



# Enterprise Operating System

Version 06.02.00

## Release Notes P/N 958-000190-620 Rev A

6/14/04

Copyright © 2004 McDATA Corporation. All rights reserved.

These release notes describe features, code fixes, and other information for enterprise operating system (E/OS) version 06.02.00.

Section	Page
<i>Applicable Products</i>	<a href="#">2</a>
<i>What's New in this Release</i>	<a href="#">2</a>
<i>Critical Issues Resolved</i>	<a href="#">3</a>
<i>Upgrade and Downgrade Considerations</i>	<a href="#">4</a>
<i>Prerequisites for Installing and Using E/OS 06.02.00</i>	<a href="#">7</a>
<i>Minor Code Enhancements &amp; Fixes in E/OS 06.02.00</i>	<a href="#">7</a>
<i>Outstanding Known Issues in E/OS 06.02.00</i>	<a href="#">11</a>

Section	Page
<i>Standards Compliance</i>	<a href="#">14</a>
<i>Supported Configurations</i>	<a href="#">15</a>
<i>Related Documentation</i>	<a href="#">16</a>
<i>Previous E/OS Releases</i>	<a href="#">17</a>

## Applicable Products

McDATA E/OS firmware version 06.02.00, part number 515-000010-620, is supported on the following products:

- Intrepid™ 6140 (ED-6140)
- Intrepid 6064 (ED-6064)
- Sphereon™ 3016 (Model 001 and 002)
- Sphereon 3032 (Model 001 and 002)
- Sphereon 3216
- Sphereon 3232
- Sphereon 4500 (first and second-generation)
- Sphereon 4300 (first and second-generation)

## What's New in this Release

E/OS 06.02.00 fixes the problem reports (PRs) listed under [Minor Code Enhancements & Fixes in E/OS 06.02.00](#), page 7.

E/OS 06.02.00 also includes features, enhancements, and fixes from all previous releases. For your convenience, all enhancements and resolved problem reports (PRs) in 06.00.00 are described under [Minor Code Enhancements & Fixes in E/OS 06.00.00](#), page 24 and those resolved in 06.01.00 are described in [Minor Code Enhancements & Fixes in E/OS 06.01.00](#), page 29.

---

## Second-Generation Switch Support

This release provides support for second-generation Sphereon 4300 and 4500 switches.

---

## Change to OSMS

Open Systems Management Server (OSMS) is now available as a standard feature. A feature key is no longer required to activate this feature. OSMS can be enabled/disabled via SANpilot, CLI, and EFCM.

---

## CBR Utility

A standalone Configuration Backup and Restore (CBR) utility is now available for customers that do not use EFCM for backing up and restoring user configuration data. You can use this utility to backup and restore configuration data from all switch and director products running E/OS versions 04.00.00 and higher, including 06.02.00.

The CBR utility is available for no charge in the McDATA support section at [www.mcdata.com](http://www.mcdata.com) or by contacting your sales representative or service provider. For details on CBR, refer to the *Configuration Backup and Restore Utility CBR Version 6.0.0 Installation and User Guide* (958-000370-000), also available from the same Website location.

To locate the CBR utility and publication on the Website:

1. Select *File Center* from the *Support* tab.
2. Log into *File Center*.
3. Select the *Documents* tab.
4. Select *E/OS Release Notes* as a category
5. Select *Search*.
6. Select *Download* for the *Backup/Restore Utility*.

---

## Critical Issues Resolved

Beginning with E/OS 06.02.00, if multiple NVRAM errors occur on a switch (or single CTP director) within an hour, the unit will fault, but will not be reset to defaults. The fault is intended to notify service personnel that multiple errors have been detected and the unit or CTP card should be returned for repair. Multiple failures within an hour have never been seen and are extremely unlikely.

## Upgrade and Downgrade Considerations

- For procedures to download firmware to the switch or director using the EFCM Element Manager interface or SANpilot interface, refer to the following:
  - The switch or director *Installation and Service Manual*. This publication provides complete procedures for obtaining firmware from the McDATA Website and downloading firmware to the switch or director using EFCM. Refer to Chapter 4 under “Managing Firmware Versions.”
  - Element Manager online help. This includes instructions for downloading firmware to the switch or director using the EFCM interface.
  - SANpilot User Manual. This provides procedures for downloading firmware to the switch or director in Chapter 6, under “Upgrading Firmware.”
  - SANpilot online help. This provides procedures for downloading firmware to the switch or director.
- Upgrading to E/OS 06.02.00 is non-disruptive to attached devices. Limitations to upgrades or downgrades are clearly identified to the user if there are any limitations to performing the operation.
- The switch or director is not required to be offline before performing an upgrade or downgrade operation.
- Some customer environments use application or host software that is affected by the restart of the director CTP during a HotCAT download operation. Applications that rely on inband management servers are especially prone to problems caused by processor restart. For example, an environment that uses Resource Measurement Facility (RMF) for Fibre connection (FICON) may be configured to poll the director or switch at regular intervals. The polling process could occur during a restart period, causing the application software (for example, RMF) to react adversely. If a restart occurs while an inband request is pending, host programming may change the status of the director or switch control unit port (CUP) to inaccessible or boxed. As a solution, shut down those applications driving inband requests during a firmware upgrade, then restart the applications after upgrade completion.

- Downgrading to release 05.05.00 is only supported on first-generation Sphereon 4300 Switches. Second generation Sphereon 4300 Switches can only be downgraded to release 05.05.01.
- You can only downgrade second-generation Sphereon 4500 Switches to release 05.03.01.
- All products must be running E/OS 05.00.00 or higher before upgrading to 06.02.00. If a switch is operating with a firmware level below 05.00.00, you must upgrade to version 05.xx.xx before installing version 06.02.00.

Upgrades and downgrades are only supported within a functional release, such as 06.xx.xx to/from 06.xx.xx, or from a maximum of one functional release to the next, such as 05.xx.xx to/from 06.xx.xx.

- Downgrading directly to a release before 05.00.00 from release 06.02.00 is not allowed. To downgrade to a release before 5.00.00, you must first downgrade to 05.xx.xx.
- If an Intrepid 6140 in a multiswitch fabric is downgraded below 06.02.00, ISLs could become segmented if there are any other switches in the fabric operating with an E/OS release below 06.01.00. Prevent this situation by downgrading all Intrepid 6140s in the fabric to 06.01.00 before downgrading any products in the fabric to 05.xx.xx. This problem only exists with Intrepid 6140s in the fabric. EFCM will post a warning message if a downgrade from 06.02.00 is attempted, but will allow the downgrade to continue if desired.

