

# System Requirements to Implement Switch Clustering Technology

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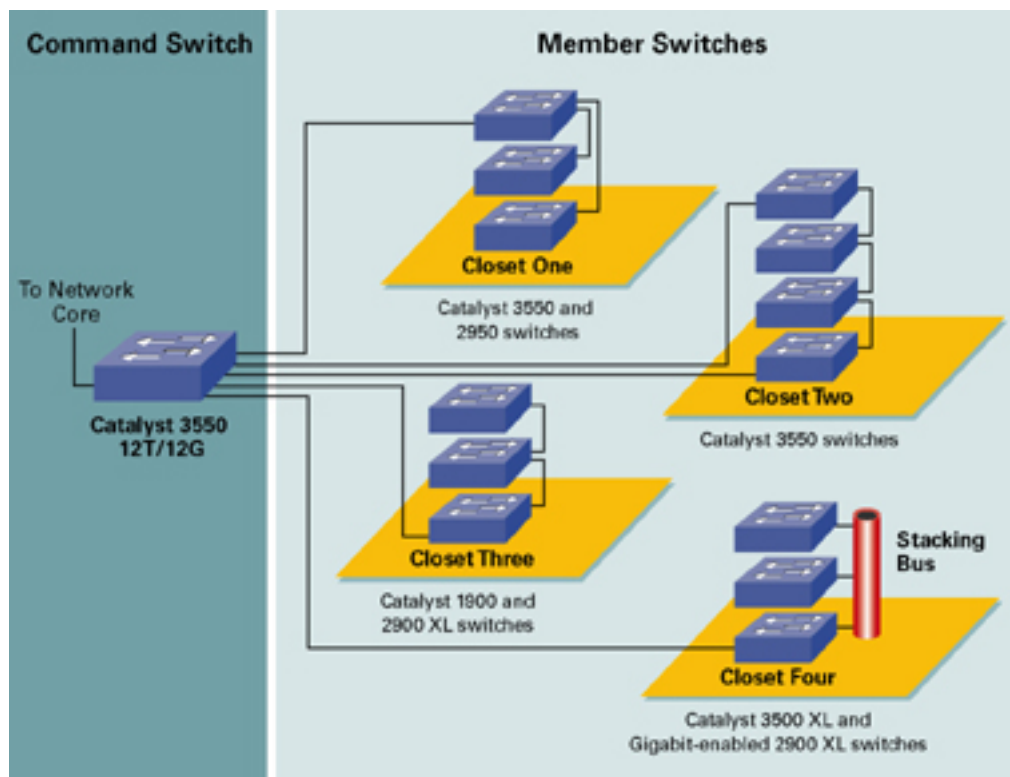
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## Introduction

Cisco Switch Clustering technology is a set of software features available to all Catalyst 3500 XL, 2900 XL, 2955/2950, 2970, 3550, 3560, 3750, 4500, and Catalyst 1900/2820 Standard and Enterprise Edition switches. Switch Clustering technology allows you to manage up to 16 switches, simultaneously, through a single IP address. For redundancy, you can assign an IP address to a second switch, and then you can manage the overall cluster through a single virtual IP address. If the primary command switch fails, the backup or secondary command switch seamlessly takes over the management of the cluster, while a user can still access the cluster via the virtual IP address.

This diagram is an example of a Cisco switch cluster:



Switches within a cluster are categorized with one of these roles:

- command switch
- member switches
- candidate switches

In each cluster, there is a master switch called a command switch. The rest of the switches serve as member switches. The command switch provides the primary management interface for the entire cluster, and it is typically the only switch within the switch cluster that is configured with an IP address. Each management request goes to the command switch before it is redirected to the appropriate member switch.

A member switch is typically not configured with an IP address and receives management commands that are redirected from the command switch.

A candidate switch is a switch that can be added to the switch cluster as a member switch.

## Prerequisites

## Requirements

There are no specific requirements for this document.

