Brocade Fabric OS v6.4.3_dcb3 for DELL M8428-k

Release Notes v1.0

November 19, 2014

Document History

Document Title	Summary of Changes	Publication Date
Brocade Fabric OS v6.4.3_dcb3 for DELL M8428-k Release Notes v1.0	Initial release	November 19, 2014

Contents

Overview

Fabric OS v6.4.3_dcb2 is a platform specific release to support the DELL M8428-k 28-port Converged 10Gb Switch module designed for DELL M1000E series chassis. This is a maintenance release for the DELL M8428-k module upgrades support from Fabric OS 6.3.1 to Fabric OS 6.4.3b. Other than exceptions noted in this document, this software release is functionally equivalent to Fabric OS v6.4.3 as it pertains to the Brocade 8000.

Warning:
1. Do not load the Fabric OS v6.4.3 or any other non-supported Fabric OS on DELL M8428-k
2. Do not remove the default software licenses.
3. Fabric OS v6.4.3_dcb2 is only supported on DELL M8428-k module. Do not load this on any other switch platform.

DELL M8428-k

The DELL M8428-k module is a high speed 28-Port Converged 10GbE embedded Switch designed for use with DELL M1000E Series chassis.

Feature Descriptions

Note that the DELL M8428-k module is custom designed for High-speed fabrics B and C on DELL M1000E Chassis. Following are specific features as related to this module:

- 28 Port Converged Switch with four 8Gb native external FC ports and 24 10GbE ports, eight of which are for external connectivity.

- M8428-k module is in NPIV mode and can be switched to full fabric mode with fabric license already installed.

- Maximum Switch bandwidth of 272Gb in Full Duplex mode.

- Maximum ISL Trunk Bandwidth: 32Gb (64Gb in Full duplex) on FC ports

- Extremely low Frame latency providing fast FC frame and IP packet switching

- Built on Brocade DCX and 8000 platform Technologies

- Dual Function FC Ports supports native connectivity to Brocade fabrics as well as NPIV connectivity to legacy McData fabrics and third party fabrics like Cisco MDS fabrics.

- Utilizes Web Tools and BNA mgmt tools to simplify fabric and IP network setup and ongoing maintenance to increase operational efficiency and maximize return on investment

- KR support on Internal ports.

- Protects existing investments by providing 8 Gbit/sec technology with auto-sensing capabilities to also recognize 4 and 2 Gbit/sec devices to existing FC fabrics and 10GbE for connection to existing IP networks while providing enhanced enthernet capabilities. Note the 16 internal 10GbE ports support both 10 or 1GbE with autosensing to the blade server.

- Fibre Channel Services

     o   Simple Name Server (SNS),

     o   Registered State Change Notification (RSCN),

- NTP, RADIUS, LDAP, Reliable Commit Service (RCS), and
- Dynamic Path Selection (DPS)

- CEE Services:
    - Spanning Tree Protocol (STP, MSTP, RSTP),
    - VLAN Tagging (802.1q),
    - MAC address learning and aging;
    - native FCoE Bridging and switching;
    - IEEE 802.3ad Link Aggregation (LACP);
    - access control lists based on VLAN, source, destination address, and port;
    - eight priority levels for QoS and greater than 1024 VLANs supported.
    - Priority-based Flow Control (PFC);
    - Data Center Bridging eXchange (DCBX)-Capabilities Exchange;
    - Enhanced Transmission Selection (ETS)

- Management Software:
    - Brocade Network Advisor (BNA) Professional, BNA 75 days Trial, and BNA Production:
    - BNA uses HTTP/HTTPS and SNMP protocols to communicate with the Brocade 8000 to manage and monitor CEE features
    - Enhanced Group Management (EGM), license is already included
    - BNA enhancements support the following FCoE/CEE functionality:
    - Discovery, connectivity map, and product list
    - Configuration management
    - Performance management
    - Fault management
    - Security management
    - HTTP/HTTPS, Telnet; SNMP (FE MIB, FC Management MIB, and IF-MIB for CEE); Web Tools; SMI-S; RADIUS

- Management Protocols
    - Industry-common Command Line Interface (CLI)
    - Security Shell (SSH) v2
    - Authentication, Authorization, and Accounting (AAA)
    - Simple Network Management Protocol (SNMP) v1, and v3
    - Unified username and passwords across CLI and SNMP

- Syslog
- Microsoft Challenge Handshake Authentication Protocol (CHAP)
- Remote Monitoring (RMON)
- Per-port ingress and egress counters
- Role-Based Access Control (RBAC)
- Power-On Self-Test (POST)
- Comprehensive bootup diagnostics
- Improved fan utilization requests to chassis management controller.

