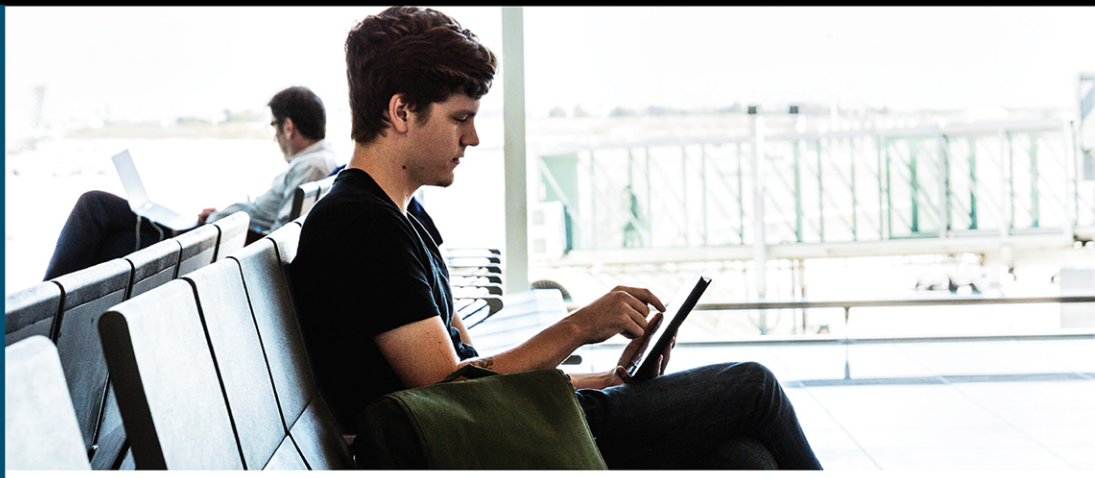

CCNA 200-301 Portable Command Guide

All the CCNA 200-301 commands in one compact, portable resource

Fifth Edition

ciscopress.com

Scott Empson

CCNA 200-301 Portable Command Guide

Fifth Edition

Scott Empson

Cisco Press

`Switch9200(config-if)# speed 5000`	Specifies that the port runs at 5000 Mbps. This option is only valid and visible on multi-Gigabit-supported Ethernet ports
`Switch2960(config-if)# speed auto`	Detects the speed at which the port should run, automatically, based on the port at the other end of the link
`Switch9200(config-if)# speed nonegotiate`	Disables autonegotiation, and the port runs at 1000 Mbps

Managing the MAC Address Table

`switch# show mac address-table`	Displays current MAC address forwarding table
`switch# clear mac address-table`	Deletes all entries from current MAC address forwarding table
`switch# clear mac address-table dynamic`	Deletes only dynamic entries from table

Configuration Example

Figure 8-1 shows the network topology for the basic configuration of a 2960 series switch using commands covered in this chapter. These commands will also work on a 9200 series switch, with the exception that all Fast Ethernet ports will be Gigabit Ethernet ports on the 9200 switch.

