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Cisco Nexus 5000 Series NX-OS Layer 2 Interfaces Command Reference

Cisco NX-OS Releases 4.x, 5.x

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Cisco Nexus 5000 Series NX-OS Layer 2 Interfaces Command Reference

CONTENTS

Preface xiii

Audience xiii

Supported Switches xiii

Cisco Nexus 5000 Platform Switches xiii

Cisco Nexus 5500 Platform Switches xiv

Organization xiv

Document Conventions xv

Related Documentation xvi

Release Notes xvi

Configuration Guides xvi

Maintain and Operate Guides xvii

Installation and Upgrade Guides xvii

Licensing Guide xvii

Command References xvii

Technical References xvii

Error and System Messages xviii

Troubleshooting Guide xviii

Obtaining Documentation and Submitting a Service Request xviii

xviii

New and Changed Information xix

New and Changed Information for Cisco NX-OS Releases xix

New and Changed Information for Cisco NX-OS Release 5.2(1)N(1) xix

New and Changed Information for Cisco NX-OS Release 5.1(3)N1(1a) xx

New and Changed Information for Cisco NX-OS Release 5.1(3)N1(1) xx

New and Changed Information for Cisco NX-OS Release 5.0(3)N2(1) xxiv

New and Changed Information for Cisco NX-OS Release 5.0(3)N1(1) xxv

New and Changed Information for Cisco NX-OS Release 5.0(2)N2(1) xxvi

New and Changed Information for Cisco NX-OS Release 5.0(2)N1(1) xxvii

New and Changed Information for Cisco NX-OS Release 4.2(1)N2(1) xxvii

New and Changed Information for Cisco NX-OS Release 4.2(1)N1(1) xxviii

New and Changed Information for Cisco NX-OS Release 4.0(1a)N2(1) xxviii

New and Changed Information for Cisco NX-OS Release 4.0(1a)N1(1) xxix

New and Changed Information for Cisco NX-OS Release 4.0(0)N1(1a) xxix

B Commands ETH-1

bandwidth (interface) ETH-2

beacon (interface) ETH-4

bind (virtual Ethernet interface) ETH-5

C Commands ETH-7

capability (virtual Ethernet interface) ETH-8

carrier-delay ETH-9

cdp ETH-11

cdp enable ETH-13

channel-group (Ethernet) ETH-15

clear lacp counters ETH-18

clear mac access-list counters ETH-19

clear mac address-table dynamic ETH-20

clear port-security dynamic ETH-22

clear spanning-tree counters ETH-23

clear spanning-tree detected-protocol ETH-24

clear vtp counters ETH-25

clock protocol ETH-26

connect ETH-27

D Commands ETH-29

default shutdown (virtual Ethernet interface) ETH-30

delay (interface) ETH-31

description (interface) ETH-32

description (SPAN, ERSPAN) ETH-34

destination (ERSPAN) ETH-36

destination (SPAN session) ETH-37

duplex ETH-39

dvs-name ETH-41

E Commands ETH-43

encapsulation dot1Q ETH-44

errdisable detect cause ETH-45

errdisable recovery cause ETH-46

errdisable recovery interval ETH-48

erspan-id ETH-49
extension-key ETH-50

F Commands ETH-51
feature flexlink ETH-52
feature interface-vlan ETH-53
feature lacp ETH-54
feature lldp ETH-55
feature port-security ETH-56
feature private-vlan ETH-58
feature udld ETH-59
feature vmfex ETH-60
feature vtp ETH-62
feature-set virtualization ETH-63

H Commands ETH-65
hardware multicast hw-hash ETH-66
high-performance host-netio (virtual Ethernet interface) ETH-67

I Commands ETH-69
install certificate ETH-70
install feature-set virtualization ETH-71
instance vlan ETH-72
interface ethernet ETH-74
interface ethernet (Layer 3) ETH-76
interface loopback ETH-78
interface mgmt ETH-79
interface port-channel ETH-80
interface vethernet ETH-82
interface vlan ETH-84
ip igmp snooping (EXEC) ETH-85
ip igmp snooping (VLAN) ETH-86

L Commands ETH-89
lacp graceful-convergence ETH-90
lacp port-priority ETH-92
lacp rate fast ETH-93
lacp suspend-individual ETH-95

lacp system-priority ETH-96
link debounce ETH-97
load-interval ETH-99

M Commands ETH-101

mac address-table aging-time ETH-102
mac address-table notification ETH-104
mac address-table static ETH-105
management ETH-107
monitor erspan origin ip-address ETH-108
monitor session ETH-109
mst (STP) ETH-112
mvr group ETH-114
mvr type ETH-116
mvr vlan ETH-118

N Commands ETH-119

name (VLAN configuration) ETH-120
name (MST configuration) ETH-121
no switchport ETH-122

P Commands ETH-125

pinning ETH-126
pinning id (virtual Ethernet interface) ETH-127
port ETH-128
port-channel load-balance ethernet ETH-130
private-vlan ETH-132
private-vlan association ETH-134
private-vlan synchronize ETH-136
protocol vmware-vim ETH-137
provision ETH-138

R Commands ETH-141

rate-limit cpu direction ETH-142
remote hostname ETH-143
remote ip address ETH-145
remote port ETH-147
remote vrf ETH-148

revision ETH-149

S Commands ETH-151

shut (ERSPAN) ETH-152

shutdown ETH-153

shutdown (VLAN configuration) ETH-155

slot ETH-157

snmp-server enable traps vtp ETH-159

source (SPAN, ERSPAN) ETH-160

spanning-tree bridge assurance ETH-162

spanning-tree bpdufilter ETH-164

spanning-tree bpduguard ETH-166

spanning-tree cost ETH-168

spanning-tree domain ETH-170

spanning-tree guard ETH-171

spanning-tree link-type ETH-172

spanning-tree loopguard default ETH-173

spanning-tree mode ETH-174

spanning-tree mst configuration ETH-175

spanning-tree mst cost ETH-177

spanning-tree mst forward-time ETH-179

spanning-tree mst hello-time ETH-180

spanning-tree mst max-age ETH-181

spanning-tree mst max-hops ETH-182

spanning-tree mst port-priority ETH-183

spanning-tree mst pre-standard ETH-184

spanning-tree mst priority ETH-185

spanning-tree mst root ETH-186

spanning-tree mst simulate pvst ETH-188

spanning-tree mst simulate pvst global ETH-190

spanning-tree pathcost method ETH-192

spanning-tree port-priority ETH-193

spanning-tree port type edge ETH-194

spanning-tree port type edge bpdufilter default ETH-196

spanning-tree port type edge bpduguard default ETH-198

spanning-tree port type edge default ETH-200

spanning-tree port type network ETH-202
spanning-tree port type network default ETH-204
spanning-tree port type normal ETH-206
spanning-tree pseudo-information ETH-207
spanning-tree vlan ETH-208
spanning-tree vlan cost ETH-210
spanning-tree vlan port-priority ETH-211
speed (interface) ETH-212
state ETH-214
svi enable ETH-215
svs connection ETH-216
svs veth auto-delete ETH-217
svs veth auto-setup ETH-219
switchport access vlan ETH-220
switchport backup interface ETH-222
switchport block ETH-225
switchport host ETH-227
switchport mode ETH-228
switchport mode private-vlan host ETH-230
switchport mode private-vlan promiscuous ETH-232
switchport mode private-vlan trunk ETH-233
switchport monitor rate-limit ETH-234
switchport port-security ETH-235
switchport port-security aging ETH-236
switchport port-security mac-address ETH-238
switchport port-security maximum ETH-240
switchport port-security violation ETH-242
switchport priority extend ETH-243
switchport private-vlan association trunk ETH-244
switchport private-vlan host-association ETH-245
switchport private-vlan mapping ETH-247
switchport private-vlan trunk allowed vlan ETH-250
switchport private-vlan trunk native ETH-252
switchport trunk allowed vlan ETH-253
switchport trunk native vlan ETH-255

switchport voice vlan ETH-256
system private-vlan fex trunk ETH-257
system vlan reserve ETH-258

Show Commands ETH-261

show cdp all ETH-262
show cdp entry ETH-264
show cdp global ETH-267
show cdp interface ETH-268
show cdp neighbors ETH-269
show cdp traffic ETH-273
show interface brief ETH-275
show interface capabilities ETH-279
show interface debounce ETH-281
show interface ethernet ETH-283
show interface loopback ETH-286
show interface mac-address ETH-289
show interface mgmt ETH-291
show interface port-channel ETH-293
show interface private-vlan mapping ETH-295
show interface status err-disabled ETH-296
show interface switchport ETH-298
show interface switchport backup ETH-302
show interface transceiver ETH-304
show interface vethernet ETH-306
show interface vethernet counters ETH-308
show interface virtual ETH-309
show interface vlan ETH-310
show ip igmp snooping ETH-312
show lacp ETH-314
show mac address-table aging-time ETH-316
show mac address-table count ETH-318
show mac address-table notification ETH-319
show mac address-table ETH-320
show monitor session ETH-322
show mvr ETH-324

show mvr groups ETH-325
show mvr interface ETH-326
show mvr members ETH-327
show mvr receiver-ports ETH-328
show mvr source-ports ETH-329
show port-channel capacity ETH-330
show port-channel compatibility-parameters ETH-331
show port-channel database ETH-333
show port-channel load-balance ETH-335
show port-channel summary ETH-339
show port-channel traffic ETH-341
show port-channel usage ETH-343
show port-security ETH-344
show provision ETH-346
show resource ETH-347
show running-config ETH-348
show running-config backup ETH-349
show running-config exclude-provision ETH-352
show running-config flexlink ETH-354
show running-config interface ETH-356
show running-config monitor ETH-358
show running-config port-security ETH-360
show running-config spanning-tree ETH-362
show running-config vlan ETH-363
show running-config vtp ETH-364
show spanning-tree ETH-365
show spanning-tree active ETH-369
show spanning-tree bridge ETH-370
show spanning-tree brief ETH-372
show spanning-tree detail ETH-374
show spanning-tree interface ETH-376
show spanning-tree mst ETH-378
show spanning-tree root ETH-380
show spanning-tree summary ETH-382
show spanning-tree vlan ETH-383

show startup-config ETH-386
show startup-config backup ETH-387
show startup-config exclude-provision ETH-390
show startup-config flexlink ETH-392
show startup-config port-security ETH-395
show startup-config vtp ETH-396
show svs connections ETH-397
show system vlan reserved ETH-399
show tech-support ETH-400
show tech-support port-channel ETH-404
show udld ETH-406
show vlan ETH-409
show vlan dot1Q tag native ETH-411
show vlan id ETH-412
show vlan private-vlan ETH-413
show vtp counters ETH-414
show vtp interface ETH-416
show vtp password ETH-418
show vtp status ETH-419

U Commands ETH-421

udld (configuration mode) ETH-422
udld (Ethernet) ETH-424

V Commands ETH-427

vethernet auto-create ETH-428
vlan ETH-429
vlan (STP) ETH-431
vlan configuration ETH-433
vlan dot1Q tag native ETH-434
vmware (virtual Ethernet interface) ETH-436
vmware dvs ETH-437
vsi (virtual Ethernet interface) ETH-438
vrf (ERSPAN) ETH-439
vrf context ETH-440
vtp (interface) ETH-442
vtp domain ETH-443

vtp file ETH-444

vtp mode ETH-446

vtp password ETH-448

vtp version ETH-449

Preface

This preface describes the audience, organization, and conventions of the *Cisco Nexus 5000 Series NX-OS Layer 2 Interfaces Command Reference*. It also provides information on how to obtain related documentation.

This preface includes the following sections:

- Audience, page xiii
- Supported Switches, page xiii
- Organization, page xiv
- Document Conventions, page xv
- Related Documentation, page xvi
- Obtaining Documentation and Submitting a Service Request, page xviii

Audience

This publication is for experienced users who configure and maintain Cisco NX-OS devices.

Supported Switches

This section includes the following topics:

- Cisco Nexus 5000 Platform Switches, page xiii
- Cisco Nexus 5500 Platform Switches, page xiv

Cisco Nexus 5000 Platform Switches

Table 1 lists the Cisco switches supported in the Cisco Nexus 5000 Platform.

Note For more information on these switches, see the *Cisco Nexus 5500 Platform and Cisco Nexus 5000 Platform Hardware Installation Guide* available at the following URL: http://www.cisco.com/en/US/products/ps9670/tsd_products_support_series_home.html

Table 1 Supported Cisco Nexus 5000 Platform Switches

Switch	Description
Cisco Nexus 5010 Switch	The Cisco Nexus 5010 is a 1 rack unit (RU) switch. It delivers 500 Gbps of wire-speed switching capacity designed for traditional, virtualized, unified, and high-performance computing (HPC) environments.
Cisco Nexus 5020 Switch	The Cisco Nexus 5020 is a 2 rack unit (RU) switch. It delivers 1+ Tbps of wire-speed switching capacity designed for traditional, virtualized, unified, and HPC environments.

Note The Cisco Nexus 5000 Platform switches only supports Internet Group Management Protocol (IGMP) snooping.
IGMP, Protocol Independent Multicast (PIM), and Multicast Source Discovery Protocol (MSDP) are not supported on the Cisco Nexus 5000 Platform switches.

Cisco Nexus 5500 Platform Switches

Table 2 lists the Cisco switches supported in the Cisco Nexus 5500 Platform.

Note For more information on these switches, see the *Cisco Nexus 5500 Platform and Cisco Nexus 5000 Platform Hardware Installation Guide* available at the following URL:
http://www.cisco.com/en/US/products/ps9670/tsd_products_support_series_home.html

Table 2 Supported Cisco Nexus 5500 Platform Switches

Switch	Description
Cisco Nexus 5548P Switch	The Cisco Nexus 5548P switch is the first switch in the Cisco Nexus 5500 Platform. It is a one-rack-unit (1 RU), 10-Gigabit Ethernet and Fibre Channel over Ethernet (FCoE) switch that offers up to 960-Gbps throughput and up to 48 ports.
Cisco Nexus 5596P Switch	The Cisco Nexus 5596P switch is a top-of-rack, 10-Gigabit Ethernet and FCoE switch offering up to 1920-Gigabit throughput and up to 96 ports.

Organization

This document is organized as follows:

Chapter Title	Description
New and Changed Information	Describes the new and changed information for the new Cisco NX-OS software releases.
B Commands	Describes the Cisco NX-OS Ethernet commands that begin with B.
C Commands	Describes the Cisco NX-OS Ethernet commands that begin with C.
D Commands	Describes the Cisco NX-OS Ethernet commands that begin with D.
E Commands	Describes the Cisco NX-OS Ethernet commands that begin with E.
F Commands	Describes the Cisco NX-OS Ethernet commands that begin with F.
H Commands	Describes the Cisco NX-OS Ethernet commands that begin with H.
I Commands	Describes the Cisco NX-OS Ethernet commands that begin with I.
L Commands	Describes the Cisco NX-OS Ethernet commands that begin with L.
M Commands	Describes the Cisco NX-OS Ethernet commands that begin with M.
N Commands	Describes the Cisco NX-OS Ethernet commands that begin with N.
P Commands	Describes the Cisco NX-OS Ethernet commands that begin with P.
R Commands	Describes the Cisco NX-OS Ethernet commands that begin with R.
S Commands	Describes the Cisco NX-OS Ethernet commands that begin with S.
Show Commands	Describes the Cisco NX-OS Ethernet **show** commands.
U Commands	Describes the Cisco NX-OS Ethernet commands that begin with U.
V Commands	Describes the Cisco NX-OS Ethernet commands that begin with V.

Document Conventions

Command descriptions use these conventions:

Convention	Description
boldface font	Commands and keywords are in boldface.
italic font	Arguments for which you supply values are in italics.
[ ]	Elements in square brackets are optional.
{x | y | z}	Alternative keywords are grouped in braces and separated by vertical bars.
[x | y | z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Screen examples use these conventions:

`screen font`	Terminal sessions and information that the switch displays are in screen font.
`boldface screen font`	Information you must enter is in boldface screen font.
`italic screen font`	Arguments for which you supply values are in italic screen font.

< >	Nonprinting characters, such as passwords, are in angle brackets.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

This document uses the following conventions:

Note Means reader *take note*. Notes contain helpful suggestions or references to material not covered in the manual.

Caution Means reader *be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Related Documentation

Documentation for Cisco Nexus 5000 Series Switches and Cisco Nexus 2000 Series Fabric Extender is available at the following URL:

http://www.cisco.com/en/US/products/ps9670/tsd_products_support_series_home.html

The following are related Cisco Nexus 5000 Series and Cisco Nexus 2000 Series Fabric Extender documents:

Release Notes

Cisco Nexus 5000 Series and Cisco Nexus 2000 Series Release Notes

Cisco Nexus 5000 Series Switch Release Notes

Configuration Guides

Cisco Nexus 5000 Series Configuration Limits for Cisco NX-OS Release 5.0(2)N1(1)

Cisco Nexus 5000 Series Configuration Limits for Cisco NX-OS Release 4.2(1)N1(1) and Release 4.2(1)N2(1)

Cisco Nexus 5000 Series NX-OS Fibre Channel over Ethernet Configuration Guide

Cisco Nexus 5000 Series NX-OS Layer 2 Switching Configuration Guide

Cisco Nexus 5000 Series NX-OS Multicast Routing Configuration Guide

Cisco Nexus 5000 Series NX-OS Quality of Service Configuration Guide

Cisco Nexus 5000 Series NX-OS SAN Switching Configuration Guide

Cisco Nexus 5000 Series NX-OS Security Configuration Guide

Cisco Nexus 5000 Series NX-OS System Management Configuration Guide

Cisco Nexus 5000 Series NX-OS Unicast Routing Configuration Guide

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Cisco Nexus 5000 Series Switch NX-OS Software Configuration Guide

Cisco Nexus 5000 Series Fabric Manager Configuration Guide, Release 3.4(1a)

Cisco Nexus 7000 Series NX-OS Fundamentals Configuration Guide, Release 6.x

Cisco Nexus 2000 Series Fabric Extender Software Configuration Guide

Maintain and Operate Guides

Cisco Nexus 5000 Series NX-OS Operations Guide

Installation and Upgrade Guides

Cisco Nexus 5000 Series and Cisco Nexus 5500 Platform Hardware Installation Guide

Cisco Nexus 2000 Series Hardware Installation Guide

Cisco Nexus 5000 Series NX-OS Software Upgrade and Downgrade Guide, Release 4.2(1)N1(1)

Regulatory Compliance and Safety Information for the Cisco Nexus 5000 Series Switches and Cisco Nexus 2000 Series Fabric Extenders

Licensing Guide

Cisco NX-OS Licensing Guide

Command References

Cisco Nexus 5000 Series NX-OS FabricPath Command Reference

Cisco Nexus 5000 Series NX-OS Fabric Extender Command Reference

Cisco Nexus 5000 Series NX-OS Fibre Channel Command Reference

Cisco Nexus 5000 Series NX-OS Fundamentals Command Reference

Cisco Nexus 5000 Series NX-OS Layer 2 Interfaces Command Reference

Cisco Nexus 5000 Series NX-OS Multicast Routing Command Reference

Cisco Nexus 5000 Series NX-OS QoS Command Reference

Cisco Nexus 5000 Series NX-OS Security Command Reference

Cisco Nexus 5000 Series NX-OS System Management Command Reference

Cisco Nexus 5000 Series NX-OS TrustSec Command Reference

Cisco Nexus 5000 Series NX-OS Unicast Routing Command Reference

Cisco Nexus 5000 Series NX-OS vPC Command Reference

Technical References

Cisco Nexus 5000 Series and Cisco Nexus 2000 Series Fabric Extender MIBs Reference

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Error and System Messages

Cisco NX-OS System Messages Reference

Troubleshooting Guide

Cisco Nexus 5000 Troubleshooting Guide

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as an RSS feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service. Cisco currently supports RSS Version 2.0.