Optionally Licensed Fabric Services

Optionally licensed features supported for FC ports include:

- Brocade ISL Trunking — Provides the ability to aggregate multiple physical links into one logical link for enhanced network performance and fault tolerance.

- Brocade Advanced Performance Monitoring — Enables performance monitoring of networked storage resources. This license includes the TopTalkers feature.

- Brocade Fabric Watch — Monitors mission-critical switch operations. Fabric Watch includes Port Fencing capabilities.

Universal Temporary License Support

The above licenses are also available as Universal Temporary licenses, meaning the same license key can be installed on multiple switches. Universal Temporary license keys can only be installed once on a particular switch, but can be applied to as many switches as desired. Temporary use duration (the length of time the feature will be enabled on a switch) is provided with the license key. All Universal Temporary license keys have an expiration date upon which the license can no longer be installed on any unit.

Summary of Platform Specific Features

All software features of FOS v6.4.3 release that are supported on the Brocade 8000 platform are also supported on DELL M8428-k module except where noted in this document. In addition, the FOS v6.4.3_dcb2 release supports the following features on the DELL M8428-k module:

- Clause 73 10G/1G Autonegotiation

- Clause 73 KR auto tuning

- Layer 3 Static Routes

- IGMP Snooping

Feature Descriptions

- The sixteen server blade ports on DELL M8428-k (ports 1-16) have autosensing to allow either 1 or 10GbE operation. In addition these ports also support KR auto tuning.

- Static route feature provides ability to configure IP routes statically there by enabling IP routing functionality.

- IGMP Snooping provides a mechanism by which the DELL M8428-k can learn forwarding states on (STP unblocked) ports of a VLAN on which multicast data and control packets need to be forwarded.

Supported Mezzanine Cards

Refer to support.dell.com for supported mezzanine cards for each server platform.

Standards Compliance

This software conforms to the Fibre Channel Standards in a manner consistent with accepted engineering practices and procedures. In certain cases, Brocade might add proprietary supplemental functions to those specified in the standards. For a list of FC standards conformance, visit the following Brocade Web site: *http://www.brocade.com/sanstandards*

The DELL M8428-k conforms to the following Ethernet standards:
- IEEE 802.1D   Spanning Tree Protocol
- IEEE 802.1s   Multiple Spanning Tree
- IEEE 802.1w   Rapid reconfiguration of Spanning Tree Protocol
- IEEE 802.3ad   Link Aggregation with LACP
- IEEE 802.3ae   10G Ethernet
- IEEE 802.1Q   VLAN Tagging
- IEEE 802.1p   Class of Service Prioritization and Tagging
- IEEE 802.1v   VLAN Classification by Protocol and Port
- IEEE 802.1AB   Link Layer Discovery Protocol (LLDP)
- IEEE 802.3x   Flow Control (Pause Frames)

The following draft versions of the Converged Enhanced Ethernet (CEE) and Fibre Channel over Ethernet (FCoE) Standards are also supported on the M8428-k:
- IEEE 802.1Qbb   Priority-based Flow Control
- IEEE 802.1Qaz   Enhanced Transmission Selection
- IEEE 802.1   DCB Capability Exchange Protocol (Proposed under the DCB Task Group of IEEE 802.1 Working Group)
- FC-BB-5   FCoE (Rev 2.0)

Technical Support

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

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

2. **Switch Serial Number**

   The switch serial number is provided on the serial number label, examples of which are shown here:

   FT00X0054E9

   AVS0305E012

   The serial number label is located on the bottom of the module.

3. **World Wide Name (WWN)**

   When the Virtual Fabric feature is enabled on a switch, each logical switch has a unique switch WWN. Use the **wwn** command to display the switch WWN.