## Components Used

The information in this document is based on the software and hardware versions listed in the [Switch Requirements](#) and specific switch sections.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

## Conventions

Refer to [Cisco Technical Tips Conventions](#) for more information on document conventions.

## Switch Requirements

Each section of this document contains the system requirements to implement Switch Clustering technology on these platforms:

You can use clustering functionality when you install the cluster-capable version of the Catalyst 2900 XL, 3500 XL, 2950/2955, 2970, 3550, 3560, 3750 or 4500 software.

All Catalyst 3500 Series XL switches can be command switches. The 8 MB Catalyst 2900 Series XL switches can be upgraded to act as command switches. The 4 MB Catalyst 2900 Series XL switches cannot be upgraded to be command switches, and they can act as cluster members only if they are running Cisco IOS® Software Release 11.2(8.x)SA6 original edition software. A Catalyst 2900 XL or 3500 XL that runs any version of Cisco IOS Software Release 11.2 (8.x)SA6 or later can be a member within a switch cluster.

**Note:** Issue the user-level **show version** command to determine whether your Catalyst 2900 XL switch has 4 MB or 8 MB of DRAM, and if it needs a software upgrade. Refer to [Release Notes for the Catalyst 2900 XL/3500 XL](#) for more information.

Any Catalyst 2950 series switch that runs Cisco IOS Software Release 12.0(5)WC(1) or later can be a command switch or a member switch.

Any Catalyst 3550 series switch that runs Cisco IOS Software Release 12.1(4)EA1 or later can be a command switch or a member switch.

Any Catalyst 4500 series switch that runs Cisco IOS Software Release 12.2(20)EWA or later can be a command switch or a member switch using the Network Assistant application.

Any Catalyst 1900 or 28xx switch that runs firmware version 9.00.00 (-A and -EN only) can be a member switch, but cannot be a command switch.

**Note:** (-A) represents Standard Edition and (-EN) represents Enterprise Edition of software.

Before you create clusters, you must determine which switches are cluster capable and determine whether or not they can act as a command switch. Refer to these tables to determine if your switch can be

a cluster member or a command switch:

- For Catalyst 3500 XL switches, see [Table 1](#).
- For 8 MB Catalyst 2900 XL switches, see [Table 2](#).
- For 4 MB Catalyst 2900 XL switches, see [Table 3](#).
- For Catalyst 2955/2950 switches, see [Table 4](#).
- For Catalyst 2970 switches, see [Table 5](#).
- For Catalyst 3550 switches, see [Table 6](#).
- For Catalyst 3560 switches, see [Table 7](#).
- For Catalyst 3750 switches, see [Table 8](#).
- For Catalyst 4500 switches, see [Table 9](#).
- For Catalyst 1900/2820 switches, see [Table 10](#).

## Catalyst 3500 XL

**Table 1** [Catalyst 3500 XL Switches](#) with Cluster Capabilities

Switch Models	Description	Minimum Cisco IOS Software Release for Clustering Support	Current Cisco IOS Software Release for Clustering Support	Member Capable?	Command Capable?
WS-3508G-XL	8 Gigabit Ethernet ports	11.2(8)SA6 (-A) or (-EN)	12.0(5)WC(1) or later	Yes	Yes
WS-3512 XL	12 autosensing 10/100 ports and 2 Gigabit Ethernet ports	11.2(8)SA6 (-A) or (-EN)	12.0(5)WC(1) or later	Yes	Yes

WS-C3524-XL	24 autosensing 10/100 ports and 2 Gigabit Ethernet ports	11.2(8)SA6 (-A) or (-EN)	12.0(5)WC(1) or later	Yes	Yes
WS-3548-XL	48 autosensing 10/100 ports and 2 Gigabit Ethernet ports	12.0(5)XP (-A) or (-EN)	12.0(5)WC(1) or later	Yes	Yes
WS-3524-PWR-XL	24 autosensing 10/100 inline-power Ethernet ports and 2 Gigabit Ethernet ports	12.0(5)XU	12.0(5)WC(1) or later	Yes	Yes

**Note:** (-A) represents Standard Edition and (-EN) represents Enterprise Edition of software. With Cisco IOS Software Release 12.0(5)XU, the Standard and Enterprise Edition features were included in one release.

