Enterprise Operating System

Version 05.01.00

Release Notes

P/N 958-000190-510 Rev C

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These release notes describe features, code fixes, and other information for enterprise operating system (E/OS) version 5.01.00.

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Applicable Products

McDATA E/OS firmware version 05.01.00, part number 515-000010-510, 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

What's New in E/OS 05.01.00

E/OS 05.01.00 provides several new features, enhancements, and fixes for reported problems.

OpenTrunking

An optional feature of E/OS 05.01.00, McDATA OpenTrunking optimizes the total throughput between two switches automatically by redirecting traffic from overloaded links to under-utilized links. A completely automated feature, McDATA OpenTrunking does not require configuration or sophisticated network engineering. Once turned on, OpenTrunking continuously monitors loads on all links, detects congestion and automatically balances traffic across all the available Inter-switch links (ISLs), without operator interaction. This solution uses McDATA patented Template Register technology to provide real-time traffic monitoring. Based on this constant flow of information, OpenTrunking makes intelligent decisions on maximizing throughput and reroutes traffic accordingly.

McDATA OpenTrunking supports all industry standards and will optimize outbound traffic to other Fibre Channel switches. A connected switch does not require OpenTrunking. Designed to protect investments in existing SAN equipment, OpenTrunking fully supports heterogeneous networks with a mix of McDATA and other SAN network products. Unlike competitive products, which are based on proprietary interfaces and only work with the latest generation of their switches, McDATA's trunking solution will balance loads from a McDATA Sphereon™ 3000 or 4500 Series or an

Intrepid 6000 Series switch to any other standard Fibre Channel switch.

Hard Zoning

Hard Zoning is a security enhancement in E/OS 05.01.00 that prevents ports from accessing devices outside their zones. Hardzoning is enabled by default when using E/OS 05.01.00 or greater and cannot be disabled. All McDATA-approved host bus adapters (HBAs) limit access to devices within their zones, so customers will not see a change in fabric behavior unless they are using non-standard HBAs. Hard Zoning improves security against intruders that load non-standard HBA drivers.

Hard Zoning is compatible with legacy zone definitions, including world wide name (WWN) and port zoning. Customers can use their existing zones and zone sets without any changes. There are no changes to the zoning interfaces, so customers do not need to modify their zone management practice, documentation, or retrain storage area network (SAN) administrators.

Hard Zoning controls access at the ingress port. When a port attempts to send a frame to a destination outside its zones, the frame is blocked. A Class 2 frame will be fabric rejected, and a Class 3 frame will be dropped.

Hard Zoning is not enforced on fabric loop (FL) ports on the Sphereon 4500 Switch.

FICON Support on Intrepid Directors

The effect of hard zoning on Intrepid directors that support FICON devices is that in addition to hardware enforcement of connectivity control (PDCM) the zoning information is programmed into the routing tables. No out-of-zone communication is allowed by the hardware.

If FICON Management Server, S/390 mode, or FICON Management Style enabled, or if you the director is passing FICON traffic, enable the default zone or place all FICON devices in an active common zone. Failure to do so will result in devices not being able to communicate due to hard zoning.

Performance Server

Through SANavigator, customers can now monitor statistics recorded by McDATA's patented template register technology by

accessing the in-band performance server included with E/OS 05.01.00. SANav allows customers to set which parameters they want to record and to gather the statistics. For example, a customer could record the number of frames sent from one fabric node to another.

Zoning Change RSCN Control

Normally, when a zone set is activated, a fabric format domain register for state change notification (RSCN) is sent to all devices in the fabric. In E/OS 05.01.00, customers can disable these specific RSCNs.

This feature significantly changes the normal behavior of the fabric. Devices will have no warning when zones change and will not automatically update their zoning information. The ability to suppress these RSCNs is disabled by default. This feature can be configured through enterprise fabric connectivity management (EFCM), SANpilot, and the command line interface (CLI).

Support for 32 Loop Devices Per Port

The Sphereon 4500 now supports up to 32 devices per FL port.

SANpilot

E/OS 05.01.00 includes the easy-to-use SANpilot interface, an embedded web server graphical user interface that allows management with any standard web browser. With E/OS 05.01.00, SANpilot now provides support for configuration of OpenTrunking and Port Binding. The zoning interface has also been enhanced to allow the user to easily add members to a zone that are not directly attached to the locally managed switch. The user is presented with a list of all devices logged in to the fabric and can conveniently select the additional members for addition to a zone.

CLI/Telnet

CLI has been enhanced to provide the following benefits:

- Supports configuration of OpenTrunking and also provides access to the OpenTrunking Re-Route Log.
- Access to symbolic name information in the name server database.
- Counter Threshold Alerts (CTA), exclusive through the CLI, allowing users to configure limits and alerts for any of the supported port statistics fields. Users can configure alerts for individual ports, groups of ports, or various port types, based on

user-specified counter value exceeded over a specified time duration. Note: The CTA configuration is cleared upon downgrade to firmware below 05.01.00.

Open Systems Management Server

Open Systems Management Server (OSMS) has implemented two new commands, allowing access to the Default Zone Enabled state and the Interop Mode configuration.