   If you cannot use the **wwn** command because the switch is inoperable, you can get the primary WWN from the same place as the serial number.

   License Identifier (License ID)

   There is only one License Identifier associated with a physical switch or director/backbone chassis. This License Identifier is required as part of the ordering process for new FOS licenses.

   Use the **licenseId** command to display the License Identifier.

Compatibility

DELL/Broade BNA Compatibility

Note that DELL M8428-k is compatible with Brocade's BNA 11.0 management software.

WebTools Compatibility

DELL M8428-k with FOS v6.4.3_dcb2 is supported with JRE 1.6.0 Update 16.

SMI Compatibility

- DELL M8428-k with FOS v6.4.3_dcb2 is supported with SMI-S agent 120.11.0.
- DELL M8428-k with FOS v6.4.3_dcb2 is supported with SMI-S Agent integrated with BNA 11.0

Fabric OS Compatibility

The following table lists the earliest versions of Brocade software supported in this release, that is, the *earliest* supported software versions that interoperate. Brocade recommends using the *latest* software versions to get the greatest benefit from the SAN. Please note that this interop matrix is relevant for the Native FC ports on DELL M8428-k products.

For a list of the effective end-of-life dates for all versions of Fabric OS, visit the following Brocade Web site:

http://www.brocade.com/support/end_of_life.jsp

Supported Products and FOS Interoperability	
Brocade 2000-series switches	Not supported, end of support (December 2007)
Brocade 3200, 3800	Not supported
Brocade 3000	Not supported
Silkworm 3250, 3850 and Brocade 3900, 4100, 4424, 4900, 24000, 7500, 7500E, 5000, 200E, 48000	v5.3.2c (2G and 4G platforms) v6.2.0g for 200E and v6.3.0 and later [2] (4G platforms only)
Silkworm 12000	v5.0.x [3] [4]
Brocade M5424	V6.3.1 and later
Brocade 8000	v6.3.1 or later
Brocade 7800, DCX and DCX-4S with FCOE10-24 or FX8-24 blades	v6.3 and later

Brocade DCX and DCX-4S with FC8-64 blade	v6.4
Brocade DCX, 300, 5100, 5300	v6.3.0 and later [2]
VA-40FC	v6.3.1, and v6.4.0 and later
Brocade DCX-4S	v6.3.0 and later
Brocade DCX with FS8-18 blade(s), Brocade Encryption Switch	Not Supported
Brocade DCX/DCX-4S/48000 with FA4-18 blade(s), Brocade 7600	v5.2.x or later (DCX requires v6.0.x or later, DCX-4S requires 6.2.x or later)
Mi10k, M6140, ED-6064, ES-3232, ES-4300, ES-4400, ES-4500, ES-4700 (McDATA Fabric Mode and Open Fabric Mode) [2] [4]	M-EOS v9.9.8 or later [1]
McDATA ED-5000 32-port FC director	Not Supported
Brocade 6505/6510/6520, Brocade DCX 8510-4/8510-8	V7.1.0 or later
Multi-Protocol Router Interop	
Brocade 7500 and FR4-18i blade	v5.1.0 and higher [5]
McDATA SANRouters 1620 and 2640	Not Supported

Table Notes:

[1] It is highly recommended that M-EOS products operate with the most recent version of M-EOS released and supported for interoperability. M-EOS 9.7.2 is the minimum version of firmware that is <u>supported</u> to interoperate with FOS 6.4. For support of frame redirection in McDATA Fabric Mode (interopmode 2), M-series products must use M-EOS v9.8 or later. For support of frame redirection in McDATA Open Fabric Mode (interopmode 3), M-series products must use M-EOS v9.9 or later. Only the ES-4400, ES-4700, M6140, and Mi10k may have devices directly attached that are having data encrypted or unencrypted.

[2] When directly attached to a Host or Target that is part of an encryption flow.

[3] Products operating with FOS versions less than v5.3.1b or v6.1.0e may not participate in a logical fabric that is using XISLs (in the base fabric).

[4] These platforms may not be directly attached to hosts or targets for encryption flows.

[5] McDATA 1620 and 2640 SANRouters should not be used with XPath or FOS-based routing (FCR) for connections to the same edge fabric.