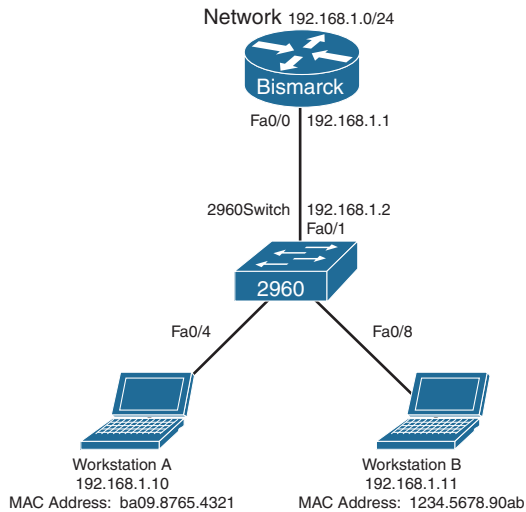

Figure 8-1 Network Topology for 2960 Series Switch Configuration

`switch> enable`	Enters privileged EXEC mode
`switch# configure terminal`	Enters global configuration mode
`switch(config)# no ip domain-lookup`	Turns off Domain Name System (DNS) queries so that spelling mistakes do not slow you down
`switch(config)# hostname Switch2960`	Sets the host name
`Switch2960(config)# enable secret cisco`	Sets the encrypted secret password to *cisco*
`Switch2960(config)# line console 0`	Enters line console mode
`Switch2960(config-line)# logging synchronous`	Appends commands to a new line; switch information will not interrupt
`Switch2960(config-line)# login`	User must log in to console before use
`Switch2960(config-line)# password switch`	Sets the console password to *switch*
`Switch2960(config-line)# exec-timeout 0 0`	The console line will not log out because of the connection to the console being idle
`Switch2960(config-line)# exit`	Moves back to global configuration mode
`Switch2960(config)# line vty 0 15`	Moves to configure all 16 vty ports at the same time
`Switch2960(config-line)# login`	User must log in to vty port before use
`Switch2960(config-line)# password class`	Sets the vty password to *class*
`Switch2960(config-line)# exit`	Moves back to global configuration mode
`Switch2960(config)# ip default-gateway 192.168.1.1`	Sets default gateway address
`Switch2960(config)# interface vlan 1`	Moves to virtual interface VLAN 1 configuration mode
`Switch2960(config-if)# ip address 192.168.1.2 255.255.255.0`	Sets the IP address and netmask for switch
`Switch2960(config-if)# no shutdown`	Turns the virtual interface on
`Switch2960(config-if)# interface fastethernet 0/1`	Moves to interface configuration mode for fastethernet 0/1
`Switch2960(config-if)# description Link to Bismarck Router`	Sets a local description
`Switch2960(config-if)# interface fastethernet 0/4`	Moves to interface configuration mode for fastethernet 0/4
`Switch2960(config-if)# description Link to Workstation A`	Sets a local description
`Switch2960(config-if)# interface fastethernet 0/8`	Moves to interface configuration mode for fastethernet 0/8

`Switch2960(config-if)# description Link to Workstation B`	Sets a local description
`Switch2960(config-if)# exit`	Returns to global configuration mode
`Switch2960(config)# exit`	Returns to privileged EXEC mode
`Switch2960# copy running-config startup-config`	Saves the configuration to NVRAM
`Switch2960#`	

CHAPTER 9
VLANs

This chapter provides information and commands concerning the following topics:

- Creating static VLANs
  - Creating static VLANs using VLAN configuration mode
- Assigning ports to VLANs
- Using the **range** command
- Configuring a voice VLAN
  - Configuring voice and data with trust
  - Configuring voice and data without trust
- Verifying VLAN information
- Saving VLAN configurations
- Erasing VLAN configurations
- Configuration example: VLANs

Creating Static VLANs

Static VLANs occur when a switch port is manually assigned by the network administrator to belong to a VLAN. Each port is associated with a specific VLAN. By default, all ports are originally assigned to VLAN 1. You create VLANs using the VLAN configuration mode.

Creating Static VLANs Using VLAN Configuration Mode

`Switch(config)# vlan 3`	Creates VLAN 3 and enters VLAN configuration mode for further definitions
`Switch(config-vlan)# name Engineering`	Assigns a name to the VLAN. The length of the name can be from 1 to 32 characters
`Switch(config-vlan)# exit`	Applies changes, increases the revision number by 1, and returns to global configuration mode
`Switch(config)#`	

NOTE: Use this method to add normal-range VLANs (1–1005) or extended-range VLANs (1006–4094). Configuration information for normal-range VLANs is always saved in the VLAN database, and you can display this information by entering the **show vlan** privileged EXEC command.

NOTE: The VLAN Trunking Protocol (VTP) revision number is increased by one each time a VLAN is created or changed.

VTP version 3 supports propagation of extended-range VLANs. VTP versions 1 and 2 propagate only VLANs 1–1005.