New and Changed Information

This chapter provides release-specific information for each new and changed feature in the *Cisco Nexus 5000 Series NX-OS Layer 2 Interfaces Command Reference*. The latest version of this document is available at the following Cisco website:

http://www.cisco.com/en/US/products/ps9670/prod_command_reference_list.html

To check for additional information about this Cisco NX-OS Release, see the *Cisco Nexus 5000 Series Switch Release Notes* available at the following Cisco website:

http://www.cisco.com/en/US/products/ps9670/prod_release_notes_list.html

New and Changed Information for Cisco NX-OS Releases

This section includes the following topics:

- New and Changed Information for Cisco NX-OS Release 5.2(1)N(1), page xix
- New and Changed Information for Cisco NX-OS Release 5.1(3)N1(1a), page xx
- New and Changed Information for Cisco NX-OS Release 5.1(3)N1(1), page xx
- New and Changed Information for Cisco NX-OS Release 5.0(3)N2(1), page xxiv
- New and Changed Information for Cisco NX-OS Release 5.0(3)N1(1), page xxv
- New and Changed Information for Cisco NX-OS Release 5.0(2)N2(1), page xxvi
- New and Changed Information for Cisco NX-OS Release 5.0(2)N1(1), page xxvii
- New and Changed Information for Cisco NX-OS Release 4.2(1)N2(1), page xxvii
- New and Changed Information for Cisco NX-OS Release 4.2(1)N1(1), page xxviii
- New and Changed Information for Cisco NX-OS Release 4.0(1a)N2(1), page xxviii
- New and Changed Information for Cisco NX-OS Release 4.0(1a)N1(1), page xxix
- New and Changed Information for Cisco NX-OS Release 4.0(0)N1(1a), page xxix

New and Changed Information for Cisco NX-OS Release 5.2(1)N(1)

Table 1 summarizes the new and changed features for Cisco NX-OS Release 5.2(1)N1(1) and tells you where they are documented.

Table 1 New and Changed Information for Release 5.0(3)N2(1)

Feature	Description	Where Documented
Dynamic system reserved VLAN range	This feature was introduced.	system vlan reserve, page 258 show system vlan reserved, page 399

New and Changed Information for Cisco NX-OS Release 5.1(3)N1(1a)

Table 2 summarizes the new and changed features for Cisco NX-OS Release 5.2(1)N1(1a) and tells you where they are documented.

Table 2 New and Changed Information for Release 5.0(3)N2(1)

Feature	Description	Where Documented
VLAN configuration	This feature was introduced.	vlan configuration, page 433

New and Changed Information for Cisco NX-OS Release 5.1(3)N1(1)

Table 3 summarizes the new and changed features for Cisco NX-OS Release 5.1(3)N1(1) and tells you where they are documented.

Table 3 New and Changed Information for Release 5.1(3)N1(1)

Feature	Description	Where Documented
Adapter Fabric Extender (Adapter-FEX)	This feature was introduced. The following Adapter-FEX commands were introduced: • **feature-set virtualization** • **interface vethernet** • **bind** • **vethernet auto-create** • **show interface vethernet counters** • **show interface vethernet** • **show running-config interface vethernet** The following Adapter-FEX-related commands were updated: • **shutdown** • **switchport mode** • **show running-config interface**	bind (virtual Ethernet interface) feature-set virtualization interface vethernet shutdown switchport mode vethernet auto-create show interface vethernet show running-config interface
Encapsulated Remote Switched Port Analyzer (ERSPAN)	This feature was introduced. The following commands were introduced: • **destination (ERSPAN)** • **erspan-id** • **monitor erspan origin ip-address** • **shut (ERSPAN)** • **vrf (ERSPAN)** The following commands were updated: • **description (SPAN, ERSPAN)** • **monitor session** • **source (SPAN, ERSPAN)** • **show monitor session**	description (SPAN, ERSPAN) destination (ERSPAN) erspan-id monitor erspan origin ip-address monitor session shut (ERSPAN) source (SPAN, ERSPAN) vrf (ERSPAN) show monitor session
Clock protocol	This feature was introduced to synchronize the clock protocol. The following command was added: • **clock protocol**	clock protocol

Table 3 New and Changed Information for Release 5.1(3)N1(1) (continued)

Feature	Description	Where Documented
Virtual Ethernet interfaces	This feature was introduced.	bind (virtual Ethernet interface) capability (virtual Ethernet interface) cdp enable default shutdown (virtual Ethernet interface) description (interface) high-performance host-netio (virtual Ethernet interface) install feature-set virtualization interface vethernet pinning id (virtual Ethernet interface) shutdown switchport access vlan switchport block switchport mode switchport mode private-vlan host switchport private-vlan host-association switchport private-vlan mapping switchport trunk allowed vlan switchport trunk native vlan vethernet auto-create vmware (virtual Ethernet interface) vsi (virtual Ethernet interface) svs veth auto-delete svs veth auto-setup show interface vethernet show interface vethernet counters show interface virtual
Cisco Virtual Machine Fabric Extender (VM-FEX)	This feature was introduced.	feature vmfex feature-set virtualization install feature-set virtualization interface vethernet

Table 3 New and Changed Information for Release 5.1(3)N1(1) (continued)

Feature	Description	Where Documented
Multicast VLAN Registration (MVR)	This feature was introduced.	mvr group mvr type mvr vlan show mvr show mvr groups show mvr interface show mvr members show mvr receiver-ports show mvr source-ports
Ethernet Port Security	This feature was introduced.	clear port-security dynamic feature port-security switchport port-security switchport port-security aging switchport port-security mac-address switchport port-security maximum switchport port-security violation show port-security show running-config port-security show startup-config port-security
FCoE over Adapter-FEX	This feature was introduced to connect a VMware vCenter Server to a Cisco Nexus 5000 Series switch.	connect dvs-name extension-key install certificate protocol vmware-vim remote hostname remote ip address remote port remote vrf svs connection svs veth auto-delete svs veth auto-setup vmware dvs show svs connections

Table 3 New and Changed Information for Release 5.1(3)N1(1) (continued)

Feature	Description	Where Documented
Management SVI	This feature was introduced.	management show interface mgmt
Spanning Tree Protocol (STP) pseudo parameters	This feature was introduced to configure spanning tree pseudo parameters for Layer 2 gateway switches. The following commands were introduced: • **mst (STP)** • **spanning-tree pseudo-information** • **vlan (STP)** The following command was updated: • **show running-config spanning-tree**	mst (STP) spanning-tree pseudo-information vlan (STP) show running-config spanning-tree
Spanning Tree Protocol (STP) enhancements	The following commands were introduced: • **spanning-tree bridge assurance** • **spanning-tree domain** • **spanning-tree mst pre-standard** • **spanning-tree vlan cost** • **spanning-tree vlan port-priority**	spanning-tree bridge assurance spanning-tree domain spanning-tree mst pre-standard spanning-tree vlan cost spanning-tree vlan port-priority
Interface speed enhancement	Interface speed of 100 Mbps and the **auto** keyword was introduced. The following command was updated: • **speed (interface)**	speed (interface)
Interface VLAN enhancement	You can set the carrier delay on a serial interface.	carrier-delay
Interface duplex mode	This feature was introduced.	duplex
Interface statistics collection interval	This feature was introduced.	load-interval
Link Aggregation Control Protocol (LACP) graceful convergence	The following command was added: • **lacp graceful-convergence**	lacp graceful-convergence

New and Changed Information for Cisco NX-OS Release 5.0(3)N2(1)

Table 4 summarizes the new and changed features for Cisco NX-OS Release 5.0(3)N2(1) and tells you where they are documented.

Table 4 New and Changed Information for Release 5.0(3)N2(1)

Feature	Description	Where Documented
Flex Links	This feature was introduced. Flex Links, which are two Layer 2 interfaces, where one interface is configured to act as a backup to the other.	feature flexlink switchport backup interface show interface switchport backup show running-config backup show running-config flexlink show startup-config backup show startup-config flexlink show tech-support
Configurable Hash Polynomial	This feature was introduced on a Cisco Nexus 5548 switch and Cisco Nexus 5596 switch.	port-channel load-balance ethernet
Switchport enhancements	Support was added to configure the switch to override the priority of frames arriving on the Cisco IP phone port from connected devices.	switchport priority extend
Voice VLAN	This feature was introduced.	switchport voice vlan

New and Changed Information for Cisco NX-OS Release 5.0(3)N1(1)

Table 5 summarizes the new and changed features for Cisco NX-OS Release 5.0(3)N1(1) and tells you where they are documented.

Table 5 New and Changed Information for Release 5.0(3)N1(1)

Feature	Description	Where Documented
SPAN enhancements	Rate limited Switched Port Analyzer (SPAN) is supported on Cisco Nexus 5010 Series and Cisco Nexus 5020 Series switches. Added the **switchport monitor rate-limit** command.	switchport monitor rate-limit
LLDP	The Link Layer Discovery Protocol (LLDP) is enabled by default on a Cisco NX-OS switch.	feature lldp

Table 5 New and Changed Information for Release 5.0(3)N1(1) (continued)

Feature	Description	Where Documented
Layer 3 interfaces	This feature was introduced. The following Layer 3 interface commands were introduced: • **encapsulation dot1q** • **interface ethernet (Layer 3)** • **interface loopback** • **interface vlan** • **no switchport** The following commands were updated to include support for Layer 3 interfaces and subinterfaces: • **bandwidth (interface)** • **delay (interface)** • **description (interface)** • **interface port-channel** • **shutdown** • **show interface brief** • **show interface ethernet** • **show interface port-channel**	bandwidth (interface) delay (interface) description (interface) encapsulation dot1Q interface ethernet (Layer 3) interface loopback interface port-channel interface vlan no switchport shutdown Show Commands
Unified ports	Support was added to configure unified ports on a Cisco Nexus 5548UP switch or Cisco Nexus 5596UP switch.	port

New and Changed Information for Cisco NX-OS Release 5.0(2)N2(1)

Table 6 summarizes the new and changed features for Cisco NX-OS Release 5.0(2)N2(1) and tells you where they are documented.

Table 6 New and Changed Information for Release 5.0(2)N2(1)

Feature	Description	Where Documented
Support for VTP client and server device mode, VTP file and password, and VTP on an interface	You can configure the VTP device mode as client, server, or off. You can also configure the VTP database file or set the password for the VTP administrative domain. You can enable VTP on an interface.	clear vtp counters vtp (interface) vtp file vtp mode vtp password vtp version Show Commands
Force addition of an interface into a channel group	You can force the addition of the interface into the specified channel group.	channel-group (Ethernet) Show Commands

New and Changed Information for Cisco NX-OS Release 5.0(2)N1(1)

Table 7 summarizes the new and changed features for Cisco NX-OS Release 5.0(2)N1(1) and tells you where they are documented.

Table 7 New and Changed Information for Release 5.0(2)N1(1)

Feature	Description	Where Documented
Support for Fabric Extender preprovisioning	You can preprovision a module in a chassis slot of a Cisco Nexus 2000 Series Fabric Extender.	provision slot show provision show running-config exclude-provision show startup-config exclude-provision
Link Aggregation Control Protocol (LACP) port suspension	The following command was added: • **lacp suspend-individual**	lacp suspend-individual
SNMP notification for VTP domain	You can enable SNMP notifications for a VTP domain.	snmp-server enable traps vtp

New and Changed Information for Cisco NX-OS Release 4.2(1)N2(1)

Table 8 summarizes the new and changed features for Cisco NX-OS Release 4.2(1)N2(1) and tells you where they are documented.

Table 8 New and Changed Information for Release 4.2(1)N2(1)

Feature	Description	Where Documented
Hardware Hashing	This feature was introduced.	hardware multicast hw-hash
Link Aggregation Control Protocol (LACP) enhancement	The following command was added: • **lacp rate fast**	lacp rate fast

New and Changed Information for Cisco NX-OS Release 4.2(1)N1(1)

Table 9 summarizes the new and changed features for Cisco NX-OS Release 4.2(1)N1(1) and tells you where they are documented.

Table 9 New and Changed Information for Release 4.2(1)N1(1)

Feature	Description	Where Documented
Layer 2 interface	Support for error-disable (err-disabled) detection was introduced.	errdisable detect cause errdisable recovery cause errdisable recovery interval Show Commands
Ethernet Switched Port Analyzer (SPAN)	The following commands were updated: • **monitor session**	monitor session
MAC Address Table	The following commands were updated: • **clear mac address-table dynamic** • **mac address-table aging-time** • **mac address-table notification** • **mac address-table static**	clear mac address-table dynamic mac address-table aging-time mac address-table notification mac address-table static Show Commands
VLAN Trunking Protocol (VTP)	This feature was introduced.	clear vtp counters feature vtp vtp domain vtp mode vtp version Show Commands

New and Changed Information for Cisco NX-OS Release 4.0(1a)N2(1)

Table 10 summarizes the new and changed features for Cisco NX-OS Release 4.0(1a)N2(1) and tells you where they are documented.

Table 10 New and Changed Information for Release 4.0(1a)N2(1)

Feature	Description	Where Documented
Layer 2 interface	The following command was updated: • **inteface ethernet**	interface ethernet

New and Changed Information for Cisco NX-OS Release 4.0(1a)N1(1)

Table 11 summarizes the new and changed features for Cisco NX-OS Release 4.0(1a)N1(1) and tells you where they are documented.

Table 11 New and Changed Information for Release 4.0(1a)N1(1)

Feature	Description	Where Documented
Layer 2 interface	The following commands were introduced: • **speed (interface)** The following command was deprecated:: • **svi enable**	speed (interface) svi enable
Unidirectional Link Detection (UDLD)	This feature was introduced.	feature udld udld (configuration mode) udld (Ethernet) show udld

New and Changed Information for Cisco NX-OS Release 4.0(0)N1(1a)

Table 12 summarizes the new and changed features for Cisco NX-OS Release 4.0(0)N1(1a) and tells you where they are documented.

Table 12 New and Changed Information for Release 4.0(0)N1(1a)

Feature	Description	Where Documented
Layer 2 Ethernet interface	This feature was introduced.	bandwidth (interface) cdp cdp enable channel-group (Ethernet) delay (interface) description (interface) feature interface-vlan instance vlan interface ethernet interface mgmt ip igmp snooping (EXEC) ip igmp snooping (VLAN) link debounce shutdown svi enable Show Commands
Port Channel	This feature was introduced.	interface port-channel port-channel load-balance ethernet Show Commands
Link Aggregation Control Protocol (LACP)	This feature was introduced.	clear lacp counters feature lacp lacp port-priority lacp system-priority Show Commands
Link Layer Discovery Protocol (LLDP)	This feature was introduced.	feature lldp Show Commands
Private VLAN	This feature was introduced.	feature private-vlan private-vlan private-vlan association private-vlan synchronize Show Commands

Table 12 New and Changed Information for Release 4.0(0)N1(1a) (continued)

Feature	Description	Where Documented
MAC Address Table	This feature was introduced.	clear mac access-list counters clear mac address-table dynamic mac address-table aging-time mac address-table notification mac address-table static Show Commands
Ethernet Switched Port Analyzer (SPAN)	This feature was introduced.	description (SPAN, ERSPAN) destination (SPAN session) monitor session source (SPAN, ERSPAN) Show Commands
Spaning Tree Protocol (STP)	This feature was introduced.	clear spanning-tree counters clear spanning-tree detected-protocol revision spanning-tree bpdufilter spanning-tree bpduguard spanning-tree cost spanning-tree guard spanning-tree link-type spanning-tree loopguard default spanning-tree mode spanning-tree pathcost method spanning-tree port-priority spanning-tree port type edge spanning-tree port type edge bpdufilter default spanning-tree port type edge bpduguard default spanning-tree port type edge default spanning-tree port type network spanning-tree port type network default spanning-tree vlan Show Commands

Table 12 New and Changed Information for Release 4.0(0)N1(1a) (continued)

Feature	Description	Where Documented
Multiple Spanning Tree (MST)	This feature was introduced.	name (MST configuration) spanning-tree mst configuration spanning-tree mst cost spanning-tree mst forward-time spanning-tree mst hello-time spanning-tree mst max-age spanning-tree mst max-hops spanning-tree mst port-priority spanning-tree mst priority spanning-tree mst root spanning-tree mst simulate pvst spanning-tree mst simulate pvst global Show Commands
Switchport	This feature was introduced.	switchport access vlan switchport block switchport host switchport mode switchport mode private-vlan host switchport mode private-vlan promiscuous switchport mode private-vlan trunk switchport private-vlan association trunk switchport private-vlan host-association switchport private-vlan mapping switchport private-vlan trunk allowed vlan switchport private-vlan trunk native Show Commands

Table 12 New and Changed Information for Release 4.0(0)N1(1a) (continued)

Feature	Description	Where Documented
VLAN	This feature was introduced.	interface vlan name (VLAN configuration) shutdown (VLAN configuration) state vlan vlan dot1Q tag native Show Commands
Virtual routing and forwarding (VRF)	This feature was introduced.	vrf context

B Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with B.

bandwidth (interface)

To set the inherited and received bandwidth values for an interface, use the **bandwidth** command. To restore the default values, use the **no** form of this command.

bandwidth {*kbps* | **inherit** [*kbps*]}

no bandwidth {*kbps* | **inherit** [*kbps*]}

Syntax Description

kbps	Informational bandwidth in kilobits per second. Valid values are from 1 to 10000000.
inherit	(Optional) Specifies that the bandwidth be inherited from the parent interface.

Command Default

1000000 kbps

Command Modes

Interface configuration mode
Subinterface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.0(3)N1(1)	Support for Layer 3 interfaces was added.

Usage Guidelines

The **bandwidth** command sets an informational parameter to communicate only the current bandwidth to the higher-level protocols; you cannot adjust the actual bandwidth of an interface using this command.

The **bandwidth inherit** command controls how a subinterface inherits the bandwidth of its main interface.

The **no bandwidth inherit** command enables all subinterfaces to inherit the default bandwidth of the main interface, regardless of the configured bandwidth. If a bandwidth is not configured on a subinterface, and you use the **bandwidth inherit** command, all subinterfaces will inherit the current bandwidth of the main interface. If you configure a new bandwidth on the main interface, all subinterfaces will use this new value.

If you do not configure a bandwidth on the subinterface and you configure the bandwidth inherit command on the main interface, the subinterfaces will inherit the specified bandwidth.

In all cases, if an interface has an explicit bandwidth setting configured, then that interface will use that setting, regardless of whether the bandwidth inheritance setting is in effect.

Examples

This example shows how to configure the badwidth for a Layer 2 interface:

```
switch(config)# interface ethernet 1/5
switch(config-if)# bandwidth 1000
switch(config-if)#
```

This example shows how to configure subinterfaces to inherit the bandwidth from the parent routed interface:

```
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport
switch(config-if)# bandwidth inherit 30000
switch(config-if)# interface ethernet 1/1.1
switch(config-subif)#
```

Related Commands

Command	Description
show interface	Displays the interface configuration information.

beacon (interface)

To turn on the beacon LED for a port of an interface, use the **beacon** command. To turn off the beacon LED for the interface, use the **no** form of this command.

beacon

no beacon

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

Use the **beacon** command to toggle the port LED of an interface to easily identify each time a beacon is sent to check for pending packets on the interface.

Examples

This example shows how to turn on the locator beacon LED for a specific interface:

```
switch(config)# interface ethernet 2/1
switch(config-if)# beacon
```

This example shows how to turn off the locator beacon LED for a specific interface:

```
switch(config)# interface ethernet 2/1
switch(config-if)# no beacon
```

Related Commands

Command	Description
show interface	Displays configuration information for an interface.

bind (virtual Ethernet interface)

To bind an interface to a virtual Ethernet interface, use the **bind** command. To remove the binding of an interface, use the **no** form of this command.

bind interface ethernet *slot/port* **channel** *number*

no bind interface ethernet *slot/port* **channel** *number*

Syntax Description

interface ethernet	Specifies that the virtual Ethernet interface be bound to a specified Ethernet interface.
slot/port	Ethernet interface slot number and port number. The slot number is from 1 to 255, and the port number is from 1 to 128.
channel	Specifies that the virtual Ethernet interface be bound to a specified EtherChannel interface.
number	EtherChannel number. The range is from 1 to 65535.

Command Default

Disabled

Command Modes

Virtual Ethernet interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Examples

This example shows how to bind a virtual Ethernet interface 10 to an Ethernet interface:

```
switch(config)# interface vethernet 10
switch(config-if)# bind interface ethernet 1/1 channel 101
switch(config-if)#
```

Related Commands

Command	Description
interface vethernet	Configures a virtual Ethernet interface.
show interface ethernet	Displays information about Ethernet interfaces.
show interface vethernet	Displays the specified virtual Ethernet interface, attributes, and status.
show running-config interface	Displays the running configuration of an interface.

C Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with C.

capability (virtual Ethernet interface)

To set a profile capability for a virtual Ethernet interface, use the **capability** command. To remove the profile capability of an interface, use the **no** form of this command.

profile capability iscsi-multipath

no profile capability iscsi-multipath

Syntax Description

iscsi-multipath	Configure an iSCSI multipath profile.