Standard MIBS:

Please refer to the Dell Fabric OS MIB Reference Manual for FOS v6.3.1_dcb (53-1002117-01) for a list of supported MIBs.

Firmware Upgrades and Downgrades

Switches running v6.3.1_dcb can be upgraded to this release.

Other Important Notes and Recommendations

Configuration Notes:

1) Sometimes fcoeport may not login on the switch shipped out of factory; please follow the following procedure from the cmsh to bring the fcoeport online. This needs to be done only for the first time switch is brought up.
   - no fcoeport
   - fcoeport
   - shut
   - no shut

2) DELL M8428-k supports 128 sflow samples per second for IP connections. To avoid dropped samples ensure that the aggregated sflow samples do not exceed this value.

Documentation Updates

For Fabric OS v6.4.3_dcb2 documentation refer to Fabric OS v6.4.3 documentation.   When using the FOS v6.4.3 documentation, the DELL M8428-k Switch Module is equivalent to the BROCADE 8000 except where noted in this section. The most recent Fabric OS v6.4.3 documentation manuals are available on MyBrocade: *http://my.brocade.com/*

The following three documents are intended specifically for DELL M8428-k:

1) Dell Converged Enhanced Ethernet Command Reference
   for FOS v6.3.1_dcb (*53-1002115-01*)
2) Dell Converged Enhanced Ethernet Administrator's Guide
   for FOS v6.3.1_dcb (*53-1002116-01*)
3) Dell Fabric OS MIB Reference Manual
   for FOS v6.3.1_dcb (*53-1002117-01)*

The above documents supersede the FOS standard documentation.

In addition,please note the following updates to the standard FOS v6.4.3 documentation.

Brocade Fabric OS Administrator's Guide

On Table 90 – Buffer Credits

Add the Brocade M8428-k model with the following table information

Switch/blade model	Total FC Ports (per switch blade)	User Port Group Size	Unreserved Buffers (per port group)
M8428-k	4	4	580

On Table 91 – Supported Distances

Add the Brocade 8428-k model with the following table information

Switch/blade model	2 Gbps	4 Gbps	8 Gbps
M8428-k	582	291	145

Brocade Access Gateway Administrator's Guide

On Table 5 – Access Gateway default F-port to N-port mapping (page 53)

Brocade Model	Total Ports	GE-ports	N-ports	Default GE_ to N_Port Mapping
M8428-k	28	1-24	0,25,26,27	1, 2, 3, 4, 17, 18 mapped to 25 5, 6, 7, 8, 19, 20 mapped to 26 9, 10, 11, 12, 21, 22 mapped to 27 13, 14, 15, 16, 23, 24 mapped to 0

The Failover and Failback are enabled by default on all N_ports. The PG policy is enabled by default. The APC and ADS policies are disabled by default.

Defects

Defects Closed with Code Change in Fabric OS v6.4.3_dcb3

This section lists defects with Critical, High and Medium Technical Severity closed in Fabric OS v6.4.3_dcb3.

Note that when a workaround to an issue is available, it is provided; otherwise, no recommended workaround is available at this time.

Defect ID: DEFECT000529761	
Technical Severity: High	**Probability:** Medium
Product: FOS	**Technology:** Security
Reported In Release: FOS6.3.0	**Technology Area:** Security Vulnerability
Symptom: Bash shell security vulnerabilities (CVE-2014-6271, CVE-2014-7169, CVE-2014-7186, CVE-2014-7187). These vulnerabilities allow certain malformed function definition to bypass privilege boundaries and execute unauthorized commands.	
Condition: To exploit these vulnerabilities in FOS requires access to the CLI interface after user authentication through console, Telnet, and SSH connections. An authenticated user account could exploit this bug to gain privileges beyond the permission granted to this account, such as executing commands with root privilege.	
Workaround: Place switch and other data center critical infrastructure behind firewall to disallow access from the Internet; Change all default account passwords; Delete guest accounts and temporary accounts created for one-time usage needs; Utilize FOS password policy management to strengthen the complexity, age, and history requirements of switch account passwords. Upgrading to a FOS version including this fix prevents exposures to the four CVEs noted in the defect Symptom. In addition, exposures to CVE-2014-6277 and CVE-2014-6278 are prevented.	

