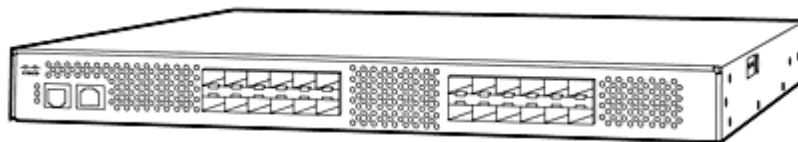


Overview

Now organizations of all sizes can enjoy the benefits of SANs. The Cisco MDS 9124 Fabric Switch offers advanced storage networking capabilities at new price points with its "pay as you grow" port activation feature starting at 8 ports. With twenty-four, 4 Gbps Fibre Channel ports, the Cisco MDS 9124 is well suited for Small to Medium Businesses that want to deploy cost-effective but scalable, high-performance SANs. Ideal for branch offices and departments in large enterprises, it can be used as the foundation of SAN standalone SANs or as an edge switch in larger core-edge SAN infrastructures.

The Cisco MDS 9124 brings built-in, enterprise-class features to entry-level SANs in a compact 1-RU form factor at no added cost. There are no hidden license and software support charges for ISL trunking, extended distance support, security, real-time performance and event monitoring and virtual SANs. Designed for environments where downtime is not an option, the hot-pluggable design supports non-disruptive upgrades, VSANs for fault isolation, redundant power supply option and PortChannels for ISL resiliency.

This switch meets the low cost, high performance, ease of management and security requirements of small to medium-scale storage environments. Plus the Cisco MDS 9124 is fully compatible with the HP C-series, Cisco MDS 9500 Directors, MDS 9200 semi-modular Fabric Switches and other MDS 9100 Fabric Switches for transparent, end-to-end service delivery in very large data-center core-edge deployments providing investment protection and a solution you will not outgrow.



Cisco MDS 9124 Fabric Switch

Key Features and Benefits

- **Value/Affordability**
 - **Lowers TCO with all-in-one licensing and support for bundled software features.**
 - A. Low entry-level 8-port version with "pay as you grow" upgrade plan for 16 and 24 port expansion
 - B. Simple to use Quick Configuration Wizard lowers cost by simplifying administration for those unfamiliar with Fibre Channel SANs
 - C. Optional second, hot-swappable power supply provides higher availability and fewer points of failure
 - D. Hot-pluggable components and non-disruptive software upgrades increases availability and reliability
- **Flexibility**
 - **Built-in Director-class product features in an entry level fabric switch.**
 - A. Exceptional performance and scalability for the most demanding environments with up to 24 auto-sensing external ports capable of speeds of 4, 2, and 1 Gbps
 - B. PortChannels/trunking capability for ISLs, real-time performance and event monitoring, extended fabric support and security to ease SAN administration and provisioning, SAN extension over distances and boost overall SAN reliability
 - C. 8, 16 and 24 port models with 8-port activation upgrade option to scale as needs dictate
 - D. Advanced traffic management features optimize core to edge fabrics
 - E. Most efficient storage network utilization with VSANs

Overview

F. Ports can be configured with short, mid, long and very long range SFP optics for long distance network applications

G. Full integration with MDS 9200 and 9500 series switches insures users will not be locked into a SAN they will soon outgrow

- **Ease-Of-Use**

- **Easy to configure and manage**

- A. Broad range of integrated management options

- B. Extensive security framework protects sensitive data in the network

- C. Integrates the industry's most advanced analysis and debugging tools

- **Security**

- Supports RADIUS and TACACS+, Fibre Channel Security Protocol (FC-SP), Secure File Transfer Protocol (SFTP), Secure Shell (SSH) protocol, Simple Network Management Protocol Version 3 (SNMPv3) implementing Advanced Encryption Standard (AES), VSANs, hardware-enforced zoning, ACLs, and per-VSAN Role-Based Access Control (RBAC). Additionally Gigabit Ethernet ports support IPsec authentication, data integrity, and hardware-assisted data encryption.