Command Default

None

Command Modes

Virtual Ethernet interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Examples

This example shows how to set the profile capability for a specific virtual Ethernet interface:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# capability iscsi-multipath
switch(config-if)#
```

Related Commands

Command	Description
interface vethernet	Configures a virtual Ethernet interface.
show interface vethernet	Displays the specified virtual Ethernet interface, attributes, and status.
show running-config interface	Displays the running configuration of an interface.

carrier-delay

To set the carrier delay on a serial interface, use the **carrier-delay** command. To return to the default carrier delay value, use the **no** form of this command.

carrier-delay {*delay-seconds* | **msec** *milliseconds*}

no carrier-delay

Syntax Description

delay-seconds	Time, in seconds, to wait for the system to change states. Enter an integer in the range 0 to 60.
msec	Specifies the delay time in milliseconds.
milliseconds	Time, in milliseconds, to wait for the system to change states. Enter an integer in the range 0 to 1000.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

You can use this command on a VLAN interface.

If a link goes down and comes back up before the carrier delay timer expires, the down state is effectively filtered, and the rest of the software on the switch is not aware that a link-down event occurred. Therefore, a large carrier delay timer results in fewer link-up/link-down events being detected. Setting the carrier delay time to 0 means that every link-up/link-down event is detected.

This command does not require a license.

Examples

This example shows how to change the carrier delay to 10 seconds:

```
switch# configure terminal
switch(config)# interface vlan 5
switch(config-if)# carrier-delay 10
switch(config-if)#
```

This example shows how to revert to the default carrier delay value:

```
switch# configure terminal
switch(config)# interface vlan 5
switch(config-if)# no carrier-delay
switch(config-if)#
```

Related Commands

Command	Description
show running-config interface	Displays the running configuration information for an interface.

cdp

To enable the Cisco Discovery Protocol (CDP) and configure CDP attributes, use the **cdp** command. To disable CDP or reset CDP attributes, use the **no** form of this command.

cdp {**advertise** {**v1** | **v2**} | **enable** | **format device-id** {**mac-address** | **serial-number** | **system-name**} | **holdtime** *seconds* | **timer** *seconds*}

no cdp {**advertise** | **enable** | **format device-id** {**mac-address** | **serial-number** | **system-name**} | **holdtime** *seconds* | **timer** *seconds*}

Syntax Description

advertise {**v1** | **v2**}	Configures the version to use to send CDP advertisements. Version-2 is the default state.
enable	Enables CDP for all Ethernet interfaces.
format device-id	Configures the format of the CDP device ID.
mac-address	Uses the MAC address as the CDP device ID.
serial-number	Uses the serial number as the CDP device ID.
system-name	Uses the system name, which can be expressed as a fully qualified domain name, as the CDP device ID. This is the default.
holdtime *seconds*	Specifies the amount of time a receiver should hold CDP information before discarding it. The range is from 10 to 255 seconds; the default is 180 seconds.
timer *seconds*	Sets the transmission frequency of CDP updates in seconds. The range is from 5 to 254; the default is 60 seconds.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to enable CDP on all Ethernet interfaces:

```
switch# configure terminal
switch(config)# cdp enable
```

This example shows how to configure the MAC address as the CDP device ID:

```
switch# configure terminal
switch(config)# cdp format device-id mac-address
```

This example shows how to disable CDP on all Ethernet interfaces:

```
switch# configure terminal
switch(config)# no cdp enable
```

Related Commands

Command	Description
show cdp	Displays Cisco Discovery Protocol (CDP) information.

cdp enable

To enable the Cisco Discovery Protocol (CDP) on an interface, use the **cdp enable** command. To disable CDP on the interface, use the **no** form of this command.

cdp enable

no cdp enable

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Interface configuration mode
Virtual Ethernet interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.1(3)N1(1)	Support was added for virtual Ethernet (vEth) interfaces.

Usage Guidelines

You can use this command on the following interfaces:

- Ethernet interface
- Management interface
- Virtual Ethernet interface

Examples

This example shows how to enable CDP on an Ethernet interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/1
switch(config-if)# cdp enable
```

This example shows how to enable CDP on a specific virtual Ethernet interface:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# cdp enable
```

This example shows how to disable CDP on a specific virtual Ethernet interface:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# no cdp enable
```

Related Commands

Command	Description
show cdp	Displays Cisco Discovery Protocol (CDP) information.
show interface	Displays the interface configuration information.

channel-group (Ethernet)

To assign and configure a physical interface to an EtherChannel, use the **channel-group** command. To remove the channel group configuration from the interface, use the **no** form of this command.

channel-group *number* [**force**] [**mode** {**active** | **on** | **passive**}]

no channel-group [*number*]

Syntax Description

number	Number of channel group. The *number* range is from 1 to 4096. Cisco NX-OS creates the EtherChannel associated with this channel group if the EtherChannel does not already exist.
force	(Optional) Specifies that the LAN port be forcefully added to the channel group.
mode	(Optional) Specifies the EtherChannel mode of the interface.
active	Specifies that when you enable the Link Aggregation Control Protocol (LACP), this command enables LACP on the specified interface. The interface is in an active negotiating state, in which the port initiates negotiations with other ports by sending LACP packets.
on	This is the default channel mode. Specifies that all EtherChannels that are not running LACP remain in this mode. If you attempt to change the channel mode to active or passive before enabling LACP, the switch returns an error message. After you enable LACP globally, by using the **feature lacp** command, you enable LACP on each channel by configuring the channel mode as either active or passive. An interface in this mode does not initiate or respond to LACP packets. When an LACP attempts to negotiate with an interface in the on state, it does not receive any LACP packets and becomes an individual link with that interface; it does not join the channel group. The default mode is **on**.
passive	Specifies that when you enable LACP, this command enables LACP only if an LACP device is detected. The interface is in a passive negotiation state, in which the port responds to LACP packets that it receives but does not initiate LACP negotiation.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.0(2)N2(1)	The **force** keyword was added.

Usage Guidelines

Use this command to create a channel group that includes the interface that you are working on and to add or remove specific interfaces from the channel group. Use this command to move a port from one channel group to another. You enter the channel group that you want the port to move to; the switch automatically removes the specified port from its present channel group and adds it to the specified channel group.

Use the **force** keyword to force the addition of the interface into the specified channel group.

After you enable LACP globally, by using the **feature lacp** command, you enable LACP on each channel by configuring the channel mode as either **active** or **passive**. An EtherChannel in the **on** channel mode is a pure EtherChannel and can aggregate a maximum of eight ports. The EtherChannel does not run LACP.

You cannot change the mode for an existing EtherChannel or any of its interfaces if that EtherChannel is not running LACP; the channel mode remains as **on**. The system returns an error message if you attempt to change the mode.

Use the **no** form of this command to remove the physical interface from the EtherChannel. When you delete the last physical interface from an EtherChannel, the EtherChannel remains. To delete the EtherChannel completely, use the **no** form of the **interface port-channel** command.

The compatibility check includes the following operational attributes:

- Port mode
- Access VLAN
- Trunk native VLAN
- Tagged or untagged
- Allowed VLAN list
- Switched Port Analyzer (SPAN) (cannot be SPAN source or destination port)
- Storm control

Use the **show port-channel compatibility-parameters** command to see the full list of compatibility checks that Cisco NX-OS uses.

You can only add interfaces configured with the channel mode set to **on** for static EtherChannels, that is, without a configured aggregation protocol. You can only add interfaces configured with the channel mode as **active** or **passive** to EtherChannels that are running LACP.

You can configure these attributes on an individual member port. If you configure a member port with an incompatible attribute, Cisco NX-OS suspends that port in the EtherChannel.

When the interface joins an EtherChannel, some of its individual parameters are overridden with the values on the EtherChannel, as follows:

- MAC address
- Spanning Tree Protocol (STP)
- Service policy
- Quality of service (QoS)
- Access control lists (ACLs)

Interface parameters, such as the following, remain unaffected when the interface joins or leaves a EtherChannel:

- Description
- Cisco Discovery Protocol (CDP)

- LACP port priority
- Debounce
- Rate mode
- Shutdown
- SNMP trap

If interfaces are configured for the EtherChannel interface and a member port is removed from the EtherChannel, the configuration of the EtherChannel interface is not propagated to the member ports.

Any configuration changes that you make in any of the compatibility parameters to the EtherChannel interface are propagated to all interfaces within the same channel group as the EtherChannel (for example, configuration changes are also propagated to the physical interfaces that are not part of the EtherChannel but are part of the channel group).

Examples

This example shows how to add an interface to LACP channel group 5 in active mode:

```
switch(config)# interface ethernet 1/1
switch(config-if)# channel-group 5 mode active
switch(config-if)#
```

This example shows how to forcefully add an interface to the channel group 5:

```
switch(config)# interface ethernet 1/1
switch(config-if)# channel-group 5 force
switch(config-if)#
```

Related Commands

Command	Description
show interface port-channel	Displays information about the traffic on the specified EtherChannel interface.
show lacp	Displays LACP information.
show port-channel summary	Displays information on the EtherChannels.

clear lacp counters

To clear the Link Aggregation Control Protocol (LACP) counters, use the **clear lacp counters** command.

clear lacp counters [**interface port-channel** *channel-num*]

Syntax Description

interface	(Optional) Clears the LACP counters of a specific interface.
port-channel *channel-num*	(Optional) Specifies a port channel interface. The range is from 1 to 4096.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to clear all LACP counters:

```
switch# clear lacp counters
```

This example shows how to clear the LACP on a port channel:

```
switch# clear lacp counters interface port-channel 100
```

Related Commands

Command	Description
show lacp	Displays LACP information.

clear mac access-list counters

To clear statistical information from the access list, use the **clear mac access-list counters** command.

clear mac access-list counters [*name*]

Syntax Description

name	(Optional) Name of a specific counter to clear. The name can be a maximum of 64 characters.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to clear statistical information from the access list:

```
switch# clear mac access-list counters
```

Related Commands

Command	Description
show mac access-lists	Displays the information about the MAC address table.

clear mac address-table dynamic

To clear the dynamic address entries from the MAC address table, use the **clear mac address-table dynamic** command.

clear mac address-table dynamic [[**address** *mac-addr*] | [**interface** {**ethernet** *slot/port* | **port-channel** *number*}]] [**vlan** *vlan-id*]

Syntax Description

address *mac-addr*	(Optional) Specifies the MAC address to remove from the table. Use the format EEEE.EEEE.EEEE.
interface	(Optional) Specifies the interface for which MAC addresses should be removed from the table. The type can be either Ethernet or EtherChannel.
ethernet *slot/port*	(Optional) Specifies the Ethernet interface and the slot number and port number. The slot number is from 1 to 255, and the port number is from 1 to 128.
port-channel *number*	(Optional) Specifies the EtherChannel for which MAC addresses should be removed from the table. Use the EtherChannel number. The *number* range is from 1 to 4096.
vlan *vlan-id*	(Optional) Specifies the VLAN from which MAC addresses should be removed from the table. The range is from 1 to 3967 and from 4049 to 4093.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
4.2(1)N1(1)	The command syntax is changed to **clear mac address-table dynamic**.

Usage Guidelines

Use the **clear mac address-table dynamic** command with no arguments to remove all dynamic entries from the table.

To clear static MAC addresses from the table, use the **no mac address-table static** command.

If the **clear mac address-table dynamic** command is entered with no options, all dynamic addresses are removed. If you specify an address but do not specify an interface, the address is deleted from all interfaces. If you specify an interface but do not specify an address, the switch removes all addresses on the specified interfaces.

Examples

This example shows how to clear all the dynamic entries from the MAC address table:

```
switch# clear mac address-table dynamic
```

This example shows how to clear all the dynamic entries from the MAC address table for VLAN 2:

```
switch# clear mac address-table dynamic vlan 2
```

Related Commands

Command	Description
show mac address-table	Displays the information about the MAC address table.

clear port-security dynamic

To clear port security information, use the **clear port-security dynamic** command.

clear port-security dynamic {**address** *MAC-addr* **vlan** *vlan-ID* | **interface** {**ethernet** *slot/port* [**vlan** *vlan-ID*] | **port-channel** *channel-num* [**vlan** *vlan-ID*]}}

Syntax Description

address *MAC-addr*	Clears all dynamically secured MAC address information. The MAC address can be in the format *E.E.E.*
vlan *vlan-ID*	Clears all dynamically secured VLAN information. The range is from 1 to 4094.
interface	Clears all dynamically secured addresses on a port.
ethernet *slot/port*	Clears all dynamically secured addresses from an Ethernet port. The slot number is from 1 to 255 and the port number is form 1 to 128.
port-channel *channel-num*	Clears all dynamically secured addresses from an EtherChannel. The range is from 1 to 4096.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to clear the dynamically secured MAC address information:

```
switch# clear port-security dynamic address 0050.3e8d.6400 vlan 1
switch#
```

Related Commands

Command	Description
show port-security	Displays the port security configuration information.
switchport port-security	Configures the switchport parameters to establish port security.

clear spanning-tree counters

To clear the counters for the Spanning Tree Protocol (STP), use the **clear spanning-tree counters** command.

clear spanning-tree counters [**interface** {**ethernet** *slot/port* | **port-channel** *channel*}] [**vlan** *vlan-id*]

Syntax Description

interface	(Optional) Specifies the interface type.
ethernet *slot/port*	Specifies the Ethernet interface slot and port number. The slot number is from 1 to 255, and the port number is from 1 to 128.
port-channel *channel*	Specifies the EtherChannel number. The number range is from 1 to 4096.
vlan *vlan-id*	(Optional) Specifies the VLAN. The range is from 1 to 3967 and from 4049 to 4093.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You can clear all the STP counters on the entire switch, per VLAN, or per interface.

Examples

This example shows how to clear the STP counters for VLAN 5:

```
switch# clear spanning-tree counters vlan 5
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree state.

clear spanning-tree detected-protocol

To restart the protocol migration, use the **clear spanning-tree detected-protocol** command. With no arguments, the command is applied to every port of the switch.

clear spanning-tree detected-protocol [**interface** {**ethernet** *slot*/*port* | **port-channel** *channel*}]

Syntax Description

interface	(Optional) Specifies the interface type.
ethernet *slot*/*port*	Specifies the Ethernet interface and the slot number and port number. The slot number is from 1 to 255, and the port number is from 1 to 128.
port-channel *channel*	Specifies the EtherChannel number. The number range is from 1 to 4096.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Rapid per VLAN Spanning Tree Plus (Rapid PVST+) and Multiple Spanning Tree (MST) have built-in compatibility mechanisms that allow them to interact properly with other versions of IEEE spanning tree or other regions. For example, a switch running Rapid PVST+ can send 802.1D bridge protocol data units (BPDUs) on one of its ports when it is connected to a legacy device. An MST switch can detect that a port is at the boundary of a region when it receives a legacy BPDU or an MST BPDU that is associated with a different region.

These mechanisms are not always able to revert to the most efficient mode. For example, a Rapid PVST+ switch that is designated for a legacy 802.1D bridge stays in 802.1D mode even after the legacy bridge has been removed from the link. Similarly, an MST port assumes that it is a boundary port when the bridges to which it is connected have joined the same region.

To force a port to renegotiate with its neighbors, enter the **clear spanning-tree detected-protocol** command.

Examples

This example shows how to restart the protocol migration on a specific interface:

```
switch# clear spanning-tree detected-protocol interface ethernet 1/4
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree state.

clear vtp counters

To clear VLAN Trunking Protocol (VTP) counters, use the **clear vtp counters** command.

clear vtp counters

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.2(1)N1(1)	This command was introduced.

Usage Guidelines

Use this command to clear the VTP statistics, such as the VTP requests, VTP advertisements, and configuration revisions.

Examples

This example shows how to clear the VTP counters:

```
switch# clear vtp counters
switch#
```

Related Commands

Command	Description
show vtp counters	Displays VTP counters.
show vtp status	Displays VTP information.

clock protocol

To set the synchronization protocol for the clock to a protocol, use the **clock protocol** command. To remove the clock protocol, use the **no** form of this command.

clock protocol {**none** | **ntp**}

no clock protocol {**none** | **ntp**}

Syntax Description

none	Specifies that the clock can be set manually.
ntp	Specifies that the clock be set to the Network Time Protocol (NTP).

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to set the synchronization protocol for the clock to NTP:

```
switch# configure terminal
switch(config)# clock protocol ntp
switch(config)#
```

Related Commands

Command	Description
show running-config	Displays the running system configuration information.

connect

To initiate a connection with a vCenter Server, use the **connect** command. To disconnect from a vCenter Server, use the **no** form of this command.

connect

no connect

Syntax Description

This command has no arguments or keywords.

Command Default

No connection with a vCenter Server

Command Modes

SVS connection configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

There can be only one active connection at a time.

This command does not require a license.

Examples

This example shows how to connect to a vCenter Server:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# protocol vmware-vim
switch(config-svs-conn)# remote hostname vcMain
switch(config-svs-conn)# vmware dvs datacenter-name DemoDC
switch(config-svs-conn)# connect
switch(config-svs-conn)#
```

This example shows how to disconnect from a vCenter Server:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# no connect
switch(config-svs-conn)#
```

Related Commands

Command	Description
show svs connections	Displays SVS connection information.
svs connection	Enables an SVS connection.

D Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with D.

default shutdown (virtual Ethernet interface)

To enable default commands on a virtual Ethernet interface, use the **default shutdown** command.

default shutdown

Syntax Description

This command has no arguments or keywords.

Command Default

No description is added.

Command Modes

Virtual Ethernet interface configuration

Command History

Release	Modification
5.1(3)N1(1)	Support for virtual Ethernet interface was added.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to enable a virtual Ethernet interface:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# default shutdown
switch(config-if)#
```

Related Commands

Command	Description
show interface vethernet	Displays the virtual Ethernet interface configuration information.
show running-config	Displays the contents of the currently running configuration file.

delay (interface)

To set a delay value for an interface, use the **delay** command. To restore the default delay value, use the **no** form of this command.

delay *tens-of-microseconds*

no delay

Syntax Description

tens-of-microseconds	Throughput delay in tens of microseconds. The range is from 1 to 16,777,215.

Command Default

10 microseconds

Command Modes

Interface configuration mode
Subinterface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.0(3)N1(1)	Support for Layer 3 interfaces was added.

Examples

This example shows how to set a delay of 30,000 microseconds on an interface:

```
switch(config)# interface ethernet 1/1
switch(config-if)# delay 30000
switch(config-if)#
```

This example shows how to set a delay of 1000 microseconds on a subinterface:

```
switch(config)# interface ethernet 1/1.1
switch(config-subif)# delay 1000
switch(config-subif)#
```

Related Commands

Command	Description
interface ethernet (Layer 3)	Configures an Ethernet routed interface.
show interface	Displays the interface configuration information.

description (interface)

To add a description to an interface configuration, use the **description** command. To remove the description, use the **no** form of this command.

description *description*

no description

Syntax Description

description	String description of the interface configuration. This string is limited to 80 characters.

Command Default

No description is added.

Command Modes

Interface configuration mode
Subinterface configuration mode
Virtual Ethernet interface configuration

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.0(3)N1(1)	Support for Layer 3 interfaces was added.
5.1(3)N1(1)	Support for virtual Ethernet interface was added.

Usage Guidelines

The **description** command is meant to provide a reminder in the configuration to describe what certain interfaces are used for. The description appears in the output of the following commands such as **show interface** and **show running-config**.

You can use this command on the following interfaces:

- Ethernet interface
- Management interface
- Subinterfaces
- Virtual Ethernet interface

Examples

This example shows how to add a description for an interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/1
switch(config-if)# description "10G Server Link"
switch(config-if)#
```

This example shows how to add a description for a virtual Ethernet interface:

```
switch# configure terminal
switch(config)# interface vethernet 1
```

```
switch(config-if)# description "Virtual interface"
switch(config-if)#
```

Related Commands

Command	Description
show interface ethernet	Displays the interface configuration information.
show interface vethernet	Displays the virtual Ethernet interface configuration information.
show running-config	Displays the contents of the currently running configuration file.

description (SPAN, ERSPAN)

To add a description to an Ethernet Switched Port Analyzer (SPAN) or an Encapsulated Remote Switched Port Analyzer (ERSPAN) session configuration, use the **description** command. To remove the description, use the **no** form of this command.

description *description*

no description

Syntax Description

description	String description of the SPAN session configuration. This string is limited to 80 characters.

Command Default

No description is added.

Command Modes

SPAN session configuration mode
ERSPAN session configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.1(3)N1(1)	Support for ERSPAN was added.

Usage Guidelines

Use the **description** command to provide a reminder in the configuration to describe what certain SPAN sessions are used for. The description appears in the output of the following commands such as **show monitor session** and **show running-config monitor**.