Defect ID: DEFECT000532108	
Technical Severity: Medium	**Probability:** Medium
Product: FOS	**Technology:** Security
Reported In Release: FOS6.4.3_dcb	**Technology Area:** Security Vulnerability
Symptom: Security vulnerability CVE-2014-3566 makes it easier for man-in-the-middle attackers to obtain cleartext data via a padding-oracle attack,	
Condition: Following are the conditions that customers of Brocade SAN products could be exposed to this vulnerability: • An end user must use a web browser to access the FOS WebTools interface or use other HTTP clients such as Brocade Network Adviser to manage the switch. • A web browser or other HTTP client must support SSL protocol 3.0. • An intruder has to interject between an HTTP client and a SAN switch. • An intruder has to spend time monitoring the request-response formats to gain knowledge of the system operations. Total of 256 SSL 3.0 requests are required to decrypt one byte of HTTP cookies.	
Workaround: End users should configure web browsers or Brocade Network Advisor to disable SSLv3 support when accessing Brocade SAN switch. In addition, place Brocade SAN switch and other data center critical infrastructure behind firewall to disallow access from the Internet to minimize potential exposure to the attacks documented in this advisory.	

Defects Closed with Code Change in Fabric OS v6.4.3_dcb2

This section lists defects with Critical, High and Medium Technical Severity closed in Fabric OS v6.4.3_dcb2.

Note that when a workaround to an issue is available, it is provided; otherwise, no recommended workaround is available at this time.

Defect ID: DEFECT000485708	
Technical Severity: High	**Probability:** Medium
Product: FOS	**Technology:** Virtualization
Reported In Release: FOS6.4.3_dcb	**Technology Area:** NPIV
Symptom: 3rd party application fails when connected to a BR8470 FCoE switch running FOS v6.4.3_dcb in Access Gateway mode. Device re-FDISC on one of its logins is incorrectly rejected by the Access Gateway.	
Condition: This issue occurs under the following conditions: 1. Switch is in Access Gateway mode 2. Device has already logged into a NPIV port on Access Gateway 3. NPIV device has also already logged in (with FDISC) to the same port 4. NPIV device logs in again (with FDISC) on the same port	
Recovery: Bounce (offline, then online) the Access Gateway port.	

Defect ID: DEFECT000495303	
Technical Severity: Medium	**Probability:** Medium
Product: FOS	**Technology:** Monitoring/RAS
Reported In Release: FOS6.4.3_dcb	**Technology Area:** Logging
Symptom: Following upgrade, false AG-1029 messages appear in the logs.	
Condition: Port group exists with no N-ports in it and N-ports exist which are connected to more than one fabric switch.	

Defect ID: DEFECT000495892	
Technical Severity: Medium	**Probability:** Low
Product: FOS	**Technology:** Monitoring/RAS
Reported In Release: FOS6.4.3_dcb	**Technology Area:** Logging
Symptom: There are false positive RASLOG messages for sensor readings.	
Condition: Under certain environmental conditions.	

Defect ID: DEFECT000495999	
Technical Severity: Medium	**Probability:** Low
Product: FOS	**Technology:** Management
Reported In Release: FOS6.4.3_dcb	**Technology Area:** AAA
Symptom: The RADIUS protocol on the switch starts using the IP address of eth0 instead of the configured VLAN interface.	
Condition: Following a reboot.	

Defect ID:	DEFECT000498907	
Technical Severity: Medium		**Probability:** Medium
Product: FOS		**Technology:** Management
Reported In Release: FOS7.0.2		**Technology Area:** Web Tools
Symptom: After resetting switch to factory defaults with AMM Web interface on BR5470, switch goes through a limited cycle of rolling reboots.		
Condition: Happens when using AMM Web Interface to reset switch back to Factory defaults.		

