

IBM TotalStorage SAN256N Director



2045-N16 Release Notes

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Chapter 1. Introduction

This chapter provides the following information pertaining to the IBM TotalStorage SAN256N director 2045-N16 1.1.1 release:

- An overview of the release definition numbering scheme
- Release compatibility
- New features and enhancements for the SAN256N director 1.1.1 release

Release definition

The SAN256N director release numbering scheme is made up of five digits and is defined as follows:

- First Digit = Platform release
- Second Digit = Feature release
- Third Digit = Maintenance release
- Fourth Digit and Fifth Digits = Patch releases

The meaning of the fourth and fifth digits are as follows:

- Fourth Digit - Indicates a deviation update or group patch build.
- Fifth Digit - Indicates a patch build. This is an individual patch that is delivered to resolve, work around, or to gather more information about an issue for one particular customer.

Release compatibility

The SAN256N director 1.1.1 release is compatible with the following components:

- 1.1.1 is used with the 16 slot SAN256N director
- 1.1.1 is compatible with Enterprise Manager release 9.0 or later
- FC/9000 in fabric must be CS5.0 or later

Feature summary for the 1.1.1 release

The following sections highlight the features included in the SAN256N director 1.1.1 release.

Packaging

- 256 Ports in 18U Chassis

Protocols

- FICON, FCP
- Protocol Intermix at the port level

Scalability

- 256 Auto-negotiable 1 Gbps and 2 Gbps ports

Switching

- Logical domain partitioning of SAN256N director into up to 4 distinct directors (Domains) with independent services
- Support for 239 FC domains
- Protocol agnostic switch core
- Speed agnostic switch core

RAS

- Hot swap of all field replaceable modules
- Non-disruptive code load and feature upgrade
- Embedded fault detection and isolation agent
- Active – active switching
- Redundant controllers, power, fans, software services
- Phone home / email home

Diagnostics

- On-board protocol trace capture (viewable with Finisar software)
- Significantly enhanced error reporting and fault isolation capabilities
- Online diagnostics (port & board level)
- Fabric level diagnostics
- Background hardware check
- Full data rate exerciser
- Mirror ports per port card for attaching external monitoring equipment
- FC ping
- Frame timestamp (allows for immediate management of error frames in hardware)
- Enhanced SFP diagnostics / status

Security

- Port, switch and fabric binding (including FICON cascade)
- Access control lists
- User specific management roles
 - 496 role-based management levels
 - Up to 8 access levels
 - Up to 62 access groups definitions
- Universal access groups across all interfaces
- Telnet, GS-3, Enterprise Manager, SNMP
- Fabric level hard and Soft Zoning

Management

- EM re-designed with enhanced graphics and functionality
 - Logical domain support
 - Fabric routing display
 - Diagnostics
 - Email home
 - Protocol trace buffer
- Enterprise Manager graphical map of fabric routing (device to device)
- FICON CUP with enhanced performance
- SNMP v2
- SWAPI
- SMI-S (CIM) proxy
- CLI via Telnet
- Advanced statistics – (Source/ Destination Profile)

Interoperability

- SAN256N director is FC standard compliant and fully interoperable with the following for release 1.1:
 - FC/9000 Version 5.0 or Greater
 - IBM TotalStorage San Switch H08, H16, and F32
 - Brocade SilkWorm 3900 Fabric Switches

IBM TotalStorage SAN256N director 2045-N16 interoperability

The following section describes the interoperability of the SAN256N director with other devices.

SNAPI 2.0

SNAPI 2.0 is supported and qualification of third party applications is ongoing.

Brocade switch

The 1.1.1 release supports interoperability with Brocade 3850 and 3900 switches that are running Brocade's Fabric OS at code level 4.2.0a.

CNT UltraNet Edge Storage Router

The UltraNet Edge 3000 version 3.1.1.3 is compatible with the SAN256N director Fibre Channel Director.

CNT FC/9000 switch

The FC/9000 release 5.0 supports interoperability with the IBM TotalStorage SAN256N director 2045-N16.

