

IBM TotalStorage® DS 8000 series



Interoperability Matrix

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About this Document

This document lists interoperable environments and configurations for the IBM TotalStorage DS8000 series that was announced on October 12, 2004. It covers the DS8100 Model 921 (2107-921), DS8300 Model 922 (2107-922), and DS8300 Model 9A2 (2107-9A2) that will be generally available on December 3, 2004. The support listed for the Model 8100 and Model 8300 also includes the associated expansion unit (DS8000 Model 92E (2107-92E) or DS8000 Model 9AE (2107-9AE)).

The document is for informational and planning purposes only and may change at anytime. This version supersedes and replaces all previous versions. The latest version of this document is available at:

<http://www.ibm.com/storage/disk/ds8000/supserver.htm>

Not all combinations created from interoperable components are supported, nor will they necessarily function properly together. The customer is responsible for confirming that a specific configuration (i.e. server model, operating system level, host adapter, and fabric product combination) is a valid and supported configuration by each of the vendors whose products are included in the configuration.

This document is not intended to be the sole resource for configuration information, requirements, and prerequisites. Refer to DS8000 series publications, vendor documentation, or your IBM Sales Representative or IBM Business Partner for additional information.

End-of-Service / End-of-Support

Throughout this document, this symbol – @ – indicates that the product vendor has announced that they no longer provide support for the product. If problems are encountered with existing installations, you may be required to update your configuration to a supported level before problem determination can take place.

Request for Price Quotations (RPQ)

If a desired configuration is not represented in this document, a RPQ should be submitted to IBM to request approval. To submit a RPQ, contact your local IBM Storage Specialist or Business Partner.

DS 8000 SERIES INTEROPERABILITY SUMMARY

For convenience, the following tables summarize the interoperable environments and configurations for the DS8000 series. Refer to the individual server pages for additional information, including prerequisites and limitations.

Table 1: Open Systems

	DS8100 Model 921	DS8300 Model 922	DS8300 Model 9A2	Fibre Channel	Clustering (Fibre Channel)	Boot device support	Subsystem Device Driver (SDD)	DS Application Program Interface (API)	DS Command Line Interface (DS CLI)
Fujitsu Primepower	✓	✓	✓	✓					
Hewlett-Packard (HP-UX)	✓	✓	✓	✓	✓		✓		✓
Hewlett-Packard AlphaServer (OpenVMS)	✓	✓	✓	✓	✓				
Hewlett-Packard AlphaServer (Tru64 UNIX)	✓	✓	✓	✓	✓	✓			
IBM iSeries and AS/400 (OS/400)	✓	✓	✓	✓					
IBM iSeries and AS/400 (Linux)	✓	✓	✓	✓					
IBM pSeries (Linux)	✓	✓	✓	✓			✓		
IBM pSeries, RS/6000, and RS/6000 SP (AIX)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Intel Servers (Linux)	✓	✓	✓	✓		✓	✓	✓	✓
Intel Servers (NetWare)	✓	✓	✓	✓	✓		✓		✓
Intel Servers (VMware)	✓	✓	✓	✓					
Intel Servers (Windows)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Apple Macintosh (OSX)	✓	✓	✓	✓					
SGI Origin Servers (IRIX)	✓	✓	✓	✓					
Sun (Solaris)	✓	✓	✓	✓	✓		✓		✓

Table 2: IBM zSeries

	z/OS	z/VM	VSE/ESA	Transaction Processing Facility (TPF)	Linux
DS8100 Model 921	✓	✓	✓	✓	✓
DS8300 Model 922	✓	✓	✓	✓	✓
DS8300 Model 9A2	✓	✓	✓	✓	✓
ESCON	✓	✓	✓	✓	
Fibre Channel Protocol (FCP)					✓
FICON	✓	✓	✓	✓	

DS8000 Licensed Machine Code (LMC)

This document contains references to minimum DS LMC levels. In many cases, the minimum level listed does not represent the latest available LMC level.

Customers are encouraged to keep their DS8000 series at the latest LMC level to take advantage of quality, reliability, and serviceability enhancements and to receive problem determination and fix support.

All items listed in this version of the document require DS8000 series LMC level 5.0.0 or later, unless otherwise noted.

Host Systems Attachment Guide

The IBM TotalStorage DS8000 Host Systems Attachment Guide should be referenced to obtain detailed information on attaching servers to the DS8000 series.

Host Adapters

This document contains only limited information regarding host adapter driver levels and other prerequisites. Host adapter firmware, driver, and fix level information is documented in the Fibre Channel Host Bus Adapter (HBA) Support Matrix. This matrix can be found at:

<http://knowledge.storage.ibm.com/HBA/HBASearchTool>

Additionally, review host adapter vendor documentation and web pages to obtain information regarding host adapter configuration planning, hardware and software requirements, driver levels, and release notes.

ATTO: <http://www.attotech.com/>

Emulex: <http://www.emulex.com/ts/dds.html>

JNI: <http://www.jni.com/OEM/oem.cfm?ID=4>

QLogic: http://www.qlogic.com/support/oem_detail_all.asp?oemid=22

SAN Fabric Products

Fabric product vendor documentation and web pages should be reviewed to obtain information regarding configuration planning, hardware and software requirements, firmware and driver levels, and release notes.

IBM: www.ibm.com/storage/ibmsan/products/sanfabric.html

CNT (INRANGE): <http://www.cnt.com/ibm/>

McDATA: www.mcdata.com/ibm/

Cisco: www.cisco.com/go/ibm/storage

Channel Extension Technology Products

Channel extension technology product vendor documentation and web pages should be reviewed to obtain information regarding configuration planning, hardware and software requirements, firmware and driver levels, and release notes.