---

**NOTE:** The warning message will appear when downgrading any model from 06.02.00, but only applies to downgrade operations for the Intrepid 6140).

---

- Downgrades directly to release 05.03.xx from release 06.xx.xx are not concurrent when the switch/director is configured in Open Fabric operating mode. In other words, downgrades in open fabric mode cannot be done with the switch or director online without disrupting port operations.

You can work around this and downgrade first-generation Sphereon 4500s by downgrading to 05.02.00 first, then upgrading to 05.03.00. Since second generation 4500s cannot be downgraded below 05.03.01, they must be configured in McDATA Fabric interoperability mode to remain concurrent.

If this process is not followed, I/O through the switch/director may be significantly disrupted or stopped. Recovery for this situation can be accomplished by re-activating the current zone set. Downgrades to release 05.03.xx from 06.xx.xx in McDATA Fabric mode are not impacted and will continue to be concurrent. Downgrades directly to release 05.00.00, 05.01.00, or 05.02.00 will also continue to be concurrent.

- If installing a new or replacement second-generation Spheron 4300 or 4500 into an existing 05.xx.xx fabric, we recommend that you downgrade the unit before installing it into the fabric.
- Do not upgrade Firmware using SANpilot and Internet Explorer version 5.00.3315.1000x. If this is done, the download operation may not complete and may eventually time-out leaving the switch with the previous version of firmware. Be sure to check the Internet Explorer version number and install a new version if necessary before downloading firmware. Note that any version above 4.x can be used except version 5.00.3315.1000x.
- Before upgrading or downgrading firmware, it is highly recommended that you back up the switch or director configuration in case a failure should occur. EFCM provides an automated backup and restore process. Refer to Chapter 1 in your switch or director Product Manager or Element Manager User Manual under *Backing Up and Restoring Product Manager Data* for more details. SANpilot provides an option to print or save product configuration to a file. Refer to Chapter 6 in your SANpilot User Manual, under *Obtaining Product Information*, for more details. Note that a standalone Configuration Backup and Restore (CBR) utility is also available for these operations. Refer to [CBR Utility](#), page 3 for details.
- Downgrading to release 06.00.00 with the Preferred Path feature configured will require you to re-enter the 06.00.00 Preferred Path PFE key. McDATA recommends that Preferred Path be disabled before downgrading, if the 06.00.00 key is not available. To do this, deselect the check box for *Enable Preferred Path* in the *Configure Preferred Paths* dialog box.

A 06.00.00 Preferred Path PFE key can also be provided by contacting the McDATA Solution Center.

## Prerequisites for Installing and Using E/OS 06.02.00

If you are using EFCM applications, E/OS version 06.02.00 requires EFCM version 07.00.00 or later (check with McDATA Customer Support for the latest shipping version of EFCM). EFCM should be at the minimum level before installing the new E/OS firmware. Note that EFCM is not required for operating hardware products using E/OS.

Other McDATA products in the same fabric as E/OS version 06.02.00 must be at a minimum revision level for proper fabric operation. The minimum firmware levels are listed below, but it is recommended you upgrade to the latest shipping versions of each release (check with McDATA Customer Support for latest version).

- All E/OS-based products: Minimum version should be 06.00.00.
- ED-5000 Version 04.01.00
- ES-1000 Version 02.00.02

Although products may co-exist in a fabric running different levels of E/OS firmware, all products *must* be at the same major functional release level for optimum fabric stability and robustness.

## Minor Code Enhancements & Fixes in E/OS 06.02.00

E/OS 06.02.00 is based on version 06.01.00 and contains all fixes included in 06.01.00 and 06.00.00 releases. In addition, the following problem reports (PRs) have been fixed in 06.02.00. Enhancements and fixes are organized by their Problem Category, then their problem report number (PR Number). Each is assigned a Problem Category, based on whether it relates to the simple network management protocol (SNMP), Telnet command line interface (CLI), FICON management server, embedded management, open systems management server (OSMS), SANpilot, systems services, fabric services, hardware high availability management, maintenance port, hard zoning, or other issue.

PR Number	Description	Problem Category	Affected Model
20534	<b>Description:</b> Resolved problem where port hangs when moving a Fibre Channel cable or changing port speeds while the port is autonegotiating. <b>Customer Impact:</b> medium.	H/W High Avail Mgmt	Sphereon 4300 and 4500
19183, 21492, 20809	<b>Description:</b> Resolved issue causing fault 99 after running Nessus and Qualys Ethernet Security test scripts or Foundstone Ethernet security software. <b>Customer Impact:</b> medium.	System Services	E/OS Family
20511	<b>Description:</b> Resolved 99 fault on Sphereon 3232 which was caused by a port reset occurring while the Ethernet was processing frames. This fault resulted in the port reset not completing. Also added an event to record this condition if it occurs. <b>Customer Impact:</b> high	System Services	Sphereon 3232
20529	<b>Description:</b> Resolved CTP 00C0 fault. <b>Customer Impact:</b> medium.	System Services	Intrepid 6064 and 6140
20539	<b>Description:</b> Updated description for the 426 event from "Multiple ECC single bit errors occurred" to "NVRAM corruption detected during POST" (power on self test). <b>Customer Impact:</b> low.	System Services	E/OS Family
20591	<b>Description:</b> Firmware download failure due to checksum error is no longer causing subsequent attempts to fail. If a checksum failure is encountered, the firmware download will fail and terminate, releasing the utility buffer and clearing the licBusy flag. The management console will indicate that a flash write error has occurred. The user must then re-initiate the download. <b>Customer Impact:</b> low.	System Services	E/OS Family
20750	<b>Description:</b> Eliminated a small timing window where the switch could become stuck in a busy state during a downgrade from 06.xx.xx to 05.xx.xx. <b>Customer Impact:</b> medium.	System Services	E/OS Family
21177	<b>Description:</b> The backup CTP card will no longer fault with 17020 event if the amber light is on due to a power-on diagnostic failure. <b>Customer Impact:</b> low.	System services	Intrepid 6064 and 6140