Codeset information

- Codeset revision: 00010101-01050000
- Codeset name: 1.1.1.1.5
- Codeset description: Codeset 1.1.1.1.5 for SAN256N director

Table 1. SAN256N director codeset information

Filename	File Rev	Origin Codeset	CRC	Length	Date	Time	Build name
btflash.brc	02111150	00010101-01050000	0000b93a	000fa422	01/28/2005	15:41:55	1.1.1.1.5
ptcmdyn.brc	03111150	00010101-01050000	00008d79	005e8573	01/28/2005	15:44:31	1.1.1.1.5
ptfiodyn.brc	06111150	00010101-01050000	0000d4b5	004e3529	01/28/2005	15:46:31	1.1.1.1.5
ptswmono.brc	05111150	00010101-01050000	0000ab58	0045524d	01/28/2005	15:49:46	1.1.1.1.5

Chapter 2. Dependencies and outstanding issues

This chapter provides general recommendations and information on the hardware dependencies, software dependencies, and outstanding issues for the IBM TotalStorage SAN256N director 2045-N16 release 1.1.1.

Known issues and limitations

The following is a list of known operational issues and limitations:

1. Non-Disruptive Code Load (NDCL) from release 1.1.0.2.8 is supported, but a non-disruptive code downgrade is not supported. If the code needs to be downgraded to a previous version, the code must be loaded and activated, and then the power to the director must be cycled off and on.
2. CNT Edge 3000 Routers are displayed in the topology when present, but the associated ISL is not displayed.
3. After aborting a debug backup, wait three full minutes before doing any operation from the Enterprise Manager.
4. Within a minute and a half of applying a new configuration, all boards in the system are reset. because of this, any change to logical partitioning is disruptive to the entire system, even for partitions that are not changed.
5. Any changes to the logical domain configuration should be done during system maintenance windows.
6. If a logical domain is populated, at least one board must be online.
7. Upon system power up, the system configuration should remain static until the online LEDs for the TCM indicate online status. Online status is also indicated at the Enterprise Manager Software console. Do not remove any boards until the system is online.
8. Prior to removing any boards from the SAN256N director, they should be administratively set to offline via the Enterprise Manager Software. If a TFIO board is removed without taking the board offline first, wait one minute before removing any other TFIO board.
9. For high availability, both TCMs must have IP addresses configured using the Enterprise Manager Software.
10. If you have supplied your own Enterprise Manager server, and it has an Intel Pro/100 VE or similar NIC card, see Appendix B. NIC card on page 17.
11. Inband control is disabled by default. Inband control is enabled from the Enterprise Manager. See the *Enterprise Manager Installation and Operations Guide* for instructions on how to enable Inband control.

Considerations for adding and changing Logical Domains

Adding and/or changing logical domain configurations is a disruptive operation. Special consideration and procedures are recommended to prevent unexpected operation. Please refer to the CNT Technical solutions for specific recommendations and procedures for creating and changing Logical domains.

Principal switch considerations

Domain ID Lockdown should be enabled in the Enterprise Manager Software; see *IBM TotalStorage SAN n-type Director Family (IBM 2045) Enterprise Manager Software Installation and Operation Guide* for instructions.

IBM TotalStorage SAN256N director 2045-N16 software dependencies

The software requirements for the SAN256N director release 1.1.1 are as follows:

- Server: Windows XP Professional®, or Windows 2000 Professional®. This version of Enterprise Manager software is designed to operate under Windows XP or Windows 2000 Professional® (service pack 2 or higher is required for Windows 2000). Enterprise Manager is not supported under *any* earlier versions of Microsoft Windows®.
- Client: Windows XP Professional®, or Windows 2000 Professional® (service pack 2 or higher is required for Windows 2000), Linux (kernel 2.2.12 and above); and Solaris SPARC 8 and above.
- Enterprise Manager Software release 9.0 or later
- Additional required software:
 - CNTFTPd 1.1; included in SAN256N director CDs
 - HyperTerminal; supplied with Windows XP and Microsoft Windows 2000
 - JAVA Runtime Environment software version 1.4.2; included in SAN256N director CDs
 - Microsoft Internet Explorer® 6.x, as supplied with Windows XP or Microsoft Windows 2000®, or Netscape® 6.x browser
 - Adobe Acrobat Reader, version 5.x or greater; included in SAN256N director CDs

Outstanding issues

The following table provides information on the outstanding issues for the SAN256N director 1.1.1 release. These issues will be addressed in a future release or remain documented as known issues.