Cisco: www.cisco.com/go/ibm/storage

CIENA: www.ciena.com/products/transport/shorthaul/cn2000/index.asp

CNT: www.cnt.com/ibm/

Nortel: www.nortelnetworks.com/

ADVA: www.advaoptical.com/

IBM TotalStorage SAN Volume Controller

The IBM TotalStorage SAN Volume Controller is supported with the DS8100 and DS8300. The SAN Volume Controller is not interoperable with DS Copy Services. Refer to the following web pages for specific interoperability information on the SAN Volume Controller:

<http://www.ibm.com/storage/support/2145>

IBM TotalStorage SAN File System

The IBM TotalStorage SAN File System supports the DS8100 and DS8300. For more information on support, please refer to the following:

<http://www.ibm.com/support/docview.wss?rs=575&uid=ssg1S1002299>

IBM TotalStorage Multipath Subsystem Device Driver (SDD)

The SDD is designed to provide load balancing and enhanced data availability capability in configurations with more than one I/O path between the host server and the DS8000 series system. Load balancing can reduce or eliminate I/O bottlenecks that occur when many I/O operations are directed to common devices via the same I/O path. SDD also helps eliminate a potential single point of failure by automatically rerouting I/O operations when a path failure occurs, thereby supporting enhanced data availability capability. The SDD is provided with the DS8000 series at no additional charge.

Refer to the individual server pages within this document for operating system level requirements and for DS8000 series LMC prerequisites.

Refer to the IBM TotalStorage Multipath Subsystem Device Driver User's Guide for additional information.

Additional SDD information is also available at: <http://www.ibm.com/servers/storage/support/software/sdd/index.html>

IBM TotalStorage DS Open API (Application Program Interface)

The DS Open API supports routine LUN management activities, such as LUN creation, mapping, and masking, and the management of point in time copy and remote mirroring. It supports these activities through the use of a standard interface as defined by the Storage Networking Industry Association (SNIA) Storage Management Initiative Specification (SMI-S). It is implemented through the IBM TotalStorage Common Information Model Agent (CIM Agent) for the DS8000 series, a middleware application that provides a CIM-compliant interface. The DS Open API and CIM Agent are provided with the DS8100 and DS8300 at no additional charge.

Refer to the individual server pages within this document for operating system level requirements and for DS8000 series LMC prerequisites. While the CIM Agent is available for only selected operating system environments, it can be used to manage all LUNs within an DS8000 series.

Refer to the IBM TotalStorage DS Open Application Programming Interface Reference for additional information.

IBM TotalStorage DS Command Line Interface (CLI)

The DS CLI is a single CLI that has the ability to perform a full set of commands for both configuration and copy services activities. The DS CLI is provided with the DS8000 series at no additional charge.

Refer to the individual server pages within this document for operating system level requirements and for DS8000 series LMC prerequisites. Refer to the IBM TotalStorage DS Command-Line Interface User's Guide for additional information.

DS8000 SERIES COPY SERVICES

IBM TotalStorage FlashCopy

IBM TotalStorage FlashCopy is designed to provide a point-in-time copy capability for DS8000 series logical volumes. FlashCopy creates a physical point-in-time copy of the data, with minimal interruption to applications, and makes it possible to access both the source and target copies immediately. FlashCopy is an optional capability, and is available with the point in time features on the DS8000 series.

Remote Mirror and Copy Solutions

The DS8000 series supports several hardware-based remote mirror and copy solutions. They are optional capabilities of the DS8000 series and are available with the remote mirror and copy features on the DS8000 series.

IBM supports the following remote mirror and copy solutions. Refer to Table 3 for DS8000 series model support and LMC prerequisites.

IBM TotalStorage Metro Mirror

Metro Mirror is designed to provide real time mirroring between two systems that can be located up to 300 km from each other. It is a synchronous copy solution where write operations are completed on both copies (local and remote site) before they are considered to be done.

Extending distances beyond 300 km is also possible. However, due to network configuration variability, the customer must work with the channel extender vendor to determine the appropriate configuration to meet their performance requirements. IBM support approval for these longer distances can be requested by submitting a Request for Price Quotation (RPQ). The RPQ should include information on distance between sites, the channel extension technology, the type of telecom line, the amount of network bandwidth, the DS8100 or DS8300 system capacity, and a general description of the workload.

IBM TotalStorage Global Copy

Global Copy is a non-synchronous long-distance copy option for data migration and backup. With a non-synchronous operation, the distance between the primary and secondary DS8000 series system will have only a minimal effect on the application response time. Therefore, Global Copy can operate at very long distances.

IBM TotalStorage Global Mirror

Global Mirror is a high performance, asynchronous remote-mirroring copy solution. It is designed to provide a two-site disaster recovery and backup solution at virtually unlimited distances.

Since the distance between the primary and secondary DS8000 series system has little impact to host applications at the primary site, the remote site can be located at distances from the local site well beyond those supported with Metro Mirror. The distances are typically limited only by the capabilities of the network and channel extension technologies.

IBM TotalStorage Remote Mirror and Copy Solutions for z/OS

The DS8000 series supports the following remote mirror and copy solutions for the z/OS environment:

IBM TotalStorage z/OS Global Mirror

This is a combined hardware and software business continuance solution for the zSeries environment providing asynchronous mirroring between systems at two sites located global distances apart. z/OS Global Mirror is an optional capability of the DS8000 series and is available with the remote mirror for z/OS features on the DS8000 series. Refer to Table 4 for DS8000 series model support and LMC prerequisites.

IBM TotalStorage z/OS Metro/Global Mirror (3-site z/OS Global Mirror and Metro Mirror)

This mirroring capability utilizes z/OS Global Mirror to mirror primary site data to a location that is a long distance away and also uses Metro Mirror to mirror primary site data at a location within the metropolitan area. This enables a 3-site high availability and disaster recovery z/OS solution for even greater protection from unplanned outages. z/OS Metro/Global Mirror is an optional capability of the DS8000 series, and is available with the remote mirror for z/OS and remote mirror and copy features on the DS8000 series. Refer to Table 4 for DS8000 series model support and LMC prerequisites for z/OS Global Mirror and Table 3 for DS8000 series model support and LMC prerequisites for Metro Mirror.

Remote Mirror and Copy Channel Extension, DWDM, and Network Connectivity

Distances beyond 103 km will require the use of channel extension technology, and the channel extender vendor will determine the maximum distance supported. The vendor should be contacted for its distance capability, line quality requirements, and WAN attachment capabilities.

IBM supports the use of the following products, in Table 3, with remote mirror and copy. Additionally, the product vendors should also be consulted regarding hardware and software prerequisites when using their products in a DS8000 series remote mirror and copy configuration. IBM is not responsible for third-party products.