PR Number	Description	Problem Category	Affected Model
21696	<b>Description:</b> The system error LED will now be illuminated if a single port error LED is illuminated. <b>Customer Impact:</b> low.	System Services	E/OS Family
25372	<b>Description:</b> Resolved isolated issue where a hardware component failure caused firmware to receive incorrect port status. If this failure proceeded a CTP swap (or failover, or IML/IPL), the incorrect status would cause firmware to improperly initiate an algorithm that would reset the failed port card and reset/re-initialize all numerically higher port cards. Devices connected to the reset/re-initialized port cards are therefore logged out and, depending on port and fabric configurations, may not recover without manual intervention. <b>Customer Impact:</b> high.	System Services	E/OS Family
22086	<b>Description:</b> Resolved issues where CUP port lost logical paths. IOS450E messages are indicated in the host logs. <b>Customer Impact:</b> high.	FICON Management Server	Intrepid 6064 and 6140
10224	<b>Description/Symptom:</b> connUnitPortStatUnitId is not returning correctly in a multiple variable bind query. <b>Customer Impact:</b> low.	SNMP	E/OS Family
10559	<b>Description/Symptom:</b> SNMP response for product type and serial number includes extra null characters. <b>Customer Impact:</b> low.	SNMP	E/OS Family
10568	<b>Description/Symptom:</b> If port modules are installed in a director without optics and the director is discovered through SNMP, the ports with missing optics will not be included in the total number of available ports. <b>Customer Impact:</b> low.	SNMP	Intrepid 6140
20426	<b>Description:</b> connUnitPortStatUnitId is now returning correctly in a multiple variable bind query. <b>Customer Impact:</b> low.	SNMP	E/OS Family
20751	<b>Description:</b> SNMP is now correctly reporting the number of ports for a port card without any small form factor pluggable (SFP) optics installed. <b>Customer Impact:</b> low.	SNMP	Intrepid 6064 and 6140

PR Number	Description	Problem Category	Affected Model
10777	<b>Description:</b> If a user attempts to show routes in a fabric through the EFCM application when using the Preferred Path feature and has prohibited the return route using the Element Manager <i>Configure Allow/Prohibit Matrix - Active</i> dialog box, the switch will fault with a 411 00 21 01 00 code. <b>Customer Impact:</b> high.	S/390 mode	E/OS Family
20769	<b>Description:</b> SANpilot will now display the installed feature keys in the Product Information.txt file. <b>Customer Impact:</b> low.	SANpilot	E/OS Family
21752	<b>Description/Symptom:</b> When configuring or modifying zones with SANpilot, a maximum of 140 nodes will be listed, regardless of how many devices are in the fabric. This is working as designed and is not a defect. Documentation has been updated to clearly show this limitation. <b>Customer Impact:</b> low	SANpilot	E/OS Family
20706	<b>Description:</b> WWN checking for ports indicating B_port in ELP has been disabled. <b>Customer Impact:</b> low.	Fabric Services	E/OS Family
21630	<b>Description/Symptom:</b> If E_port connections are prohibited and unit is upgraded from release 06.00.00 to release 06.01.00, the E_port to E_Port routes are not set after PDCMs are cleared. F_port to E_port routes are not impacted. This problem does not occur when upgrading from release 05.xx.xx to either 06.00.00 or 06.01.00. <b>Customer Impact:</b> medium.	Fabric Services	E/OS Family
21807	<b>Description:</b> After prohibiting, then allowing all ports, E_Port to E_Port flows will no longer all be stacked on the first available exit port for a given domain. <b>Customer Impact:</b> low.	Fabric Services	E/OS Family

PR Number	Description	Problem Category	Affected Model
22340	<b>Description:</b> Continuous improvements have been made to reduce the time that the name server is not available after upgrades or IML/IPLs. Excessive delays could result in devices logging out of the fabric during an upgrade or an IML/IPL can initiate if the device time out settings are exceeded. <b>Customer Impact:</b> high.	Name Server	E/OS Family
10244	<b>Description/Symptom:</b> If a fan is removed from the unit, it does not show-up as missing on the View Screen of SANPilot. Working as designed. A Sphereon Switch does not differentiate between a failed fan or a missing fan. <b>Customer Impact:</b> low.	Other	Sphereon 3232

## Outstanding Known Issues in E/OS 06.02.00

The following table lists issues that are known, but not fixed in E/OS 06.02.00. Workarounds and target releases for fixes are provided. Outstanding known issues are organized by their Problem Category then their problem number (PR Number). Each is assigned a Problem Category, based on whether it relates to simple network management protocol (SNMP), the Telnet command line interface (CLI), FICON management server, embedded management, open systems management server (OSMS), web server, systems services, or other issue.

PR Number	Description	Problem Category	Affected Model
25568	<b>Description/Symptom:</b> If a loop device is not a member of a zone and is added to a switch, all other devices on that loop will be dropped. <b>Customer Impact:</b> high. <b>Workaround/Recovery:</b> Zone all loop devices before adding them to an existing loop.	Hard Zoning	Intrepid 4300 and 4500

PR Number	Description	Problem Category	Affected Model
7562	<p><b>Description/Symptom:</b> Port Binding offenders degrade switch performance. When port binding is enabled, unauthorized and unfriendly devices (older devices and HBAs, such as Emulex 800 HBA) can bombard the switch with Fibre Channel login (FLOGI) requests as the switch rejects them. Processing these exchanges will degrade embedded port performance for fabric builds and valid FLOGI response time for other ports, etc. There are not a large number of older devices in the field that would cause this issue. If this problem does occur in the field, work around it by disabling port binding. Fix targeted for E/OS 08.00.00.</p> <p><b>Customer Impact:</b> medium.</p> <p><b>Workaround/Recovery:</b> There are not very many older devices in the field that would cause this problem. If this problem does occur, work around it by disabling the Port Binding feature.</p>	Fabric Services	Sphereon 4500
9318	<p><b>Description/Symptom:</b> Host times out on selective reset after cancel and control unit end (CUE). Sequence is control unit busy (CUB), cancel, selective reset, and CUE. Channel times out the selective reset for lack of a response. Fix is targeted for 07.00.00.</p> <p><b>Customer Impact:</b> medium.</p> <p><b>Workaround/Recovery:</b> Host recovery required.</p>	FICON Mgmt Server	Intrepid 6064 and 6140
22379	<p><b>Description/Symptom:</b> Remote paths to CUP are lost after SB2 timeout and subsequent IPL.</p> <p><b>Customer Impact:</b> high.</p> <p><b>Workaround/Recovery:</b> Host recovery required.</p>	FICON Mgmt Server	Intrepid 6064 and 6140
25495	<p><b>Description/Symptom:</b> Host unable to resume I/O to remote CUP after momentary loss-of-sync due to continual link busy (LBY) condition. The director is continually responding with LBY when host attempts to resume i/o to remote CUP after brief loss-of-sync and link recovery.</p> <p><b>Customer Impact:</b> high.</p> <p><b>Workaround/Recovery:</b> Will occasionally recover on its own, but host recovery may also be required.</p>	FICON Mgmt Server	Intrepid 6064 and 6140