SNMP

E/OS 05.01.00 supports the following management information base (MIB) versions on all products:

- Fabric Element MIB: Ver 1.1
- MIB-II MIB: RFC-1213, unimplemented sections are not included
- FCEOS MIB: Ver 2.0
- SNMP Framework MIB: RFC-2271 (1997/09/30)
- FA MIB: Ver 3.1

Fabric Support

Intrepid 6140 will support up to 70 ISLs in any supported configuration.

Intrepid 6064 will support up to 48 ISLs in any supported configurations.

Zoning Limitations

The E/OS family of products includes the ability to configure large zone sets, including up to 1024 zones and 1024 end ports in a single zone set. The following tables shows the supported limits for the Intrepid 6140 Director, Intrepid 6064 Director, Sphereon 30xx Switch, Sphereon 32xx Switch, and Sphereon 4500 Switch.

Hard Zoning will be enforced upon firmware initialization. Devices not conforming to zoning rules will be restricted to their assigned zones.

If FICON Management Server, S/390 mode, or FICON Management Style enabled, or if you the director is passing FICON traffic, enable the default zone or place all FICON devices in an active common zone. Failure to do so will result in devices not being able to communicate due to hard zoning.

Table 1

Zoning Parameter	Maximum Value
Number of end ports	1024
Unique zone members	1024
Members per zone	1024
Zones*	1024
Number of zone sets	64
Maximum Devices Supported	1024

*The supported number of zones is based on a zone name with a maximum of 32 characters. On all products except the Intrepid™ 6140 Switch, the maximum number of zones decreases if full 64 character names are used. The supported limits are based on two members per zone.

Zone set sizes are affected by the number of zones in the zone set, the length of each zone name, the number of members in each zone, and the Interoperability mode of the fabric. Please consult with McDATA Professional Services or your support representative if you have questions regarding specific zone set configurations.

Critical Issues Resolved

The following issues were resolved in this release.

Solution for Timer Wrap Problem

An Elapsed Timer Wrap bug was recently discovered. This bug exists in all E/OS releases from 01.01.00 through 4.01.02. This problem has been fixed in E/OS 05.01.00.

Cause

Within the E/OS there is a timer task that wakes up every 25 milliseconds. This task handles all the periodic functionality required for one of the E/OS subsystems. These functions are performed at three different intervals: 25 ms, 100 ms, and 1 second. A software algorithm was developed to determine which 25 ms cycles should

cause the 100 ms and 1 second processing to occur. For its timing, the algorithm uses an internal OS counter, which counts the amount of milliseconds since the firmware has been initialized.

The algorithm is also sensitive to the possibility that the 25 ms frequency might not be entirely accurate. The code compensates for this so that the scheduling of future processing is not affected. The Elapsed Timer Wrap bug exists within this compensation code.

The bug consists of a *while* loop that is used to realign the scheduling of the periodic tasks for a situation where the timer task was not serviced for more then 100 ms. Unfortunately, this code does not properly consider the case where the elapsed time counter wraps. The elapsed time counter is a 32-bit width value and therefore wraps every 4,294,967,295 ms (or just under 50 days).

When this wrap occurs, there are three possible outcomes in any E/OS software containing this *while* loop:

- Accelerated processing frequency — The *while* loop condition never becomes true; therefore, `last_100ms_poll` is never incriminated, and the code does its 100-ms and 1-second processing every 25 ms (for at least the next 50 days).
- Infinite loop/task hog — The *while* loop condition never becomes false, which creates an infinite loop; therefore, the affected timer task never gives up the processor to other tasks.
- No effect — The elapsed timer wrap does not cause a problem.

Determining the probabilities of which one of these situation will occur does not seem possible because there is no way to predict or determine the relevant values when the *while* loop is entered.

The elapsed timer counter is reset whenever the EOS is initialized. Therefore, an IML will return the timer task back to normal operation.

Each time the counter wraps, there is the potential of exposing this bug. Just because we are in the *accelerated processing frequency* state does not mean that we cannot go into the *infinite loop* state, or even go back to normal, on the next counter wrap.

Effect

This section describes the known effects of both of the error conditions of this bug.

Accelerated Processing Frequency — This is the situation where the FPM timer task is doing all its periodic processing on each 25 ms interval. It can be very difficult to detect if a machine is running in this state; in fact, many machines running in this state experience no problems.

Known side effects are:

- Not correctly ignoring errors — The high availability code (HA) collects and evaluates errors reported by the hardware and fails components based on these errors. There are several situations where errors reported by hardware are expected and should be ignored by the HA. Because the code is polling every 25 ms, as opposed to every second, the HA's algorithm for ignoring errors is compromised and errors that should get ignored are not, causing invalid component failures. To determine if the Timer Wrap bug is responsible for the hardware failure, you can check the that data collection information meets the following criteria:
  - The switch has not been IPLed for longer then 49 days.
  - There was an event that causes expected errors.
  - The anomaly/failure occurs when the HA should have been ignoring errors.

  The failure to ignore expected errors is what causes the 140 health check SBAR failures issue.

- Busy system — The fact that FPM processing is accelerated will cause a greater demand on the processor. For example, instead of reading hardware statistics register on each port once a second, they will be read every 25 ms. This additional processor load could cause many system side effects, since other tasks may not be allowed enough processor bandwidth to complete their required responsibilities.

  Specific problems associated with the increased load have not been identified.