When using remote mirror and copy with channel extenders, IBM supports the use of remote mirror and copy over all the network technologies that are currently supported by the channel extender products, including Fibre Channel, Ethernet/IP, ATM-OC3, and T1/T3. Evaluation, qualification, approval, and support of remote mirror and copy configurations using channel extender products are the sole responsibility of the channel extender vendor. The vendor should be contacted for its distance capability, line quality requirements, as well as SAN and WAN attachment capabilities.

Table 3: Minimum LMC levels for remote mirror and copy over Fibre Channel (FCP)

	Metro Mirror	Global Copy	Global Mirror
DS8100 Model 921	5.0.0	5.0.0	5.0.0
DS8300 Model 922	5.0.0	5.0.0	5.0.0
DS8300 Model 9A2	5.0.0	5.0.0	5.0.0
ADVA FSP 2000	5.0.0	5.0.0	5.0.0
CIENA CN 2000™ Storage Extension Platform	5.0.0	5.0.0	5.0.0
Cisco IP Storage Service Modules	5.0.0	5.0.0	5.0.0
Cisco CWDM Distance Solution	5.0.0	5.0.0	5.0.0
Cisco ONS 15530 / 15540	5.0.0	5.0.0	5.0.0
CNT Edge Storage Router	5.0.0	5.0.0	5.0.0
Nortel Networks OPTera Metro 5200	5.0.0	5.0.0	5.0.0
Nortel Networks OPTera Metro 5300	5.0.0	5.0.0	5.0.0

z/OS Global Mirror Channel Extension, DWDM, and Network Connectivity

Distances beyond 3 km for ESCON, and 10 km for FICON will require the use of channel extension technology, and the channel extender vendor will determine the maximum distance supported. The vendor should be contacted for its distance capability, line quality requirements, and SAN and WAN attachment capabilities.

IBM supports the use of the following products, in Table 4, with z/OS Global Mirror. The product vendors should also be consulted regarding hardware and software prerequisites when using their products in a DS8000 Series System z/OS Global Mirror configuration. IBM is not responsible for third-party products.

When using z/OS Global Mirror with channel extenders, IBM supports the use of z/OS Global Mirror over all the network technologies that are currently supported by the channel extender products, including Fibre Channel, Ethernet/IP, ATM-OC3, and T1/T3. Evaluation, qualification, approval, and support of z/OS Global Mirror configurations using channel extender products are the sole responsibility of the channel extender vendor. The vendor should be contacted for its distance capability, line quality requirements, as well as SAN and WAN attachment capabilities.

Table 4: Minimum LMC Levels for z/OS Global Mirror

	z/OS Global Mirror - ESCON	z/OS Global Mirror - FICON
DS8100 Model 921	5.0.0	5.0.0
DS8300 Model 922	5.0.0	5.0.0
DS8300 Model 9A2	5.0.0	5.0.0
ADVA FSP 2000	5.0.0	5.0.0
CIENA CN 2000™ Storage Extension Platform	5.0.0	5.0.0
Cisco ONS 15530 / 15540	5.0.0	5.0.0
Cisco CWDM	5.0.0	5.0.0
Cisco IP Storage Service Modules	5.0.0	5.0.0
CNT (INRANGE) 9811 Storage Networking System	5.0.0	5.0.0
CNT UltraNet Storage Director (USD)	5.0.0	5.0.0
CNT UltraNet Storage Director eXtended (USD-X) ¹	5.0.0	5.0.0
IBM 2029 Fiber Saver	5.0.0	5.0.0
Nortel Networks OPTera Metro 5200 / 5300	5.0.0	5.0.0

¹ Requires firmware level 3.2.1.

HEWLETT-PACKARD SERVERS – HP-UX

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
<p>HP Server</p> <ul style="list-style-type: none"> • rp2400 series • rp3400 series • rp4400 series • rp5400 series • rp7400 series • rp8400 series • Superdome <p>HP 9000 Enterprise Servers</p> <ul style="list-style-type: none"> • L-Class • N-Class • V-Class <p>Itanium II Servers</p> <ul style="list-style-type: none"> • rx1600 series • rx2600 series • rx4600 series • rx5600 series • rx7400 series • rx8400 series 	<p>HP-UX</p> <ul style="list-style-type: none"> • 11i <ul style="list-style-type: none"> • PVLINKS • MC/Serviceguard 11.12, 11.13, and 11.14 • 11iv2 (11.23) <ul style="list-style-type: none"> • PVLINKS • MC/Serviceguard 11.14 	<p>Hewlett-Packard</p> <ul style="list-style-type: none"> • A5158A • A6684A • A6685A • A6795A • A6826A • A9782A 	<p>Cisco</p> <ul style="list-style-type: none"> • MDS 9120 • MDS 9140 • MDS 9216 • MDS 9506 • MDS 9509 <p>CNT (Inrange)</p> <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000- 256 • 2042-N16 <p>IBM</p> <ul style="list-style-type: none"> • 2005 Models H08 and H16 • 2109 Models F16 and F32 • 2109 Model M12 • 2109 Model M14 • 2109 Models S08 and S16 • 3534 Model F08 <p>McDATA</p> <ul style="list-style-type: none"> • ED-5000 • ES-3016 and ES-3032 • Intrepid <ul style="list-style-type: none"> • 6064 • 6140 • Sphereon <ul style="list-style-type: none"> • 3216 • 3232 • 4300 • 4500

General notes:

DS Open API – (CIM Agent): Not available for HP-UX.

DS CLI: Available for HP-UX 11i and 11iV2.

SDD:

- Available for HP-UX 11i and 11iV2.
- Not interoperable with MC/Serviceguard.
- Multi-path support is natively available in HP-UX (PVLINKS)

HEWLETT-PACKARD SERVERS – OPENVMS

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
AlphaServer <ul style="list-style-type: none">• 800• 1200• 4000, 4000A• 4100• 8200, 8400• DS10, DS20, DS20E• ES40, 45, 47• GS60, GS60E, GS140• GS80, GS160, GS320	OpenVMS <ul style="list-style-type: none">• 7.3• 7.3-1• 7.3-2	StorageWorks <ul style="list-style-type: none">• KGPSA-CA• KGPSA-DA• KGPSA-EA	IBM <ul style="list-style-type: none">• 2109 Model F16• 2109 Model F32• 2109 Models S08 and S16• 3534 Model F08

HEWLETT-PACKARD SERVERS - OPENVMS

General notes:

DS Open API – (CIM Agent): Not available for OpenVMS

DS CLI: Not available for OpenVMS.