PR Number	Description	Problem Category	Affected Model
25535	<p><b>Description/Symptom:</b> If a port fails due to power-up or hot-plug diagnostics, the associated 506 port failure event does not appear in the Event Log. The amber light illuminates, but a call home is not initiated. Fix is targeted for 07.00.00.</p> <p><b>Customer Impact:</b> medium.</p> <p><b>Workaround/Recovery:</b> Customer must notify support for replacement.</p>	HW High Avail Mgmt	E/OS Family
8994	<p><b>Description/Symptom:</b> Error “154 Invalid membership list” will occur if you delete the last member on the last page of the Switch Binding membership list, then delete the last member on the first page of the Switch Binding membership list. Fix is targeted for 07.00.00.</p> <p><b>Customer Impact:</b> low.</p> <p><b>Workaround/Recovery:</b> Add additional members to the end of the list, then delete the intended member.</p>	SANpilot	E/OS Family
25346	<p><b>Description/Symptom:</b> When using SANPilot to view the Node List, if there is a single FL device behind the port, there is no WWN listed. If there are multiple FL devices behind the port, the column titled “Devices on Loop” will show a link that can be selected to view the FL devices. Fix is targeted for 07.00.00.</p> <p><b>Customer Impact:</b> low.</p> <p><b>Workaround/Recovery:</b> None - only affects SANpilot with single FL device.</p>	SANpilot	E/OS Family
9748	<p><b>Description/Symptom:</b> warmStart and coldStart traps aren’t always received across Ethernet switches. Fix is targeted for 07.00.00.</p> <p><b>Customer Impact:</b> low.</p> <p><b>Workaround/Recovery:</b> none.</p>	SNMP	E/OS Family
20440	<p><b>Description/Symptom:</b> SNMP will send a trap for a port failure when a port has not failed. This occurs during port card insertion.</p> <p><b>Customer Impact:</b> service impact only.</p> <p><b>Workaround/Recovery:</b> Ignore failed optic message when installing new port cards.</p>	SNMP	E/OS Family

PR Number	Description	Problem Category	Affected Model
8824	<p><b>Description/Symptom:</b> NVRAM configuration reset. While the majority of NVRAM reset issues have been resolved, it is possible that the configuration held in NVRAM can be reset to defaults after either a power failure or user initiated power off. The possibility of this occurring is low, and we have not been able to reproduce this type of failure even on units where a failure has occurred once. Design changes are targeted for release 07.00.00.</p> <p><b>Customer Impact:</b> high.</p> <p><b>Workaround/Recovery:</b> If the configuration is reset after a power outage, re-enter the configuration or restore it from your backup. To minimize the impact, always maintain a current backup. This issue itself will not cause an outage, since the unit must have been powered off, but it could delay returning the unit to full operation.</p>	System Services	E/OS Family

## Standards Compliance

- E/OS 06.02.00 is compliant with the following Fibre Channel protocols:
  - FC-GS-3
  - FC-PH Rev 4.3
  - FC-PH-2
  - FC-PH-3
  - FC-GS-2
  - FC-FLA
  - FC-FG
  - FC-SW-2
- E/OS 06.02.00 is compliant with the Fibre Channel Element MIB (FE-MIB).
- E/OS 06.02.00 is compliant with the following MIB-II groups:
  - System
  - Interface

- Address Translation
- IP
- ICMP
- TCP
- UDP
- SNMP
- E/OS 06.02.00 is compliant with the following classes of service:
  - Class 2
  - Class 3
  - Class F

The SANpilot Interface requires an industry standard browser of release level 4.0 or higher supporting HTML version 4.0 and JavaScript version 1.0. For optimum results, the use of Microsoft's Internet Explorer 4.x or Netscape Navigator 4.x or higher is recommended. The browser software should be compliant with HTML 4.0 and Javascript 1.0 for full functionality, optimum performance and best aesthetics. Note that any version above 4.x can be used except version 5.00.3315.1000x.

---

**NOTE:** Do not upgrade E/OS using SANpilot and Internet Explorer version 5.00.3315.1000x. If this is done, the download operation may not complete and may eventually time-out leaving the switch with the previous version of E/OS. Install a new version if necessary before downloading E/OS 06.02.00.

---

---

## Supported Configurations

The *Supported Fabrics Configuration* document provides information on supported fabric configurations containing McDATA directors and switches. This document is located on [www.mcddata.com](http://www.mcddata.com) under Resource Library>Search by Product>Other>McDATA Supported Configuration Matrices. You may want to save the document to your desktop by right clicking and selecting *Save Target As*.

Information contained in this publication includes:

- Guidelines for configuring maximum end ports, unique zone members, ISLs per switch, members per zone, zones, devices supported, and switch types per fabric.
- Supported fabrics containing from one to eight switches.
- Supported fabrics containing from nine to 24 switches.
- Fabric topology examples.

---

## Related Documentation

The following documents provide additional support and information pertaining to E/OS release 06.02.00:

- Element Manager User Manual for your switch or director product:
  - Intrepid 6064 and 6140 Director (620-000172)
  - Sphereon 3032 and 3232 Switch (620-000173)
  - Sphereon 3016 and 3216 Switch (620-000174)
  - Sphereon 4500 Switch (620-000175)
- McDATA EFC Manager Software User Manual (620-000170)
- McDATA Enterprise Operating System Command Line Interface User Manual (620-000134)
- McDATA SANpilot User Manual (620-000160)
- McDATA Configuration Backup and Restore Utility CBR Version 6.0.0 Installation and User Guide (958-000370-000)



---

## Previous E/OS Releases

This section provides information on new features, fixes, and enhancements from E/OS 06.00.00 and E/OS 06.01.00.

---

### What's New in these Releases

#### Ethernet Switch Support

With E/OS 06.00.00 and higher, customers can now connect the management port on Sphereon Switches and Intrepid Directors to Ethernet switches or hubs. Prior to E/OS 06.00.00, only connections to Ethernet hubs were qualified and supported.

#### Full-Fabric Capability for Sphereon 4300

Unlike other switch and director products, a software feature key, also called a product feature enablement (PFE) key, controls Sphereon 4300 Switch E\_Port to E\_Port connections. Once the feature key is purchased and installed, the switch can be configured for E\_Port connection on any of the active ports.

The feature key includes distance support. With E/OS 06.00.00 and higher, the Sphereon 4300 ships standard with 5 buffer to buffer (BB) credits allocated to each port. After activation of the Full Fabric feature on a switch, every port will have 12 BB Credits allocated to support up to 12 km links at 2Gb/s speeds.

