

Introduction

Cisco IOS Release 12.0(5)XP supports the 2900 and 3500 XL switches. These workgroup Ethernet switches can connect to 10/100 Ethernet, Gigabit Ethernet, and Asynchronous Transfer Mode (ATM) devices as backbone switches, or they can be used in mixed configurations that connect hubs, servers, and desktops.

Switches with this IOS release are available in a standard edition or with Enterprise Edition Software. This guide describes the features that are common to both versions. The *IOS Desktop Switching Enterprise Edition Software Configuration Guide* describes those features that are only in the Enterprise Edition Software.

You can upgrade your switch to Enterprise Edition Software by downloading a new image from Cisco Connection Online. Table 1-1 on page 1-4 lists the switches that support this software release.

This chapter provides information on the following topics:

- Summary of key features
- Supported hardware
- Management options
- Deployment examples

Summary of Key Features

This section describes the key features of this software release. Table 3-1 on page 3-2 lists each of these features with its default setting and a cross-reference to the section describing it. The following are the key features of this release of the standard edition software:

- Automatic discovery and creation of *clusters* of up to 16 switches that can be managed through a single IP address. The Cluster Management application includes:
 - Unified management and authentication of clustered switches
 - HTML, IOS command-line interface (CLI), and Simple Network Management Protocol (SNMP) management interfaces for cluster, switch, and port management
 - Web-based applications to upgrade all the cluster switches
 - Support for the Catalyst 1900 and 2820 switches as member switches
- Automatic discovery and creation of a *stack* of up to five switches in a star topology with each switch managed through its own IP address. The Switch Network View application includes:
 - Consolidated wiring-closet view of the stack, which provides real-time information about the switches and their ports
 - Configuration of basic port parameters
 - Switch connection information, device reports, and link reports
 - Support for 2900 and 3500 XL switches
- Support for four Remote Monitoring (RMON 1) groups (alarms, events, history, and statistics); configurable with the CLI or the Simple Network Management Protocol (SNMP)
- Configuration of the management VLAN interface to any VLAN
- Support for 64 or 250 virtual LANs (VLANs), depending on the model
- IEEE 802.1D Spanning-Tree Protocol (STP) support on a per-VLAN basis
- Network Time Protocol (NTP) to provide an external source for time-of-day information
- Fast and Gigabit EtherChannel support for high-speed connections between switches and servers

- Autonegotiation of speed and duplex operation on 10/100 ports
- Cisco Group Management Protocol (CGMP) to limit the flooding of IP multicast traffic, and CGMP Fast Leave to accelerate the removal of unused CGMP groups

The following Enterprise Edition Software features are documented in the *Cisco IOS Desktop Switching Enterprise Edition Software Configuration Guide*:

- Support for the IEEE 802.1p Quality of Service feature for the classification and preferential treatment of certain types of traffic
- Inter-Switch Link (ISL) and IEEE 802.1Q trunking support on all ports
- VLAN Membership Policy Server (VMPS) for dynamic VLAN membership
- Terminal Access Controller Access Control System Plus (TACACS+) to manage network security by using a server
- STP UplinkFast to accelerate the reconfiguration of STP

Supported Hardware

When switches are grouped into clusters, one switch is the *command switch*, and the other switches are *member switches*. The IP address for the entire cluster is assigned to the command switch, and it distributes configuration information to the other switches. This section lists the supported switches and modules in a cluster environment.

Catalyst 2900 and 3500 XL Switches

Table 1-1 describes the 2900 and 3500 XL switches supported by this release and shows those switches that can act as command switches. If the command switch functionality is disabled, the switch can operate as a member switch.

Table 1-1 Catalyst 2900 and 3500 XL Switches as Command or Member Switches

Catalyst Switch	IOS Release 12.0(5)XP (-A)	IOS Release 12.0(5)XP (-EN)	Member Capable?	Command Capable?
3500 XL switches	Yes	Yes	Yes	Yes
2900 XL switches (with 8 MB of DRAM)	Yes ¹	Yes	Yes	With software upgrade
2900 XL switches (with 4 MB of DRAM) ²	No	No	Yes	No

1 The WS-C2912MF-XL ships only with the Enterprise Edition Software.

2 These switches can act as cluster members or visual stack members if they are running IOS Release 11.2(8.x)SA6 original edition software. They can interoperate with switches running IOS Release 12.0(5)XP but cannot be upgraded to that release of software. The original edition software does not support TACACS+, STP Uplink Fast, NTP, or any new features introduced in IOS Release 12.0(5)XP.