Examples

This example shows how to add a description for a SPAN session:

```
switch# configure terminal
switch(config)# monitor session 9 type local
switch(config-monitor)# description A Local SPAN session
switch(config-monitor)#
```

This example shows how to add a description for an ERSPAN session:

```
switch# configure terminal
switch(config)# monitor session 9 type erspan-source
switch(config-erspan-src)# description An ERSPAN session
switch(config-erspan-src)#
```

Related Commands

Command	Description
destination (SPAN session)	Configures a destination SPAN port.
monitor session	Creates a new SPAN session configuration.
show monitor session	Displays SPAN session configuration information.
show running-config monitor	Displays the running configuration information of a SPAN session.
source (SPAN session)	Configures a source SPAN port.

destination (ERSPAN)

To configure an Encapsulated Remote Switched Port Analyzer (ERSPAN) destination IP address, use the **destination** command. To remove the destination ERSPAN IP address, use the **no** form of this command.

destination ip *ip_address*

no destination ip *ip_address*

Syntax Description

ip	Configures the remote IP address.
ip_address	IPv4 address in the format *A.B.C.D*.

Command Default

None

Command Modes

ERSPAN session configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

You can configure only one destination IP address for an ERSPAN source session.

This command does not require a license.

Examples

This example shows how to configure an ERSPAN destination IP address:

```
switch# configure terminal
switch(config)# monitor session 1 type erspan-source
switch(config-erspan-src)# destination ip 192.0.3.1
switch(config-erspan-src)#
```

Related Commands

Command	Description
monitor session	Creates a new SPAN session configuration.
show monitor session	Displays SPAN session configuration information.
show running-config monitor	Displays the running configuration information of a SPAN session.
source (SPAN session)	Configures a source SPAN port.
source (ERSPAN session)	Configures a source VLAN or VSAN interface.

destination (SPAN session)

To configure a Switched Port Analyzer (SPAN) destination port, use the **destination** command. To remove the destination SPAN port, use the **no** form of this command.

destination interface {**ethernet** *slot*/*port*}

no source interface {**ethernet** *slot*/*port*}

Syntax Description

interface	Specifies the interface type to use as the destination SPAN port.
ethernet *slot*/*port*	Specifies the Ethernet interface to use as the destination SPAN port. The slot number is from 1 to 255 and the port number is from 1 to 128.

Command Default

None

Command Modes

SPAN session configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Each local SPAN session destination session must have a destination port (also called a *monitoring port*) that receives a copy of traffic from the source port.

The destination port can be any Ethernet physical port and must reside on the same switch as the source port (for a local SPAN session). The destination port cannot be a source port, a port channel, or SAN port channel group.

A destination port receives copies of sent and received traffic for all monitored source ports. If a destination port is oversubscribed, it can become congested. This congestion can affect traffic forwarding on one or more of the source ports.

Examples

This example shows how to configure an Ethernet interface SPAN destination port and activate the SPAN session:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# switchport monitor
switch(config-if)# exit
switch(config)# monitor session 9 type local
switch(config-monitor)# description A Local SPAN session
switch(config-monitor)# source interface ethernet 1/1
switch(config-monitor)# destination interface ethernet 1/5
switch(config-monitor)# no shutdown
switch(config-monitor)#
```

Related Commands

Command	Description
source (SPAN session)	Configures a source SPAN port.
monitor session	Creates a new SPAN session configuration.
show monitor session	Displays SPAN session configuration information.
show running-config monitor	Displays the running configuration information of a SPAN session.

duplex

To specify the duplex mode as full, half, or autonegotiate, use the **duplex** command. To return the system to default mode, use the **no** form of this command.

duplex {**full** | **half** | **auto**}

no duplex {**full** | **half** | **auto**}

Syntax Description

full	Specifies the duplex mode as full.
half	Specifies the duplex mode as half. **Note** This keyword is not supported on a management interface.
auto	Specifies the duplex mode as autonegotiate.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

The interface speed that you specify can affect the duplex mode used for an interface, so you should set the speed before setting the duplex mode. If you set the speed for autonegotiation, the duplex mode is automatically set to be autonegotiated. If you specify 10- or 100-Mbps speed, the port is automatically configured to use half-duplex mode, but you can specify full-duplex mode instead. Gigabit Ethernet is full duplex only. You cannot change the duplex mode on Gigabit Ethernet ports or on a 10/100/1000-Mbps port that is set for Gigabit Ethernet.

See the *Cisco Nexus 5000 Series NX-OS Layer 2 Switching Configuration Guide* for more information on interface speed and duplex settings.

This command does not require a license.

Examples

This example shows how to specify the duplex mode for full duplex:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# duplex full
switch(config-if)#
```

Related Commands

Command	Description
show interface	Displays information about the interface, which includes the duplex parameter.

dvs-name

To configure the Distributed Virtual Switch (DVS) name in the vCenter Server, use the **dvs-name** command.

dvs-name *name* [*name*]

Syntax Description

name	DVS name. The name can be a maximum of 80 alphanumeric characters.

Command Default

None

Command Modes

SVS connection configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure the DVS name in the vCenter Server:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# dvs-name vcWest
switch(config-svs-conn)#
```

Related Commands

Command	Description
show svs connections	Displays SVS connection information.
svs connection	Enables an SVS connection.

E Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with E.

encapsulation dot1Q

To enable IEEE 802.1Q encapsulation of traffic on a specified subinterface, use the **encapsulation dot1q** command. To disable encapsulation, use the **no** form of this command.

encapsulation dot1Q *vlan-id*

no encapsulation dot1Q *vlan-id*

Syntax Description

vlan-id	VLAN to set when the interface is in access mode; valid values are from 1 to 4093, except for the VLANs reserved for internal switch use.

Command Default

No encapsulation

Command Modes

Subinterface configuration mode

Command History

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

IEEE 802.1Q encapsulation is configurable on Ethernet and EtherChannel interfaces. IEEE 802.1Q is a standard protocol for interconnecting multiple switches and routers and for defining VLAN topologies.

Use the **encapsulation dot1q** command in subinterface range configuration mode to apply a VLAN ID to the subinterface.

Note This command is not applicable to loopback interfaces.

This command does not require a license.

Examples

This example shows how to enable dot1Q encapsulation on a subinterface for VLAN 30:

```
switch(config)# interface ethernet 1/5.1
switch(config-subif)# encapsulation dot1q 30
switch(config-subif)#
```

Related Commands

Command	Description
show vlan dot1Q	Displays dot1Q encapsulation information for a VLAN.

errdisable detect cause

To enable error-disable (err-disabled) detection in an application, use the **errdisable detect cause** command. To disable error disable detection, use the **no** form of this command.

errdisable detect cause {**all** | **link-flap** | **loopback**}

no errdisable detect cause {**all** | **link-flap** | **loopback**}

Syntax Description

all	Enables error detection on all cases.
link-flap	Enables error disable detection on linkstate-flapping.
loopback	Enables error disable detection on loopback.

Command Default

Enabled

Command Modes

Global configuration mode

Command History

Release	Modification
4.2(1)N1(1)	This command was introduced.

Usage Guidelines

When error disable detection is enabled and a cause is detected on an interface, the interface is placed in an err-disabled state, which is an operational state that is similar to the link-down state.

Examples

This example shows how to enable the err-disabled detection on linkstate-flapping:

```
switch(config)# errdisable detect cause link-flap
switch(config)#
```

Related Commands

Command	Description
errdisable recovery	Configures recovery from the err-disabled state.
show interface status err-disabled	Displays the interface error disabled state.

errdisable recovery cause

To configure the application to bring the interface out of the error-disabled (err-disabled) state and retry coming up, use the **errdisable recovery cause** command. To revert to the defaults, use the **no** form of this command.

errdisable recovery cause {**all** | **bpduguard** | **failed-port-state** | **link-flap-recovery** | **pause-rate-limit** | **udld**}

no errdisable recovery cause {**all** | **bpduguard** | **failed-port-state** | **link-flap-recovery** | **pause-rate-limit** | **udld**}

Syntax Description

all	Enables a timer to recover from all causes.
bpduguard	Enables a timer to recover from bridge protocol data unit (BPDU) Guard error disable state.
failed-port-state	Enables a timer to recover from a Spanning Tree Protocol (STP) set port state failure.
link-flap	Enables a timer to recover from linkstate flapping.
pause-rate-limit	Enables a timer to recover from the pause rate limit error disabled state.
udld	Enables a timer to recover from the Unidirectional Link Detection (UDLD) error disabled state.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
4.2(1)N1(1)	This command was introduced.

Usage Guidelines

When error disable recovery is enabled, the interface automatically recovers from the err-disabled state, and the device retries bringing the interface up.

Examples

This example shows how to enable error disable recovery from linkstate-flapping:

```
switch(config)# errdisable recovery cause link-flap
switch(config)#
```

Related Commands

Command	Description
errdisable detect cause	Enables the error disabled (err-disabled) detection.
show interface status err-disabled	Displays the interface error disabled state.

errdisable recovery interval

To configure the recovery time interval to bring the interface out of the error-disabled (err-disabled) state, use the **errdisable recovery interval** command. To revert to the defaults, use the **no** form of this command.

errdisable recovery interval *time*

no errdisable recovery interval

Syntax Description

time	Error disable recovery time interval. The range is from 30 to 65535 seconds.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
4.2(1)N1(1)	This command was introduced.

Usage Guidelines

When error disable recovery is enabled, the interface automatically recovers from the err-disabled state, and the device retries bringing the interface up.

The device waits 300 seconds to retry.

Examples

This example shows how to enable error disable recovery time interval to 100 seconds:

```
switch(config)# errdisable recovery interval 100
switch(config)#
```

Related Commands

Command	Description
errdisable recovery cause	Enables an error disabled recovery on an interface.
show interface status err-disabled	Displays the interface error disabled state.

erspan-id

To configure the flow ID for an Encapsulated Remote Switched Port Analyzer (ERSPAN)) session, use the **erspan-id** command. To remove the flow ID, use the **no** form of this command.

erspan-id *flow_id*

Syntax Description

flow_id	ERSPAN flow ID. The range is from 1 to 1023.

Command Default

None

Command Modes

ERSPAN session configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure the flow ID for an ERSPAN session:

```
switch# configure terminal
switch(config)# monitor session 1 type erspan-source
switch(config-erspan-src)# erspan-id 100
switch(config-erspan-src)#
```

Related Commands

Command	Description
ip dscp	Configures the DSCP value of the packets in the ERSPAN traffic.
ip ttl	Configures the IP time-to-live (TTL) value of the ERSPAN traffic.
mtu	Sets the maximum transmission unit (MTU) size for SPAN packet.
vrf	Configures the VRF for ERSPAN traffic forwarding.
monitor-session	Enters the monitor configuration mode for configuring an ERSPAN or SPAN session for analyzing traffic between ports.

extension-key

To configure the extension key to be used to connect to the vCenter Server, use the **extension-key** command.

extension-key *extn-ID*

Syntax Description

extn-ID	Extension ID. The ID can be a maximum of 80 alphanumeric characters.

Command Default

None

Command Modes

SVS connection configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure the extension key for a vCenter Server:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# extension-key vckey
switch(config-svs-conn)#
```

Related Commands

Command	Description
show svs connections	Displays SVS connection information.
svs connection	Enables an SVS connection.

F Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with F.

feature flexlink

To enable Flex Links, use the **feature flexlink** command. To disable Flex Links, use the **no** form of this command.

feature flexlink

no feature flexlink

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to enable Flex Links on the switch:

```
switch(config)# feature flexlink
```

Related Commands

Command	Description
show feature	Displays the status of features enabled or disabled on the switch.
switchport backup interface	Configures Flex Links, which are two interfaces that provide backup to each other, on a Layer 2 interface.

feature interface-vlan

To enable the creation of VLAN interfaces, use the **feature interface-vlan** command. To disable the VLAN interface feature, use the **no** form of this command.

feature interface-vlan

no feature interface-vlan

Syntax Description

This command has no arguments or keywords.

Command Default

VLAN interfaces are disabled.

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You must use the **feature interface-vlan** command before you can create VLAN interfaces.

Examples

This example shows how to enable the interface VLAN feature on the switch:

```
switch(config)# feature interface-vlan
```

Related Commands

Command	Description
interface vlan	Creates a VLAN interface.
show feature	Displays the features that are enabled or disabled on the switch.

feature lacp

To enable the Link Aggregation Control Protocol (LACP), which bundles a number of physical ports together to form a single logical channel, use the **feature lacp** command. To disable LACP on the switch, use the **no** form of this command.

feature lacp

no feature lacp

Syntax Description

This command has no arguments or keywords.

Command Default

LACP is disabled.

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You must remove all the LACP configuration parameters from all EtherChannels on the switch before you can disable LACP.

Even after you enable LACP globally, you do not have to run LACP on all EtherChannels on the switch. You enable LACP on each channel mode using the **channel-group mode** command.

Examples

This example shows how to enable LACP EtherChannels on the switch:

```
switch(config)# feature lacp
```

Related Commands

Command	Description
show lacp	Displays information on LACP.
show feature	Displays whether or not LACP is enabled on the switch.

feature lldp

The Link Layer Discovery Protocol (LLDP), which is a neighbor discovery protocol that is used for network devices to advertise information about themselves to other devices on the network, is enabled on the switch by default.

Command Default

Enabled

Command History

Release	Modification
4.0(0)N1(1a)	This feature was introduced.

Usage Guidelines

You cannot enable or disable LLDP on a Cisco Nexus 5000 Series switch. LLDP is enabled on the switch by default. However, the **feature lldp** command shows as part of the running configuration on the switch, as shown below:

```
switch# show running-config

!Command: show running-config
!Time: Tue Feb 10 12:36:03 2009

version 5.0(3)N1(1)
feature telnet
feature lldp

username admin password 5 $1$d8lkfqC8$4VfRuOoZTKvCtTq8VAKbq/  role network-admin
no password strength-check
ip domain-lookup
hostname switch
class-map type qos class-fcoe
class-map type qos match-all c1
  match cos 1
<--Output truncated-->
switch#
```

The Cisco Discovery Protocol (CDP) is a device discovery protocol that runs over Layer 2 (the data link layer) on all Cisco-manufactured devices (routers, bridges, access servers, and switches). CDP allows network management applications to automatically discover and learn about other Cisco devices connected to the network.

To support non-Cisco devices and to allow for interoperability between other devices, the switch supports the Link Layer Discovery Protocol (LLDP). LLDP is a neighbor discovery protocol that is used for network devices to advertise information about themselves to other devices on the network. This protocol runs over the data-link layer, which allows two systems running different network layer protocols to learn about each other.

Related Commands

Command	Description
lldp	Configures the global LLDP options on the switch.
lldp (Interface)	Configures the LLDP feature on an interface.
show feature	Displays that LLDP is enabled on the switch.

feature port-security

To enable port security on Layer 2 interfaces, use the **feature port-security** command. To disable port security, use the **no** form of this command.

feature port-security

no feature port-security

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

Use the port security feature to secure a port by limiting and identifying the MAC addresses of the switches that are allowed to access the port.

You can enable port security on a virtual port channel (vPC) port only if the following occurs:

- Port security is enabled on both the vPC peers
- Port security is enabled on the vPC port on both the vPC peers.

This command does not require a license.

Examples

This example shows how to enable port security on the switch:

```
switch# configure terminal
switch(config)# feature port-security
switch(config)#
```

This example shows how to disable port security on the switch:

```
switch# configure terminal
switch(config)# no feature port-security
switch(config)#
```

Related Commands

Command	Description
show feature	Displays the features that are enabled or disabled on the switch.

Command	Description
show port-security	Displays the port security configuration information.
switchport port-security	Configures the switchport parameters to establish port security.

feature private-vlan

To enable private VLANs, use the **feature private-vlan** command. To return to the default settings, use the **no** form of this command.

feature private-vlan

no feature private-vlan

Syntax Description

This command has no arguments or keywords.

Command Default

Private VLANs are disabled.

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

The private VLAN commands are not available until you enable the private VLAN feature.

You cannot disable the private VLANs if there are operational ports on the switch that are in private VLAN mode.

Note A private VLAN-isolated port on a Cisco Nexus 5000 Series switch running the current release of Cisco NX-OS does not support IEEE 802.1Q encapsulation and cannot be used as a trunk port.

Examples

This example shows how to enable private VLAN functionality on the switch:

```
switch(config)# feature private-vlan
```

Related Commands

Command	Description
private-vlan	Configures a VLAN as either a community, isolated, or primary private VLAN.
show vlan private-vlan	Displays information on private VLANs. If the feature is not enabled, this command is not available.
show feature	Displays whether or not private VLAN is enabled on the switch.

feature udld

To enable the Cisco-proprietary Unidirectional Link Detection (UDLD) protocol, which allows ports that are connected through fiber optics or copper Ethernet cables to monitor the physical configuration of the cables and detect when a unidirectional link exists, use the **feature udld** command. To disable UDLD on the switch, use the **no** form of this command.

feature udld

no feature udld

Syntax Description

This command has no arguments or keywords.

Command Default

UDLD is disabled.

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(1a)N1(1)	This command was introduced.

Examples

This example shows how to enable UDLD on the switch:

```
switch(config)# feature udld
```

Related Commands

Command	Description
show udld	Displays the administrative and operational UDLD status.
show feature	Displays whether or not UDLD is enabled on the switch.

feature vmfex

To enable the Cisco Virtual Machine Fabric Extender (VM-FEX), use the **feature vmfex** command. To disable VM-FEX, use the **no** form of this command.

feature vmfex

no feature vmfex

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

Before you use this command, make sure that you install and enable the virtualization feature set using the **install feature-set virtualization** and **feature-set virtualization** commands respectively.

If you attempt to disable the VM-FEX feature with virtual Ethernet interface or port profile configurations enabled, the switch returns an error message.

This command requires an Enhanced Layer 2 license.

Examples

This example shows how to enable VM-FEX on the switch:

```
switch# configure terminal
switch(config)# feature vmfex
switch(config)#
```

This example shows how to disable VM-FEX on the switch:

```
switch# configure terminal
switch(config)# no feature vmfex
switch(config)#
```

Related Commands

Command	Description
feature-set virtualization	Enables the virtualization features.
interface vethernet	Configures a virtual Ethernet interface.

Command	Description
install feature-set virtualization	Installs the virtualization feature set on the switch.
port-profile	Configures a port profile.
show feature	Displays the features that are enabled or disabled on the switch.
show feature-set	Displays the status of the virtualization feature set.
switchport mode	Configures the interface as a nontrunking nontagged single-VLAN Ethernet interface.

feature vtp

To enable VLAN Trunking Protocol (VTP), use the **feature vtp** command. To disable VTP, use the **no** form of this command.

feature vtp

no feature vtp

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
4.2(1)N1(1)	This command was introduced.

Examples

This example shows how to enable VTP on the switch:

```
switch(config)# feature vtp
```

Related Commands

Command	Description
show vtp status	Displays the VTP information.
vtp	Configures VTP.

feature-set virtualization

To enable the Cisco Virtual Machine features on the switch, use the **feature-set virtualization** command. To disable the virtualization feature, use the **no** form of this command.

feature-set virtualization

no feature-set virtualization

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

Note The Cisco virtual machine feature is supported only on the Cisco Nexus 5500 Series switches.

Before you use this command, make sure that you install the virtualization feature set on the switch by using the **install feature-set virtualization** command.

You cannot view or access any virtualization commands until you enable a Cisco virtual machine on the switch.

Note You must install the Cisco virtual machine feature set before you enable virtualization on the switch.

Before you disable this feature on the switch, do the following:

- Remove all virtual Ethernet interface configurations on the switch.
- Remove all virtual network tag (VNTag) configurations on the switch.
- Remove all port profiles of type vethernet.
- Change the port mode to access by using the **switchport mode access** command.

This command requires an Enhanced Layer 2 license.

Examples

This example shows how to enable the virtualization feature on the switch:

```
switch# configure terminal
switch(config)# feature-set virtualization
```

```
switch(config)#
```

This example shows how to disable the virtualization feature on the switch:

```
switch# configure terminal
switch(config)# no feature-set virtualization
switch(config)#
```

Related Commands

Command	Description
feature vmfex	Enables or disables Cisco Virtual Machine Fabric Extender (VM-FEX) on the switch.
install feature-set virtualization	Installs the virtualization feature set on the switch.
show feature-set	Displays the status of the virtualization feature set.

H Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with H.

hardware multicast hw-hash

To use hardware hashing for multicast traffic on an EtherChannel interface, use the **hardware multicast hw-hash** command. To restore the defaults, use the **no** form of this command.

hardware multicast hw-hash

no hardware multicast hw-hash

Syntax Description

This command has no arguments or keywords.

Command Default

The software selection method is used for multicast traffic.