#### FA Management MIB 3.0

E/OS 06.00.00 and higher implements version 3.0 of the Fibre Alliance (FA) Management MIB. SNMP requests can be received in either version 3.0 or 3.1 of the Fibre Alliance (FA) MIB, and the switch will respond in the same version. The switch can also be configured to use a specific version for Traps generated by the switch.

#### Full Volatility

Full Volatility is an optional feature of E/OS 06.00.00 and higher that is enabled with a feature key. The Full Volatility feature is designed to support high-security environments, which require that customer data not be retained by the switch or director after power off.

The feature configures a switch or director so that no frame data is stored after a power off. Without Full Volatility, if the switch or director experiences a fault condition, a dump of the embedded

memory space is captured into non-volatile memory. This dump retains the last 30 frames transmitted from and last four frames transmitted to the embedded port. With Full Volatility installed, this dump does not occur when a fault condition occurs. Although this limits the amount of diagnostic information available for potential problem resolution, the vast majority of problems are typically resolved without the dump files.

Contact your sales representative to purchase a feature key for Full Volatility. To enable this feature, enable the feature key using instructions under “Configure Feature Key” in Chapter 3 of your switch or director Element Manager User Manual or “Installing Feature Keys” in Chapter 2 of the SANpilot User Manual. No additional configuration is required.

### **Hard Zoning for Sphereon 4300 and 4500 Switch Loop Ports**

E/OS 06.00.00 and higher extends Hard Zoning to loop (FL) ports on Sphereon 4300 and 4500 Switches. Previously, zoning on FL ports was regulated in software.

### **Interop Mode Default**

With E/OS 06.00.00 and higher, the factory-set default for Interop Mode has changed from McDATA Fabric 1.0 to Open Fabric 1.0.

### **CLI Threshold Alerts**

Beginning with E/OS 06.00.00, the Command Line Interface (CLI) allows you to set and monitor throughput threshold alerts (TTAs).

### **CLI show.eventLog Command**

With E/OS 06.00.00 and higher, the command line interface (CLI) show.eventLog command has been enhanced. The command now displays a link incident (LIN) alert log and event log.

### **MIHPTO Value**

Beginning with release 06.00.00, the internal MIHPTO (missing interrupt handler primary time out) value has been changed from 15 seconds to 3 minutes.

### **PDCM Enforcement on E-ports**

E/OS 06.00.00 and higher includes an enhancement that can prohibit connections to an E\_Port using prohibit dynamic connectivity masks (PDCMs). This feature conforms with the programming interface (PI) document. This allows you to use *Prohibit* and *Allow* attributes for

E\_Ports when configuring addresses in EFCM. In previous E/OS versions, you could not control E\_Ports using PDCMs.

Use extreme care when configuring PDCMs (prohibiting connections) on E\_Ports as mistakes can render paths unusable and cause very complex routing problems. These problems can be difficult to detect and sometimes appear as end-device issues. For more details and recommendations, refer to the *McDATA Products in a SAN Environment - Planning Manual* (620-000124).

## Route Management - Preferred Path

Preferred Path can be configured using either CLI or EFCM 08.01.00 or higher. In E/OS 06.00.00, this is an optional feature that is enabled with a feature key. In E/OS 06.02.00, this feature is available as part of the base firmware and a feature key is no longer required.

This feature requires that you enable the Insistent Domain ID. With Insistent Domain ID enabled, the domain ID configured for the Preferred Domain ID will become the active domain identification when the fabric initializes. Enable the Insistent Domain ID through:

- The *Configure Switch Parameters* dialog box in the switch or director Element Manager.
- The *Configure* page>*Switch* or *Director* tab>*Parameters* tab view in the switch or director SANpilot.
- The *config.switch.insistDomainId* command in the command line interface (CLI).

For predictable Preferred Path behavior, enable the Insistent Domain ID parameter on all switches and directors in the fabric.

Preferred Path allows you to influence the route of data traffic when it traverses multiple switches or directors in a fabric. If more than one interswitch link (ISL) connects switches in a fabric, you can specify an ISL preference for a particular flow. The data path consists of the source port of the switch or director being configured, the exit port of that switch or director, and the domain ID of the destination switch or director. Each switch or director must be configured for its part of the desired path to achieve optimal performance. You may need to configure Preferred Paths for all switches or directors along the desired path for proper multi-hop Preferred Path operation.

This feature allows use of the fabric shortest path first (FSPF) for any undefined or erroneous path definitions and uses standard rerouting algorithms when errors in the fabric occur. Thus if the defined route

is not valid, the standard, automatically generated route, will be used.

When a Preferred Path is defined for all of the ports on a switch, it provides a reasonable level of predictability because it isolates changes in routing only to the ports affected by a particular “preferred path.” Thus, if the “preferred path” goes away, only the ports assigned to the path are rerouted to other paths. Conversely, if the “preferred path” is re-established, the ports assigned to the path are rerouted back to the path.

The Preferred Path enhancement modifies the behavior of Open Trunking by providing guidance for the balancing function. The paths are balanced according to the Open Trunking guidelines after the Preferred Path selections have been assigned. Thus, the Preferred Path selections are eliminated from the list of candidates to be moved off of a flow.

The Preferred Path configuration allows you to assign the exit port assignment, but is subject to the standard rules regarding the FSPF protocol. Thus, if the indicated path is not a least cost route, the FSPF algorithm takes precedence. Likewise, any port that does not have a Preferred Path definition is subject to the static load-balance rules. And finally, a Preferred Path is not excluded from the FSPF path selection operation for undefined or recovered paths.

---

**NOTE:** Activating a new Preferred Path will cause a reroute to occur if the Preferred Path is different from the current path. In congested environments, with traffic on the current path, a reroute can cause an out of order frame (OOOF) at the destination device. Reroutes are a natural activity in any Fibre Channel fabric when the network is modified. For example, reroutes occur when ISLs are added or lost or when new switches are added to the fabric. Fibre Channel devices are designed to handle conditions like OOOFs, but some devices send error messages. In FICON environments, an IFCC error can result from an OOOF. To avoid these error messages, vary devices offline before a Preferred Path is activated, then return the devices to online status afterwards.

---

## SANpilot Enhancements

With E/OS 06.00.00 and higher, SANpilot enhancements include support for the SANtegrity Binding feature, Enterprise Fabric Mode, the Link Incident (LIN) Log and the Open Trunking Log.

### SANtegrity Binding

SANtegrity Binding includes a set of features to enhance security in SANs (Storage Area Networks) that contain a large and mixed group of fabrics and attached devices. Through these features you can allow or prohibit switch attachment to fabrics and device attachment to switches. You can access these features by purchasing a feature key, then enabling the key through SANpilot.