Defect ID:	DEFECT000502245	
Technical Severity: Medium		**Probability:** Medium
Product: FOS		**Technology:** Monitoring/RAS
Reported In Release: FOS6.4.3_dcb		**Technology Area:** supportShow
Symptom: supportsave data is incomplete, missing portlog, os, etc various sections.		
Condition: Run supportsave on BR8470 with FOS v6.4.3_dcb installed. It doe snot apply to FOS v7.3.		
Workaround: sed < supportShow > supportShow.new -e '/\/etc\/init.d\/functions/a\ ECHO=echo'		

Defect ID:	DEFECT000513920	
Technical Severity: High		**Probability:** Low
Product: FOS		**Technology:** Security
Reported In Release: FOS7.1.0		**Technology Area:** Fabric Authentication
Symptom: CVE-2014-0224: OpenSSL before 0.9.8za, 1.0.0 before 1.0.0m, and 1.0.1 before 1.0.1h does not properly restrict processing of ChangeCipherSpec messages, which allows man-in-the-middle attackers to trigger use of a zero-length master key in certain OpenSSL-to-OpenSSL communications, and consequently hijack sessions or obtain sensitive information, via a crafted TLS handshake, aka the "CCS Injection" vulnerability.		
Condition: FOS switches that are not running LDAP or RADIUS with PEAP-MSCHAPv2 for authentication are not running OpenSSL client mode and are not at risk. To be at risk: • The FOS product must be running authentication using LDAP or RADIUS with PEAP-MSCHAPv2 protocols. • The OpenSSL server must also be running with a version of OpenSSL that contains this vulnerability (1.0.1 or 1.0.2-beta1)		
Workaround: For users requiring LDAP or RADIUS with PEAP-MSCHAPv2 for authentication, upgrading the OpenSSL server to a version of OpenSSL that does not contain this vulnerability will prevent exposure.		

Defects Closed with Code Change in Fabric OS v6.4.3_dcb1

This section lists defects with Critical, High and Medium Technical Severity closed in Fabric OS v6.4.3_dcb1.

Note that when a workaround to an issue is available, it is provided; otherwise, no recommended workaround is available at this time.

Defect ID: DEFECT000423640	**Technical Severity:** High
Summary: Upgrade the flash card driver to a newer version.	
Symptom: On rare occasions excessive writing to an old flash card may cause it to no longer be accessible during switch bootup.	
Probability: Low	
Feature: Embedded Platform Services	**Function:** Other
Reported In Release: FOS6.4.3_dcb	**Service Request ID:** ,1162762

Defect ID: DEFECT000461076	**Technical Severity:** High
Summary: 8428k switch, converged mode port with FCOE/LAN tagged traffic, the tagged traffic gets dropped	
Symptom: Customer is unable to use VMWare vmotion feature to move VMs from one server to another.	
Feature: FOS Software	**Function:** FCoE
Reported In Release: FOS6.3.1_dcb	**Service Request ID:** 1185804

Defect ID: DEFECT000461545	**Technical Severity:** High
Summary: 8428k panics on both paths when rebooting a VMWare host	
Symptom: Disruption occurred in entire chassis after reboot of one host.	
Feature: FOS Software	**Function:** FCoE
Reported In Release: FOS6.3.1_dcb	**Service Request ID:** 1186264

Defect ID: DEFECT000473267	**Technical Severity:** High
Summary: 8428-k QOS warning response traffic from Chassisdisable command after loopback tests	
Symptom: SSMD-1208 and SSMD-1210 RAS Logs were observed on console.	
Feature: CEE-FCOE	**Function:** FCOE DRIVER
Reported In Release: FOS6.3.1_dcb	**Service Request ID:** 1222374

Defects Closed with Code Change in Fabric OS v6.4.3_dcb

This section lists defects with Critical, High and Medium Technical Severity closed in Fabric OS v6.4.3_dcb.

Note that when a workaround to an issue is available, it is provided; otherwise, no recommended workaround is available at this time.

Defect ID: DEFECT000413903	**Technical Severity:**	High
Summary: M8428-k: CPU utilization 100% due to arpd and see the error code -1 with build v6.4.3_dcb_bld03		
Symptom: Switch should be in normal state and all the legal command should be accepted by switch.		
Feature: Embedded Platform Services	**Function:**	Other
Reported In Release: FOS6.4.0		

Open Defects in Fabric OS v6.4.3_dcb

This section lists defects with Critical, High and Medium Technical Severity open in Fabric OS v6.4.3_dcb.

Note that when a workaround to an issue is available, it is provided; otherwise, no recommended workaround is available at this time.

There are no new open defects in this release please see Fabric OS v6.4.3_dcb Release Notes.