Priority 6: (2..3) [3]
 VC Priority 7: (2..3) [3]

 Zoning Operation parameters (yes, y, no, n): [no] n
 RSCN Transmission Mode (yes, y, no, n): [no] n
 NS Operation Parameters (yes, y, no, n): [no] n
 Arbitrated Loop parameters (yes, y, no, n): [no] n
 System services (yes, y, no, n): [no] n
 Portlog events enable (yes, y, no, n): [no] n
 Committing configuration...done.
 switch:admin>

Outstanding Defects

[Brocade's OEM partners should insert a table of defects here if they wish to publish them to their end customers; otherwise delete this section. Refer to the OEM Final Disclosure Notes for the list of outstanding defects.]

This table lists open defects in Fabric OS v2.6.1.

Outstanding Defects		
Defect ID	Severity	Description

Defects Closed Since Last GA Release

This table lists the defects that have been closed since the last GA release, Fabric OS v2.6.0.

Defects Closed Since Last GA Release		
Defect ID	Severity	Description