SDD: Not available for OpenVMS

HEWLETT-PACKARD SERVERS – TRU64 UNIX

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
AlphaServer <ul style="list-style-type: none">• 800• 1200• 2100• 4000, 4000A• 4100• 8200, 8400• DS10, DS20, DS20E• ES40, 45, 47• GS60, GS60E, GS140• GS80, GS160, GS320	Tru64 UNIX <ul style="list-style-type: none">• 5.0A<ul style="list-style-type: none">• TruCluster 5.0A• 5.1<ul style="list-style-type: none">• TruCluster 5.1• 5.1A<ul style="list-style-type: none">• TruCluster 5.1A• 5.1B<ul style="list-style-type: none">• TruCluster 5.1B	StorageWorks <ul style="list-style-type: none">• KGPSA-CA• KGPSA-DA• KGPSA-EA	IBM <ul style="list-style-type: none">• 2109 Model F16• 2109 Model F32• 2109 Models S08 and S16• 3534 Model F08

HEWLETT-PACKARD SERVERS – TRU64 UNIX

General notes:

DS Open API – (CIM Agent): Not available for Tru64 UNIX

DS CLI: Not available for Tru64 UNIX.

SDD:

- Not available for Tru64 UNIX.
- Multipath support is natively available in Tru64 UNIX.

Boot device support:

The DS8100 and DS8300 can be used as a boot device on servers running Tru64UNIX 5.0A, 5.1, 5.1A, and 5.1B. Refer to the IBM TotalStorage DS8000 Host Systems Attachment Guide for additional information.

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
iSeries <ul style="list-style-type: none"> • 270 • 820, 830, 840, 890 • 800, 810, 825, and 870 	OS/400 <ul style="list-style-type: none"> • Version 5 • V5R2 	IBM iSeries <ul style="list-style-type: none"> • FC 0612 • FC 0626 • FC 2766 • FC 2787 • FC 0646 ¹ 	Cisco <ul style="list-style-type: none"> • MDS 9120 • MDS 9140 • MDS 9216 • MDS 9506 • MDS 9509
eServer i5 <ul style="list-style-type: none"> • 520, 550 and 570 	i5/OS <ul style="list-style-type: none"> • Version 5 • V5R3 		CNT (Inrange) <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000-256 • 2042-N16
	Linux ¹ <ul style="list-style-type: none"> • RHEL 3.0 U3 		IBM <ul style="list-style-type: none"> • 2005 Models H08 and H16 • 2109 Model F16 • 2109 Model F32 • 2109 Model M12 • 2109 Model M14 • 2109 Models S08 and S16 • 3534 Model F08
			McDATA <ul style="list-style-type: none"> • Intrepid <ul style="list-style-type: none"> • 6064 • 6140 • Sphereon <ul style="list-style-type: none"> • 3216 • 3232 • 4300 • 4500

¹ Linux is only supported on the eServer i5. FC0646 is only supported with Linux.

General notes:

DS Open API – (CIM Agent):

- Not available.

DS CLI:

- Not available.

SDD:

- Not available. Multipath support is provided in i5/OS V5R3.

IBM P SERIES AND RS/6000 SERVERS

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
<p>pSeries</p> <ul style="list-style-type: none"> 610 Models 6C1, 6E1 615 Models 6C3, 6E3 620 Models 6F0, 6F1 630 Models 6C4, 6E4 640 Model B80 650 Model 6M2 655 Model 651 660 Models 6H0, 6H1, 6M1 670 Model 671 680 Model S85 690 Model 681 <p>eServer p5</p> <ul style="list-style-type: none"> 520, 550, 570 <p>IBM eServer BladeCenter ¹</p> <ul style="list-style-type: none"> BladeCenter JS20 <ul style="list-style-type: none"> 8842 <p>RS/6000</p> <ul style="list-style-type: none"> 7013: S70, S7A 7015: S70, S7A 7017: S70, S7A, S80 7025: F50, F80, H70 7026: H50, H70, H80, M80 7043: 270 7044: 170, 270 	<p>AIX</p> <ul style="list-style-type: none"> Version 5 <ul style="list-style-type: none"> 5.1 5.2 5.3 <p>HACMP</p> <ul style="list-style-type: none"> 5.1.0 5.2.0 <p>SUSE</p> <ul style="list-style-type: none"> SLES 8 <p>Red Hat</p> <ul style="list-style-type: none"> RHEL 3.0 U3 	<p>IBM pSeries and RS/6000</p> <ul style="list-style-type: none"> FC 6228 FC 6239 FC 5716 	<p>Cisco ²</p> <ul style="list-style-type: none"> MDS 9120 and 9140 MDS 9216 MDS 9506 and 9509 <p>CNT (Inrange)</p> <ul style="list-style-type: none"> FC/9000-64, FC/9000-128, FC/9000-256 2042-N16 <p>IBM</p> <ul style="list-style-type: none"> 2005 Models H08 and H16 2109 Models F16 and F32 2109 Model M12 2109 Model M14 2109 Models S08 and S16 3534 Model F08 <p>IBM eServer BladeCenter ¹</p> <ul style="list-style-type: none"> P/N 02R9080 P/N 48P7062 <p>McDATA</p> <ul style="list-style-type: none"> ED-5000 ES-3016 ES-3032 Intrepid <ul style="list-style-type: none"> 6064 6140 Sphereon <ul style="list-style-type: none"> 3216 3232 4300 4500

¹ BladeCenter is supported with AIX 5.2H, SuSE SLES 8, and RHEL 3.0 U3 only. For more information on BladeCenter SAN support, refer to the following website: <http://serverproven.raleigh.ibm.com/compat/eserver.html>

² Supports the IP Storage Service Module for iSCSI on Cisco MDS fabric products. Refer to the following link for more details: <ftp://service.boulder.ibm.com/storage/san/cisco/ipStorServMod.pdf>

IBM pSERIES AND RS/6000 SERVERS

General Notes:

DS Open API – (CIM Agent): Available for AIX 5.1.