Table 2. Outstanding issues

Affected Customer Application	Affected CNT Feature	Description	Customer Impact
General	Management User Security	The “Operator” & “Viewer” user levels have access to functionality that they should not possess.	Delete the Viewer and Operator levels at the User Security module. See the <i>IBM TotalStorage SAN n-type Director Family (IBM2045) Enterprise Manager Software Installation and Operation Guide</i> for instructions.
General	Fault Isolation	ISL Failure LED indication may not persist	

Chapter 3. Summary of resolved defects

The following table provides information on the service requests addressed by the 1.1.1 release. Each service is tied to a specific product defect number.

No.	Severity	Title	Symptoms	Tracking #
1	High	Zone merge timeout with FC9K when zone is large.	Once the user has a large zone set (more than 1500 devices), an ISL between SAN256N and FC9K can go down can never come back up.	5697
2	High	SNMP is not fully functional in GA_11028. Integration with partners was done post GA.	SNMP memory leak will result in TCM reset after about 1 hour of regular SNMP queries.	5770, 5794, 5907
3	High	HDS 6180 may not log into SAN256N.	SAN256N ports connected to HDS 6180 do not come on-line due to FLOGI parameter compatibility issue.	6105
4	High	TFIO restart after 250 Zone activation/deactivation, Fabric Security enable/disable.	TFIO restart after more than 250 of the following: Zone activation, Zone deactivation, Fabric Security enable, Fabric Security disable.	5539
5	High	If TFIO with CUP service terminates abnormally or is removed, cannot talk to CUP.	Host cannot communicate to CUP. CUP is red-boxed.	5536
6	High	Zone server activate/deactivate failure, if only one TFIO in a logical domain after power-up.	Zone activate/deactivate fails if there is no secondary fcnetconfig. The problem only happens if the second service was removed later (after system startup).	5754, 5594
8	High	Mirror port (<i>and hence hardware trace</i>) does not work if port to be mirrored is running at 1G.	Mirror port does not work for 1G data streams.	5606

10	High	SAN256N connected to Cisco 9216 did not display and scrambled topology. The problem is a bug in CISCO implementation.	Either EM does not display CISCO switch or the topology is scrambled or the fabric continuously splits up and reconnects on EM. The problem occurs for a specific setup where CISCO is not principal switch and SAN256N in the middle of principal switch & CISCO switch.	6434
12	High	SAN256N cannot work in the same fabric as McData 6140 director.	SAN256N will be OK until McData 6140 joins fabric and link incident happens. This will result in to TFIO restart.	6036
13	High	Some of the old EMC devices may not come on-line with SAN256N.	Older EMC device cannot pass traffic through SAN256N due to constant RSCN issue. Also, constant "Port Name Server Update" events on EM.	6379, 6395
14	High	After TCM removal/restart, changes in configuration may not be saved in non-volatile memory.	After removing (or restarting) TCM, if SAN256N is power cycled, changes made since TCM restart are lost.	
15	High	Qlogic 2200 and HDS 9980 do not login when corresponding SAN256N ports set at fix speed.	SAN256N ports connected Qlogic 2200 HBA and HDS 9680 must be set to Auto-Negotiate.	
16	High	After HP EVA reboots, it does not come on-line with SAN256N.	After HP EVA reboots, customer need to put SAN256N port connected to HP EVA off-line and then on-line.	

Chapter 4. Changes and additions

This chapter provides information on the changes and additions that are part of the SAN256N director 1.1.1 release. These include changes and additions to the user documentation set, the addition of new traps for software support, and changes related to I/O protocol implementation.

Enterprise Manager Software changes

Tree changes

- Does not display ports and boards in the tree.
- There is a separate physical and logical view for switches mainly due to logical domains in SAN256N director.
- Boards displayed being moved to physical view.
- Port properties can be accessed from the port table and right-click the port.