Infinite Loop — This is the situation where the normal priority task hogs the processor. Most tasks in the E/OS are run at normal priority, including the timer task. When this timer task goes into an infinite loop, it never gives up the processor for other normal priority task to run. Although this will not effect user port-to-port traffic, it will cause such effects as: stopping traffic from getting into or out of the

embedded port, fabric segmentation, and loss of contact with the EFC Manager. Therefore, it is very easy to detect when a switch or director has gone into this state. Determining if the switch or director has gone into this state because of the elapsed timer bug requires that this state be entered around a 50-day IPL anniversary; otherwise it is not this bug.

Solution

E/OS 05.01.00 has fixed the preceding problems. Upgrade to 05.01.00, following the instructions in these release notes.

Solution for Sync Pattern Problem

A small number of field incidents have occurred where Fibre Channel frames were discarded by the switch or director. This problem has been fixed by E/OS 05.01.00.

Cause

These discards have been root caused to the sync pattern used by the internal SERDES in the E/OS-based products.

Effect

When the problem occurs, the sync pattern used with all E/OS revisions prior to 05.01.00 in some cases inhibits the back-end SERDES from achieving lock, and the frame is discarded.

Solution

E/OS 05.01.00 fixes this problem by introducing a new sync pattern for the back-end SERDES for all E/OS-based products. This sync pattern is internal to the switch, and is never transmitted to any N_Ports. The problem occurs only on products running at 2 Gb/s. The new sync pattern has been successfully tested on 1 Gb/s and 2 Gb/s hardware.

Aged Out Link State Records

McDATA resolved an issue that can cause an aged-out Link State Record to become stuck in the Link State Record Database of a switch or director. This can cause the switch to lose paths to one or more other switches in the fabric, causing data traffic between the switches to cease and preventing devices on one switch from discovering devices on the other switches.

There are several factors that must occur to be exposed to this issue:

- The switch must be in a multiswitch fabric.
- The switch must be connected to one other switch.
- The switch removed for one-half hour or more, and then replaced.

Zoning Hang

McDATA resolved an issue where Zoning could hang when a zone set is activated. Zoning would not complete and the Zone Tab window would be blank with a message of "Unknown Fabric" or Error on Fabric Node."

NVSRAM

McDATA implemented improvements to NVSRAM error checking and logging. Upon detection of a memory error, a 426 event will be posted. Directors will failover to the backup CTP.

Top of the Hour Problems

McDATA resolved an issue where UPMs and SBARs occasionally could fail on the hour.

RMF Statistics

McDATA resolved an issue where statistics were being reported to IBM's Resource Management Facility incorrectly

Standards Compliance

- E/OS 05.01.00 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 05.01.00 is compliant with the Fibre Channel Element MIB (FE-MIB).

- E/OS 05.01.00 is compliant with the following TCP/IP MIB-II groups:
  - System
  - Interface
  - Address Translation
  - IP
  - ICMP
  - TCP
  - UDP
  - SNMP
- E/OS 05.01.00 is compliant with the following classes of service:
  - Class 2
  - Class 3
  - Class F

Upgrade and Downgrade Considerations

- Upgrading to E/OS 05.01.00 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.
- All products must be running E/OS 04.00.00 or higher before upgrading to 05.01.00. If a switch is operating with a firmware level below 04.00.00, you must upgrade to version 04.00.00 or higher before installing version 05.01.00.
- The switch or director is not required to be offline before performing an upgrade or downgrade operation.
- Downgrading directly to a release before 04.00.00 from release 05.01.00 is not allowed. To downgrade to a release before 4.00.00, you must first downgrade to 04.YY.ZZ. Note that the Intrepid 6140 and Sphereon 4500 cannot be downgraded below 04.01.00.
- Firmware downgrades should not be performed using SANpilot and Internet Explorer version 5.00.3315.1000x. If this operation is performed, the download operation may not complete and may eventually time-out leaving the switch with the previous version of firmware.

- Before upgrading or downgrading firmware, it is highly recommended that you back up the switch or director configuration in the event that a failure should occur. Refer to *Backup and Restore Configuration* in Chapter 5 of your switch or director Product Manager User Manual for more details. SANpilot also 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.
- A small number of customers with early-shipped units may receive the following messages when they upgrade to E/OS 05.01.00 due to insufficient memory.
  - EFCM: "Firmware cannot be loaded due to insufficient CTP memory."
  - SANpilot: "File System Error: Insufficient memory for new firmware version."

  If you get these messages during the upgrade, firmware upgrade did not occur, but the unit will continue working with existing firmware without an interruption in service. However, the upgrade process checks for sufficient memory before activating the new image and the upgrade will not complete without sufficient memory. Please contact support if you receive this message.

Intrepid 6064 and 6140 Director Procedure

An issue has been identified where the contents of the nonvolatile storage (NVSRAM) on the active CTP can become corrupted. Once the configuration has been loaded, this corruption is not detected until an IPL/IML, power cycle, or E/OS code load. If the NVSRAM in the active CTP has corrupted contents, the firmware load can cause the configuration to reset to factory defaults, which could cause a system outage. By using the following procedure to upgrade firmware, configuration can be preserved and a system outage due to this issue can be avoided.

To safely upgrade these directors:

1. Upgrade EFCM software on the EFC Server to version 07.01.00.
2. Download E/OS 05.01.00 using the *Firmware Library* option on the Product Manager *Maintenance* menu.