Command Modes

Interface configuration mode

Command History

Release	Modification
4.2(1)N2(1)	This command was introduced.

Usage Guidelines

By default, ingress multicast traffic on any port in the switch selects a particular EtherChannel member to egress the traffic. To reduce potential issues with the bandwidth and to provide effective load balancing of the ingress multicast traffic, hardware hashing is used for multicast traffic.

Note Hardware hashing is not available on a Cisco Nexus 2000 Series Fabric Extender HIF port (downlink port).

Examples

This example shows how to set the hardware hashing for multicast traffic on an EtherChannel interface:

```
switch(config)# interface port-channel 21
switch(config-if)# hardware multicast hw-hash
switch(config-if)#
```

This example shows how to restore the default software selection method for multicast traffic on an EtherChannel interface:

```
switch(config)# interface port-channel 21
switch(config-if)# hardware multicast hw-hash
switch(config-if)# no hardware multicast hw-hash
switch(config-if)#
```

Related Commands

Command	Description
show interface port-channel	Displays the status of the EtherChannel interface configuration.

high-performance host-netio (virtual Ethernet interface)

To turn on high performance on the host, use the **high-performance host-netio** command. To disable high performance, use the **no** form of this command.

high-performance host-netio

no high-performance host-netio

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Virtual Ethernet interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to enable high performance on the host:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# high-performance host-netio
switch(config-if)#
```

Related Commands

Command	Description
show interface vethernet	Displays virtual Ethernet interface configuration information.
show running-config interface	Displays the running configuration information for an interface.

I Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with I.

install certificate

To install a certificate that is used to connect to a vCenter Server, use the **install certificate** command. To remove a certificate, use the **no** form of this command.

install certificate {**bootflash:**[*//server/*] | **default**}

no install certificate

Syntax Description

bootflash:[*//server/*]	Specifies the source or destination URL for boot flash memory to install the certificate. The *server* argument value is **module-1**, **sup-1**, **sup-active**, or **sup-local**.
default	Specifies the default path.

Command Default

None

Command Modes

SVS connection configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to install a certificate to the boot flash memory:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# install certificate bootflash:///
switch(config-svs-conn)#
```

This example shows how to remove a certificate:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# no install certificate
switch(config-svs-conn)#
```

Related Commands

Command	Description
show svs connections	Displays SVS connection information.
svs connection	Enables an SVS connection.

install feature-set virtualization

To install the Cisco virtual machine feature set on the switch, use the **install feature-set virtualization** command. To remove the Cisco virtual machine feature set, use the **no** form of this command.

install feature-set virtualization

no install feature-set virtualization

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

Note The Cisco virtual machine feature is supported only on the Cisco Nexus 5500 Series switches.

This command requires an Enhanced Layer 2 license.

Examples

This example shows how to install the Cisco virtual machine feature set on the switch:

```
switch# configure terminal
switch(config)# install feature-set virtualization
switch(config)#
```

Related Commands

Command	Description
feature vmfex	Enables or disables Cisco Virtual Machine Fabric Extender (VM-FEX) on the switch.
feature-set virtualization	Enables the Cisco virtual machine feature set on the switch.
show feature-set	Displays the status of the virtualization feature set.
show running-config	Displays the running system configuration information.

instance vlan

To map a VLAN or a set of VLANs to a Multiple Spanning Tree instance (MSTI), use the **instance vlan** command. To delete the instance and return the VLANs to the default instance (Common and Internal Spanning Tree [CIST]), use the **no** form of this command.

instance *instance-id* **vlan** *vlan-id*

no instance *instance-id* [**vlan** *vlan-id*]

Syntax Description

instance-id	Instances to which the specified VLANs are mapped. The range is from 0 to 4094.
vlan *vlan-id*	Specifies the number of the VLANs that you are mapping to the specified MSTI. The VLAN ID range is from 1 to 4094.

Command Default

No VLANs are mapped to any MST instance (all VLANs are mapped to the CIST instance).

Command Modes

MST configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

The VLAN identifier is entered as a single value or a range.

The mapping is incremental, not absolute. When you enter a range of VLANs, this range is added to or removed from the existing instances.

Any unmapped VLAN is mapped to the CIST instance.

Caution When you change the VLAN-to-MSTI mapping, the system restarts MST.

Examples

This example shows how to map a range of VLANs to MSTI 4:

```
switch(config)# spanning-tree mst configuration
switch(config-mst)# instance 4 vlan 100-200
```

Related Commands

Command	Description
show spanning-tree mst configuration	Displays information about the MST protocol.
spanning-tree mst configuration	Enters MST configuration mode.

interface ethernet

To enter interface configuration mode for an Ethernet IEEE 802.3 interface, use the **interface ethernet** command.

interface ethernet [*chassis_ID*/] *slot*/*port*

Syntax Description

chassis_ID	(Optional) Specifies the Fabric Extender chassis ID. The chassis ID is from 100 to 199. **Note** This argument is not optional when addressing the host interfaces of a Cisco Nexus 2000 Series Fabric Extender.
slot	Slot from 1 to 3. The following list defines the slots available: • Slot 1 includes all the fixed ports. A Fabric Extender only has one slot. • Slot 2 includes the ports on the upper expansion module (if populated). • Slot 3 includes the ports on the lower expansion module (if populated).
port	Port number within a particular slot. The port number is from 1 to 128.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
4.0(1a)N2(1)	This command was modified to provide the chassis ID argument.
5.0(3)N1(1)	Support for Layer 3 interfaces was added.

Examples

This example shows how to enter configuration mode for Ethernet interface 1/4:

```
switch(config)# interface ethernet 1/4
switch(config-if)#
```

This example shows how to enter configuration mode for a host interface on a Fabric Extender:

```
switch(config)# interface ethernet 101/1/1
switch(config-if)#
```

Related Commands

Command	Description
interface vethernet	Configures a virtual Ethernet interface.
show fex	Displays all configured Fabric Extender chassis connected to the switch.

Command	Description
show interface ethernet	Displays various parameters of an Ethernet IEEE 802.3 interface.
speed	Sets the speed on the interface.
vtp (interface)	Enables VLAN Trunking Protocol (VTP) on an interface.

interface ethernet (Layer 3)

To configure a Layer 3 Ethernet IEEE 802.3 routed interface, use the **interface ethernet** command.

interface ethernet [*chassis_ID*/] *slot*/*port*[.*subintf-port-no*]

Syntax Description

chassis_ID	(Optional) Specifies the Fabric Extender chassis ID. The chassis ID is from 100 to 199. **Note** This argument is not optional when addressing the host interfaces of a Cisco Nexus 2000 Series Fabric Extender.
slot	Slot from 1 to 3. The following list defines the slots available: • Slot 1 includes all the fixed ports. A Fabric Extender only has one slot. • Slot 2 includes the ports on the upper expansion module (if populated). • Slot 3 includes the ports on the lower expansion module (if populated).
port	Port number within a particular slot. The port number is from 1 to 128.
.	(Optional) Specifies the subinterface separator.
subintf-port-no	(Optional) Port number for the subinterface. The range is from 1 to 48.

Command Default

None

Command Modes

Global configuration mode
Interface configuration mode

Command History

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

You must use the **no switchport** command in the interface configuration mode to configure the interface as a Layer 3 routed interface. When you configure the interface as a Layer 3 interface, all Layer 2 specific configurations on this interface are deleted.

Use the **switchport** command to convert a Layer 3 interface into a Layer 2 interface. When you configure the interface as a Layer 2 interface, all Layer 3 specific configurations on this interface are deleted.

Examples

This example shows how to enter configuration mode for a Layer 3 Ethernet interface 1/5:

```
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport
switch(config-if)# ip address 10.1.1.1/24
switch(config-if)#
```

This example shows how to configure a Layer 3 subinterface for Ethernet interface 1/5 in the global configuration mode:

```
switch(config)# interface ethernet 1/5.2
switch(config-if)# no switchport
switch(config-subif)# ip address 10.1.1.1/24
switch(config-subif)#
```

This example shows how to configure a Layer 3 subinterface in interface configuration mode:

```
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport
switch(config-if)# interface ethernet 1/5.1
switch(config-subif)# ip address 10.1.1.1/24
switch(config-subif)#
```

This example shows how to convert a Layer 3 interface to a Layer 2 interface:

```
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport
switch(config-if)# ip address 10.1.1.1/24
switch(config-if)# switchport
switch(config-if)#
```

Related Commands

Command	Description
bandwidth	Sets the bandwidth parameters for an interface.
delay	Configures the interface throughput delay value.
encapsulation	Sets the encapsulation type for an interface.
ip address	Sets a primary or secondary IP address for an interface.
inherit	Assigns a port profile to an interface.
interface vethernet	Configures a virtual Ethernet interface.
no switchport	Configures an interface as a Layer 3 interface.
service-policy	Configures a service policy for an interface.
show fex	Displays all configured Fabric Extender chassis connected to the switch.
show interface ethernet	Displays various parameters of an Ethernet IEEE 802.3 interface.

interface loopback

To create a loopback interface and enter interface configuration mode, use the **interface loopback** command. To remove a loopback interface, use the **no** form of this command.

interface loopback *number*

no interface loopback *number*

Syntax Description

number	Interface number; valid values are from 0 to 1023.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

Use the **interface loopback** command to create or modify loopback interfaces.

From the loopback interface configuration mode, the following parameters are available:

- **description**—Provides a description of the purpose of the interface.
- **ip**—Configures IP features, such as the IP address for the interface, Address Resolution Protocol (ARP) attributes, load balancing, Unicast Reverse Path Forwarding (RPF) or IP Source Guard.
- **logging**—Configure logging of events.
- **shutdown**—Shut down traffic on the interface.

This command does not require a license.

Examples

This example shows how to create a loopback interface:

```
switch(config)# interface loopback 50
switch(config-if)# ip address 10.1.1.1/24
switch(config-if)#
```

Related Commands

Command	Description
show interface loopback	Displays information about the traffic on the specified loopback interface.

interface mgmt

To enter the management interface configuration mode, use the **interface mgmt** command.

interface mgmt *mgmt-intf-num*

Syntax Description

mgmt-intf-num	Management interface number. The interface number is 0.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to enter the management interface configuration mode:

```
switch# configure terminal
switch(config)# interface mgmt 0
switch(config-if)#
```

Related Commands

Command	Description
show interface mgmt	Displays information about the management interface.
cdp enable	Enables the Cisco Discovery Protocol (CDP) on an interface.
description (interface)	Adds a description to an interface configuration.
duplex	Configures the duplex mode for an interface.
lldp (interface)	Enables the reception or transmission of Link Layer Discovery Protocol (LLDP) packets on an interface.
rate-limit cpu direction	Configures the packet per second (PPS) rate limit for an interface.
snmp trap link-status	Enables Simple Network Management Protocol (SNMP) link trap generation on an interface.
speed	Configures the transmit and receive speed for an interface.
vrf member	Adds an interface to a virtual routing and forwarding (VRF) instance.

interface port-channel

To create an EtherChannel interface and enter interface configuration mode, use the **interface port-channel** command. To remove an EtherChannel interface, use the **no** form of this command.

interface port-channel *channel-number*[*.subintf-channel-no*]

no interface port-channel *channel-number*[*.subintf-channel-no*]

Syntax Description

channel-number	Channel number that is assigned to this EtherChannel logical interface. The range is from 1 to 4096.
.	(Optional) Specifies the subinterface separator. **Note** Applies to Layer 3 interfaces.
subintf-channel-no	(Optional) Port number of the EtherChannel subinterface. The range is from 1 to 4093. **Note** Applies to Layer 3 interfaces.

Command Default

None

Command Modes

Global configuration mode
Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.0(3)N1(1)	Support for Layer 3 interfaces and subinterfaces was added.

Usage Guidelines

A port can belong to only one channel group.

When you use the **interface port-channel** command for Layer 2 interfaces, follow these guidelines:

- If you are using CDP, you must configure it only on the physical interface and not on the EtherChannel interface.
- If you do not assign a static MAC address on the EtherChannel interface, a MAC address is automatically assigned. If you assign a static MAC address and then later remove it, the MAC address is automatically assigned.
- The MAC address of the EtherChannel is the address of the first operational port added to the channel group. If this first-added port is removed from the channel, the MAC address comes from the next operational port added, if there is one.

You must use the **no switchport** command in the interface configuration mode to configure the EtherChannel interface as a Layer 3 interface. When you configure the interface as a Layer 3 interface, all Layer 2 specific configurations on this interface are deleted.

Use the **switchport** command to convert a Layer 3 EtherChannel interface into a Layer 2 interface. When you configure the interface as a Layer 2 interface, all Layer 3 specific configurations on this interface are deleted.

You can configure one or more subinterfaces on a port channel made from routed interfaces.

Examples

This example shows how to create an EtherChannel group interface with channel-group number 50:

```
switch(config)# interface port-channel 50
switch(config-if)#
```

This example shows how to create a Layer 3 EtherChannel group interface with channel-group number 10:

```
switch(config)# interface port-channel 10
switch(config-if)# no switchport
switch(config-if)# ip address 192.0.2.1/24
switch(config-if)#
```

This example shows how to configure a Layer 3 EtherChannel subinterface with channel-group number 1 in interface configuration mode:

```
switch(config)# interface port-channel 10
switch(config-if)# no switchport
switch(config-if)# interface port-channel 10.1
switch(config-subif)# ip address 192.0.2.2/24
switch(config-subif)#
```

This example shows how to configure a Layer 3 EtherChannel subinterface with channel-group number 20.1 in global configuration mode:

```
switch(config)# interface port-channel 20.1
switch(config-subif)# ip address 192.0.2.3/24
switch(config-subif)#
```

Related Commands

Command	Description
encapsulation	(Layer 3 interfaces) Sets the encapsulation type for an interface.
ip address	(Layer 3 interfaces) Sets a primary or secondary IP address for an interface.
no switchport	(Layer 3 interfaces) Configures an interface as a Layer 3 interface.
show interface	Displays configuration information about interfaces.
show lacp	Displays LACP information.
show port-channel summary	Displays information on the EtherChannels.
vtp (interface)	Enables VLAN Trunking Protocol (VTP) on an interface.

interface vethernet

To enter interface configuration mode for a virtual Ethernet (vEth) interface, use the **interface vethernet** command. To remove a virtual Ethernet interface, use the **no** form of this command.

interface vethernet *veth-id*[, **vethernet** *veth-id*, ...]

no interface vethernet *veth-id*[, **vethernet** *veth-id*, ...]

Syntax Description

veth-id	Virtual Ethernet interface number. The range is from 1 to 1,048,575. You can specify more than one virtual Ethernet interface. Make sure you use the comma (,) separator.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

Before you use a virtual Ethernet interface, you must enable the Cisco Virtual Machine Fabric Extender (VM-FEX) on the switch by using the **feature vmfex** command.

You must configure a virtual Ethernet interface on each switch. The configuration in the secondary switch must be identical to that of the primary switch.

You can create a maximum of 1000 virtual Ethernet interfaces on a Cisco Nexus 5548 switch. Before you disable Adapter-FEX on the switch, make sure that you delete these interfaces. After you delete a virtual Ethernet interface, make sure that you save the running configuration of the switch to the startup configuration file.

Examples

This example shows how to enter configuration mode for virtual Ethernet interface 10:

```
switch# configure terminal
switch(config)# interface vethernet 10
switch(config-if)#
```

This example shows how to enter configuration mode for multiple virtual Ethernet interfaces:

```
switch# configure terminal
switch(config)# interface vethernet 10, vethernet 2
switch(config-if-range)#
```

This example shows how to bind an interface, configure a vEthernet access interface, assign the access VLAN for that interface, and then assign a port profile named ppVEth, and a class of service (CoS) value 3 to a virtual Ethernet interface:

```
switch# configure terminal
switch(config)# port-profile type vethernet ppVEth
switch(config-port-prof)# switchport mode access
switch(config-port-prof)# service-policy type qos input my_policy1
switch(config-port-prof)# exit
switch(config)# interface vethernet 10
switch(config-if)# bind interface ethernet 1/5 channel 10
switch(config-if)# inherit port-profile ppVEth
switch(config-if)# untagged cos 3
switch(config-if)#
```

This example shows how to remove a virtual Ethernet interface:

```
switch# configure terminal
switch(config)# no interface vethernet 2
switch(config)#
```

Related Commands

Command	Description
bind	Binds an interface to a virtual Ethernet interface.
feature vmfex	enables VM-FEX on the switch.
port-profile	Configures a port profile.
show interface ethernet	Displays information about Ethernet interfaces.
show interface vethernet	Displays various parameters of a virtual Ethernet interface.
show running-config interface	Displays the running configuration of an interface.
vethernet auto-create	Sets the default policy to enable auto creation of virtual Ethernet interfaces.

interface vlan

To create a VLAN interface and enter interface configuration mode, use the **interface vlan** command. To remove a VLAN interface, use the **no** form of this command.

interface vlan *vlan-id*

no interface vlan *vlan-id*

Syntax Description

vlan-id	VLAN to set when the interface is in access mode; valid values are from 1 to 4094, except for the VLANs reserved for the internal switch use.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Before you use this command, enable the interface-vlan feature by using the **feature interface-vlan** command.

Use the **interface vlan** command to create or modify VLAN interfaces.

The VLAN interface is created the first time that you enter the **interface vlan** command for a particular VLAN. The *vlan-id* argument corresponds to the VLAN tag that is associated with the data frames on an IEEE 802.1Q-encapsulated trunk, or the VLAN ID that is configured for an access port.

This command does not require a license.

Examples

This example shows how to create a VLAN interface for VLAN 50:

```
switch(config)# interface vlan 50
switch(config-if)#
```

Related Commands

Command	Description
feature interface-vlan	Enables the ability to create VLAN interfaces.
show interface vlan	Displays information about the traffic on the specified VLAN interface.

ip igmp snooping (EXEC)

To enable Internet Group Management Protocol (IGMP), use the **ip igmp snooping** command. To disable IGMP snooping, use the **no** form of this command.

ip igmp snooping

no ip igmp snooping

Syntax Description

This command has no arguments or keywords.

Command Default

IGMP snooping is enabled.

Note If the global setting is disabled, then all VLANs are treated as disabled, whether they are enabled or not.

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to enable IGMP snooping:

```
switch# ip igmp snooping
```

Related Commands

Command	Description
show ip igmp snooping	Displays IGMP snooping information and configuration.

ip igmp snooping (VLAN)

To configure Internet Group Management Protocol (IGMP) on a VLAN, use the **ip igmp snooping** command. To negate the command or return to the default settings, use the **no** form of this command

ip igmp snooping *parameter*

no ip igmp snooping *parameter*

Syntax Description

parameter	Parameter to configure. See the "Usage Guidelines" section for additional information.

Command Default

The default settings are as follows:

- **explicit-tracking**—enabled
- **fast-leave**—disabled for all VLANs
- **last-member-query-interval** *seconds*—1
- **querier** *IP-address*—disabled
- **report-suppression**—enabled

Command Modes

VLAN configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.1(3)N1(1)	Support for this command was introduced for the Cisco Adapter Fabric Extender (Adapter-FEX).

Usage Guidelines

Table 1 lists the valid values for *parameter*.

Table 1 IGMP Snooping Parameters

Keyword and Argument	Description
explicit-tracking	Enables tracking IGMPv3 membership reports for each port on a per-VLAN basis. The default is enabled on all VLANs.
fast-leave	Enables IGMPv3 snooping fast-leave processing. The default is disabled for all VLANs.
last-member-query-interval *seconds*	Removes the group if no hosts respond to an IGMP query message. Valid value is from 1 to 25 seconds. The default is 1 second.
mrouter interface *interface*	Configures a static connection to a multicast router. The specified interface is Ethernet or EtherChannel.

Table 1 IGMP Snooping Parameters (continued)

Keyword and Argument	Description
querier *IP-address*	Configures a snooping querier. The IP address is used as the source in messages. The default is disabled.
report-suppression	Limits the membership report traffic sent to multicast-capable routers. When you disable report suppression, all IGMP reports are sent as is to multicast-capable routers. The default is enabled.
static-group *group-ip-addr* [**source** *source-ip-addr*] **interface** *interface*	Configures an interface belonging to a VLAN as a static member of a multicast group. The specified interface is Ethernet or EtherChannel, or virtual Ethernet.

Examples

This example shows how to configure IGMP snooping parameters for VLAN 5:

```
switch# configure terminal
switch(config)# vlan 5
switch(config-vlan)# ip igmp snooping last-member-query-interval 3
switch(config-vlan)# ip igmp snooping querier 192.168.2.106
switch(config-vlan)# ip igmp snooping explicit-tracking
switch(config-vlan)# ip igmp snooping fast-leave
switch(config-vlan)# ip igmp snooping report-suppression
switch(config-vlan)# ip igmp snooping mrouter interface ethernet 1/10
switch(config-vlan)# ip igmp snooping static-group 192.0.2.1 interface ethernet 1/10
switch(config-vlan)# ip igmp snooping static-group 192.0.2.12 interface vethernet 4/1
switch(config-vlan)#
```

Related Commands

Command	Description
show ip igmp snooping	Displays the IGMP snooping information and configuration.

L Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with L.

lacp graceful-convergence

To configure port channel Link Aggregation Control Protocol (LACP) graceful convergence, use the **lacp graceful-convergence** command. To disable graceful convergence on a port channel interface, use the **no** form of this command.

lacp graceful-convergence

no lacp graceful-convergence

Syntax Description

This command has no arguments or keywords.

Command Default

Enabled

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

You can use this command only on a port channel interface that is in an administratively down state. You cannot configure (or disable) LACP graceful convergence on a port chanel that is in an administratively up state. If you do so, you will see the following error message:

```
ERROR: Cannot set/reset lacp graceful-convergence for port-channel10 that is admin up
```

Note To avoid port suspension, we recommend that you disable graceful convergence on LACP ports on a peer switch that is not running Cisco NX-OS.

This command does not require a license.

Examples

This example shows how to enable LACP graceful convergence on a port channel:

```
switch# configure terminal
switch(config)# interface port-channel 100
switch(config-if)# shutdown
switch(config-if)# lacp graceful-convergence
switch(config-if)#
```

This example shows how to disable LACP graceful convergence on a port channel:

```
switch# configure terminal
switch(config)# interface port-channel 100
switch(config-if)# no lacp graceful-convergence
switch(config-if)#
```

Related Commands

Command	Description
show lacp	Displays LACP information.
show running-config	Displays the running system configuration.

lacp port-priority

To set the priority for the physical interfaces for the Link Aggregation Control Protocol (LACP), use the **lacp port-priority** command. To return the port priority to the default value, use the **no** form of this command.

lacp port-priority *priority*

no lacp port-priority

Syntax Description

priority	Priority for the physical interfaces. The range of valid numbers is from 1 to 65535.

Command Default

System priority value is 32768.

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Each port configured to use LACP has an LACP port priority. You can configure a value between 1 and 65535. LACP uses the port priority in combination with the port number to form the port identifier. The port priority is used with the port number to form the port identifier. The port priority is used to decide which ports should be put into standby mode when there is a hardware limitation that prevents all compatible ports from aggregating.

Note When setting the priority, note that a *higher* number means a *lower* priority.

Examples

This example shows how to set the LACP port priority for the interface to 2000:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# lacp port-priority 2000
switch(config-if)#
```

Related Commands

Command	Description
show lacp	Displays LACP information.

lacp rate fast

To configure the rate at which control packets are sent by the Link Aggregation Control Protocol (LACP), use the **lacp rate fast** command. To restore the rate to 30 seconds, use the **no** form of this command or the **lacp rate normal** command.

lacp rate fast

no lacp rate

no lacp rate fast

lacp rate normal

Syntax Description

This command has no arguments or keywords.

Command Default

1 second

Command Modes

Interface configuration mode

Command History

Release	Modification
4.2(1)N2(1)	This command was introduced.

Usage Guidelines

You must enable LACP before using this command.

You can configure the LACP rate fast feature on the LACP ports of a Cisco Nexus 5000 Series switch or a Cisco Nexus 2000 Series Fabric Extender that is connected to a Cisco Nexus 5000 Series switch.

The LACP rate fast feature is used to set the rate (once every second) at which the LACP control packets are sent to an LACP-supported interface. The normal rate at which LACP packets are sent is 30 seconds.

Examples

This example shows how to configure the LACP fast rate feature on a specified Ethernet interface:

```
switch(config)# interface ethernet 1/1
switch(config-if)# lacp rate fast
```

This example shows how to remove the LACP fast rate configuration from a specified Ethernet interface:

```
switch(config)# interface ethernet 1/1
switch(config-if)# no lacp rate fast
```

Related Commands

Command	Description
feature lacp	Enables or disables LACP on the switch.

Command	Description
interface ethernet	Enters Ethernet interface configuration mode.
show lacp	Displays the LACP configuration information.

lacp suspend-individual

To enable Link Aggregation Control Protocol (LACP) port suspension on a port channel, use the **lacp suspend-individual** command. To disable port suspension on a port channel interface, use the **no** form of this command.

lacp suspend-individual

no lacp suspend-individual

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Interface configuration mode

Command History

Release	Modification
5.0(2)N1(1)	This command was introduced.

Usage Guidelines

LACP sets a port to the suspended state if it does not receive an LACP bridge protocol data unit (BPDU) from the peer ports in a port channel. This can cause some servers to fail to boot up as they require LACP to logically bring up the port.

This command does not require a license.

Examples

This example shows how to enable LACP port suspension on a port channel:

```
switch# configure terminal
switch(config)# interface port-channel 100
switch(config-if)# shutdown
switch(config-if)# lacp suspend-individual
switch(config-if)#
```

This example shows how to disable LACP port suspension on a port channel:

```
switch# configure terminal
switch(config)# interface port-channel 100
switch(config-if)# shutdown
switch(config-if)# no lacp suspend-individual
switch(config-if)#
```

Related Commands

Command	Description
show lacp	Displays LACP information.
show running-config	Displays the running system configuration.

lacp system-priority

To set the system priority of the switch for the Link Aggregation Control Protocol (LACP), use the **lacp system-priority** command. To return the system priority to the default value, use the **no** form of this command.

lacp system-priority *priority*

no lacp system-priority

Syntax Description

priority	Priority for the physical interfaces. The range of valid numbers is from 1 to 65535.

Command Default

System priority value is 32768.

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Each device that runs LACP has an LACP system priority value. You can configure a value between 1 and 65535. LACP uses the system priority with the MAC address to form the system ID and also during negotiation with other systems.

When setting the priority, note that a *higher* number means a *lower* priority.

Examples

This example shows how to set the LACP system priority for the device to 2500:

```
switch(config)# lacp system-priority 2500
```

Related Commands

Command	Description
show lacp	Displays LACP information.

link debounce

To enable the debounce timer on an interface, use the **link debounce** command. To disable the timer, use the **no** form of this command.

link debounce [**time** *milliseconds*]

no link debounce

Syntax Description

time *milliseconds*	(Optional) Specifies the extended debounce timer. The range is from 0 to 5000 milliseconds. A value of 0 milliseconds disables the debounce time.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

The port debounce time is the amount of time that an interface waits to notify the supervisor of a link going down. During this time, the interface waits to see if the link comes back up. The wait period is a time when traffic is stopped.

Caution When you enable the debounce timer, link up and link down detections are delayed, resulting in a loss of traffic during the debounce period. This situation might affect the convergence of some protocols.

Examples

This example shows how to enable the debounce timer and set the debounce time to 1000 milliseconds for an Ethernet interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/1
switch(config-if)# link debounce time 1000
```

This example shows how to disable the debounce timer for an Ethernet interface:

```
switch(config-if)# no link debounce
```

Related Commands

Command	Description
show interface ethernet	Displays the interface configuration information.
show interface debounce	Displays the debounce time information for all interfaces.

load-interval

To change the sampling interval for statistics collections on interfaces, use the **load-interval** command. To return to the default sampling interval, use the **no** form of this command.

load-interval [**counter** {**1** | **2** | **3**}] *seconds*

no load-interval [**counter** {**1** | **2** | **3**}] [*seconds*]

Syntax Description

1 | 2 | 3	Specifies the number of counters configured on the interface.
seconds	Specifies the interval between sampling statistics on the interface. The range is from 30 to 300 seconds for Ethernet and port-channel interfaces.

Command Default

1—30 seconds

2—300 seconds

3—not configured

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

Use the **load-interval** command to obtain bit-rate and packet-rate statistics for three different durations.

You can set the statistics collection intervals on the following types of interfaces:

- Ethernet interfaces
- Port-channel interfaces

You cannot use this command on the management interface or subinterfaces.

This command sets the sampling interval for such statistics as packet rate and bit rate on the specified interface.

This command does not require a license.

Examples

This example shows how to set the three sample intervals for the Ethernet port 3/1:

```
switch# configure terminal
switch(config)# interface ethernet 3/1
switch(config-if)# load-interval counter 1 60
switch(config-if)# load-interval counter 2 135
switch(config-if)# load-interval counter 3 225
```

Related Commands

Command	Description
show interface	Displays information about the interface.

M Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with M.

mac address-table aging-time

To configure the aging time for entries in the MAC address table, use the **mac address-table aging-time** command. To return to the default settings, use the **no** form of this command.

mac address-table aging-time *seconds* [**vlan** *vlan-id*]

no mac address-table aging-time [**vlan** *vlan-id*]

Syntax Description

seconds	Aging time for MAC address table entries. The range is from 0 to 1000000 seconds. The default is 300 seconds. Entering 0 disables MAC address aging.
vlan *vlan-id*	(Optional) Specifies the VLAN to which the changed aging time should be applied.

Command Default

300 seconds

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
4.2(1)N1(1)	The command syntax is changed to **mac address-table aging-time**.

Usage Guidelines

Enter 0 seconds to disable the aging process.

The age value may be rounded off to the nearest multiple of 5 seconds. If the system rounds the value to a different value from that specified by the user (from the rounding process), the system returns an informational message.

When you use this command in EXEC mode, the age values of all VLANs for which a configuration has not been specified are modified and those VLANs with specifically modified aging times are not modified. When you use the **no** form of this command without the VLAN parameter, only those VLANs that have not been specifically configured for the aging time reset to the default value. Those VLANs with specifically modified aging times are not modified.

When you use this command and specify a VLAN, the aging time for only the specified VLAN is modified. When you use the **no** form of this command and specify a VLAN, the aging time for the VLAN is returned to the current global configuration for the aging time, which may or may not be the default value of 300 seconds depending if the global configuration of the switch for the aging time has been changed.

The aging time is counted from the last time that the switch detected the MAC address.

Examples

This example shows how to change the length of time an entry remains in the MAC address table to 500 seconds for the entire switch:

```
switch(config)# mac address-table aging-time 500
```

Related Commands

Command	Description
show mac address-table	Displays information about the MAC address table.
show mac address-table aging-time	Displays information about the MAC address aging time.

mac address-table notification

To configure a log message notification of MAC address table events, use the **mac address-table notification** command. To disable log message notifications, use the **no** form of this command.

mac address-table notification {**mac-move** | **threshold** [**limit** *percentage* **interval** *seconds*]}

no mac address-table notification {**mac-move** | **threshold**}

Syntax Description

mac-move	Sends a notification message if the MAC address is moved.
threshold	Sends a notification message if the MAC address table threshold is exceeded.
limit *percentage*	(Optional) Specifies the percentage limit (1 to 100) beyond which threshold notifications are enabled.
interval *seconds*	(Optional) Specifies the minimum time in seconds (10 to 10000) between two notifications.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
4.2(1)N1(1)	The command syntax is changed to **mac address-table notification**.

Examples

This example shows how to configure a log message notification when the threshold exceeds 45 percent, restricting the update interval to once every 1024 seconds:

```
switch(config)# mac address-table notification threshold limit 45 interval 1024
```

Related Commands

Command	Description
show mac address-table	Displays information about the MAC address table.

mac address-table static

To configure a static entry for the MAC address table, use the **mac address-table static** command. To delete the static entry, use the **no** form of this command.

mac address-table static *mac-address* **vlan** *vlan-id* {**drop** | **interface** {**ethernet** *slot/port* | **port-channel** *number*[**.***subinterface-number*]} [**auto-learn**]

no mac address-table static *mac-address* {**vlan** *vlan-id*}

Syntax Description

mac-address	MAC address to add to the table. Use the format EEEE.EEEE.EEEE.
vlan *vlan-id*	Specifies the VLAN to apply the static MAC address. The VLAN ID range is from 1 to 4094.
drop	Drops all traffic that is received from and going to the configured MAC address in the specified VLAN.
interface	Specifies the interface. The type can be either Ethernet or EtherChannel.
ethernet *slot/port*	Specifies the Ethernet interface and the slot number and port number. The slot number is from 1 to 255, and the port number is from 1 to 128.
port-channel *number*	Specifies the EtherChannel interface and EtherChannel number. The range is from 1 to 4096.
.*subinterface-number*	(Optional) EtherChannel number followed by a dot (.) indicator and the subinterface number.
auto-learn	(Optional) Allows the switch to automatically update this MAC address.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
4.2(1)N1(1)	The command syntax is changed to **mac address-table static**.

Usage Guidelines

You cannot apply the **mac address-table static** *mac-address* **vlan** *vlan-id* **drop** command to a multicast MAC address.

When you install a static MAC address, it is associated with a port. If the same MAC address is seen on a different port, the entry is updated with the new port if you enter the **auto-learn** keyword.

Examples

This example shows how to add a static entry to the MAC address table:

```
switch(config)# mac address-table static 0050.3e8d.6400 vlan 3 interface ethernet 1/4
```

Related Commands

Command	Description
show mac address-table	Displays information about the MAC address table.

management

To configure a switch virtual interface (SVI) that should be used for in-band management, use the **management** command. To remove the in-band management access to a VLAN interface IP address, use the **no** form of this command.

management

no management

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Interface configuration mode
Switch profile configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

You can use this command on a VLAN interface.

Examples

This example shows how to configure a VLAN interface to allow in-band management access:

```
switch# configure terminal
switch(config)# interface vlan 5
switch(config-if)# management
switch(config-if)#
```

This example shows how to remove the in-band management access to a VLAN interface:

```
switch# configure terminal
switch(config)# interface vlan 5
switch(config-if)# no management
switch(config-if)#
```

Related Commands

Command	Description
show running-config interface	Displays the running configuration information for an interface.

monitor erspan origin ip-address

To configure the Encapsulated Remote Switched Port Analyzer (ERSPAN) origin IP address, use the **monitor espan origin ip-address** command. To remove the ERSPAN origin IP address configuration, use the **no** form of this command.

monitor erspan origin ip-address *ip-address* [**global**]

no monitor erspan origin ip-address *ip-address* [**global**]

Syntax Description

ip-address	IP address.
global	(Optional) Specifies the default virtual device context (VDC) configuration across all VDCs.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

When you change the origin IP address in the default VDC, it impacts all the sessions.

This command does not require a license.

Examples

This example shows how to configure the ERSPAN origin IP address:

```
switch# configure terminal
switch(config)# monitor erspan origin ip-address 10.1.1.1 global
switch(config)#
```

This example shows how to remove the ERSPAN IP address:

```
switch# configure terminal
switch(config)# no monitor erspan origin ip-address 10.1.1.1 global
switch(config)#
```

Related Commands

Command	Description
monitor session	Configures a SPAN or an ERSPAN session.

monitor session

To create a new Ethernet Switched Port Analyzer (SPAN) or an Encapsulated Remote Switched Port Analyzer (ERSPAN) session configuration for analyzing traffic between ports or add to an existing session configuration, use the **monitor session** command. To clear SPAN or ERSPAN sessions, use the **no** form of this command.

monitor session {*session-number* [**shut** | **type** {**local** | **erspan-source**} | **all shut**}

no monitor session {*session-number* | **all**} [**shut**]

Syntax Description

session-number	SPAN session to create or configure. The range is from 1 to 18.
all	Specifies to apply configuration information to all SPAN sessions.
shut	(Optional) Specifies that the selected session will be shut down for monitoring.
type	(Optional) Specifies the type of session to configure.
local	Specifies the session type to be local.
erspan-source	Creates an ERSPAN source session.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
4.2(1)N1(1)	The **monitor session** {*session-number* | **all**} **suspend** command has been dropped. The **monitor session** {*session-number* | **all**} **shut** and **monitor session** {*session-number* | **all**} **type** commands have been added.
5.0(2)N2(1)	Limit on the number of egress (TX) sources in a monitor session has been lifted.
5.1(3)N1(1)	Support for ERSPAN was added.

Usage Guidelines

To ensure that you are working with a completely new session, you can clear the desired session number or all SPAN sessions.

Note The Cisco Nexus 5000 Series switch supports two active SPAN sessions. The Cisco Nexus 5548 Switch supports four active SPAN sessions. When you configure more than two SPAN sessions, the first two sessions are active. During startup, the order of active sessions is reversed; the last two sessions are

active. For example, if you configured ten sessions 1 to 10 where 1 and 2 are active, after a reboot, sessions 9 and 10 will be active. To enable deterministic behavior, explicitly suspend the sessions 3 to 10 with the **monitor session** *session-number* **shut** command.

Note Beginning with Cisco NX-OS Release 5.0(2)N2(1), the limit on the number of egress (TX) sources in a monitor session has been lifted. Port-channel interfaces can be configured as egress sources.

After you create an ERSPAN session, you can describe the session and add interfaces and VLANs as sources and destinations.

Examples

This example shows how to create a SPAN session:

```
switch# configure terminal
switch(config)# monitor session 2
switch(config)#
```

This example shows how to enter the monitor configuration mode for configuring SPAN session number 9 for analyzing traffic between ports:

```
switch(config)# monitor session 9 type local
switch(config-monitor)# description A Local SPAN session
switch(config-monitor)# source interface ethernet 1/1
switch(config-monitor)# destination interface ethernet 1/2
switch(config-monitor)# no shutdown
```

This example shows how to configure any SPAN destination interfaces as Layer 2 SPAN monitor ports before activating the SPAN session:

```
switch(config)# interface ethernet 1/2
switch(config-if)# switchport
switch(config-if)# switchport monitor
switch(config-if)# no shutdown
```

This example shows how to configure a typical SPAN destination trunk interface:

```
switch(config)# interface Ethernet1/2
switch(config-if)# switchport
switch(config-if)# switchport mode trunk
switch(config-if)# switchport monitor
switch(config-if)# switchport trunk allowed vlan 10-12
switch(config-if)# no shutdown
```

This example shows how to create an ERSPAN session:

```
switch# configure terminal
switch(config)# monitor session 1 type erspan-source
switch(config-erspan-src)#
```

Related Commands

Command	Description
description (SPAN, ERSPAN)	Adds a description to identify the SPAN session.
destination (ERSPAN)	Configures the destination IP port for an ERSPAN packet.
erspan-id (ERSPAN)	Sets the flow ID for an ERSPAN session.

Command	Description
ip dscp (ERSPAN)	Sets the DSCP value for an ERSPAN packet.
ip prec (ERSPAN)	Sets the IP precedence value for an ERSPAN packet.
ip ttl (ERSPAN)	Sets the time-to-live (TTL) value for an ERSPAN packet.
mtu (ERSPAN)	Sets the maximum transmission value (MTU) for ERSPAN packets.
show monitor session	Displays SPAN session configuration information.
source (SPAN, ERSPAN)	Adds a SPAN source port.

mst (STP)

To configure the Multiple Spanning Tree (MST) designated bridge and root bridge priority, use the **mst** command. To revert to the default settings, use the **no** form of this command.

mst *instance-id* [{**designated** | **root**} **priority** *priority-value*]

no mst *instance-id* [{**designated** | **root**} **priority** *priority-value*]

Syntax Description

instance-id	MST instance. The range is from 0 to 4094.
designated	(Optional) Sets the designated bridge priority for the spanning tree.
root	(Optional) Sets the root bridge priority for the spanning tree.
priority *priority-value*	(Optional) Specifies the STP-bridge priority; the valid values are 0, 4096 , 8192 , 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152, 53248, 57344, 61440. All other values are rejected.

Command Default

None

Command Modes

Spanning-tree pseudo configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

You can enter the *instance-id* argument as a single instance or a range of instances, for example, 0-3,5,7-9.

This command does not require a license.

Examples

This example shows how to configure a spanning-tree domain:

```
switch# configure terminal
switch(config)# spanning-tree pseudo-information
switch(config-pseudo)# mst 2 designated priority 8192
switch(config-pseudo)# mst 2 root priority 4096
switch(config-pseudo)#
```

Related Commands

Command	Description
show running-config spanning-tree	Displays the running configuration information of the Spanning Tree Protocol (STP).

Command	Description
show spanning-tree	Displays the configuration information of the STP.
spanning-tree pseudo-information	Configures spanning tree pseudo information parameters.

mvr group

To configure a Multicast VLAN Registration (MVR) group for an interface, use the **mvr group** command. To remove the MVR group from an interface, use the **no** form of this command.

mvr group {*group_IP_address* | *IP_prefix/length*} [**count** *count_value*] [**vlan** *vlan_ID* [...**vlan** *vlan_ID*]]

no mvr group {*group_IP_address* | *IP_prefix/length*} [**count** *count_value*] [**vlan** *vlan_ID* [...**vlan** *vlan_ID*]]

Syntax Description

group_IP_address	Group IP address in the format *A.B.C.D*.
IP_prefix/length	IP prefix and network mask length in the format *x.x.x.x/m*.
count *count_value*	Specifies the count value. The range is from 1 to 64.
vlan *vlan_ID*	Specifies the global default MVR VLAN. The range is from 1 to 4094.

Command Default

None

Command Modes

Interface configuration mode
Virtual Ethernet interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

You can use this command on the following interfaces:

- Ethernet interface
- Virtual Ethernet interface

Before you use a virtual Ethernet interface, you must enable the Cisco Virtual Machine Fabric Extender (VM-FEX) on the switch by using the **feature vmfex** command.

This command does not require a license.

Examples

This example shows how to configure an MVR VLAN group for an interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# mvr group 192.0.2.1/12 vlan 1
switch(config-if)#
```

Related Commands

Command	Description
feature vmfex	Enables VM-FEX on the switch.
interface vethernet	Configures a virtual Ethernet interface on the switch.
show mvr	Displays information about MVRs.
show running-config	Displays the running system configuration information.

mvr type

To configure a Multicast VLAN Registration (MVR) port type for an interface, use the **mvr type** command. To remove the MVR port type for an interface, use the **no** form of this command.

mvr type {**source** | **receiver**}

no mvr type {**source** | **receiver**}

Syntax Description

source	Specifies the MVR source port.
receiver	Specifies the MVR receiver port.