DS CLI: Available for AIX 5.1, 5.2, and 5.3.

SDD:

Available for AIX 5.1, 5.2 and 5.3.

Available for SUSE SLES 8 and Red Hat RHEL 3.0 U3.

Path Control Module:

Available for AIX 5.2 and AIX 5.3 MPIO with latest released maintenance levels.

Boot device support:

The DS8100 and DS8300 are supported as a boot device on RS/6000, pSeries, and eServer p5 servers that support Fibre Channel boot capability. This support is not available with BladeCenter. Refer to the IBM TotalStorage DS8000 Host Systems Attachment Guide for additional information.

IBM P SERIES AND RS/6000 SERVERS

Table 6: AIX and HACMP Support Matrix

	DS8100 Model 921	DS8300 Model 922	DS8300 Model 9A2	SDD
AIX 5.1 with HACMP 5.1.0	Yes	Yes	Yes	Yes
AIX 5.2 with HACMP 5.1.0	Yes	Yes	Yes	Yes
AIX 5.1 with HACMP 5.2.0	Yes	Yes	Yes	Yes
AIX 5.2 with HACMP 5.2.0	Yes	Yes	Yes	Yes
AIX 5.3 with HACMP 5.2	Yes	Yes	Yes	Yes

IBM RS/6000 SP SERVERS

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
9076 Models 2xx, 3xx, 4xx, 50x, 55x, and T70 with the following PCI nodes: <ul style="list-style-type: none"> • FC 2050: 332 MHz SMP Single Thin Node • FC 2051: 332 MHz SMP Wide Node • FC 2052: POWER3 SMP Thin Node • FC 2053: POWER3 SMP Wide Node • FC 2054: POWER3 SMP High Node • FC 2055: SP Expansion I/O Unit • FC 2056: POWER3 375MHz SMP Thin Node • FC 2057: POWER3 375MHz SMP Wide Node • FC 2058: POWER3 375MHz SMP High Node 	AIX <ul style="list-style-type: none"> • Version 5 • 5.1 ML2 • 5.2 • 5.3 	IBM RS/6000 <ul style="list-style-type: none"> • FC 6228 • FC 6239 • FC 5716 	Cisco <ul style="list-style-type: none"> • MDS 9120 • MDS 9140 • MDS 9216 • MDS 9506 • MDS 9509 CNT (Inrange) <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000-256 • 2042-N16 IBM <ul style="list-style-type: none"> • 2005 Models H08 and H16 • 2109 Models F16 and F32 • 2109 Model M12 • 2109 Model M14 • 2109 Models S08 and S16 • 3534 Model F08 McDATA <ul style="list-style-type: none"> • ED-5000 • ES-3016 and ES-3032 • Intrepid <ul style="list-style-type: none"> • 6064 • 6140 • Sphereon <ul style="list-style-type: none"> • 3216 • 3232 • 4300 • 4500

IBM RS/6000 SP SERVERS

General Notes:

DS Open API – (CIM Agent): Available for AIX 5.1.

DS CLI: Available for AIX 5.1, 5.2, and 5.3.

SDD:

- Available for AIX 5.1, AIX 5.2, and AIX 5.3.

Path Control Module: Available for AIX 5.2 and AIX 5.3 MPIO with latest released maintenance levels .

Boot device support:

- The DS8100 and DS8300 are supported as a boot device on RS/6000 SP servers that support Fibre Channel boot capability. Refer to the IBM TotalStorage DS8000 Host Systems Attachment Guide for additional information.

IBM RS/6000 SP SERVERS

Table 7: AIX Clustering for RS/6000 SP

	DS8100	DS8300	DS8300	SDD	MPIO
	Model 921	Model 922	Model 9A2	Level	Level
AIX 5.1 with:					
• PSSP 3.4, 3.5	Yes	Yes	Yes	TBD	--
• GPFS 1.5, 2.1					
AIX 5.2					
• GPFS 2.1 or 2.2	Yes	Yes	Yes	TBD	TBD
• RVSD 3.5 or 4.1					
AIX 5.3					
• CSM 1.3.n	Yes	Yes	Yes	TBD	TBD

IBM zSERIES AND S/390 SERVERS

ESCON

Servers	Operating Systems	Host Adapters	Fabric Support
zSeries z800 <ul style="list-style-type: none"> IBM 2066 	z/OS <ul style="list-style-type: none"> Version 1 Release 4 Version 1 Release 5 Version 1 Release 6 	All ESCON host adapter features offered on the servers are supported.	IBM <ul style="list-style-type: none"> 9032 Model 002 9032 Model 003 9032 Model 005
zSeries z890 <ul style="list-style-type: none"> IBM 2086 	z/OS.e <ul style="list-style-type: none"> Version 1 Release 4 Version 1 Release 5 Version 1 Release 6 		
zSeries z900 and z990 <ul style="list-style-type: none"> IBM 2064 IBM 2084 	z/VM <ul style="list-style-type: none"> Version 4 Release 4 Version 5 Release 1 		
S/390 Parallel Enterprise Server <ul style="list-style-type: none"> IBM 9672 Generation 3 IBM 9672 Generation 4 IBM 9672 Generation 5 IBM 9672 Generation 6 	VSE/ESA <ul style="list-style-type: none"> Version 2 Release 7 		
ES/9000 <ul style="list-style-type: none"> IBM 9021 IBM 9121 IBM 9221 	Transaction Processing Facility (TPF) <ul style="list-style-type: none"> Version 4 Release 1 		
ES/3090 <ul style="list-style-type: none"> IBM 3090 			
S/390 Multiprise 3000 Enterprise Server <ul style="list-style-type: none"> IBM 7060 			
S/390 Multiprise 2000 Enterprise Server <ul style="list-style-type: none"> IBM 2003 			