## Catalyst 2900 XL (8 MB)

**Table 2** 8 MB DRAM [Catalyst 2900 XL Switches](#) with Cluster Capabilities

Switch Models	Description	Minimum Cisco IOS Software Release for Clustering Support	Current Cisco IOS Software Release for Clustering Support	Member Capable?	Command Capable?
WS-C2912-XL	12 autosensing 10/100 ports	11.2(8)SA6 (-A) or (-EN)	12.0(5)WC(1) or later	Yes	Yes

WS-C2924M-XL	24 autosensing 10/100 ports and 2 expansion slots	11.2(8)SA6 (-A) or (-EN)	12.0(5)WC(1) or later	Yes	Yes
WS-C2924-XL	24 autosensing 10/100 ports	11.2(8)SA6 (-A) or (-EN)	12.0(5)WC(1) or later	Yes	Yes
WS-C2924C-XL	22 autosensing 10/100 ports and 2 100BaseFX ports	11.2(8)SA6 (-A) or (-EN)	12.0(5)WC(1) or later	Yes	Yes
WS-C2912MF-XL	12 100BaseFX ports and 2 expansion slots	11.2(8)SA6 (-EN only)	12.0(5)WC(1) or later	Yes	Yes
WS-C2924M-XL-DC	24 autosensing 10/100 ports and 2 expansion slots	12.0(5)XU	12.0(5)WC(1) or later	Yes	Yes

**Note:** (-A) represents Standard Edition and (-EN) represents Enterprise Edition of software. With Cisco IOS Software Release 12.0(5)XU, the Standard and Enterprise Edition features were included in one release.

## Catalyst 2900 XL (4 MB)

**Table 3 4 MB DRAM [Catalyst 2900 XL Switches](#) with Cluster Capabilities**

Switch Models	Description	Minimum Cisco IOS Software Release for Clustering Support	Current Cisco IOS Software Release for Clustering Support	Member Capable?	Command Capable?
WS-C2908-XL	8 autosensing 10/100 ports	11.2(8)SA6 (Original Edition)	Can not be upgraded further.	Yes	No
WS-C2916M-XL	16 autosensing 10/100 ports and 2 expansion slots	11.2(8)SA6 (Original Edition)	Can not be upgraded further.	Yes	No
WS-C2924-XL	24 autosensing 10/100 ports	11.2(8)SA6 (Original Edition)	Can not be upgraded further.	Yes	No
WS-C2924C-XL	22 autosensing 10/100 ports and 2 100BaseFX ports	11.2(8)SA6 (Original Edition)	Can not be upgraded further.	Yes	No

## Catalyst 2955/2950

Table 4 [Catalyst 2955/2950 Switches](#) with Cluster Capabilities

Switch Models	Description	Minimum Cisco IOS Software Release for Clustering Support	Current Cisco IOS Software Release for Clustering Support	Member Capable?	Command Capable?
WS-C2950-12	12 autosensing 10/100 ports	12.0(5)WC(1)	<a href="#">12.1(22)EA2</a> or later	Yes	Yes

WS-C2950-24	24 autosensing 10/100 ports	12.0(5)WC(1)	<a href="#">12.1(22)EA2</a> or later	Yes	Yes
WS-C2950C-24	24 autosensing 10/100 ports and 2 100BaseFX ports	12.0(5)WC(1)	<a href="#">12.1(22)EA2</a> or later	Yes	Yes
WS-C2950T-24	24 autosensing 10/100 ports and 2 autosensing 10/100/1000 ports	12.0(5)WC(1)	<a href="#">12.1(22)EA2</a> or later	Yes	Yes
Catalyst 2955 Switches (all models)	(varies)	12.0(5)WC(1)	<a href="#">12.1(22)EA2</a> or later	Yes	Yes