3. Back up the director configuration using the *Backup & Restore Configuration* option on the Product Manager *Maintenance* drop-down menu.
4. Using the Product Manager, execute a CTP swap:

   You must have maintenance authorization rights to access this feature.

   a. From Product Manager *Hardware* view, verify that an amber LED indicator does not display for either CTP card.
   b. Right-click the CTP you believe to be active.

      From the right-click pop-up menu, select *FRU Properties*, and verify that it is the active CTP.
   c. Right-click the active CTP, and select *Switchover* from the pop-up menu. Note that the director will loose it's Ethernet connection for a short period during the switchover process.
   d. On the *Switchover* CTP dialog box, select *Switchover* to switch operation to the backup card. When switchover occurs, the green LED illuminates on the backup CTP card to indicate that it is now the active card.
5. Upgrade the E/OS 05.01.00 on each director using the *Send* function on the *Firmware Library* dialog box.

Switch Procedure

Switch products do not have dual CTP cards; therefore, there is no way to protect the customer from the risk of an outage, or to determine whether an outage will occur. The probability of an outage for a switch-class product due to the NVSRAM issue is low. If an outage will compromise system integrity, it is recommended that the switch upgrade be a scheduled maintenance action that anticipates the failure of switch connectivity.

1. Upgrade EFCM software on the EFC Server to version 07.01.00.
2. Download E/OS 05.01.00 using the *Firmware Library* option on the Product Manager *Maintenance* menu.
3. Back up the director configuration using the *Backup & Restore Configuration* option on the Product Manager *Maintenance* drop-down menu.

4. Upgrade the E/OS 05.01.00 on each switch using the *Send* function on the *Firmware Library* dialog box.

Prerequisites for Installing and Using E/OS 05.01.00

If you are using EFCM applications, E/OS version 05.01.00 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 05.01.00 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: Version 05.01.00
- 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, it is highly recommended that all products be at the same major functional release level for optimum fabric stability and robustness.

Related Documentation

The following documents provide additional support and information pertaining to E/OS release 05.01.00:

- Product Manager User Manual for your switch or director product (for example, Intrepid 6140 Director Product Manager User Manual or Sphereon 3232 Switch Product Manager User Manual)
- McDATA OPENconnectors™ Command Line Interface User Manual
- McDATA Enterprise Fabric Connectivity Manager User Manual
- McDATA SANpilot User Manual

Code Enhancements & Fixes in E/OS 05.01.00

Enhancements and fixes are organized by their Problem Category, then their incident report number (IR Number). Each enhancement and fix 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 (OS) management server, SANpilot, systems services, maintenance port, or other issue.

IR Number	Description	Problem Category	Affected Model
8484	CLI - Perf.OpenTrunking.CongestionThresh isn't updating switch/EFCM completely	CLI	E/OS Family
7043	EFCM Product Manager showing switch state as 'Going Offline' for over 20 min	Embedded Mgmt	Sphereon 3232
8211	Fault 1C015 intermittently occurs after 8-12 hours of ctpswaps	Embedded Mgmt	Intrepid 6064
8584	Received fault a126 while running block port script over the weekend	Embedded Mgmt	E/OS Family
6635	Switch began to segment (2 of 4 ISLs) then completely segmented @ zone set act. Zone Set activations are now more efficient, reducing the possibility of segmentations.	Fabric Services	Sphereon 3232
7374	Intrepid 6140 in small fabric merges with large fabric with different zone set	Fabric Services	E/OS Family
7375	Eport Segmentation between Intrepid 6140 and Intrepid 6064 due to hello timeout.	Fabric Services	Intrepid 6064
8448	Activate zoneset times out, fabric segments	Fabric Services	E/OS Family
8488	Segmented ISL due to a Fabric Build error	Fabric Services	E/OS Family
8522	Enhancement: New Event created to report Fabric-wide operation failures	Fabric Services	E/OS Family
8650	Unexpected 1024 zoning conflict during 5.1 to 4.1 downgrade	Fabric Services	E/OS Family

IR Number	Description	Problem Category	Affected Model
8662	EFCM Zone Member display not updating after zoneset deactivation	Fabric Services	E/OS Family
8096	“Address specific bit” not returned correctly following Link Busy	FICON Mgmt Server	EOS Family
8198	Block/Unblock port via CUP on one director results in IFCCs on other directors	FICON Mgmt Server	E/OS Family
8462	All online ports show Link Failure bit (bit #9) enabled in Port Descriptors	FICON Mgmt Server	E/OS Family
8487	Overflow counter statistics incrementing incorrectly	FICON Mgmt Server	E/OS Family
8350	Trunking Attempted Set and Clear all but only 76 of 140 changed	Open Trunking	Intrepid 6140
8631	Open Trunking Congestion Threshold % is not updating	Open Trunking,	E/OS Family
7061	SANpilot topo view has a strange caption for designation of principal	Other	E/OS Family
7585	Sphereon 4500 in McDATA fabric mode and ES-1000 in open fabric mode cannot coexist in the same fabric	Other	Sphereon 4500
8292	EFCM shows’ Unknown fabric’ in zoning display	Other	E/OS Family
8546	Sphereon 4500 Inactive Port State to Not Installed Port Transition. Using SANpilot, if a port on a Sphereon 4500 is configured to be 2 Gig only (not negotiate) and a 1 Gig SFP optic is plugged into the port, the port was shown by SANpilot to be in an Inactive state. Removing the 1 Gig optic from the port and examining SANpilot, the port showed the Inactive state.	Other	Sphereon 4500
8639	Login Server ignores hard zoning bits on PDCM updates	Other,	E/OS Family
8805	C0 fault resolved when upgrading from 4.1.4 to 5.0	Other	Intrepid 6064