Product Highlights

Configuration support	Please see the following Web site for configuration support at: http://h18000.www1.hp.com/products/storageworks/san/documentation.html
Cost Effective Intelligent Storage networking	This Fabric Switch offers advanced features in a compact, extremely cost-effective design that simplifies deployment and administration of small and medium-scale storage-area networks (SANs) and as an edge switch in a larger enterprise.
Industry leading 4-Gb Performance Capability	The switch offers full non-blocking 4-Gbps Fibre Channel performance on 24 line rate ports and an aggregate bandwidth of 288 Gbps full duplex in a 1 Rack unit form factor.
Non-disruptive Software Upgrades	This switch supports non-disruptive software upgrades to minimize service disruptions in a highly available storage area networking environment.
Intelligent network services	The Cisco MDS 9124 supports up to 16 Virtual SANs (VSAN) to boost reliability and availability, creating multiple isolated environments within a single physical fabric.
Scalability	In the box starting with 8 active ports and expansion in 8 port increments up to 24, plus compatibility with all Cisco MDS 9000 Family switches ensures scalability and consistent service delivery no matter how large your SAN grows.
Simplified Storage Management	The MDS 9124 includes built-in storage network management with all features available through a command line interface (CLI) or Cisco Fabric Manager, a tool that simplifies management of multiple MDS 9000 switches. and the optional Cisco Fabric Manager Server provides centralized management and supports multiple management stations.
Interoperability	Offers compatibility with a broad range of HP servers and operating systems, as well as disk and tape storage devices; see current compatibility matrix.
Diagnostics	<ul style="list-style-type: none">• Embedded diagnostics• Network analysis tools

Software Components, Included

SAN-OS	Cisco MDS 9124 includes the Cisco MDS 9000 SAN-OS Software operating system version 3.1(1) or higher with a complete set of security features, Cisco Fabric Manager, a full suite of configuration, maintenance and diagnostics tools. It also includes VSAN support, PortChannels, extended fabrics, per VSAN-based access control, hardware-enforced zoning, Port Security and Host/Switch Authentication (DH-CHAP), RADIUS and TACACS+ and Advanced Encryption Standard (AES) and non-disruptive firmware upgrade capability.
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Product Highlights

Software Components, Optional

Cisco Fabric Manager Server Package

The "Standard" Cisco Fabric Manager software that is included at no charge with the MDS family switches provides basic switch configuration and troubleshooting capabilities. The Cisco Fabric Manager Server (FMS) Package extends Cisco Fabric Manager by providing historical performance data collection for network traffic hot-spot analysis, centralized management services and advanced application integration.

Service and Support and Warranty Information

Warranty (1-1-1) Hardware Warranty; 1-year parts; 1-year on-site (8x5, next business day response) and 1-year labor.

NOTE: The hardware warranty covers firmware and embedded non-saleable software. For extended hardware installation and maintenance information, click the link below:

<http://h18005.www1.hp.com/services/carepaq/us/install/>
<http://h18005.www1.hp.com/services/carepaq/us/hardware/>.

NOTE: Certain restrictions and exclusions apply. Consult the Customer Support Center for details.

Hardware or Software product installation is not included in the warranty, but is available and highly recommended.

Software Product Services Software Warranty - HP warrants only that the software media will be free of physical defects for a period of ninety (90) days from delivery.

EXCLUSIVE REMEDY -The entire liability of HP and its suppliers and your exclusive remedy for software that does not conform to this Limited Warranty shall be the repair or replacement of the defective media. This warranty and remedy are subject to your returning the defective media during the warranty period to HP in the country in which you obtained the software.

NOTE: Certain restrictions and exclusions apply. Consult the Customer Support Center for details.

Hardware or Software product installation is not included in the warranty, but is available and highly recommended.

Additional Services Installation service, SAN Architecture service. For more information on service options, please visit our Web site at: <http://www.hp.com/hps/support>

HP Service Warranty and Support Options HP Service & Warranty Support Additional Warranty protection and/or HP Installation packages can be purchased.

NOTE: Certain restrictions and exclusions apply. Consult the Customer Support Center for details. HP provides a one-year, hardware limited warranty, fully supported by a worldwide network of resellers and service providers.