IBM zSERIES AND S/390 SERVERS

FICON

Servers	Operating Systems	Host Adapters	Fabric Support
zSeries z800 <ul style="list-style-type: none"> IBM 2066 	z/OS <ul style="list-style-type: none"> Version 1 Release 4 Version 1 Release 5 Version 1 Release 6 	zSeries <ul style="list-style-type: none"> FC 2315 FC 2318 FC 2319 FC 2320 	Cisco <ul style="list-style-type: none"> MDS 9216 MDS 9506 MDS 9509
zSeries z890 <ul style="list-style-type: none"> IBM 2086 	z/OS.e <ul style="list-style-type: none"> Version 1 Release 4 Version 1 Release 5 Version 1 Release 6 	S/390 <ul style="list-style-type: none"> FC 2314 FC 2316 	CNT (Inrange) <ul style="list-style-type: none"> FC/9000-64 FC/9000-128 FC/9000-256 2042-N16
zSeries z900 and z990 <ul style="list-style-type: none"> IBM 2064 	z/VM <ul style="list-style-type: none"> Version 4 Release 4 Version 5 Release 1 		IBM <ul style="list-style-type: none"> 2109 Model M12 2109 Model M14
S/390 Parallel Enterprise Server <ul style="list-style-type: none"> IBM 9672 Generation 5 IBM 9672 Generation 6 	VSE/ESA <ul style="list-style-type: none"> Version 2 Release 7 		McDATA <ul style="list-style-type: none"> ED-5000 Intrepid <ul style="list-style-type: none"> 6064 6140 Sphereon <ul style="list-style-type: none"> 3232
	Transaction Processing Facility (TPF) <ul style="list-style-type: none"> Version 4 Release 1 		

IBM zSERIES AND S/390 SERVERS

Fibre Channel Protocol (FCP)

Servers	Operating Systems	Host Adapters	Fabric Support
zSeries z800 <ul style="list-style-type: none">• IBM 2066	Linux <ul style="list-style-type: none">• SuSE SLES 8 Submarine	zSeries <ul style="list-style-type: none">• FC 2315• FC 2318• FC 2319• FC 2320	CNT (Inrange) <ul style="list-style-type: none">• FC/9000-64• FC/9000-128• FC/9000-256
zSeries z890 <ul style="list-style-type: none">• IBM 2086			IBM <ul style="list-style-type: none">• 2109 Model F16• 2109 Models S08 and S16
zSeries z900 and z990 <ul style="list-style-type: none">• IBM 2064			McDATA <ul style="list-style-type: none">• Intrepid 6064

General Notes:

DS Open API – (CIM Agent): Not available for zSeries.

DS CLI: Not available for zSeries.

Fibre Channel Protocol (FCP):

- Multi-path support is available with LVM.

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INTEL-BASED SERVERS – LINUX

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Intel Pentium II Xeon and above <ul style="list-style-type: none"> • 900 Mhz or faster • 2 – 16 processors • 512 MB RAM or higher 	Red Hat Enterprise Linux <ul style="list-style-type: none"> • 2.1 • 3.0 	Emulex <ul style="list-style-type: none"> • LP9002L / LP9002DC • LP9402DC • LP9802 • LP10000/LP10000DC 	Cisco ² <ul style="list-style-type: none"> • MDS 9120 • MDS 9140 • MDS 9216 • MDS 9506 • MDS 9509
IBM eServer 325 ³	SuSE SLES 8	QLogic <ul style="list-style-type: none"> • QLA2310F / QLA2310FL • QLA2340/L / QLA2342/L 	CNT (Inrange) <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000-256 • 2042-N16
IBM eServer BladeCenter ¹ <ul style="list-style-type: none"> • BladeCenter HS20 <ul style="list-style-type: none"> • 8678 • 8832 • BladeCenter HS40 <ul style="list-style-type: none"> • 8839 	Asianux 1.0 <ul style="list-style-type: none"> • Red Flag Linux DataCenter <ul style="list-style-type: none"> • v4.1 ³ 	IBM Netfinity/xSeries <ul style="list-style-type: none"> • P/N 19K1246 • P/N 24P0960 	IBM <ul style="list-style-type: none"> • 2005 Models H08 and H16 • 2109 Models F16 and F32 • 2109 Model M12, M14 • 2109 Models S08 and S16 • 3534 Model F08
	Red Flag Linux Advanced Server <ul style="list-style-type: none"> • v4.1 ³ 		IBM eServer BladeCenter ¹ <ul style="list-style-type: none"> • P/N 02R9080 • P/N 48P7062 • P/N 90P0165
			McDATA <ul style="list-style-type: none"> • ED-5000, ES-3016, ES-3032 • Intrepid 6064 • Intrepid 6140 • Sphereon <ul style="list-style-type: none"> • 3216 • 3232 • 4300 • 4500

¹ BladeCenter is only supported with Red Hat Enterprise Linux and SuSE SLES 8. For information on BladeCenter fabric support, please refer to: <http://serverproven.raleigh.ibm.com/compat/eserver.html>

² Supports the IP Storage Service Module for iSCSI on Cisco MDS fabric products. Refer to the following link for more details: <ftp://service.boulder.ibm.com/storage/san/cisco/ipStorServMod.pdf>

³ Supported with QLogic adapters only.

General Notes:

DS Open API – (CIM Agent): Available with Red Hat Enterprise Linux 3.0.

DS CLI: Available with Red Hat Enterprise Linux 2.1 and 3.0, and SuSE SLES 8.

SDD:

- Available with Red Hat Enterprise Linux 2.1 and 3.0, SuSE SLES 8, Asianux, and Red Flag.
- SDD is not supported on the eServer 325.

Boot device support:

- The DS8100 and DS8300 are supported as a boot device on Red Hat Enterprise Linux 2.1 and 3.0, and SuSE SLES 8 that supports Fibre Channel boot capability. This support is only available with Qlogic adapters: QLA 2310F/QLA2310FL, QLA2340/L/QLA2342/L.