IR Number	Description	Problem Category	Affected Model
8184	Sphereon 3016/3032 stops responding to SNMP queries and then faults. A problem with the switch can occur in a configuration with 4 to 16 Linux based servers running FC traffic, while one of the servers polls the switch for a list of SNMP variables at a fairly high rate (about 1hz). After 4-6 hours the switch may fault.	SNMP	E/OS Family
8322	SNMP - LinkAgentAddressY is endian reversed on Sphereon 4500 and Intrepid 6140	SNMP	E/OS Family
8438	SNMP - fcEosFruStatus returning nulls in some instances	SNMP	E/OS Family
8612	Fixed boundary condition problem in SNMP zone code which caused fault when # zones was equal to maximum allowed (1023)	SNMP	E/OS Family
8710	Link dropped during migration from 5.1 to 4.x	System Services	E/OS family
7481	During firmware upgrade, received download timed out.	System Services	Sphereon 3032
7612	0 byte count UDP packet causes Event 411 - 01 E5 00	System Services	Intrepid 6064
8451	Events 417 and 422 missing in CTP hot insert on Intrepid 6140	System Services	E/OS Family
8636	Generate Event when Nonvolatile Configuration Memory Corruption is detected	System Services	E/OS family
8421	Swapped port has no route to neighboring switch when attached node zoned by WWN	S/390 Mode	Intrepid 6064
8528	RSCN carries wrong address for swapped port on logout	S/390 Mode	Intrepid 6064
8356	SANpilot - Unable to configure Threshold % & default in open trunking on Sphereon 4500	Web Server	Sphereon 4500

IR Number	Description	Problem Category	Affected Model
8405	Sphereon 4500 graphic missing from SANpilot Help	Web Server	Sphereon 4500
8476	Update terminology in Open Trunking interfaces	Web Server	E/OS Family
8502	SANpilot update to match EFCM's change: Suppress RSCN's on zone set activation	Web Server	E/OS Family

Outstanding Known Issues in E/OS 05.01.00

Issues are organized by their Problem Category, then their incident report number (IR Number). Each issue 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 (OS) management server, SANpilot, systems services, maintenance port, or other issue.

Descriptions for these incident reports (IRs) may state that the problem will be fixed in a future release. Please note that the targeted release for this fix may change.

IR Number	Description	Problem Category	Affected Model
8337	If a CTA is defined with a port type (i.e. fport, eport) the "all" option for the Perf.ThresholdAlerts.Counter.RemovePort command does not work. However, if the ports are defined for a CTA by #, the command works just fine and Ports field is set to "None" as expected. This problem only relates to how data is displayed, and does not impact switch operations. Fixed in 6.0.	CLI	E/OS Family
8343	CLI- Show.Open.Trunking.Config display doesn't indicate actual Default values for either Credit Starvation or Credit Threshold, but only displays the word "Default". This problem only relates to how data is displayed, and does not impact switch operations. Fixed in 6.0.	CLI	E/OS Family

IR Number	Description	Problem Category	Affected Model
8344	CLI-The “Type” displayed for the Show.NameServer and Show.NameServerExt commands are inconsistent. On the Intrepid 6140 and Sphereon 3232 it is displayed as “fport” but on the Sphereon 4500 it is displayed as “F”. The CLI UIS lists the following “Type” valid values: N, NL, F/NL, F, FL, E, BAgain. This only is an inconsistency in the way this data is displayed and does not affect switch operations.Fixed in 6.0.	CLI	E/OS Family
8346	CLI- When in comma delim mode true, the Show.NameServer command does not display the FC4 Types table in commadelim mode. Since comma delim mode is mostly just for scripting, there is no reason to display the table. Fixed in 6.0.	CLI	E/OS Family
8343	CLI - Show.Open.Trunking.Config display doesn’t indicate actual Default values. This is a duplicate IR. Fixed in 6.0.	CLI	E/OS Family
8397	CLI - Enhancement Request - add FC Address to Show. Switch command. This is not a bug, but a request to add the address when this command is issued. Fixed in 6.0.	CLI	E/OS Family
8784	Changing Port Speed on all Ports causes EFCM Resource Unavailable error. We don't believe customers would ever change all the port speeds once a unit is up and running. In the unusual case where they might do this, they will all ready be impacting the connection of all the devices attached to the switch, so the error will not have any additional impact. Fixed in 6.0.	Embedded Mgmt	Intrepid 6140
7562	Port Binding Offenders Degrade Switch Performance. When port binding is enabled, unauthorized and unfriendly devices (older devices and HBAs (such as Emulex 8000 HBA) can bombard us with FLOGI requests as we reject them. Processing these useless exchanges will put a burden on our processor and degrade our embedded port performance such as fabric builds and valid FLOGI response time for other ports etc. A subject of debate is how we should handle this, and we are trying to standardize a behavior in ANSI. There are not a large number of older device in the field that would cause this issue. If this problem does occur in the field, it can be worked around by disabling port binding. Planned to be resolved in 7.0.	Fabric Services	Sphereon 4500