The basic hardware warranty service can be enhanced and/or HP Installation services can be purchased. Support options with various response time and durations are available, including:

- Warranty upgrade to 3-3-3
- Various support response times (same/next day, 24x7)
- Various support coverage periods (M - F, 24x7, 1 yr, 3 yr)
- 6-hr Call-To-Repair

To ensure you receive assistance on your software, support options include:

- Software support coverage periods (13x5, 24x7, 1 yr, 3 yr)
- License to Use and SW Updates (1 yr, 3 yr)

For more information on warranty and support options, please visit our Web site at:

<http://www.hp.com/hps/tech/storage/supp/>

Service and Support and Warranty Information

HP Care Pack Services Warranty Upgrade Options

Service offerings include a full range of Customer HP Care Pack services for both hardware and software services:

- Response - Upgrade on-site response from next business day to same day 4-hours
- Coverage - Extend hours of coverage from 5 days x 9 hours to 7 days x 24 hours
- Duration - Select duration of coverage for a period of 1, 3, or 5 years

Additional Warranty protection and/or HP Installation packages can be purchased.

NOTE: Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details

HP Care Pack Information HP Care Pack is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.

- HP Care Pack is not available for less than the product's warranty duration.
- HP Care Pack is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.
- HP Care Pack services are prepaid.

For additional HP Care Pack (hardware & software) information, as well as orderable part numbers, please refer to the URL listed below:

<http://h18005.www1.hp.com/services/carepaq/index.html>

Family Information

	Cisco MDS 9513 w/Dual Supervisor 2	Cisco MDS 9222i	Cisco MDS 9509 w/Dual Supervisor 2	Cisco MDS 9506 w/Dual Supervisor 2
Introduction Date	May 2006	November 2007	May 2006	May 2006
Switch Type	Multilayer Director	Multilayer Fabric Switch	Multilayer Director	Multilayer Director
Maximum ports	528 Fibre Channel, 58 IP ports	18 fixed auto-sensing 4/2/1-Gbps Fibre Channel ports, 4 1-Gb Ethernet ports	336 Fibre Channel, 50 IP ports	192 Fibre Channel, 26 IP ports
Number of slots per chassis	Thirteen		Nine	Six
	Cisco MDS 9216i	Cisco MDS 9216A	Cisco MDS 9124	Cisco MDS 9124e Fabric Switch for HP c- Class BladeSystem
Introduction Date	May 2006	Dec 2005	March 2007	March 2007
Switch Type	Multilayer Fabric Switch	Multilayer Fabric Switch	Fabric Switch	Embedded Switch
Maximum ports	64, up to 62 Fibre Channel, 10 IP ports	64 FC, up to 16 FC and 8 IP ports	Up to 24 Fibre Channel ports	Up to 24 Fibre Channel ports
Number of slots per chassis	Two	Two	N/A, Fixed FRU	NA

NOTE: Please Refer to SAN Design Guide pointer
<http://www.hp.com/go/SANdesign> or <http://www.hp.com/go/SANdesignguide>

Configuration Information

The MDS 9124 Fabric Switch comes in a fixed 24 port configuration with 8, 16 or 24 active ports. An 8-port software activation license is available for "pay as you grow" expansion in 8-port increments up to the 24 port maximum of the switch. The port slots are empty and optical transceivers are required to utilize the ports. Short, Medium and Long Range optical transceiver options (SFPs) are available and must be ordered separately. The switch can also be equipped with a second hot swappable power supply for higher availability and redundancy.

Step 1 – Base Configuration

Select one:

Model	Model Description	Part Number
Cisco MDS 9124 8-ports Active Fabric Switch	Base 24-port chassis with 8-ports active, power supply, power cords (configurable by ship to country) fans, Rackmount Kit, documentation and packaged documents. (no SFPs included)	AG646A
Cisco MDS 9124 16-ports Active Fabric Switch	Base 24-port chassis with 16 active ports, power supply, power cords (configurable) fans, Rackmount Kit, documentation and packaged documents. (no SFPs included)	AG647A
Cisco MDS 9124 24-ports Active Fabric Switch	Base 24-port chassis with 24 active ports, power supply, power cords (configurable) fans, Rackmount Kit, documentation and packaged documents. (no SFPs included)	AG648A