SANtegrity Binding features include Fabric Binding and Switch Binding.

- **Fabric Binding** - Using this feature you can allow specific switches to attach to specific fabrics in the SAN. This provides security from accidental fabric merges and potential fabric disruption when fabrics become segmented because they cannot merge. When the Enterprise Fabric Mode is enabled, Fabric Binding is also enabled.

Configure Fabric Binding in SANpilot using the *Fabric Binding* tab, available on the *Security* tab (*Configure* page). The *Fabric Binding* tab allows you to modify Fabric Binding configuration, save and activate any changes that have been made to Fabric Binding configuration, and deactivate Fabric Binding.

- **Switch Binding** - This feature allows you to configure which devices listed on the switch binding membership list (SBML) can communicate with specific switches or directors. When the Enterprise Fabric Mode is enabled, Switch Binding is also enabled.

Configure Switch Binding in SANpilot using the *Switch Binding* tab, available on the *Security* tab (*Configure* page). Use this tab to enable Switch Binding and restrict connections to specific ports (or all ports), disable Switch Binding, and configure the SBML.

### Enterprise Fabric Mode

Although this is not a keyed feature, its function depends on the Fabric Binding and Switch Binding features enabled by the SANtegrity Binding feature. To enable Enterprise Fabric Mode, the SANtegrity Binding feature must be installed on all the switches and directors in the fabric.

Enabling this mode automatically enables the following parameters. These parameters cannot be disabled unless the director or switch is offline. Disabling any of these parameters also disables Enterprise Fabric Mode.

- Rerouting delay
- Domain register for state change notifications (RSCNs)
- Insistent domain identification

Enable Enterprise Fabric Mode in SANpilot using the *EFM* tab, available on the *Security* tab (*Configure* page).

### Open Trunking Re-Route Log

This is a new log, available from the *Logs* tab, *Monitor* page. This log does not contain data unless the Open Trunking feature key is installed and enabled, and the system has performed re-routing.

The optional Open Trunking feature monitors the average data rates of all traffic flows on ISLs and periodically reroutes data flows from congested links to lightly loaded links. These rerouting activities are recorded in the Open Trunking Re-Route Log.

The Open Trunking Re-Route Log displays the following data:

- Date/Time: Date and time when rerouting occurred.
- Receive Port: The decimal receive-port number on the local switch associated with the flow that was rerouted.
- Target Domain: The decimal domain ID associated with the flow that was rerouted.
- Old Exit Port: The decimal exit-port number on this switch that the flow used to use to get to the target domain.

### Link Incident (LIN) Log

This is a new log, available from the *Logs* tab, *Monitor* page. The Link Incident Log provides the following information about link incidents:

- Date/Time: Date and time when the link incident event occurred.
- Port: The port on which the link incident occurred.
- Link Incident Event: An ASCII string describing the link incident event.

## Unified Management Mode

In E/OS 06.00.00 and higher, the separate S/390 and Open Systems modes of operation for FICON and Open Systems networks have been consolidated.

In EFCM, this feature changes the function of the *FICON Management Style* (previously S/390 operating mode) and *Open Systems Management Style* (previously Open Systems operating mode) options. These options are available from the *Management Style* option on the *Product* menu. If E/OS 06.xx.xx is installed on the switch or director and you are using EFCM 08.xx.xx, you do not have to set the switch or director to the *offline* state before changing management styles. Previously, you had to set the product to *offline* state before changing management styles or operating modes.

As another difference, you can now switch to *Open Systems Management* style even if the optional FICON Management Server feature is installed. Previously, you could only use *FICON Management Style* if this feature was installed.

As a final difference for E/OS 06.xx.xx, you can now enable the Open Systems Management Server and FICON Management Server features simultaneously. Previously, you could only enable one type of management server feature at a time for a switch or director.

---

## Critical Issues Resolved

The following critical issues were resolved in this release.

### NVRAM Integrity Errors

All critical NVRAM issues resolved in maintenance releases 05.01.00 and 05.02.00 are included in release 06.xx.xx.

E/OS 05.02.00 included an enhancement that eliminates customer outages in certain types of NVRAM failures. This resolves the problem that occurred in E/OS 05.01.00 where the NVRAM validation routine faults the processor when it detects an error in the configuration data. On director products this resulted in a failover to the redundant CTP card, with no customer interruption of service. On switch products with no redundant CTP, the processor IPLs and resets the configuration to factory defaults.

E/OS 05.02.00 included a new correction algorithm, which allows the switch to automatically recover from errors detected during system runtime. During operation, the firmware uses the configuration data

stored in DRAM to refresh NVRAM if an error is detected during the validation process. The processor will not be faulted and no IPL will occur. An event will be logged when this occurs. Customer operation is not impacted on either switches or directors.

In previous releases, if a validation error is discovered on the same CTP card in a director product twice during a one-hour period, the CTP card would fault and fail over to the backup CTP card. If multiple errors occurred within an hour on a switch, the unit will fault and be reset to defaults. Beginning with E/OS 06.02.00, if multiple NVRAM errors occur on a switch (or single CTP director) within an hour, the unit will fault, but will not be reset to defaults. The fault is intended to notify service personnel that multiple errors have been detected and the unit or CTP card should be returned for repair.

Multiple failures within an hour have never been seen and are extremely unlikely.

---

### **Minor Code Enhancements & Fixes in E/OS 06.00.00**

The following table lists Minor Code Enhancements and fixes for E/OS 06.00.00. E/OS 06.00.00 is based on version 05.xx.xx and contains all fixes included in E/OS 05.01.00, 05.02.00, and 05.03.00. In addition, the following problem reports (PRs) have been fixed. Enhancements and fixes are organized by their Problem Category, then their problem report number (PR Number). Each is assigned a Problem Category, based on whether it relates to the simple network management protocol (SNMP), Telnet command line interface (CLI), FICON management server, embedded management, open systems management server (OSMS), SANpilot, systems services, fabric services, hardware high availability management, maintenance port, hard zoning, or other issue.