To determine whether your 2900 XL switch has 4 MB or 8 MB of DRAM, enter the user-level **show version** command. For more information, see the “CLI Procedure for Upgrading the Switch Software” section on page 3-42.

Catalyst 1900 and 2820 Switches

Table 1-2 describes the Catalyst 1900 and 2820 switches and the required software for these switches to be cluster members.

Table 1-2 Catalyst 1900 and 2820 Switches as Cluster Members

Catalyst Switch	Software Release 9.00 (-A)	Software Release 9.00 (-EN)	Member Capable?	Command Capable?
1900 switches	Yes	Yes	Yes	No

Table 1-2 Catalyst 1900 and 2820 Switches as Cluster Members (continued)

Catalyst Switch	Software Release 9.00 (-A)	Software Release 9.00 (-EN)	Member Capable?	Command Capable?
2820 switches	Yes	Yes	Yes	No

Supported Switch Modules

All switch modules for the 2900 and 3500 XL switches are supported in cluster configurations. For more information, refer to the *Release Notes for the Catalyst 2900 Series XL and Catalyst 3500 Series XL, Cisco IOS Release 12.0(5)XP*.

All switch modules for the Catalyst 2820 switch are supported in cluster configurations. For more information, refer to the *Catalyst 2820 Modules User Guide* and the *Catalyst 2820 ATM Modules Installation and Configuration Guide*.

Management Options

This software release supports these management interfaces:

- HTML (web-based) interfaces
- IOS CLI
- SNMP

HTML Interfaces

Embedded HTML-based management applications display images of switches and graphical user interfaces.

Depending on your task, you can monitor and configure the supported switches by using the following HTML interfaces:

- Cisco Visual Switch Manager (CVSM) for managing a switch
- Cisco Switch Network View for managing a stack of switches
- Cisco Cluster Management for managing a cluster of switches

You can also configure, monitor, and troubleshoot 2900 and 3500 XL switches by using the CiscoView 5.0 application. For more information, refer to the documentation that shipped with this application.

IOS Command-Line Interface

You can access the IOS CLI by connecting a PC or terminal to the console port on the switch rear panel or by using Telnet. Chapter 2, “Using the Management Interfaces,” describes how to use IOS, and Chapter 3, “Managing Your Switches,” and Chapter 4, “Managing Clusters of Switches,” describe the commands to use for specific configuration tasks.

SNMP Network Management Platforms

You can manage switches by using an SNMP-compatible management station running such platforms as HP OpenView or SunNet Manager. In a cluster configuration, the command switch manages communication between the SNMP management station and all switches in the cluster. The switch supports a comprehensive set of MIB extensions and MIB II, the IEEE 802.1D bridge MIB, and four Remote Monitoring (RMON) groups.