Command Default

None

Command Modes

Interface configuration mode
Virtual Ethernet interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

You can use this command on the following interfaces:

- Ethernet interface
- Virtual Ethernet interface

Before you use a virtual Ethernet interface, you must enable the Cisco Virtual Machine Fabric Extender (VM-FEX) on the switch by using the **feature vmfex** command.

This command does not require a license.

Examples

This example shows how to configure an MVR source port for an interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# mvr type source
switch(config-if)#
```

Related Commands

Command	Description
feature vmfex	Enables VM-FEX on the switch.
interface vethernet	Configures a virtual Ethernet interface on the switch.
show mvr	Displays information about MVRs.
show running-config	Displays the running system configuration information.

mvr vlan

To configure a Multicast VLAN Registration (MVR) VLAN for an interface, use the **mvr vlan** command. To remove the MVR VLAN from an interface, use the **no** form of this command.

mvr vlan *vlan_ID*

no mvr vlan *vlan_ID*

Syntax Description

vlan_ID	MVR VLAN ID. The range is from 1 to 4094.

Command Default

None

Command Modes

Interface configuration mode
Virtual Ethernet interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

You can use this command on the following interfaces:

- Ethernet interface
- Virtual Ethernet interface

Before you use a virtual Ethernet interface, you must enable the Cisco Virtual Machine Fabric Extender (VM-FEX) on the switch by using the **feature vmfex** command.

This command does not require a license.

Examples

This example shows how to configure an MVR VLAN for an interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# mvr vlan 1
switch(config-if)#
```

Related Commands

Command	Description
feature vmfex	Enables VM-FEX on the switch.
interface vethernet	Configures a virtual Ethernet interface on the switch.
show mvr	Displays information about MVRs.
show running-config	Displays the running system configuration information.

N Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with N.

name (VLAN configuration)

To set the name for a VLAN, use the **name** command. To remove the user-configured name from a VLAN, use the **no** form of this command.

name *vlan-name*

no name

Syntax Description

vlan-name	Name of the VLAN; you can use up to 32 alphanumeric, case-sensitive characters. The default name is VLAN*xxxx* where *xxxx* represents four numeric digits (including leading zeroes) equal to the VLAN ID number (for example, VLAN0002).

Command Default

None

Command Modes

VLAN configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You cannot change the name for the default VLAN, VLAN 1, or for the internally allocated VLANs.

Examples

This example shows how to name VLAN 2:

```
switch(config)# vlan 2
switch(config-vlan)# name accounting
```

Related Commands

Command	Description
show vlan	Displays VLAN information.

name (MST configuration)

To set the name of a Multiple Spanning Tree (MST) region, use the **name** command. To return to the default name, use the **no** form of this command.

name *name*

no name *name*

Syntax Description

name	Name to assign to the MST region. It can be any string with a maximum length of 32 alphanumeric characters.

Command Default

None

Command Modes

MST configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Two or more switches with the same VLAN mapping and configuration version number are considered to be in different MST regions if the region names are different.

Caution Be careful when using the **name** command to set the name of an MST region. If you make a mistake, you can put the switch in a different region. The configuration name is a case-sensitive parameter.

Examples

This example shows how to name a region:

```
switch(config)# spanning-tree mst configuration
switch(config-mst)# name accounting
```

Related Commands

Command	Description
show spanning-tree mst configuration	Displays information about the MST protocol.
spanning-tree mst configuration	Enters MST configuration mode.

no switchport

To configure the interface as a Layer 3 Ethernet interface, use the **no switchport** command.

no switchport

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

You can configure any Ethernet port as a routed interface. When you configure an interface as a Layer 3 interface, any configuration specific to Layer 2 on this interface is deleted.

If you want to configure a Layer 3 interface for Layer 2, enter the **switchport** command. Then, if you change a Layer 2 interface to a routed interface, enter the **no switchport** command.

Examples

This example shows how to enable an interface as a Layer 3 routed interface:

```
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport
switch(config-if)#
```

This example shows how to configure a Layer 3 interface as a Layer 2 interface:

```
switch(config)# interface ethernet 1/5
switch(config-if)# switchport
switch(config-if)#
```

Related Commands

Command	Description
copy running-config startup-config	Saves the running configuration to the startup configuration file.
interface ethernet (Layer 3)	Configures an Ethernet routed interface or subinterface.
inteface loopback	Configures a loopback interface.
interface port-channel	Configures an EtherChannel interface or subinterface.
ip address	Sets a primary or secondary IP address for an interface.
show interfaces	Displays interface information.

P Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with P.

pinning

To configure pinning options for an interface, use the **pinning** command. To revert to the default settings, use the **no** form of this command.

pinning {**control-vlan** | **packet-vlan**} *sub_group_ID*

no pinning {**control-vlan** | **packet-vlan**}

Syntax Description

control-vlan	Configures pinning for control VLANs.
packet-vlan	Configures pinning for packet VLANs.
sub_group_ID	Sub-group ID. The range is from 0 to 31.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure packet VLAN pinning for an interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# pinning packet-vlan 5
switch(config-if)#
```

Related Commands

Command	Description
show running-config	Displays the running system configuration information.

pinning id (virtual Ethernet interface)

To pin virtual Ethernet interface traffic to a specific subgroup, use the **pinning id** command. To remove the configuration, use the **no** form of this command.

pinning id *sub-group-id*

no pinning id

Syntax Description

sub-group-id	ID number of the subgroup. The range is from 0 to 31.

Command Default

None

Command Modes

Virtual Ethernet interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to pin a virtual Ethernet interface to subgroup 3:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# pinning id 3
switch(config-if)#
```

Related Commands

Command	Description
show interface vethernet	Displays the virtual Ethernet interface configuration information.
show running-config intefrace vethernet	Displays the running configuration information for a specific virtual Ethernet interface, including the pinning configuration.

port

To configure a unified port on a Cisco Nexus 5548UP switch or Cisco Nexus 5596UP switch, use the **port** command. To remove the unified port, use the **no** form of this command.

port *port-number* **type** {**ethernet** | **fc**}

no port *port-number* **type** {**ethernet** | **fc**}

Syntax Description

port-number	Port number. The range is from 1 to 199.
type	Specifies the type of port to configure on a slot in a chassis.
ethernet	Specifies an Ethernet port.
fc	Specifies a Fibre Channel (FC) port.

Command Default

None

Command Modes

Slot configuration mode

Command History

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

Unified ports allow you to configure ports as Ethernet, native Fibre Channel or Fibre Channel over Ethernet (FCoE) ports. By default, the ports are Ethernet ports but you can change the port mode to Fibre Channel on the following unified ports:

- Any port on the Cisco Nexus 5548UP switch or the Cisco Nexus 5596UP switch.
- The ports on the Cisco N55-M16UP expansion module that is installed in a Cisco Nexus 5548P switch.

You must configure Ethernet ports and FC ports in a specified order:

- FC ports must be configured from the last port of the module.
- Ethernet ports must be configured from the first port of the module.

If the order is not followed, the following errors are displayed:

```
ERROR: Ethernet range starts from first port of the module
ERROR: FC range should end on last port of the module
```

On a Cisco Nexus 5548UP switch, the 32 ports of the main slot (slot1) are unified ports. The Ethernet ports start from port 1/1 to port 1/32. The FC ports start from port 1/32 backwards to port 1/1.

Examples

This example shows how to configure a unified port on a Cisco Nexus 5548UP switch or Cisco Nexus 5596UP switch:

```
switch# configure terminal
```

```
switch(config)# slot 1
switch(config-slot)# port 32 type fc
switch(config-slot)# copy running-config startup-config
switch(config-slot)# reload
```

This example shows how to configure a unified port on a Cisco N55-M16UP expansion module:

```
switch# configure terminal
switch(config)# slot 2
switch(config-slot)# port 32 type fc
switch(config-slot)# copy running-config startup-config
switch(config-slot)# reload
```

This example shows how to configure 20 ports as Ethernet ports and 12 as FC ports:

```
switch# configure terminal
switch(config)# slot 1
switch(config-slot)# port 21-32 type fc
switch(config-slot)# copy running-config startup-config
switch(config-slot)# reload
```

Related Commands

Command	Description
slot	Enables preprovisioning of features or interfaces of a module on a slot in a chassis.
reload	Reloads the switch and all attached Fabric Extender chassis or a specific Fabric Extender.

port-channel load-balance ethernet

To configure the load-balancing method among the interfaces in the channel-group bundle, use the **port-channel load-balance ethernet** command. To return the system priority to the default value, use the **no** form of this command.

port-channel load-balance ethernet *method* [*hash-polynomial*]

no port-channel load-balance ethernet [*method*]

Syntax Description

method	Load-balancing method. See the "Usage Guidelines" section for a list of valid values.
hash-polynomial	(Optional) Hash polynomial that is used to determine the egress port selected for a port channel. See the "Usage Guidelines" section for a list of valid values. **Note** This is applicable only on a Cisco Nexus 5548 switch and a Cisco Nexus 5596 switch.

Command Default

Loads distribution on the source and destination MAC address.
The default hash polynomial is CRC8a.

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.0(3)N2(1)	Support for configurable hash polynomials was added.

Usage Guidelines

The valid load-balancing *method* values are as follows:

- **destination-ip**—Loads distribution on the destination IP address.
- **destination-mac**—Loads distribution on the destination MAC address.
- **destination-port**—Loads distribution on the destination port.
- **source-destination-ip**—Loads distribution on the source and destination IP address.
- **source-destination-mac**—Loads distribution on the source and destination MAC address.
- **source-destination-port**—Loads distribution on the source and destination port.
- **source-ip**—Loads distribution on the source IP address.
- **source-mac**—Loads distribution on the source MAC address.
- **source-port**—Loads distribution on the source port.

Use the option that provides the balance criteria with the greatest variety in your configuration. For example, if the traffic on an EtherChannel is going only to a single MAC address and you use the destination MAC address as the basis of EtherChannel load balancing, the EtherChannel always chooses the same link in that EtherChannel; using source addresses or IP addresses might result in better load balancing.

Beginning with Cisco NX-OS Release 5.0(3)N2(1), the Cisco Nexus 5548 switch and Cisco Nexus 5596 switch support 8 hash polynomials that can be used for compression on the hash-parameters (software-configurable selection of source and destination MAC addresses, source and destination IP addresses, and source and destination TCP and UDP ports). Depending on variations in the load-balancing method for egress traffic flows from a port channel, different polynomials could provide different load distribution results.

The valid load-balancing *hash-polynomial* values are as follows:

- **CRC8a**—Hash polynomial CRC8a.
- **CRC8b**—Hash polynomial CRC8b.
- **CRC8c**—Hash polynomial CRC8c.
- **CRC8d**—Hash polynomial CRC8d.
- **CRC8e**—Hash polynomial CRC8e.
- **CRC8f**—Hash polynomial CRC8f.
- **CRC8g**—Hash polynomial CRC8g.
- **CRC8h**—Hash polynomial CRC8h.

Note The hash polynomial that you choose affects both the multicast and unicast traffic egressing from all the local port channels. The hash polynomial does not affect the port channels whose member ports are on a Cisco Nexus 2148T Fabric Extender, Cisco Nexus 2232P Fabric Extender, or Cisco Nexus 2248T Fabric Extender.

Examples

This example shows how to set the load-balancing method to use the source IP:

```
switch(config)# port-channel load-balance ethernet source-ip
```

This example shows how to set the load-balancing method to use the source IP and the CRC8c polynomial to hash a flow to obtain a numerical value that can be used to choose the egress physical interface on a Cisco Nexus 5548 switch:

```
switch(config)# port-channel load-balance ethernet source-ip CRC8c
```

Related Commands

Command	Description
show port-channel load-balance	Displays information on EtherChannel load balancing.

private-vlan

To configure private VLANs, use the **private-vlan** command. To return the specified VLANs to normal VLAN mode, use the **no** form of this command.

private-vlan {**isolated** | **community** | **primary**}

no private-vlan {**isolated** | **community** | **primary**}

Syntax Description

isolated	Designates the VLAN as an isolated secondary VLAN.
community	Designates the VLAN as a community secondary VLAN.
primary	Designates the VLAN as the primary VLAN.

Command Default

None

Command Modes

VLAN configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You must enable private VLANs by using the **feature private-vlan** command before you can configure private VLANs. The commands for configuring private VLANs are not visible until you enable private VLANs.

If you delete either the primary or secondary VLAN, the ports that are associated with the VLAN become inactive. When you enter the **no private-vlan** command, the VLAN returns to the normal VLAN mode. All primary and secondary associations on that VLAN are suspended, but the interfaces remain in private VLAN mode. When you reconvert the specified VLAN to private VLAN mode, the original associations are reinstated.

If you enter the **no vlan** command for the primary VLAN, all private VLAN associations with that VLAN are lost. If you enter the **no vlan** command for a secondary VLAN, the private VLAN associations with that VLAN are suspended and are reenabled when you recreate the specified VLAN and configure it as the previous secondary VLAN.

You cannot configure VLAN1 or the internally allocated VLANs as private VLANs.

A private VLAN is a set of private ports that are characterized by using a common set of VLAN number pairs. Each pair is made up of at least two special unidirectional VLANs and is used by isolated ports and/or by a community of ports to communicate with routers.

An isolated VLAN is a VLAN that is used by isolated ports to communicate with promiscuous ports. An isolated VLAN's traffic is blocked on all other private ports in the same VLAN. Its traffic can only be received by standard trunking ports and promiscuous ports that are assigned to the corresponding primary VLAN.

A promiscuous port is defined as a private port that is assigned to a primary VLAN.

A community VLAN is defined as the VLAN that carries the traffic among community ports and from community ports to the promiscuous ports on the corresponding primary VLAN.

A primary VLAN is defined as the VLAN that is used to convey the traffic from the routers to customer end stations on private ports.

Multiple community and isolated VLANs are allowed. If you enter a range of primary VLANs, the system uses the first number in the range for the association.

Note A private VLAN-isolated port on a Cisco Nexus 5000 Series switch running the current release of Cisco NX-OS does not support IEEE 802.1Q encapsulation and cannot be used as a trunk port.

If VLAN Trunking Protocol (VTP) is enabled on a switch, you can configure private VLANs only on a device configured in Transparent mode.

Examples

This example shows how to assign VLAN 5 to a private VLAN as the primary VLAN:

```
switch# configure terminal
switch(config)# vlan 5
switch(config-vlan)# private-vlan primary
```

This example shows how to assign VLAN 100 to a private VLAN as a community VLAN:

```
switch# configure terminal
switch(config)# vlan 100
switch(config-vlan)# private-vlan community
```

This example shows how to assign VLAN 109 to a private VLAN as an isolated VLAN:

```
switch# configure terminal
switch(config)# vlan 109
switch(config-vlan)# private-vlan isolated
```

Related Commands

Command	Description
feature private-vlan	Enables private VLANs.
show vlan	Displays information about VLANs.
show vlan private-vlan	Displays information about private VLANs.

private-vlan association

To configure the association between a primary VLAN and a secondary VLAN on a private VLAN, use the **private-vlan association** command. To remove the association, use the **no** form of this command.

private-vlan association {[**add**] *secondary-vlan-list* | **remove** *secondary-vlan-list*}

no private-vlan association

Syntax Description

add	(Optional) Associates a secondary VLAN to a primary VLAN.
secondary-vlan-list	Number of the secondary VLAN.
remove	Clears the association between a secondary VLAN and a primary VLAN.

Command Default

None

Command Modes

VLAN configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You must enable private VLANs by using the **feature private-vlan** command before you can configure private VLANs. The commands for configuring private VLANs are not visible until you enable private VLANs.

If you delete either the primary or secondary VLAN, the ports that are associated with the VLAN become inactive. When you enter the **no private-vlan** command, the VLAN returns to the normal VLAN mode. All primary and secondary associations on that VLAN are suspended, but the interfaces remain in private VLAN mode. However, when you reconvert the specified VLAN to private VLAN mode, the original associations are reinstated.

If you enter the **no vlan** command for the primary VLAN, all private VLAN associations with that VLAN are lost. However, if you enter the **no vlan** command for a secondary VLAN, the private VLAN associations with that VLAN are suspended and return when you recreate the specified VLAN and configure it as the previous secondary VLAN.

The *secondary-vlan-list* argument cannot contain spaces. It can contain multiple comma-separated items. Each item can be a single secondary VLAN ID or a hyphenated range of secondary VLAN IDs. The *secondary-vlan-list* parameter can contain multiple secondary VLAN IDs.

A private VLAN is a set of private ports that are characterized by using a common set of VLAN number pairs. Each pair is made up of at least two special unidirectional VLANs and is used by isolated ports and/or by a community of ports to communicate with routers.

Multiple community and isolated VLANs are allowed. If you enter a range of primary VLANs, the system uses the first number in the range for the association.

Isolated and community VLANs can only be associated with one primary VLAN. You cannot configure a VLAN that is already associated to a primary VLAN as a primary VLAN.

Note A private VLAN-isolated port on a Cisco Nexus 5000 Series switch running the current release of Cisco NX-OS does not support IEEE 802.1Q encapsulation and cannot be used as a trunk port.

Examples

This example shows how to create a private VLAN relationship between the primary VLAN 14, the isolated VLAN 19, and the community VLANs 20 and 21:

```
switch(config)# vlan 19
switch(config-vlan)# private-vlan isolated
switch(config)# vlan 20
switch(config-vlan)# private-vlan community
switch(config)# vlan 21
switch(config-vlan)# private-vlan community
switch(config)# vlan 14
switch(config-vlan)# private-vlan primary
switch(config-vlan)# private-vlan association 19-21
```

This example shows how to remove isolated VLAN 18 and community VLAN 20 from the private VLAN association:

```
switch(config)# vlan 14
switch(config-vlan)# private-vlan association remove 18,20
```

Related Commands

Command	Description
feature private-vlan	Enables private VLANs.
show vlan	Displays information about VLANs.
show vlan private-vlan	Displays information about private VLANs.

private-vlan synchronize

To map the secondary VLANs to the same Multiple Spanning Tree (MST) instance as the primary VLAN, use the **private-vlan synchronize** command.

private-vlan synchronize

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

MST configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

If you do not map secondary VLANs to the same MST instance as the associated primary VLAN when you exit the MST configuration mode, the device displays a warning message that lists the secondary VLANs that are not mapped to the same instance as the associated VLAN. The **private-vlan synchronize** command automatically maps all secondary VLANs to the same instance as the associated primary VLANs.

Examples

This example shows how to initialize private VLAN synchronization:

```
switch(config)# spanning-tree mst configuration
switch(config-mst)# private-vlan synchronize
```

Related Commands

Command	Description
show spanning-tree mst configuration	Displays information about the MST protocol.
spanning-tree mst configuration	Enters MST configuration mode.

protocol vmware-vim

To enable the VMware Infrastructure Software Development Kit (VI SDK), use the **protocol vmware-vim** command. To disable the VI SDK, use the **no** form of this command.

protocol vmware-vim

no protocol vmware-vim

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

SVS connection configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

The VMware VI SDK is published by VMware and it allows clients to talk to a vCenter server.