PR Number	Description	Problem Category	Affected Model
8337	<b>Description:</b> If a counter threshold alerts (CTA) is defined with a port type (i.e. fport, eport) the “all” option for the Perf.ThresholdAlerts.Counter.RemovePort command will not operate as expected. <b>Customer Impact:</b> low.	CLI	E/OS Family
8343	<b>Description:</b> Show.Open.Trunking.Config display now indicates actual Default values for either Credit Starvation or Credit Threshold. <b>Customer Impact:</b> low.	CLI	E/OS Family
8344	<b>Description:</b> The “Type” displayed for the Show.NameServer and Show.NameServerExt commands are now consistent. <b>Customer Impact:</b> low.	CLI	E/OS Family
8346	<b>Description:</b> When in comma delim mode true, the Show.NameServer command now displays the FC4 Types table. <b>Customer Impact:</b> low.	CLI	E/OS Family
8343	<b>Description:</b> Show.Open.Trunking.Config display now indicates actual default values. <b>Customer Impact:</b> low.	CLI	E/OS Family
8397	<b>Description:</b> Enhancement Request. Added Fibre Channel (FC) Address to Show. Switch command. <b>Customer Impact:</b> enhancement.	CLI	E/OS Family
8784	<b>Description:</b> Changing Port Speed on all Ports no longer causes Enterprise Fabric Connectivity Management (EFCM) “Resource Unavailable” error. <b>Customer Impact:</b> medium.	Embedded Mgmt	Intrepid 6140
8214 and 9868	<b>Description:</b> Resolved issue where S-BAR or port card erroneously fails due to internal port anomalies. Devices may experience an out of order frame when this error is detected, and the frame is dropped. <b>Customer Impact:</b> high.	HW High Avail Mgmt	Intrepid 6064 and 6140 and Sphereon 32xx

PR Number	Description	Problem Category	Affected Model
8534	<b>Description:</b> The functional code will no longer fail a serial crossbar (SBAR) when receiving only one health check (HC) error. Instead, a 508 error will occur against the port reporting the error (or a 442 event if it's the embedded port reporting the error). The only way an SBAR will fail due to a HC is if at least two ports report a problem after a HC. <b>Customer Impact:</b> medium.	HW High Avail Mgmt	Intrepid 6140 and 6064
9886	<b>Description:</b> Resolved issue where both SBARs would fault from 508 errors with reason code = 0x8F. <b>Customer Impact:</b> high.	HW High Avail Mgmt	Intrepid 6140 and 6064
8726	<b>Description:</b> Will not send consistent remote state change notification (RSCN) format on IPL or code load when domain RSCNs are enabled. <b>Customer Impact:</b> high.	Fabric Services	Intrepid 6140
8620	<b>Description:</b> Acquire change authorization (ACA) command no longer contains 896 bytes of extra zeros. <b>Customer Impact:</b> low.	Fabric Services	E/OS Family
8843	<b>Description:</b> 700b fault when starting 24 multi alpha ports has been resolved. <b>Customer Impact:</b> medium.	Fabric Services	Sphereon 4500
9262, 10037	<b>Description:</b> Will now avoid segmenting an E-port when an illogical exchange fabric parameters (EFP) frame is received. <b>Customer Impact:</b> high.	Fabric Services	E/OS Family
9585	<b>Description:</b> Adding a bad interswitch link (ISL) between switches will no longer result in all the ISLs between the switches becoming segmented. <b>Customer Impact:</b> high.	Fabric Services	E/OS Family
8578	<b>Description:</b> No longer missing response from FICON Management Server (FMS). <b>Customer Impact:</b> high.	FICON Mgmt Server	Intrepid 6140 and 6064
8616	<b>Description:</b> No longer missing test initialization response (TIR) responses from remote control unit port (CUP). <b>Customer Impact:</b> high.	FICON Mgmt Server	Intrepid 6064

PR Number	Description	Problem Category	Affected Model
9851	<b>Description:</b> Intermittent fault 73 while driving simultaneous local and remote recovery to the CUP has been resolved. <b>Customer Impact:</b> high.	FICON Mgmt Server	Intrepid 6064
9586	<b>Description:</b> 1520B fault when running recovery on multiple paths from a single logical partition (LPAR) has been resolved. <b>Customer Impact:</b> high.	FICON Mgmt Server	Intrepid 6140 and 6064
10007	<b>Description:</b> A device will now be able to send frames to itself after the active zone set (which it is a member of) is deactivated. <b>Customer Impact:</b> medium.	Hard Zoning	E/OS Family
8580	<b>Description:</b> Intrepid 6140 good control processors (CTPs) no longer power up into two different baud rates. <b>Customer Impact:</b> low.	Maint Port	Intrepid 6140
9251	<b>Description:</b> When Open Systems Management Server (OSMS) is disabled via EFCM, the switch will no longer send the RNID frame. <b>Customer Impact:</b> medium.	OSMS	E/OS Family
7444	<b>Description:</b> Resolved issue where WWN is not available on second service processor. This change requires any ED-5000s in the same fabric to be upgraded to version 02.01.00 or later before 06.01.00 E/OS is installed on the Intrepid or Sphereon products. <b>Customer Impact:</b> medium.	Other	E/OS Family
7902	<b>Description:</b> If an ISL cable is slowly removed, issue is resolved where occasionally a LIN is not generated and, therefore, a DRLIR or RLIR for the incident was not generated. <b>Customer Impact:</b> medium.	Other	E/OS Family
8127 & 8685	<b>Description:</b> Firmware download timeouts no longer occur on extremely busy systems. <b>Customer Impact:</b> high.	Other	E/OS Family
9940, 9185, 9908	<b>Description:</b> Improvements were made to reduce the time that the name server is not available after an IPL (the IPL occurs after firmware upgrades). <b>Customer Impact:</b> high.	Other	E/OS Family

PR Number	Description	Problem Category	Affected Model
9751	<b>Description:</b> If a CTP card is detected bad and fails during power up, the second CTP card will no longer erroneously fail. <b>Customer Impact:</b> high.	Other	Intrepid 6140 and 6064
9263	<b>Description:</b> During a firmware upgrade, if the "Download firmware file from" field is left blank or random text is entered in this field, the error, "System File Error Firmware Successfully Loaded," will no longer occur when you click the Send and Load Firmware button. <b>Customer Impact:</b> low.	SANpilot	EOS Family
9394	<b>Description:</b> Attached Node List will no longer display a null WWN if you are in a one-switch fabric. <b>Customer Impact:</b> medium.	SANpilot	E/OS Family
8995	<b>Description:</b> Firmware downloaded to 4500 units through Enterprise Fabric Connectivity Management (EFCM) will no longer time out. <b>Customer Impact:</b> medium.	System Services	Sphereon 4500
9549	<b>Description:</b> If a persistent NVSRAM failure is detected on the backup CTP card, the 420 event (backup CTP non-volatile memory failure) will now be throttled to prevent flooding the internal event log and FICON host with event messages. <b>Customer Impact:</b> high.	System Services	Intrepid 6064, 6140
10038	<b>Description:</b> Improvements have been made to increase code-load performance. This change will only take effect when migrating from a release that has the change (05.03.00) to a higher release that also has the change (06.00.00). <b>Customer Impact:</b> high.	System Services	E/OS Family
10227	<b>Description:</b> Updated Ethernet drivers to resolve issue where switch loses connection to EFCM and can no longer be managed until switch is power cycled. <b>Customer Impact:</b> high.	System Services	Sphereon 4300/450, Intrepid 6140
8483	<b>Description:</b> Multiple variable bindings are now supported for a simple network management program (SNMP) get-next operation. <b>Customer Impact:</b> high.	SNMP	E/OS Family