Step 2 – Required Options

Select each required option with quantities specified:

Description with Parts Shipped	Quantity	Part Number
HP MDS 9000 4Gb FC SFP, 4pk Shrt Range XCVR NOTE: Optional - Must be ordered separately.	1 min, 6 max	AE379A
HP MDS 9000 4Gb FC SFP, Med Range XCVR NOTE: Optional - Must be ordered separately.	1 min, 24 max	AE494A
HP MDS 9000 4Gb FC SFP, Lng Range XCVR NOTE: Optional - Must be ordered separately.	1 min, 24 max	AE380A

NOTE: Each port on the MDS 9124 switch may be configured to accept Short, medium or Long Wave SFP optical transceivers. However, when ordering the Cisco MDS 9124, active ports must be populated with above SFP optical transceivers only. (No substitutes allowed) Using other transceivers may void product warranty.

Step 3 – Additional Options

Recommended Hardware	Cisco MDS 9124 2nd/Spare Power Supply	2 Max	AG649A
	HP MDS 9000 4Gb FC SFP, Lng Range XCVR	1 per SAN	A7430A
Recommended Software	HP MDS 9124 8-Port Upgrade Lincense		T5171A
	HP MDS 9100 Fab Mgr Serv-1MDS9200 Swt LTU		A7512A
	HP MDS 9100 Ent Pkg -1 MDS 9100 Swt LTU		A7515A

Configuration Information

Recommended Cables	LC-LC for between two 2 Gb devices		
	2 m LC-LC Multi-Mode Fibre Channel Cable		221692-B21
	5 m LC-LC Multi-Mode Fibre Channel Cable		221692-B22
	15 m LC-LC Multi-Mode Fibre Channel Cable		221692-B23
	30 m LC-LC Multi-Mode Fibre Channel Cable		221692-B26
	50 m LC-LC Multi-Mode Fibre Channel Cable		221692-B27
	LC-SC for between a 1 Gb and a 2 Gb device		
	2 m LC-LC Multi-Mode Fibre Channel Cable		221691-B21
	5 m LC-LC Multi-Mode Fibre Channel Cable		221691-B22
	15 m LC-LC Multi-Mode Fibre Channel Cable		221691-B23
	30 m LC-LC Multi-Mode Fibre Channel Cable		221691-B26
	50 m LC-LC Multi-Mode Fibre Channel Cable		221691-B27
	HP 2m Single-Mode LC/LC Fibre Channel Cable Used for CWDM solution	1 Pack	AK345A
	HP 5m Single-Mode LC/LC Fibre Channel Cable Used for CWDM solution	1 Pack	AK346A
	Course Wave Division Multiplexer Solution		
	HP StorageWorks CWDM 4-port Multiplexer A		AG878A
	HP StorageWorks CWDM 4-port Multiplexer B		AG879A
	HP StorageWorks CWDM 8-port Multiplexer		AG880A
	HP StorageWorks CWDM Multiplexer Chassis		AG881A
	MDS 9000 1470 NM CWDM 4Gb FC SFP Transceiver		AG853A
	MDS 9000 1490 NM CWDM 4Gb FC SFP Transceiver		AG854A
	MDS 9000 1510 NM CWDM 4Gb FC SFP Transceiver		AG855A
	MDS 9000 1530 NM CWDM 4Gb FC SFP Transceiver		AG856A
	MDS 9000 1550 NM CWDM 4Gb FC SFP Transceiver		AG857A
	MDS 9000 1570 NM CWDM 4Gb FC SFP Transceiver		AG858A
	MDS 9000 1590 NM CWDM 4Gb FC SFP Transceiver		AG859A
	MDS 9000 1610 NM CWDM 4Gb FC SFP Transceiver		AG860A
	Dense Wave Division Multiplexer solution		
	MDS 9000 3661 NM DWDM 2Gb SFP Transceiver		AG862A
	MDS 9000 3582 NM DWDM 2Gb SFP Transceiver		AG863A
	MDS 9000 3504 NM DWDM 2Gb SFP Transceiver		AG864A
	MDS 9000 3425 NM DWDM 2Gb SFP Transceiver		AG865A
	MDS 9000 3268 NM DWDM 2Gb SFP Transceiver		AG866A
	MDS 9000 3190 NM DWDM 2Gb SFP Transceiver		AG867A
	MDS 9000 3112 NM DWDM 2Gb SFP Transceiver		AG868A
	MDS 9000 3033 NM DWDM 2Gb SFP Transceiver		AG869A

Step 4 - Installation Service Option

<http://www.hp.com/hps/support>

For more information on HP SAN switches, contact any of our worldwide sales offices or visit our Web site at:

<http://www.hp.com/go/san>.



