



# Cisco IOS Switching Services Overview

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The *Cisco IOS Switching Services Configuration Guide* provides guidelines for configuring switching paths and routing between virtual local-area networks (VLANs) by using Cisco IOS software. This guide also describes how to configure NetFlow.

This guide is intended for the network administrator who designs and implements router-based internetworks and needs to incorporate switching, NetFlow accounting, or routing between VLANs into the network. It presents a set of general guidelines for configuring switching of various protocols, NetFlow accounting, routing between VLANs, and local-area network (LAN) emulation. The objective of this guide is to provide you with the information you need to configure any of these features.

You should know how to configure a Cisco router and should be familiar with the protocols and media that your routers are configured to support. Knowledge of basic network topology is essential.

## Document Organization

This document comprises seven parts, each focusing on a different aspect of switching within Cisco IOS software. Each part begins with a brief technology overview and follows with the corresponding configuration guidelines for that technology or set of features. This document contains these parts:

- Cisco IOS Switching Paths—Provides an overview of basic routing and switching processes. It describes switching paths available in Cisco IOS software. Configuration guidelines are provided for configuring and managing fast switching of various protocols.
- Cisco Express Forwarding—Provides an overview of Cisco Express Forwarding (CEF), the advanced Layer 3 IP switching technology that optimizes performance and scalability in networks with large and dynamic traffic patterns. Guidelines are provided for configuring and managing CEF.
- NetFlow—Provides an overview of the NetFlow technology and describes the NetFlow accounting features. Guidelines are provided for configuring and managing NetFlow.
- Multiprotocol Label Switching—Provides an overview of MPLS Switching, the switching technology that combines the performance of Layer 2 switching with the scalability of Layer 3 routing. Guidelines are provided for configuring and managing MPLS Switching.
- Multilayer Switching—Provides an overview of Multilayer Switching (MLS). MLS provides high-performance Layer 3 switching for the Catalyst 5000 series LAN switches working in conjunction with Cisco routers. Guidelines are provided for configuring and managing IP MLS, IP Multicast MLS, and IPX MLS on Cisco routers.
- Multicast Distributed Switching—Provides overview of Multicast Distributed Switching (MDS). MDS performs distributed switching of multicast packets in the line cards of Route Switch Processor (RSP)-based platforms. Guidelines are provided for configuring and managing MDS.

- Virtual LANs—Provides an overview of Virtual LANs (VLANs). Guidelines are provided for configuring routing between VLANs using the Inter-Switch Link (ISL), IEEE 802.10, and IEEE 802.1Q protocols for packet encapsulation.
- LAN Emulation—Provides an overview of LAN Emulation (LANE). Guidelines are provided for defining VLANs in ATM networks and Multiprotocol over ATM (MPOA).

## Related References

The references listed here contain background information that is helpful in designing internetworks that incorporate switching and VLANs when planning routing between VLANs.

- *Cisco Internetwork Design Guide*

This guide presents a set of general guidelines for planning internetworks and provides specific suggestions for several key internetworking implementations. This guide focuses on design issues of large-scale implementations for environments such as Internetwork Protocol (IP) internetworks, Enhanced Interior Gateway Routing Protocol (IGRP), Open Shortest Path First (OSPF), IBM System Network Architecture (SNA) internetworks, source-route bridging (SRB), Synchronous Data Link Control (SDLC) and serial tunneling (STUN), SDLC Logical Link, Control type 2 (SDLLC), Qualified Logical Link Control (QLLC), Asynchronous Transfer Mode (ATM) internetworks, packet service internetworks, Frame Relay, and dial-on-demand routing (DDR) internetworks.

- *Cisco Catalyst 5000 Series Software Configuration Guide*

This guide is designed to help you understand the Catalyst 5000 series switches, initially configure the switch to work in your network, and customize the switch configuration to fit your needs. For an alphabetical listing of software commands used to configure and maintain the switch, refer to the *Catalyst 5000 Series Command Reference* publication.

- CiscoWorks for Switched Internetworks—*VlanDirector Getting Started Guide*

This guide provides an overview of VLANs and describes how to use VlanDirector to create and manage VLANs. VlanDirector is a management tool with a graphical user interface that provides multiple windows for adding new users, moving users between wiring closets, changing user's VLAN associations, displaying configuration status, and provides both physical and logical views of interconnected Catalyst switches. Network administrators responsible for initial setup and configuration of VLANs will find this guide useful for understanding VLANs and segmenting LANs with VLAN configurations.