INTEL-BASED SERVERS – NETWARE

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Intel Pentium II Xeon and above <ul style="list-style-type: none"> • 900 Mhz or faster • 2 – 16 processors • 512 MB RAM or higher 	Novell NetWare <ul style="list-style-type: none"> • 5.1 <ul style="list-style-type: none"> • Cluster Services 1.01 • 6.0 <ul style="list-style-type: none"> • Cluster Services 1.6 • 6.5 <ul style="list-style-type: none"> • Cluster Services 1.70 	Emulex <ul style="list-style-type: none"> • LP9002L / LP9002DC • LP9402DC • LP9802 • LP10000/10000DC 	Cisco <ul style="list-style-type: none"> • MDS 9120 • MDS 9140 • MDS 9216 • MDS 9506 • MDS 9509
IBM eServer BladeCenter ¹ <ul style="list-style-type: none"> • BladeCenter HS20 <ul style="list-style-type: none"> • 8678 • 8832 • BladeCenter HS40 <ul style="list-style-type: none"> • 8839 		IBM xSeries / Netfinity <ul style="list-style-type: none"> • P/N 19K1246 • P/N 24P0960 	CNT (Inrange) <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000-256
		QLogic <ul style="list-style-type: none"> • QLA2310F / QLA2310FL • QLA2340/L / QLA2342/L 	IBM <ul style="list-style-type: none"> • 2109 Models F16 and F32 • 2109 Model M12 • 2109 Models S08 and S16 • 3534 Model F08
			IBM eServer BladeCenter ¹ <ul style="list-style-type: none"> • P/N 02R9080 • P/N 48P7062
			McDATA <ul style="list-style-type: none"> • ED-5000 • ES-3016 and ES-3032 • Intrepid <ul style="list-style-type: none"> • 6064 • 6140 • Sphereon <ul style="list-style-type: none"> • 3216 • 3232 • 4300 • 4500

¹ BladeCenter is only supported with Novell NetWare 6.5. For information on BladeCenter fabric support, please refer to: <http://serverproven.raleigh.ibm.com/compat/eserver.html>

INTEL-BASED SERVERS – NETWARE

General Notes:

DS Open API – (CIM Agent): Not Available

DS CLI: Available with NetWare 5.1, 6.0, and 6.5.

SDD:

- Available with NetWare 5.1, 6.0, and 6.5.
- Not interoperable with the Emulex LP9002L/LP9002DC, LP9402DC, LP9802, LP10000, and LP10000DC.

Clustering Support: Available with NetWare 5.1, 6.0, and 6.5.

INTEL-BASED SERVERS – VMWARE

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Intel Pentium II Xeon and above ¹ <ul style="list-style-type: none">• 900 Mhz or faster• 2 – 16 processors• 512 MB RAM or higher	VMware ² <ul style="list-style-type: none">• ESX 2.1.1 VMware guest support ³ <ul style="list-style-type: none">• Windows 2000• Windows 2003• SuSE SLES 8• Red Hat Enterprise Linux 2.1	Emulex <ul style="list-style-type: none">• LP9402DC• LP9802 QLogic <ul style="list-style-type: none">• QLA2310F / QLA2310FL• QLA2340/L / QLA2342/L	Cisco <ul style="list-style-type: none">• MDS 9120• MDS 9140• MDS 9216• MDS 9506• MDS 9509 IBM <ul style="list-style-type: none">• 2109 Models F16 and F32• 2109 Model M12• 2109 Models S08 and S16• 3534 Model F08 McDATA <ul style="list-style-type: none">• ES-3016 and ES-3032• Intrepid<ul style="list-style-type: none">• 6064• 6140• Sphereon<ul style="list-style-type: none">• 3216• 3232• 4300• 4500

¹ For more information on server minimum requirements, please refer to: http://www.vmware.com/products/server/esx_specs.html

² VMFS cannot be shared between servers.

³ Clustering for guest operating systems is not supported.

INTEL-BASED SERVERS – VMWARE

General Notes:

DS Open API – (CIM Agent): Not available with VMware.

DS CLI: Not available for VMware.

SDD: Not available for VMware.

INTEL-BASED SERVERS – WINDOWS

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Intel Pentium II Xeon and above <ul style="list-style-type: none"> • 900 Mhz or faster • 2 – 16 processors • 512 MB RAM or higher 	Microsoft Windows 2000 <ul style="list-style-type: none"> • Server • Advanced Server including Cluster service • Datacenter Server 	Emulex <ul style="list-style-type: none"> • LP9002L / LP9002DC • LP9402DC • LP9802 • LP10000/LP10000DC 	Cisco ² <ul style="list-style-type: none"> • MDS 9120 and 9140 • MDS 9216 • MDS 9506 and 9509
IBM eServer BladeCenter ¹ <ul style="list-style-type: none"> • BladeCenter HS20 <ul style="list-style-type: none"> • 8678 • 8832 • BladeCenter HS40 <ul style="list-style-type: none"> • 8839 	Microsoft Windows Server 2003 <ul style="list-style-type: none"> • Standard Edition • Enterprise Edition including cluster service • Datacenter Edition including cluster service 	IBM Netfinity/xSeries <ul style="list-style-type: none"> • P/N 19K1246 • P/N 24P0960 	CNT <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000-256 • 2042-N16
		QLogic <ul style="list-style-type: none"> • QLA2310F / QLA2310FL • QLA2340L / QLA2342L 	IBM <ul style="list-style-type: none"> • 2005 Models H08 and H16 • 2109 Models F16 and F32 • 2109 Model M12, M14 • 2109 Models S08 and S16 • 3534 Model F08
			IBM eServer BladeCenter ¹ <ul style="list-style-type: none"> • P/N 02R9080 • P/N 48P7062 • P/N 90P0165
			McDATA <ul style="list-style-type: none"> • ED-5000 • ES-3016 and ES-3032 • Intrepid <ul style="list-style-type: none"> • 6064 and 6140 • Sphereon <ul style="list-style-type: none"> • 3216 and 3232 • 4300 • 4500

¹ For information on BladeCenter fabric support, please refer to the following: <http://serverproven.raleigh.ibm.com/compat/eserver.html>

² Supported with the IP Storage Service Module for iSCSI on Cisco fabric products. Refer to the following link for more details: <ftp://service.boulder.ibm.com/storage/san/cisco/ipStorServMod.pdf>

INTEL-BASED SERVERS – WINDOWS

General Notes:

DS Open API – (CIM Agent): Available for Microsoft Windows 2000.