Technical Specifications

- Diagnostics**
 - Power-on self-test (POST) diagnostics
 - Online diagnostics
 - Internal loopbacks
 - SPAN
 - Fibre Channel Traceroute capability
 - Fibre Channel Ping
 - Fibre Channel Debug
 - Cisco Fabric Analyzer
 - Syslog
 - Port-level statistics
- Security**
 - VSANs
 - Zoning
 - Hardware-enforced zoning
 - Logical-unit-number (LUN) zoning and read-only zones
 - FC-SP for host-to-switch and switch-to-switch authentication
 - Port security
 - Management access
 - SSHv2
 - SNMPv3
 - IP ACLs
- Fabric Services**
 - Name server
 - Registered state change notification (RSCN)
 - Login services
 - Public loop
 - Broadcast
 - In-order delivery
 - Name-server zoning
- Management**
 - Access methods
 - Out-of-band 10/100 Ethernet port
 - EIA/TIA-232 serial console port
 - In-band IP over Fibre Channel
 - Access protocols
 - CLI
 - SNMP
 - SMI-S
 - Security
 - RBACL using RADIUS or TACACS+ authentication, authorization, and accounting (AAA) functions
 - ' VSAN-based roles
 - SSHv2
 - SNMPv3
 - Management applications
 - Cisco MDS 9000 family CLI
 - Cisco Fabric Manager and Device Manager
 - Cisco Fabric Manager Server (optional; requires Cisco Fabric Manager Server license)

Technical Specifications

Compatibility	Fibre Channel protocols	<ul style="list-style-type: none"> • FC-PH, Revision 4.3 • FC-PH-2, Revision 7.4 • FC-PH-3, Revision 9.4 • FC-GS-2, Revision 5.3 • FC-GS-3, Revision 7.01 • FC-FLA, Revision 2.7 • FC-FG, Revision 3.5 • FC-SW-2, Revision 5.3 • FC-AL, Revision 4.5 • FC-AL-2, Revision 7.0 • FC-PLDA, Revision 2.1 • FC-VI, Revision 1.61 • FCP, Revision 12 • FCP-2, Revision 7 • FC-SB-2, Revision 2.1 • FC-BB, Revision 4.7 • FC-FS, Revision 1.9 • FC-PI, Revision 13 • FC-MI, Revision 1.99 • FC-Tape, Revision 1.17 • IP over Fibre Channel (RFC 2625) • Class of service: Class 2, Class 3, Class F 	
	Fibre Channel element MIB	<ul style="list-style-type: none"> • Extensive IETF-standards-based TCP/IP, SNMPv3, and Remote Monitoring (RMON) MIBs 	
	Port types	<ul style="list-style-type: none"> • Fibre Channel standard port types: E, F, FL, B • Fibre Channel enhanced port types: SD, TE 	
	Internet standards	RFC 791 IPv4, RFC 793, 1323 TCP, RFC 894 IP/Ethernet, RFC 1041 IP/802, RFC 792, 950, 1256 ICMP, RFC 1323 TCP performance enhancements, RFC 2338 VRRP	
	O/S Support	MDS 9000 SAN-OS 3.1(1) or higher	
	Performance	Transfer Rate	4 Gb/FC port full bandwidth, non-blocking, Aggregate switch platform Bandwidth 288 Gbps Full Duplex
		Devices/Ports	<ul style="list-style-type: none"> • 24 FC ports • 1, 10/100 Mb Ethernet port • 1, EIA/TIA-232 serial console port • 1, DB-9 COM port
		Interface	<ul style="list-style-type: none"> • 1/2/4 Gb FC ports • 10/100 Mb Ethernet port (management) • RS-232 RJ-45 console port • DB-9 COM port
		Dimensions	<p>Dimensions in inches (H x W x D) 1.75 x 17.5 x 16 inches (4.5 x 44.5 x 40.6 cm)</p> <p>Shipping 11.00 x 23.00 x 29.50 in (27.94 x 58.42 x 74.93 cm)</p> <p>Weight Fully configured chassis w/2 Power Supplies: 18.5 lbs (8.4 kg)</p> <p>Rack 1 Rack Unit, All units rack mountable in standard 19 inch EIA rack</p> <p>Air Flow Front to back</p>