## Minor Code Enhancements & Fixes in E/OS 06.01.00

The following table lists Minor Code Enhancements and fixes for E/OS 06.01.00. E/OS 06.01.00 is based on version 06.00.00 and contains all fixes included in that release. In addition, the following problem reports (PRs) have been fixed. Enhancements and fixes are organized by their Problem Category, then their incident report number (IR Number). Each is assigned a Problem Category, based on whether it relates to the simple network management protocol (SNMP), Telnet command line interface (CLI), FICON management server, embedded management, open systems management server (OSMS), SANpilot, systems services, fabric services, hardware high availability management, maintenance port, hard zoning, or other issue.

PR Number	Description	Problem Category	Affected Model
9982	<b>Description:</b> Switches in a large 24-switch fabric may fault with 801A fault code after taking the principal core director offline and deactivating the fabric zone set. The deactivate operation does complete on the switches, but EFCM posts an error that the operation timed out. <b>Customer Impact:</b> high.	Fabric Services	E/OS Family
10340	<b>Description:</b> When zoning a fabric via CLI or SANpilot, a zone set activation may fail if different switches are used as the source of multiple zone set activations. If this occurs, you will receive an error message indicating "error6: In Allegiance" following the attempted zone set activation. The new zone set will not be activated and the fabric will continue to behave as it did before the attempted activation. If this condition occurs, resolve the problem by deactivating the zone set and then modifying zoning through a single switch within the fabric. <b>Customer Impact:</b> high.	Fabric Services	E/OS Family
10350	<b>Description:</b> Route table manager (RTM) set E_Port routing should not allow a frame destined for itself to be routed to another switch for routing back to itself. <b>Customer Impact:</b> medium.	Fabric Services	E/OS Family

PR Number	Description	Problem Category	Affected Model
10845	<b>Description:</b> Resolved issue introduced in version 06.00.00 where there is a remote chance that a zone merge could fail or zone information could be incorrect after zones merge while in McDATA Fabric 1.0 interop mode. This is more likely to cause problems when using large zone sets as memory can be corrupted. <b>Customer Impact:</b> high.	Fabric Services	E/OS Family
10036	<b>Description:</b> Informational event 602; major event 604 in high-traffic environments. The 604 event will cause the SBAR to fail over to the backup SBAR, and a call-home will occur. <b>Customer Impact:</b> high.	HW High Avail Mgmt	Intrepid 6064
10063	<b>Description:</b> Server ports may experience difficulty logging in and initializing in fabrics with a high port count. This issue was found during 2000 node fabric testing. Currently a maximum of 1024 nodes is supported. <b>Customer Impact:</b> high.	Other	E/OS Family
10358	<b>Description:</b> Link incidents (for events such as cable pulls and installs) will eventually fill the buffer and prevent devices from logging in. The number of entries required to cause this symptom varies by product type. This situation can be cleared by an IML or IPL. <b>Customer Impact:</b> high.	Other	E/OS Family
10376	<b>Description:</b> If a model 7000 or 9000 Emulex host running in Loop mode is power cycled after downgrading from release 06.00.00, connections to storage will not recover. You can recover by either IPL/IML of the switch or by changing the port type to Gx or Fx and back. <b>Customer Impact:</b> medium.	Other	Sphereon 4300 and 4500
10503	<b>Description:</b> Downgrading a Sphereon 4300 or 4500 from E/OS 06.00.00 to E/OS 05.xx.xx incorrectly programs the E_Port routes and causes lost E_port routes. To recover and reset the E-port routing information, set the switch offline then back online. However, if you block or unblock E_Ports after the routing information is reset, the E_Port routes will again be lost. To avoid this issue, we recommend to <i>not</i> downgrade Sphereon 4500 and 4300 units from EOS 06.00.00. <b>Customer Impact:</b> high.	Other	Sphereon 4300 and 4500

PR Number	Description	Problem Category	Affected Model
10920	<b>Description:</b> When downloading E/OS firmware using EFCM 08.00.00 or 08.01.00, EFCM will no longer intermittently crash. <b>Customer Impact:</b> high.	Other	E/OS Family
10184	<b>Description:</b> If many feature keys are installed, they may not all be listed on the Feature Installation tab due to the limited size of the text field. The keys are installed and will function properly. <b>Customer Impact:</b> low.	SANpilot	E/OS Family
10208	<b>Description:</b> The Fabric Products "Fabric" name is displaying the managed product's name instead of the principal switch's name. <b>Customer Impact:</b> low.	SANpilot	E/OS Family
10255	<b>Description:</b> If you enable Enterprise Fabric Mode (EFM), which will activate Fabric Binding, insistent domain ID, rerouting delay and domain register for state change notification (RSCN), then set the switch offline and disable rerouting delay, this should only disable EFM. However, this also deactivates Fabric Binding. Workaround this problem by disabling EFM, activating Fabric Binding, then disabling rerouting delay. <b>Customer Impact:</b> medium.	SANpilot	E/OS Family
10315	<b>Description:</b> When viewing the Node List from SANpilot, the world wide names (WWN) begin with 20 instead of 10. <b>Customer Impact:</b> medium.	SANpilot	E/OS Family
10340, 10870	<b>Description:</b> Resolved SANpilot issue where users may receive message ""Error 006: In Allegiance" when activating a zone set. <b>Customer Impact:</b> high.	SANpilot	E/OS Family

PR Number	Description	Problem Category	Affected Model
9804	<b>Description:</b> Resolved issue where unit may fault with a 1A026 code and segment ISLs after upgrading firmware on an XP 512. <b>Customer Impact:</b> high.	Other	E/OS Family
10611, 10721	<b>Description:</b> Operational firmware will now periodically check the health of the utility bus on the backup CTP card to prevent switching over to a backup CTP card with utility bus issues. Switching over to a backup CTP card with a utility bus failure causes erroneous port card failures with 508 events, reason code 5. <b>Customer Impact:</b> high.	System Services	Intrepid 6064 and 6140