Panel changes

- Reduced number of right hand side panels.
- Consistent way of showing properties by right-click property.

Table changes (available in most of the tables)

- Can customize what columns to show
- Can customize order of columns
- Can freeze up to 3 columns
- Can search based upon a specific column or whole table
- Can specify filter to show only specific rows.

Tool bar changes

- Better icons to improve look and feel
- Can customize order of toolbar buttons
- Can hide or show toolbar buttons

Events changes

Appendix A. Enterprise Manager Software system requirements

This appendix lists system requirements for Enterprise Manager software, and provides release notes for the Enterprise Manager.

Supported operating systems

Enterprise Manager Software is supported on Windows XP Professional®, or Windows 2000 Professional® (service pack 2 or higher is required for Windows 2000).

Enterprise Manager Software system requirements

Enterprise Manager Software platforms must adhere to the following requirements:

- The platform must be listed as one of the SERVER solutions on Microsoft's certified solutions web page <http://www.microsoft.com/whdc/hcl/default.msp>
- It must have the ("Designed For Windows XP, 2003 or 2000") or ("Certified for Windows XP, 2003 or 2000") stamps of approval
- Mainstream O/S support has not been retired by Microsoft (<http://support.microsoft.com/default.aspx?scid=fh;EN-US;LifeWin>)

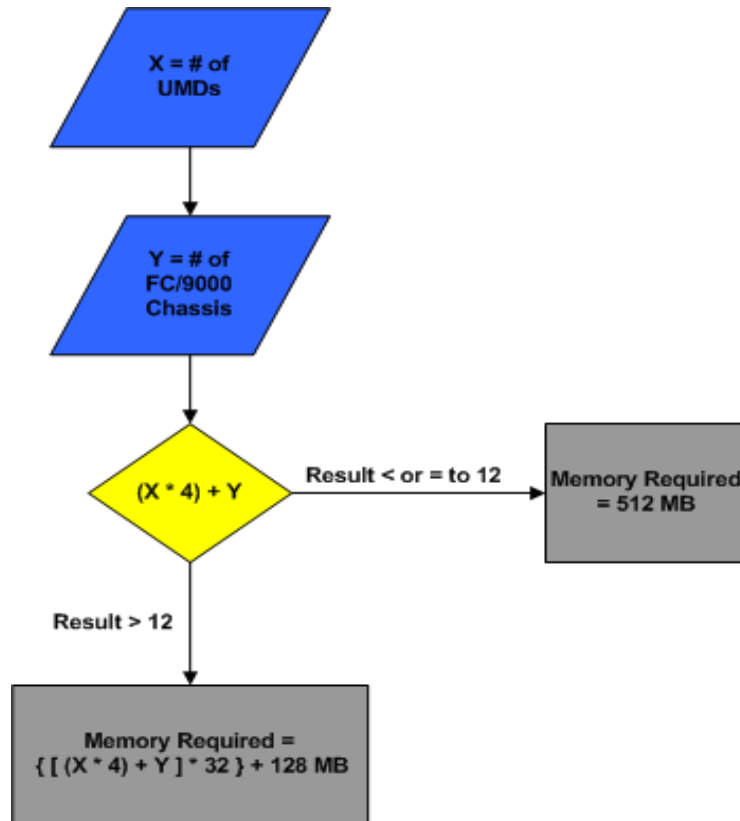
The platform must meet the following basic resource requirements:

Processor:	One Intel Pentium 4 (1.8 GHz +)
Other:	4 MB Video RAM
	One 40 GB hard drive
	One 1.44 MB diskette drive
	One CD-ROM
	One parallel port
	Two Ethernet 10Base-T/100 Base-TX
	One IBM or equivalent mouse
	Two external serial com ports (debug serial cable, external modem)
	One internal com port (internal modem)
	One 17-inch 1280 x 1024 x 256 SVGA monitor;
	Internal and External modem compatibility; analog, protocol support: V.90 5 6kbps ITU Standard,
	3Com/US Robotic/Multi-Tech (international) hardware compatible modems recommended (do not use Winmodem® software controlled modems).