Technical Specifications

Connectors/Cables	Connectors	<ul style="list-style-type: none"> • RJ-45 Interface Cable Connector • LC-type-fiber optic SFP 												
	Cables	<ul style="list-style-type: none"> • RJ-45 to RJ-45 rollover cable • RJ-45 to DB-25 female DTE adapter (labeled "Terminal ") • RJ-45 to DB-9 female DTE adapter (labeled "Terminal ") • RJ-45 to DB-25 male DCE adapter (labeled "Modem") • LC-type cable 												
	Cable Lengths	2 meters, 5 meters, 15 meters, 30 meters, 50 meters												
	Optical Transceivers	<ul style="list-style-type: none"> • Small Form Factor Pluggable, Short Wave • Small Form Factor Pluggable, Long Wave 												
Electrical	Nominal Line Voltage	100 to 240 VAC												
	Range Line Voltage	100 to 240 VAC nominal ($\pm 10\%$ for full range)												
	Line Frequency	50 to 60 Hz (nominal) ($\pm 3\%$ for full range)												
	Typical Input Current	12A @ 100VAC, 12A @ 200 VAC Max.												
	Power	300W AC (Max. 2 power supplies per switch)												
	Plug Types:	<table border="0"> <tr> <td>Argentina</td> <td>IRAM 2073 (10A)</td> </tr> <tr> <td>North America(300W power supply)</td> <td>NEMA 5-15P (12A)</td> </tr> <tr> <td>Australia, New Zealand</td> <td>SAA/3 AS/NZS 3112-1993 (12A)</td> </tr> <tr> <td>Europe</td> <td>VIIG CEE (7)VII (12A)</td> </tr> <tr> <td>Italy</td> <td>1/3/16 CEI 23-16 (12A)</td> </tr> <tr> <td>United Kingdom</td> <td>BS89/12 BS 1363/A (12A; replaceable fuse)</td> </tr> </table>	Argentina	IRAM 2073 (10A)	North America(300W power supply)	NEMA 5-15P (12A)	Australia, New Zealand	SAA/3 AS/NZS 3112-1993 (12A)	Europe	VIIG CEE (7)VII (12A)	Italy	1/3/16 CEI 23-16 (12A)	United Kingdom	BS89/12 BS 1363/A (12A; replaceable fuse)
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Italy	1/3/16 CEI 23-16 (12A)													
United Kingdom	BS89/12 BS 1363/A (12A; replaceable fuse)													
Safety	<ul style="list-style-type: none"> • UL 60950 -1 • CAN/CSA-C22.2 No. 60950 -1 • EN 60950 -1 • EC 60950 -1 • AS/NZS 60950 • IEC 60825 • EN 60825 • 21 CFR 1040 • FCC Part 15 (CFR 47) Class A 													

Technical Specifications

EMC

- ICES-003 Class A
- EN55022 Class A
- CISPR22 Class A
- AS/NZS CISPR22 Class A
- VCCI Class A
- EN55024
- ETS300 386
- EN50082-1
- EN61000-3-2
- EN61000-3-3
- EN61000-6-1
- CISPR24
- NEBS
 - GR-63-Core NEBS Level 3
 - GR-1089-Core NEBS Level 3
- ETSI
 - ETS 300 019 Storage

Environmental

Operating temp	41° to 104° F (5° to 40° C)
Non-operating temp	-40° to 158° F (-40° to 70° C)
Operating humidity	5 to 90%, ambient (non-condensing)
Non-operating humidity	5 to 93%, ambient (non-condensing)

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The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.