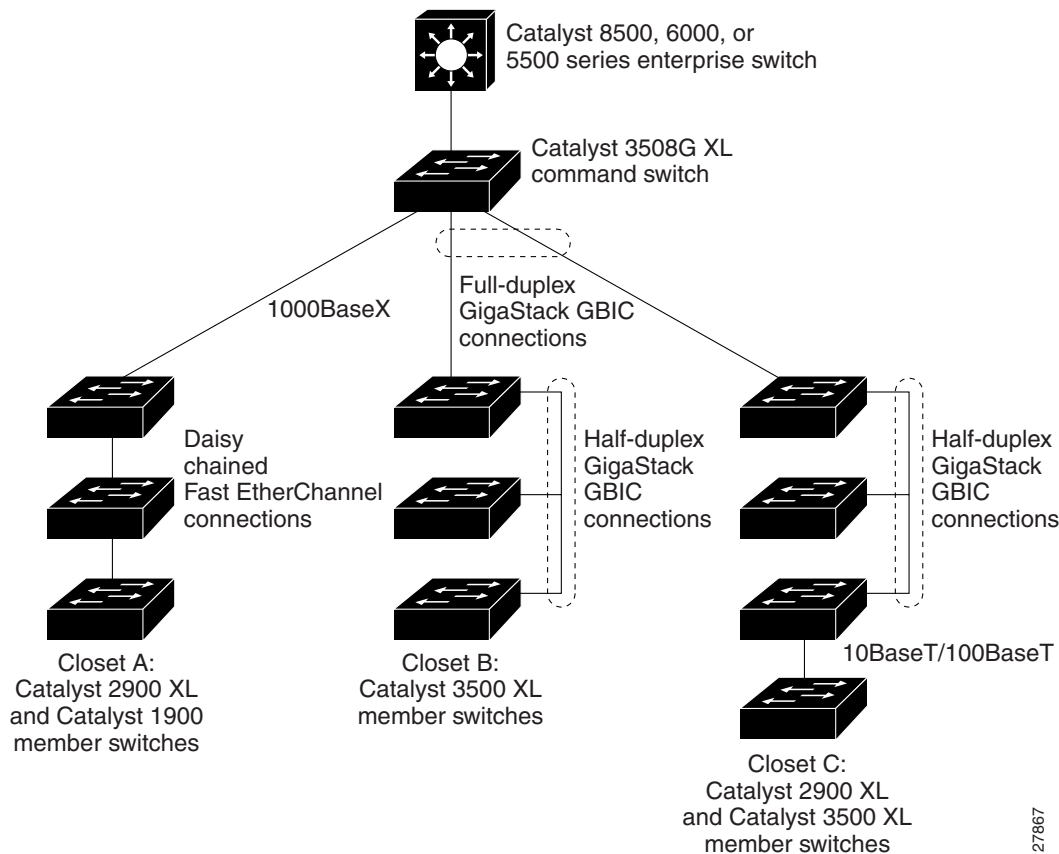
Deployment Examples

This section describes how you can use this IOS release with the 2900 and 3500 XL switches.

Enterprise Workgroup Aggregation

The 3508G XL switch can be deployed to aggregate workgroup networking devices such as Ethernet and 10/100 switches, 10BaseT and 10/100 hubs, and workgroup servers. The 3508G XL can be designated as the command switch for single point of management for the cluster. The command switch is assigned an IP address and manages other Catalyst 3500 XL, 2900 XL, 1900, and 2820 member switches deployed in an interconnected switch-clustering configuration. Figure 1-1 shows such a configuration.

Figure 1-1 Enterprise Workgroup Aggregation

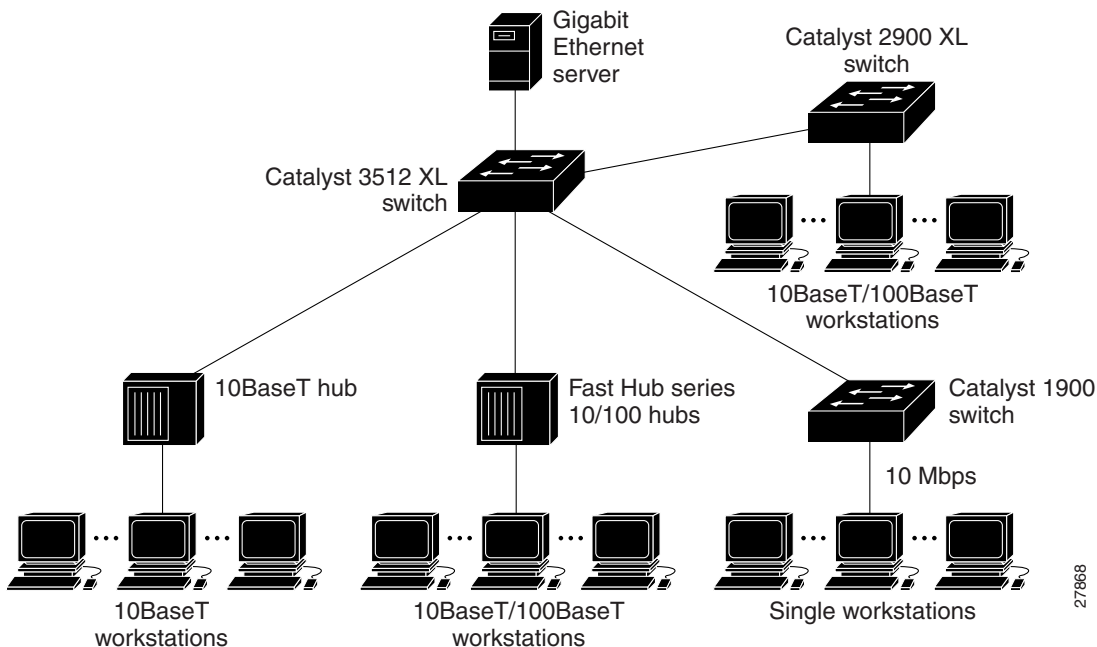


27867

Small- to Medium-sized Business Workgroup Aggregation

The 3512 XL switch can be used in a small- to medium-sized business as a network backbone. It can aggregate Ethernet and Fast Ethernet network resources in the organization and provide 1000BaseX connections to Gigabit Ethernet servers. Figure 1-2 shows such a configuration.

Figure 1-2 Small- to Medium-sized Business Workgroup Aggregation



27868