DS CLI: Available for Microsoft Windows 2000 and Microsoft Windows Server 2003.

SDD:

- Available for Microsoft Windows 2000 and Microsoft Windows Server 2003.
- Load balancing is not available in Windows 2000 Cluster configurations.

Boot device support:

- The DS8100 and DS8300 are supported as a boot device on Windows 2000 (32 bit) or Windows Server 2003 (32 bit or 64 bit) servers that support Fibre Channel boot capability. It is supported with host adapters QLA 23xx (32 bit or 64 bit) and LP9xxx (32 bit support only). Refer to the IBM TotalStorage DS8000 Host Systems Attachment Guide for additional information

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Enterprise <ul style="list-style-type: none"> • 220R, 250, 420R, 450 • 3000, 4000, 5000, 6000 • 3500, 4500, 5500, 6500 • 10000 	Solaris <ul style="list-style-type: none"> • 8 <ul style="list-style-type: none"> • Sun Cluster 3.0 <ul style="list-style-type: none"> • MPxIO 4.1, 4.2 ² • Sun Cluster 3.1 <ul style="list-style-type: none"> • MPxIO 4.2, 4.3 ² 	AMCC/JNI ³ <ul style="list-style-type: none"> • FCX-6562 / FCX2-6562 • FCE-1473-N • FCE-6460-N 	Cisco <ul style="list-style-type: none"> • MDS 9120 and 9140 • MDS 9216 • MDS 9506 • MDS 9509
Netra <ul style="list-style-type: none"> • 1125 	<ul style="list-style-type: none"> • 9 ¹ <ul style="list-style-type: none"> • Sun Cluster 3.0 <ul style="list-style-type: none"> • MPxIO 4.1, 4.2 ² • Sun Cluster 3.1 <ul style="list-style-type: none"> • MPxIO 4.2, 4.3 ² 	Emulex <ul style="list-style-type: none"> • LP9002L / LP9002DC • LP9002S • LP9402DC • LP9802 	CNT (Inrange) <ul style="list-style-type: none"> • FC/9000-64 • FC/9000-128 • FC/9000-256 • 2042-N16
SPARCcenter / SPARCserver <ul style="list-style-type: none"> • 1000, 1000E • 2000, 2000E 		QLogic <ul style="list-style-type: none"> • QLA2310F/QLA2310FL • QLA2340/L / QLA2342/L 	IBM <ul style="list-style-type: none"> • 2005 Models H08 and H16 • 2109 Models F16 and F32 • 2109 Model M12, M14 • 2109 Models S08 and S16 • 3534 Model F08
Sun Fire <ul style="list-style-type: none"> • V120 • V210 • V240 • V250 • V280R • V440 • V480 • V880 • V1280 • 3800 • 4800, 4810, 6800 • 12000, 15000 		Sun <ul style="list-style-type: none"> • 6727A • 6757A • 6767A (SG-XPCI1FC-QF2) • 6768A (SG-XPCI2FC-QF2) • 6799A 	McDATA <ul style="list-style-type: none"> • ED 5000 • ES-3016 and ES-3032 • Intrepid <ul style="list-style-type: none"> • 6064 • 6140 • Sphereon <ul style="list-style-type: none"> • 3216 and 3232 • 4300 • 4500
Ultra <ul style="list-style-type: none"> • 1, 2, 5, 10, 20, 30, 60, 80 			

¹ The Sun filesystem requires patch 113454-14.

² MPxIO is supported only with the Sun host adapters.

³ Not interoperable with DS8100 or DS8300 Fibre Channel ports shared with remote mirror and copy configurations.

General Notes:

DS Open API – (CIM Agent): Not available for Solaris.

DS CLI: Available for Solaris 8 and 9.

SDD:

- Available for Solaris 8 and 9.
- SDD is not supported in Sun Cluster environments.
- SDD does not support Sun adapters.

ADDITIONAL STORAGE ATTACHMENT

APPLE MACINTOSH SERVERS

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Macintosh G4 and G5	OS X 10.3	ATTO <ul style="list-style-type: none">• 3300• 3321	IBM <ul style="list-style-type: none">• 2109 Model F16• 2109 Model M12 McDATA <ul style="list-style-type: none">• Intrepid• 6064

General Notes:

DS Open API – (CIM Agent): Not available.

DS CLI: Not available.

SDD: Not available.

FUJITSU PRIMEPOWER SERVERS

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Primepower <ul style="list-style-type: none">• 200, 250• 400,450• 650• 800, 850• 900• 1000, 1500• 2000, 2500	Solaris <ul style="list-style-type: none">• 8	Emulex <ul style="list-style-type: none">• LP9002L	IBM <ul style="list-style-type: none">• 2109 Model F16• 2109 Model S16

General Notes:

DS Open API – (CIM Agent): Not available.

DS CLI: Not available.

SDD: Not available.

NETWORK ATTACHED STORAGE (NAS)

NAS Gateway

- NAS Gateway 500
- 5198 Model 001

Fabric Support

Cisco

- MDS 9120, 9140, 9506, 9509, 9216

CNT

- FC/9000-64
- FC/9000-128
- FC/9000-256

IBM

- 2109 Models F16, and F32
- 2109 Model M12
- 3534 Model F08

McDATA

- Intrepid 6064 and 6140
- Sphereon 3216, 3232, 4300, and 4500

Fibre Channel

Servers	Operating Systems	Host Adapters	Fabric Support
Origin Servers <ul style="list-style-type: none">• 200• 2100• 2200• 2400• 2800	IRIX <ul style="list-style-type: none">• 6.5.13• 6.5.14• 6.5.15• 6.5.16• 6.5.17	SGI <ul style="list-style-type: none">• PCI-FC-1P-OPT• PCI-FC-1P-OPT-A• PCI-FC-1POPT-B• PCX-FC-2POPT-B	IBM <ul style="list-style-type: none">• 2109 Model M12• 2109 Models S08 and S16• 2109 Model F16• 3534 Model F08

General Notes:

DS Open API – (CIM Agent): Not available for IRIX.

DS CLI: Not available for IRIX.

SDD: Not available for IRIX.