## Catalyst 2970

Table 5 [Catalyst 2970 Switches](#) with Cluster Capabilities

Switch Models	Description	Minimum Cisco IOS Software Release for Clustering Support	Current Cisco IOS Software Release for Clustering Support	Member Capable?	Command Capable?
Catalyst 2970 Switches (all models)	(varies)	12.1(4)EA1	<a href="#">12.2(25)SEA</a> or later	Yes	Yes

## Catalyst 3550

Table 6 [Catalyst 3550 Switches](#) with Cluster Capabilities



Switch Models	Description	Minimum Cisco IOS Software Release for Clustering Support	Current Cisco IOS Software Release for Clustering Support	Member Capable?	Command Capable?
WS-C3550-12T	10 autosensing 10/100/1000 ports and 2 GBIC*-based Gigabit module slots	12.1(4)EA1	<a href="#">12.2(25)SE</a> or later	Yes	Yes

Note: \* GBIC means Gigabit Interface Converter.

## Catalyst 3560

Table 7 [Catalyst 3560 Switches](#) with Cluster Capabilities

Switch Models	Description	Minimum Cisco IOS Software Release for Clustering Support	Current Cisco IOS Software Release for Clustering Support	Member Capable?	Command Capable?
Catalyst 3560 Switches (all models)	(varies)	12.1(19)EA1 or later	<a href="#">12.2(25)SEA</a> or later	Yes	Yes

## Catalyst 3750

Table 8 [Catalyst 3750 Switches](#) with Cluster Capabilities

Switch Models	Description	Minimum Cisco IOS Software Release for Clustering Support	Current Cisco IOS Software Release for Clustering Support	Member Capable?	Command Capable?
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Catalyst 3750 Switches (all models)	(varies)	12.1(11)AX or later	<a href="#">12.2(25)SEA</a> and later	Yes	Yes
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## Catalyst 4500

**Table 9** [Catalyst 4500 Switches](#) with Cluster Capabilities

Switch Models	Description	Minimum Cisco IOS Software Release for Clustering Support	Current Cisco IOS Software Release for Clustering Support	Member Capable?	Command Capable?
Catalyst 4500 Switches (all models)	(varies)	12.2(20)EWA or later	<a href="#">12.2(31)SG</a> and later	Yes	Yes

**Note:** If your switch cluster contains a Catalyst 4500 series switch, then the cluster command switch must also be a Catalyst 4500 series switch.

## Catalyst 1900/2820

**Table 10** [Catalyst 1900](#) and [2820](#) Switches with Member Switch Capabilities

Switch Models	Description	Minimum Firmware Version for Clustering Support	Member Capable?	Command Capable?
Catalyst 1900 Switches (all models)*	(varies)	9.00 (-A) or (-EN)	Yes	No

Catalyst 2820 Switches (all models)*	(varies)	9.00 (-A) or (-EN)	Yes	No
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**Caution:** \*The 3500 XL/8 MB 2900 XL must be running Cisco IOS Software Release 12.0(5)XP or later. The command switch (2950) must be running Cisco IOS Software Release 12.0(5)WC(1) or later. The command switch (3550) must be running Cisco IOS Software Release 12.1(4)EA1 or later.



**Caution:** When a cluster has a mix of Catalyst switches, Cisco strongly recommends that you only use a Catalyst 3550 switch as the command switch.

If you have Catalyst 1900 and 2820 switches, they must be running firmware version 9.00 (Standard or Enterprise Edition), and are not capable of being command switches. Refer to [Release Notes for the Catalyst 1900 and Catalyst 2820 Series Switches, Version 9.00](#) for more information.

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