IR Number	Description	Problem Category	Affected Model
7711	Zone sets will union during fabric merge, not all members have same ZS name. This is not a bug. The behavior exhibited and described is exactly by design. Historically, the Zone Set Name has represented a convenient method for any SAN administrator to easily distinguish one zone set from another. However, in the case of a zone merge, there truly does not exist a logical or inter-vendor agreeable way of determining which Zone Set Name the resulting merged Zone Set should assume or take on. As a result, the behavior observed is exactly as expected and there are no plans currently to change this behavior now or in the future.	Fabric Services	Intrepid 6140
8726	Inconsistent RSCN format on IPL or code load when Domain RSCN's enabled. Most nodes seem to handle this okay and carry on with life. It appears that this is a channel problem, and not a problem with the switch. There is a potential for FICON customers to encounter this in the field. Targeted for 6.0	Fabric Services	Intrepid 6140
7963	1 of 2 ISLs segmented - 'No response from attached Switch' during fabric merge. This has occurred once in an OEM lab and we did not get enough information to determine cause. We added a new event in 5.1 for Zone Merge failures that will describe the reason for the failure, plus we have added engineering log entries for Hello timeouts to help determine the cause for failures. Requested the OEM re-test with 5.1 and if failure still occurs, provide data collection.	Fabric Services	E/OS Family
8620	ACA command contains 896 bytes of extra zeros No operational or customer impact. Targeted for 6.0.	Fabric Services	E/OS Family
8599	Duplicate Domain ID Invalid Attachment is not resetting. This has been determined to not be a software problem.	Fabric Services	E/OS Family
8843	700b fault when starting 24 multi alpa ports. Heavy load test case on all ports on Sphereon 4500 with multiple loop devices on every port caused a failure when all these ports were started simultaneously. This scenario is not likely to occur in the field. Fixed in 6.0.	Fabric Services	Sphereon 4500

IR Number	Description	Problem Category	Affected Model
8578	Missing responses from FMS. A class three frame to the imbedded port was timed out and dropped, which is acceptable for class three. FICON has recovery issues with this, so we will make a change to accommodate it. This problem will likely only be seen when remote CUP becomes more common. Fixed in 6.0.	FICON Mgmt Server	Intrepid 6140
8597	FMS removes all remote paths using ISL after second Plogi from same node. The problem will only be seen if FMS is being driven by a channel on a remote switch, and a channel which previously used the same ISL to Plogi the CUP uses this ISL to Plogi the Cup again. In this case, FMS detects that a node previously logged in on this port is logging in again, and therefore removes the existing logical paths. We have determined that this condition has existed in all previous releases and has never been seen in the field, so targeted the fix for 6.0.	FICON Mgmt Server	Intrepid 6064
8616	Missing TIR responses from remote CUP. Channel code has been updated since we encountered this problem in 5.1 testing, and the channel no longer initiates the TIN/TIR protocol upon receiving a fabric RSCN: it now requires a domain format RSCN with a payload indicating the attached domain to which we are running CUP traffic. Problem found to also exist in 4.x, but has not been seen by any end users. Targeted for 6.0.	FICON Mgmt Server	Intrepid 6064
8773	Fault 73: local and remote recovery to FMS. Occurs infrequently while driving simultaneous local and remote recovery to the CUP. Problem still under investigation.	FICON Mgmt Server	Intrepid 6064
8776	15406 Fault on CUP Recovery. This has only occurred once during FICON test case. Still under investigation.	FICON Mgmt Server	Intrepid 6064
8309	FICON class 2 frames can timeout during login if default zone is disabled. This has no customer impact and the hard zoning implementation will not change. Default zone should not be disabled for FICON.	Hard Zoning	Intrepid 6064
7803	513 Events (SPF optics hot removed) are posted during a CTPswap operation. This was seen once in the lab on an overnight run doing continuous CTP swaps. The event could not be duplicated later running the same tests. The problem is only that a log entry is created, so it does not have any customer impact. Will continue to monitor during 6.0 testing.	HW High Avail Mgmt	E/OS Family