NOTE: Transparent mode does not increment the VTP revision number.

Assigning Ports to VLANs

`Switch(config)# interface fastethernet 0/1`	Moves to interface configuration mode
`Switch(config-if)# switchport mode access`	Sets the port to access mode
`Switch(config-if)# switchport access vlan 10`	Assigns this port to VLAN 10

NOTE: When you use the **switchport mode access** command, the port operates as a nontrunking, single VLAN interface.

TIP: An access port can belong to only one data VLAN.

TIP: By default, all ports are members of VLAN 1.

Using the range Command

`Switch(config)# interface range fastethernet 0/1 - 9`	Enables you to set the same configuration parameters on multiple ports at the same time **NOTE:** Depending on the model of switch, there is a space before and after the hyphen in the **interface range** command. Be careful with your typing
`Switch(config-if-range)# switchport mode access`	Sets ports 1 to 9 as access ports
`Switch(config-if-range)# switchport access vlan 10`	Assigns ports 1 to 9 to VLAN 10

Configuring a Voice VLAN

The voice VLAN feature permits switch ports to carry voice traffic with Layer 3 precedence and Layer 2 Class of Service (CoS) values from an IP Phone.

You can configure the switch port, which is connected to an IP Phone, to use one VLAN for voice traffic and another VLAN for data traffic originating from a device that is connected to the access port of the IP Phone.

Cisco switches use Cisco Discovery Protocol (CDP) packets to communicate with the IP Phone. CDP must be enabled on any switch port that is to be connected to an IP Phone.

NOTE: Voice VLANs are disabled by default.

NOTE: By default, a switch port drops any tagged frames in hardware.

Configuring Voice and Data with Trust

NOTE: This configuration is used for Cisco IP Phones that trust data traffic using CoS coming from the laptop or PC connected to the IP Phone's access port. Data traffic uses the native VLAN.

`Switch# configure terminal`	Enters global configuration mode
`Switch(config)# mls qos`	Enables QoS functionality globally
`Switch(config)# interface fastethernet 0/6`	Moves to interface configuration mode
`Switch(config-if)# mls qos trust cos`	Has the interface enter into a state of trust and classifies traffic by examining the incoming Class of Service (CoS)
`Switch(config-if)# mls qos trust dscp`	Has the interface enter into a state of trust and classifies traffic by examining the incoming Differentiated Services Code Point (DSCP) value
`Switch(config-if)# switchport voice vlan dot1p`	Configures the telephone to use the IEEE 802.1p priority tagging to forward all voice traffic with a higher priority through VLAN 0 (the native VLAN). By default the Cisco IP Phone forwards the voice traffic with an IEEE 802.1p priority of 5
`Switch(config-if)# switchport voice vlan none`	Does not instruct the IP telephone about the voice VLAN. The telephone uses the configuration from the telephone keypad
`Switch(config-if)# switchport voice vlan untagged`	Configures the telephone to send untagged voice traffic. This is the default for the telephone
`Switch(config-if)# switchport voice vlan 10`	Configures voice VLAN 10
`Switch(config-if)# switchport voice vlan 10 name vlan_name`	Optional command. Specifies the VLAN name to be used for voice traffic. You can enter up to 128 characters
`Switch(config-if)# switchport priority extend trust`	Extends the trust state to the device (PC) connected to the access port of the IP Phone The switch instructs the phone on how to process data packets from the device (PC) connected to the IP Phone
`Switch(config-if)# priority-queue out`	Gives voice packets head-of-line privileges when trying to exit the port. This helps prevent jitter
`Switch(config-if)# spanning-tree portfast`	Enables PortFast on the interface, which removes the interface from the Spanning Tree Protocol (STP)
`Switch(config-if)# spanning-tree bpduguard enable`	Enables Bridge Protocol Data Unit (BPDU) Guard on the interface
`Switch(config-if)# exit`	Exits interface configuration mode and returns to global configuration mode
`Switch(config)#`	