



Cisco MDS 9000 Configuration and Operations

Length
3 days

Format
Lecture/lab

Track
Support

Version
3.2

Course Description

This 3-day hands-on class gives you the minimum knowledge and skills that you need to deploy the Cisco MDS 9000 Series using SAN-OS 3.2. Course topics include installing and bringing up the switch, configuring Virtual SANs (VSANs), domains, interfaces, and zones, implementing highly resilient Inter-Switch Links (PortChannels), and basic troubleshooting.

In the lab, you will configure the switch from an out-of-the-box state, perform nondisruptive software upgrade, and configure VSANs, domains, interfaces, and zones to implement and manage a working SAN.

Who Should Attend

This course provides technical training for system engineers, network engineers, and field engineers who need to configure and manage MDS 9000 Series switches.

Recommended Prerequisites

Understanding of basic data storage components, protocols, and Fibre Channel SANs is recommended.

Related Training

This course covers a subset of the 5-day *Implementing Cisco Storage Networking Solutions (ICSNS)* course.

MDSCO

Learning Objectives

After you complete this course, you will be able to:

- Identify the components, services, and features of the MDS 9000 platform
- Perform the initial software configuration process
- Configure virtual SANs (VSANs) and dynamic VSANs
- Manage domains
- Configure FC interfaces
- Configure zones and zonesets
- Configure intelligent addressing
- Implement resilient inter-switch links
- Configure traffic routing and load-balancing
- Diagnose and fix common configuration errors



Learning
Solutions



Cisco MDS 9000 Configuration and Operations

Course Outline

Module 1: MDS 9000 Platform Overview

Lesson 1: Introducing MDS 9000 Platform Components

- The MDS 9000 Platform
- The MDS 9000 Linecard Modules

Lesson 2: Using Intelligent Network Services

- SAN Scalability Features
- Multiprotocol Support
- High-Availability Features
- Traffic Engineering Features
- Security Features
- Interoperability
- CFS Infrastructure

Lesson 3: Implementing Integrated Management

- The Command Line Interface
- Cisco Fabric Manager
- Cisco Device Manager
- Fabric Manager Server
- Performance Manager and Traffic Analyzer
- CiscoWorks Resource Manager Essentials

Lesson 4: Introducing the MDS 9000 System Architecture

- Crossbar and Supervisor Module Architecture
- MDS Line Card Module Architectures
- Fabric-Based Application Services
- FAIS Overview
- SANTap Overview
- Network-Accelerated Serverless Backup Overview
- Storage Media Encryption (SME)
- Data Mobility Manager
- SAN Device Virtualization
- N-Port Virtualizer (NPV)

Module 2: System Initial Configuration

Lesson 1: Performing the Initial Switch Configuration

- Completing the Initial Setup
- Setup Defaults
- Installing Cisco Fabric Manager
- Quickstart Overview

Lesson 2: Installing and Licensing SAN-OS

- Software Licensing
- Installation and Upgrade Prerequisites
- Software Upgrade Methods
- Version Downgrade Procedure

Lesson 3: Using Call Home

- Call Home Services
- Call Home Messages
- Call Home Output Options
- Configuring Call Home
- Customized Alert Group Messages

Module 3: Building VSANs

Lesson 1: Configuring VSANs

- VSAN Overview
- Creating VSANs
- Displaying VSAN Information
- VSAN Recommended Practices

Lesson 2: Managing Domains

- The Domain Configuration Process
- Configuring the Principal Switch priority
- CFS Distribution of Allowed Domain ID Lists
- Configuring Fabric Merge Options

Lesson 3: Configuring Interfaces

- Configuring Fibre Channel Interfaces
- Configuring Advanced Parameters
- Second-Generation Port Bandwidth Reservation



Learning Solutions



Cisco MDS 9000 Configuration and Operations

Course Outline

Lesson 4: Configuring Dynamic VSANs

- DPVM Overview
- Configuring DPVM Entries
- Using DPVM Autolearning
- Configuring DPVM Distribution

Lesson 5: Using Intelligent Addressing

- Displaying the FCNS Database
- FCID Assignment
- Distributed Device Alias Services
- N Port Identifier Virtualization
- N-Port Virtualizer (NPV)

Lesson 6: Implementing Zones

- Zoning Overview
- Creating Zones and Zonesets
- Verifying Zone Configuration
- Configuring Zoneset Distribution
- Merging Zones without Disruption
- Recovering From Zone Merge Failures
- Managing Zonesets
- Recommended Practices for Zoning
- Enhanced Zoning Features
- Modifying the Enhanced Zone Database
- Creating Attribute Groups
- Configuring Read-Only Zones
- Configuring LUN Zones
- Configuring Broadcast Zoning

Module 4: Managing SAN Traffic

Lesson 1: Configuring PortChannels

- PortChannel Overview
- Creating PortChannels
- The PortChannel Protocol
- PortChannel Autocreation
- Modifying PortChannel Links

Module 5: Troubleshooting Tools and Scenarios

Lesson 1: Diagnostic Tools and Methodologies

- SAN Fault Isolation Methodology
- Verify Power
- Troubleshooting Interfaces
- Troubleshooting VSANs
- Using fcping and fctrace
- Fabric Manager Troubleshooting Tools
- FCIP Troubleshooting Overview
- Module Status Verification
- Network Connectivity Verification

Lesson 2: Capture and Analyze SAN Traffic

- SPAN Overview
- RSPAN Overview
- PAA Configuration
- The Cisco Fabric Analyzer
- Wireshark Overview

Lesson 3: Basic Troubleshooting Scenarios

- Troubleshoot Host-to-Switch Connectivity
- Troubleshoot ISLs
- Troubleshoot Fabric Merges
- FCIP Troubleshooting Situations



Learning Solutions



Cisco MDS 9000 Configuration and Operations

Course Labs

- Lab 1: Quickstart Switch Configuration
- Lab 2: Configuring Call Home
- Lab 3: Creating VSANs
- Lab 4: Configuring Interfaces
- Lab 5: Configuring Zones
- Lab 6: Configuring PortChannels
- Lab 7: Using SPAN and the Cisco Port Analyzer Adapter
- Lab 8: Upgrading Switch Software
- Lab 9: Challenge Lab



Learning
Solutions