IR Number	Description	Problem Category	Affected Model
7533	Sphereon 4500 receiving bunches of “rlir outstanding” print statements. Output statements to the maintenance port are only used by support personnel and should never be seen by an end user. Fixed in 6.0.	Maint Port	Sphereon 4500
8580	Intrepid 6140 CTPs power up into two different baud rates. The only time a customer uses the maintenance port is to configure the IP address on installation. This problem does not affect operation of the port. The worst impact is that customer could have to switch baud rate on the terminal. Fixed in 6.0.	Maint Port	Intrepid 6140
8481	Power down, firmware loads, and IML/IPL clears OpenTrunking Log. (Enhancement Request to persist this log.) This is currently working as designed. The Open Trunking log was not originally designed to ride through failovers or IML/IPLs. May make enhancements in either 6.0 or 7.0.	Open Trunking	E/OS Family
8640	Restore Configuration does not restore settings for Open Trunking. If you take a backup, change Trunking, then do a restore without changing the feature key, the restore will work correctly. If you do a backup, remove Open Trunking from the feature key with an NVRAM reset or by installing another feature key that doesn't contain Open Trunking, then do a restore, the Trunking configuration will be reset to its default values and the restore will appear to have failed. Customers will not be enabling/disabling the trunking feature as described in this test scenario. Fixed in 6.0.	Open Trunking	E/OS Family
6221	Distributed RLIRs sometimes are not transmitted across a remaining ISL link. When a user physically removes either a Secondary ISL link or a Primary ISL link in a 2-switch, dual-ISL Fabric, DRLIR (Distributed Registered Link Incident Records) requests are sometimes not sent across the remaining ISL link. Initial support is for local DRLIR/RLIR handling only. We will pick up more enhanced support for DRLIRs over ISL links in future (6.0) firmware.	Other	Intrepid 6064
6222	Random byte values appear in Rlir Incident Specific Information field. This condition doesn't affect normal operations with the switch or the receiving node. Targeted for 6.0.	Other	Intrepid 6140

IR Number	Description	Problem Category	Affected Model
7204	Sphereon 4500 distributed an RLIR request frame even though the receiving node (the “registrant port”) failed to exchange RNID information. This was just a noticed difference between Intrepid products and Sphereon 4500. Does not have any customer impact. Fixed in 6.0.	Other	Sphereon 4500
7412	ESS_DB is not getting updated reliably with firmware release build number. Currently, the only decision made by the firmware on the basis of ESS information is whether an RRSCN frame should be sent as the only sequence of the exchange or not. Making this decision incorrectly may cause unnecessary error recovery to be invoked on the RRSCN exchange, but it should not prevent anything from working. Targeted for 6.0.	Other	E/OS Family
7902	DRLIR fails to flow from Intrepid 6140 when FICON node is pulled. This is related to Speed Negotiations (SN) and the fact that the cable is slowly unplugged and removed. The problem is that the SN poll for Loss of Sync detects the loss of sync before the HW does, which results in the PSM being driven offline in order to start the SN process. If customers are pulling/moving cables, they obviously should expect that connection to be lost so there is no additional impact to operations. Fixed in 6.0.	Other	Intrepid 6140
7924	Zone set activate issues with Sphereon 4500 and ES-1000. If a zone set has 1023 zones, each with the same two WWN zone members, this zone is the “worst possible” zone set in terms of the capability we attempted to put into FCP/PCP interface. Customers are not likely to have this type of zoning, but it is possible. We will be retesting with 6.0.	Other	Sphereon 4500
8321	LIRR DB invalid due to processing time of SCNs - race condition. This has a low customer impact and high risk to include in 5.1. Targeted for 6.0 so adequate testing can be performed.	Other	E/OS Family
8679	Event Log post FRU Position as CTP-24, should be CTP-0. Events logs are normally only used by support - no customer impact. Targeted for 6.0.	Other	Sphereon 4500
8683	Sphereon 4500 doesn’t count class 3 discarded frames. Does not impact operations. Class 3 frames can be discarded, and our statistics should show that. Fixed in 6.0.	Other	Sphereon 4500

IR Number	Description	Problem Category	Affected Model
8711	Received a 59D2 fault on a Fuji6140 after CTP swaps ran all night. Unable to duplicate on next overnight run, but did see again in last week of 5.1 testing. Our exposure to the problem is this: (reference by configuration). • Dual CTP system, dual SBAR system. The unit must swap the CTPs' mastership/backup roles twice. The second swap must occur prior to a SBAR health check (1 minute after the IPL), and the EP must not obtain sync within 1ms. This should never occur in normal field operations. • Dual CTP system, single SBAR system. The unit must swap the CTPs' mastership/backup roles twice. Their is no time limit on when the swaps occur. Single SBAR configuration is not available to customers. • Single CTP system. The unit must be recovering from a fault condition. Sphereon units could experience this, but they have to have a multiple failure first. Engineering still trying to determine root cause.	Other	Intrepid 6140
8775	During migration 5.1 -> 4.1.2 -> ctpswap causes 021, 061 events occasionally. Events logged downgrading from 5.1 to 4.1.2. The events are name server and fabric controller database invalid. Databases do recover on their own. Customers normally do not downgrade software. If they do, the downgrade works but intermittently posted recoverable events. Targeted for 6.0.	Other	Intrepid 6140
8836	Sphereon 4500 is not always negotiating when a 2Gig Symm port is plugged in. Can be worked around by configuring speed for 2 gig. Targeted for 6.0.	Other	Sphereon 4500
7853	Unable to deactivate Enterprise Fabric Mode while switch is busy with fabric operations. Customers do not change operating modes once they have been set. This should not normally be seen in the field. Targeted for 6.0.	SANtegrity	Sphereon 3216
8185	SNMP - nulls returned in fcEosPortEntry table statistics for offline ports. For ports that are offline, statistics return null. For Uninstall ports, statistics return 0. This is just a display difference that will be standardized in release 6.0	SNMP	E/OS Family
8317	Port Speed is reported inconsistently from MIB between Service Processor and switch. Another inconsistently in a display. No operational impact. Fixed in 6.0.	SNMP	Sphereon 3232