Maintenance of customer supplied Enterprise Manager Software Intel platforms and the Windows XP Professional and 2000 Professional Operating System is a customer responsibility.

Determining Enterprise Manager memory requirements

Use the calculations shown in the graphic below to determine the memory requirements.



Where:

X = the number of SAN256Ns

Y = the number of FC/9000 64 port chassis

As an example, if you have three SAN256Ns and six FC/9000 chassis (e.g., two 64 port FC/9000s, and two 128 port FC/9000s), then:

X=3

Y=6

First, use the formula: $(X * 4) + Y$

result: $3 * 4 + 6 = 18$

Since the result is greater than 12, the continue using the following formula:

formula: $\{ [(X * 4) + Y] * 32 \} + 128$

result: $\{ [(3 * 4) + 6] * 32 \} + 128 = 704$ MB

Enterprise Manager Software 9.0.1 release notes

Important notes

- JVM/JRE 1.4.2 is required to run this version. Upgrade your JVM/JRE by running the j2re-1_4_2_04-windows-i586-p.exe application available on the Release Media (CD). Uninstalling previous versions of JVM and Java Webstart is recommended.
- Use the **Copy Codeset** function in Enterprise Manager for copying codesets. Do not manually copy codeset into c:\ftproot.
- Events are no longer stored in fcnms.mdb. A separate database file Eventlog.mdb is used for events storing. Events are no longer backed up in text files; they are backed up in mdb files. There is one current file (EventlogHistory.mdb) and 10 backup files (with .bak as extension). Open any of these files in Microsoft Access® to view the events. Alternatively, a utility is included in Enterprise Manager Software installation directory to access event history:
 - EventHistoryToCsv.exe converts any event mdb file to csv file. Current limitation requires that we shutdown Enterprise Manager server and run this utility from Enterprise Manager Software installation directory. In our next patch release, this utility may be launched from the Enterprise Manager server menu.
- Licensing requirement:
 - For the SAN256N director, a license key is required for CUP, Fabric Security and SAN Services. Use the **Director - License** menu option for license key. Separate license keys are required for each director.
- Enterprise Manager 9.0.1 supports enabling a SAN256N director to inband, using the server menu item **Maintenance - Inband SAN256N director management**. The SAN256N director inband management is disabled by default and will only change if you take the steps to enable the inband setting.

Known issues / limitations:

- You must delete the **Operator** and **Viewer** user levels in the **Enterprise Manager Software User Security** module. There are some issues with the functionality of those user levels and they must be deleted. Refer to the *IBM TotalStorage SAN n-type Director Family (IBM 2045) Enterprise Manager Software Installation and Operation Guide* for instructions.
- For Windows XP users, there is an issue with a blank browser page being displayed when you are trying to launch the **Enterprise Manager Client URL** desktop shortcut (the shortcut is installed by the Enterprise Manager Installer). As a work around, type **http://localhost** in your browser Address bar to launch the Enterprise Manager Software client (after the Enterprise Manager Software server is up and running).
- You must point Enterprise Manager to the correct database files in order to use the restore options. You can do this by launching the Enterprise Manager DB Restore (installed as part of the Enterprise Manager Software installation), which is installed in the user's HOME directory. Use this Enterprise Manager DB Restore window to navigate to the Enterprise Manager Software directory and point to the database files EM uses as restore sources.

Appendix B. NIC card

This appendix describes how to optimize the listed NIC cards; how to set-up a NIC card for FTP issues Intel Pro/100 VE or similar Intel NIC card.

Setting up NIC cards

If you have Intel Pro/100 VE or similar NIC card, you may experience code load problem or slow code load performance. Use the following steps to set-up this type of NIC card to resolve this issue.

1. From the **Start** menu, select **Settings | Control Panel**.
2. Double-click the **Network and Dial-up Connections** folder.
3. Double-click the Network connection for the **INTEL NIC Card**.
4. Click **Configure**.
5. Click **Advance**.
6. Look for the **TCP Segmentation Option** and disable it, by clicking **Off** or clearing the checkbox.