IR Number	Description	Problem Category	Affected Model
8318	fcConnUnitPortFcClassCap should be 0 when port is not installed. Inconsistently in a display. No operational impact. Fixed in 6.0.	SNMP	E/OS Family
8325	SNMP - fcConnUnitPortHWState has different behavior for FPM and UPM cards. Inconsistency in a display between different card types. Targeted for 6.0.	SNMP	Intrepid 6064
8326	SNMP - fcEosFruEntry - has two entries for backplane. Duplicate info returned - no operational impact. Fixed in 6.0.	SNMP	E/OS Family
8338	SNMP - private mib trap for frus position is off by 1. Difference in SNMP trap for a FRU position vs. FRU table. No operational impact. Fixed in 6.0.	SNMP	E/OS Family
8392	SNMP - fcConnUnitSnsPortIdentifier OID is wrong. The port ID number is not correct. No operational impact. Fixed in 6.0.	SNMP	E/OS Family
8531	fcConnUnitLinkAgentAddressY reports wrong address. If there is an EFCM connection, the EFC Server IP address should be supplied, otherwise the neighboring switch's IP address should return. No operational impact. Targeted for 6.0.	SNMP	E/OS Family
8628	SNMP query of fcConnUnitPortStatus wrong for Invalid Attachment State. When the Invalid Attachment state is achieved, the fcConnUnitPortStatus object indicates that Port 0 is OK(3). The expected value is WARNING(4). No operational impact. Targeted for 6.0.	SNMP	E/OS Family
8670	Rollback in Statistics Counter provided via SNMP. Small timing window could be hit if counter is observed within 1 second of rolling from lower 32 bits to upper 32 bits. Correct values are displayed when statistics are viewed again. Fixed in 6.0.	SNMP	Sphereon 4500
8774	Threshold Alert Traps Not Working. After more thorough testing, this only occurs on the PPC products (Intrepid 6140 and Sphereon 4500). Targeted for 6.0	SNMP	E/OS Family
5677	Sphereon 3216 doesn't respond to ping requests of packet size less than 20 bytes. We found that the switch sends a 2 byte ping packet using a special tool. This could possibly happen in normal customer operations, but we have only seen it using this tool. Targeted for 6.0.	System Services	Sphereon 3216

IR Number	Description	Problem Category	Affected Model
8685	Firmware upgrade timeout occurred migrating from 1.2 to 1.4. The firmware download timeout occurs as a result of task starvation of low priority tasks (in this case, the firmware download is running low priority only during the FLASH write portion of the download). Since the task is experiencing starvation, it is not running and is “stuck” waiting for the FLASH write routine to start/complete. Therefore, subsequent attempts to download firmware (after EFCM has timed out) fail because a “file transfer is already in progress”. The only way to reset this condition is to IPL the machine. Basically the machine becomes too busy running normal priority, non-yielding tasks and does not allow low priority tasks to execute. One work-around on pre-5.0 code is to use the Embedded Web Server (after an IPL). This performs a firmware download as a normal priority task and is not as susceptible to task starvation. Targeted for 6.0.	System Services	Intrepid 6064
6876	SANpilot-Topology View not displaying the number of hops or total number of paths to destination in large fabrics. When downloading through the serial port using Zmodem, CRC errors happen periodically. Also downloading the offline diagnostics file through the JAVA Zmodem program doesn't work occasionally. Downloads through the maintenance port are not performed by customers. Could impact support personnel using this procedure. Fixed in 6.0.	Web Server	Intrepid 6140
7319	SANpilot - Modify Zone tab does not always display complete zoning information when viewing large zone set. Low severity, but could be seen by someone using SANpilot and large zones. Fixed in 6.0	Web Server	E/OS Family
7895	Typing in random text in the WWN field is added as a null member. If a customer did this, they should get an Invalid WWN error instead of a null. Fixed in 6.0.	Web Server	E/OS Family
7975	SANpilot-Operating Parameters for FC Address Domain ID is incorrect. Display inconsistency between EFCM and SANpilot. Fixed in 6.0.	Web Server	E/OS Family
8362	When attempting to run online diagnostics, internal or external, in SANpilot, the wrong error message is presented. Current message: “Error: 077: Not allowed while port is failed” The error should state “Port diagnostics cannot be run on an inactive port”. Fixed in 6.0.	Web Server	Sphereon 4500

IR Number	Description	Problem Category	Affected Model
8363	Port Beaconing for a port that is on a port card that is not installed is enabled. No message is given when you click Activate. However, if you click on the Beacon tab again, you will see that the Beaconing State checkbox is not checked. There should be some sort of error message when clicking Activate. Maybe something like, “Port card not installed. Cannot enable port beaconing”. Changed in 6.0.	Web Server	Intrepid 6140
8372	SANpilot - Missing information for port binding and Trunking in the product information. Targeted for 6.0.	Web Server	E/OS Family
8398	SANpilot Displays Incorrect ’FC Address Domain’ Value. When comparing the FC Address, the domain value that displays in EFCM and SANpilot do not match. Fixed in 6.0.	Web Server	E/OS Family
8617	SANpilot Help - ’Interface Window’ missing graphic on Teton only. Sphereon 4500 SANpilot Help is missing a graphic on the “Interface Window” page, available from the Index. This only affects Sphereon 4500. Fixed in 6.0.	Web Server	E/OS Family