You must first create an SVS connection before you enable the VMware VI SDK.

This command does not require a license.

Examples

This example shows how to enable the VMware VI SDK:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# protocol vmware-vim
switch(config-svs-conn)#
```

This example shows how to disable the VMware VI SDK:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# no protocol vmware-vim
switch(config-svs-conn)#
```

Related Commands

Command	Description
interface vethernet	Creates a virtual Ethernet interface.
show svs connections	Displays SVS connection information.
svs connection	Enables an SVS connection.

provision

To preprovision a module in a chassis slot, use the **provision** command. To remove a preprovisioned module from a slot, use the **no** form of this command.

provision model *model-name*

no provision model [*model-name*]

Syntax Description

model	Specifies the type of module to be provisioned.
model-name	Module name. The supported modules are as follows: • **N2K-C2148T**—Cisco Nexus 2000 Series Fabric Extender 48x1G 4x10G Module • **N2K-C2232P**—Cisco Nexus 2000 Series Fabric Extender 32x10G Module • **N2K-C2232TM**—Cisco Nexus 2000 Series Fabric Extender 32x10G Module • **N2K-C2248T**—Cisco Nexus 2000 Series Fabric Extender 48x1G 4x10G Module • **N2K-N2224TP**—Cisco Nexus 2000 Series Fabric Extender 24x1G 2x10G SFP+ Module • **N55-M16FP**—Cisco 16 port Port Fiber Channel Expansion Module 16 x SFP • **N55-M16P**—Cisco 16x10-Gigabit Ethernet Expansion Module • **N55-M16UP**—Cisco 16x10-Gigabit Flexible Ethernet Expansion Module • **N55-M8P8FP**—Cisco 8 Port 1/2/4/8-Gigabit Fibre Channel + 8 Port 10-Gigabit Ethernet Expansion Module • **N5K-M1008**—Cisco 8 Port Fiber Channel Expansion Module 8 x SFP • **N5K-M1060**—Cisco 6 Port Fiber Channel Expansion Module 6 x SFP • **N5K-M1404**—Expansion Module 4 x 10GBase-T LAN, 4 x Fiber Channel • **N5K-M1600**—Cisco 6-port 10 Gigabit Ethernet SFP Module 6 x SFP

Command Default

None

Command Modes

Slot configuration mode
Switch profile configuration mode

Command History

Release	Modification
5.0(2)N1(1)	This command was introduced.

Usage Guidelines

Use this command to define the modules (line card or Cisco Nexus 2000 Series Fabric Extender) to preprovision. If the card type does not match the card in the slot or the module is not compatible with the chassis, you see the following messages:

```
ERROR: The card type does not match the card in slot
```

or

```
ERROR: This module cannot be configured for this chassis
```

You can configure features or interfaces (Ethernet, Fibre Channel) on the modules before the modules are inserted in the switch chassis. You can also use this command to manage the configuration of these features or interfaces when the module is offline due to a failure or scheduled downtime. These configurations are applied when the module comes online.

When you preprovision a module by specifying the type of module, platform manager will allow only modules of matching type to come online. If you configure the interfaces for the module without specifying the module type, the configuration is applied when the module comes online, regardless of the module type.

You can preprovision modules and interfaces in a switch profile. The modules and interfaces are preprovisioned when you apply (commit) the switch profile. Once the module is inserted and interfaces are created, the preprovisioning module passes on the configuration to the respective applications before the interfaces come up.

Mutual exclusion is a mechanism where configuration outside the switch profile is not allowed in the switch profile and vice-versa. This requirement is to ensure that configuration in the switch profile is exactly the same on both switches. Preprovisioned configuration is the same as a configuration when the module is online, so mutual exclusion checks would continue to apply normally.

When you downgrade from Cisco NX-OS release 5.0(2)N1(1), which supports preprovisioning, to an earlier release of Cisco NX-OS that does not support module preprovisioning, you will be prompted to remove preprovisioning configuration that you configured on the switch.

Examples

This example shows how to preprovision a module in slot 2 of the chassis:

```
switch(config)# slot 2
switch(config-slot)# provision model N5K-M1404
switch(config-slot)#
```

This example shows how to configure a switch profile to enable a chassis slot for preprovisioning of a module:

```
switch# config sync
Enter configuration commands, one per line.  End with CNTL/Z.
switch(config-sync)# switch-profile sp
Switch-Profile started, Profile ID is 1
switch(config-sync-sp)# slot 2
switch(config-sync-sp-slot)# provision model N5K-M1600
switch(config-sync-sp-slot)#
```

This example shows how to remove a preprovisioned module from a chassis slot:

```
switch(config)# slot 2
```

```
switch(config-slot)# no provision model N5K-M1404
switch(config-slot)#
```

This example shows how to remove all preprovisioned modules or line cards from a chassis slot:

```
switch(config)# slot 2
switch(config-slot)# no provision model
switch(config-slot)#
```

Related Commands

Command	Description
show module	Displays module information.
show provision	Displays provisioned modules.
show switch-profile	Displays switch profile information.
show running-config exclude-provision	Displays the running configuration excluding the preprovisioned features.
slot	Enables a slot for preprovisioning a module.
switch-profile	Configures a switch profile.

R Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with R.

rate-limit cpu direction

To set the packet per second (PPS) rate limit for an interface, use the **rate-limit cpu direction** command. To revert ot the default value, use the **no** form of this command.

rate-limit cpu direction {**both** | **input** | **output**} **pps** *pps_value* **action log**

no rate-limit cpu direction {**both** | **input** | **output**} **pps** *pps_value* **action log**

Syntax Description

both	Sets the maximum input and output packet rate.
input	Sets the maximum input packet rate.
output	Sets the maximum output packet rate.
pps *pps_value*	Specifies the packets per second. The range is from 0 to 100,000.
action	Specifies the action is logged.
log	Writes a syslog message if the PPS value matches or exceeds the specified rate limit.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to set the maximum input packet rate to 3 for an interface and enable the logging of syslog messages:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# rate-limit cpu direction input pps 3 action log
switch(config-if)#
```

Related Commands

Command	Description
show running-config	Displays the running system configuration information.

remote hostname

To configure the hostname for the remote machine, use the **remote hostname** command. To revert to the default settings, use the **no** form of this command.

remote hostname *host-name* [**port** *port-num*] [**vrf** {*vrf-name* | **default** | **management**}]

no remote hostname

Syntax Description

host-name	Name of the remote host. The name can be a maximum of 128 characters.
port *port-num*	(Optional) Configures the TCP port of the remote host. The port number is from 1 to 65355.
vrf	(Optional) Specifies the virtual routing and forwarding (VRF) instance to use.
vrf-name	VRF name. The name is case sensitive and can be a maximum of 32 characters.
default	(Optional) Specifies the default VRF.
management	(Optional) Specifies the management VRF.

Command Default

None

Command Modes

SVS connection configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure the hostname for a remote machine:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# remote hostname vcMain
switch(config-svs-conn)#
```

This example shows how to remove the hostname configuration for a remote machine:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# no remote hostname
switch(config-svs-conn)#
```

Related Commands

Command	Description
remote ip address	Configures the IPv4 address for a remote machine.
remote port	Configures the TCP port for a remote machine.
remote vrf	Configures the virtual routing and forwarding (VRF) instance for a remote machine.
show svs connections	Displays SVS connection information.
svs connection	Enables an SVS connection.

remote ip address

To configure the IPv4 address for the remote machine, use the **remote ip address** command. To revert to the default settings, use the **no** form of this command.

remote ip address *ipv4-addr* [**port** *port-num*] [**vrf** {*vrf-name* | **default** | **management**}]

no remote ip address

Syntax Description

ipv4-addr	IPv4 address of the remote machine. The format is *A.B.C.D*.
port *port-num*	(Optional) Configures the TCP port of the remote host. The port number is from 1 to 65355.
vrf	(Optional) Specifies the virtual routing and forwarding (VRF) instance to use.
vrf-name	VRF name. The name is case sensitive and can be a maximum of 32 characters.
default	(Optional) Specifies the default VRF.
management	(Optional) Specifies the management VRF.

Command Default

None

Command Modes

SVS connection configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure the IPv4 address for a remote machine:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# remote ip address 192.0.2.12
switch(config-svs-conn)#
```

This example shows how to remove the IPv4 address configuration for a remote machine:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# no remote ip address
switch(config-svs-conn)#
```

Related Commands

Command	Description
remote hostname	Configures the hostname for a remote machine.
remote port	Configures the TCP port for a remote machine.
remote vrf	Configures the virtual routing and forwarding (VRF) instance for a remote machine.
show svs connections	Displays SVS connection information.
svs connection	Enables an SVS connection.

remote port

To configure the TCP port of the remote machine, use the **remote port** command. To revert to the default settings, use the **no** form of this command.

remote port *port-num*

no remote port

Syntax Description

port-num	TCP port of the remote host. The port number is from 1 to 65355.

Command Default

None

Command Modes

SVS connection configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure the TCP port of a remote machine:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# remote port 21
switch(config-svs-conn)#
```

This example shows how to remove the TCP port configuration of a remote machine:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# no remote port
switch(config-svs-conn)#
```

Related Commands

Command	Description
remote hostname	Configures the hostname for a remote machine.
remote ip address	Configures the IPv4 for a remote machine.
remote vrf	Configures the virtual routing and forwarding (VRF) instance for a remote machine.
show svs connections	Displays SVS connection information.
svs connection	Enables an SVS connection.

remote vrf

To configure the virtual routing and forwarding (VRF) instance for the remote machine, use the **remote vrf** command.

remote vrf {*vrf-name* | **default** | **management**}

Syntax Description

vrf-name	VRF name. The name is case sensitive and can be a maximum of 32 characters.
default	Specifies the default VRF.
management	Specifies the management VRF.

Command Default

None

Command Modes

SVS connection configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure the VRF of a remote machine:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# remote vrf default
switch(config-svs-conn)#
```

Related Commands

Command	Description
remote hostname	Configures the hostname for a remote machine.
remote ip address	Configures the IPv4 address for a remote machine.
remote port	Configures the TCP port of a remote machine.
show svs connections	Displays SVS connection information.
svs connection	Enables an SVS connection.

revision

To set the revision number for the Multiple Spanning Tree (MST) region configuration, use the **revision** command. To return to the default settings, use the **no** form of this command.

revision *version*

no revision *version*

Syntax Description

version	Revision number for the MST region configuration. The range is from 0 to 65535.

Command Default

Revision 0

Command Modes

MST configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Two or more switches with the same VLAN mapping and name are considered to be in different MST regions if the configuration revision numbers are different.

Caution Be careful when using the **revision** command to set the revision number of the MST region configuration because a mistake can put the switch in a different region.

Examples

This example shows how to set the revision number of the MST region configuration:

```
switch(config)# spanning-tree mst configuration
switch(config-mst)# revision 5
```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST protocol.

S Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with S.

shut (ERSPAN)

To shut down an Encapsulated Remote Switched Port Analyzer (ERSPAN) session, use the **shut** command. To enable an ERSPAN session, use the **no** form of this command.

shut

no shut

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

ERSPAN session configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to shut down an ERSPAN session:

```
switch# configure terminal
switch(config)# monitor session 1 type erspan-source
switch(config-erspan-src)# shut
switch(config-erspan-src)#
```

This example shows how to enable an ERSPAN session:

```
switch# configure terminal
switch(config)# monitor session 1 type erspan-source
switch(config-erspan-src)# no shut
switch(config-erspan-src)#
```

Related Commands

Command	Description
monitor session	Enters the monitor configuration mode.
show monitor session	Displays the virtual SPAN or ERSPAN configuration.

shutdown

To shut down the local traffic on an interface, use the **shutdown** command. To return the interface to its default operational state, Use the **no** form of this command.

shutdown

no shutdown

Syntax Description

This command has no arguments or keywords.

Command Default

Not shut down

Command Modes

Interface configuration mode
Subinterface configuration mode
Virtual Ethernet interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.0(3)N1(1)	Support for Layer 3 interfaces and subinterfaces was added.
5.1(3)N1(1)	Support for virtual Ethernet interface was added.

Usage Guidelines

You can use this command on the following interfaces:

- Layer 2 interface (Ethernet interface, EtherChannel interface, subinterface)
- Layer 3 interface

Note Use the **no switchport** command to configure an interface as a Layer 3 interface.

- Layer 3 subinterface
- Management interface
- Virtual Ethernet interface

Examples

This example shows how to shut down, or disable, a Layer 2 interface:

```
switch(config)# interface ethernet 1/10
switch(config-if)# shutdown
switch(config-if)#
```

This example shows how to shut down a Layer 3 Ethernet subinterface:

```
switch(config)# interface ethernet 1/5.1
switch(config-subif)# shutdown
```

```
switch(config-subif)#
```

This example shows how to shut down a virtual Ethernet interface:

```
switch(config)# interface vethernet 10
switch(config-if)# shutdown
switch(config-if)#
```

Related Commands

Command	Description
no switchport	Converts an interface to a Layer 3 routed interface.
show interface ethernet	Displays the Ethernet interface configuration information.
show interface port-channel	Displays information on traffic about the specified EtherChannel interface.
show interface vethernet	Displays the virtual Ethernet interface configuration information.

shutdown (VLAN configuration)

To shut down the local traffic on a VLAN, use the **shutdown** command. To return a VLAN to its default operational state, use the **no** form of this command.

shutdown

no shutdown

Syntax Description

This command has no arguments or keywords.

Command Default

Not shut down

Command Modes

VLAN configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You cannot shut down, or disable, VLAN 1 or VLANs 1006 to 4094.

After you shut down a VLAN, the traffic ceases to flow on that VLAN. Access ports on that VLAN are also brought down; trunk ports continue to carry traffic for the other VLANs allowed on that port. However, the interface associations for the specified VLAN remain, and when you reenable, or recreate, that specified VLAN, the switch automatically reinstates all the original ports to that VLAN.

To find out if a VLAN has been shut down internally, check the Status field in the **show vlan** command output. If a VLAN is shut down internally, one of these values appears in the Status field:

- act/lshut—VLAN status is active and shut down internally.
- sus/lshut—VLAN status is suspended and shut down internally.

Note If the VLAN is suspended and shut down, you use both the **no shutdown** and **state active** commands to return the VLAN to the active state.

Examples

This example shows how to restore local traffic on VLAN 2 after you have shut down, or disabled, the VLAN:

```
switch(config)# vlan 2
switch(config-vlan)# no shutdown
```

Related Commands

Command	Description
show vlan	Displays VLAN information.

slot

To enable preprovisioning on a slot in a chassis, use the **slot** command. To disable the slot for preprovisioning, use the **no** form of this command.

slot *slot-number*

no slot *slot-number*

Syntax Description

slot-number	Slot number in the chassis. The range is from 2 to 199.

Command Default

None

Command Modes

Global configuration mode
Configuration synchronization mode

Command History

Release	Modification
5.0(2)N1(1)	This command was introduced.

Usage Guidelines

Use this command to enable preprovisioning of features or interfaces of a module on a slot in a chassis. Preprovisioning allows you configure features or interfaces (Ethernet, Fibre Channel) on modules before the modules are inserted in the switch chassis.

Examples

This example shows how to enable a chassis slot for preprovisioning of a module:

```
switch(config)# slot 2
switch(config-slot)#
```

This example shows how to configure a switch profile to enable a chassis slot for preprovisioning of a module:

```
switch# config sync
Enter configuration commands, one per line.  End with CNTL/Z.
switch(config-sync)# switch-profile sp
Switch-Profile started, Profile ID is 1
switch(config-sync-sp)# slot 2
switch(config-sync-sp-slot)#
```

This example shows how to disable a chassis slot for preprovisioning of a module:

```
switch(config)# no slot 2
switch(config)#
```

Related Commands

Command	Description
port	Configures ports as Ethernet, native Fibre Channel or Fibre Channel over Ethernet (FCoE) ports.
provision	Preprovisions a module in a slot.
show running-config exclude-provision	Displays the running configuration excluding the preprovisioned features.

snmp-server enable traps vtp

To enable the Simple Network Management Protocol (SNMP) notifications for a VLAN Trunking Protocol (VTP) domain, use the **snmp-server enable traps vtp** command. To disable SNMP notifications on a VTP domain, use the **no** form of this command.

snmp-server enable traps vtp

no snmp-server enable traps vtp

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.0(2)N1(1)	This command was introduced.

Usage Guidelines

The **snmp-server enable traps** command enables both traps and informs, depending on the configured notification host receivers.

Examples

This example shows how to enable SNMP notifications on a VTP domain:

```
switch(config)# snmp-server enable traps vtp
switch(config)#
```

This example shows how to disable all SNMP notifications on a VTP domain:

```
switch(config)# no snmp-server enable traps vtp
switch(config)#
```

Related Commands

Command	Description
show snmp trap	Displays the SNMP notifications enabled or disabled.
show vtp status	Displays VTP information.

source (SPAN, ERSPAN)

To add an Ethernet Switched Port Analyzer (SPAN) or an Encapsulated Remote Switched Port Analyzer (ERSPAN) source port, use the **source** command. To remove the source SPAN or ERSPAN port, use the **no** form of this command.

source {**interface** {**ethernet** *slot/port* | **port-channel** *channel-num* | **vethernet** *veth-num*} [{**both** | **rx** | **tx**}] | **vlan** *vlan-num* | **vsan** *vsan-num*}

no source {**interface** {**ethernet** *slot/port* | **port-channel** *channel-num* | **vethernet** *veth-num*} | **vlan** *vlan-num* | **vsan** *vsan-num*}

Syntax Description

interface	Specifies the interface type to use as the source SPAN port.
ethernet *slot/port*	Specifies the Ethernet interface to use as the source SPAN port. The slot number is from 1 to 255 and the port number is from 1 to 128.
port-channel *channel-num*	Specifies the EtherChannel interface to use as the source SPAN port. The EtherChannel number is from 1 to 4096.
vethernet *veth-num*	Specifies the virtual Ethernet interface to use as the source SPAN or ERSPAN port. The virtual Ethernet interface number is from 1 to 1048575.
both	(Optional) Specifies both ingress and egress traffic on the source port. **Note** This keyword applies to the ERSPAN source port.
rx	(Optional)Specifies only ingress traffic on the source port. **Note** This keyword applies to the ERSPAN source port.
tx	(Optional) Specifies only egress traffic on the source port. **Note** This keyword applies to the ERSPAN source port.
vlan *vlan-num*	Specifies the VLAN inteface to use as the source SPAN port. The range is from 1 to 3967 and 4048 to 4093.
vsan *vsan-num*	Specifies the virtual storage area network (VSAN) to use as the source SPAN port. The range is from 1 to 4093.

Command Default

None

Command Modes

SPAN session configuration mode
ERSPAN session configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.0(2)N1(1)	Port Channel and SAN Port Channel interfaces can be configured as ingress or egress source ports. The limit on the number of egress (TX) sources in a monitor session has been lifted.
5.1(3)N1(1)	Support for a virtual Ethernet interface and ERSPAN was added.

Usage Guidelines

A source port (also called a *monitored port*) is a switched port that you monitor for network traffic analysis. In a single local SPAN session, you can monitor source port traffic such as received (Rx), transmitted (Tx), or bidirectional (both).

A source port can be an Ethernet port, port channel, SAN port channel, VLAN, or a VSAN port. It cannot be a destination port.

Note For Cisco NX-OS Release 4.2(1)N2(1) and earlier, the Cisco Nexus 5010 Switch and the Cisco Nexus 5020 Switch supports a maximum of two egress SPAN source ports.

Beginning with Cisco NX-OS Release 5.0(2)N2(1):

- There is no limit to the number of egress SPAN source ports.
- SAN Port Channel interfaces can be configured as ingress or egress source ports.
- The limit on the number of egress (TX) sources in a monitor session has been lifted.
- Port-channel interfaces can be configured as egress sources.

For ERSPAN, if you do not specify **both**, **rx**, or **tx**, the source traffic is analyzed for both directions.

Examples

This example shows how to configure an Ethernet SPAN source port:

```
switch# configure terminal
switch(config)# monitor session 9 type local
switch(config-monitor)# description A Local SPAN session
switch(config-monitor)# source interface ethernet 1/1
switch(config-monitor)#
```

This example shows how to configure a port channel SPAN source:

```
switch# configure terminal
switch(config)# monitor session 2
switch(config-monitor)# source interface port-channel 5
switch(config-monitor)#
```

This example shows how to configure an ERSPAN source port to receive traffic on the port:

```
switch# configure terminal
switch(config)# monitor session 1 type erspan-source
switch(config-erspan-src)# source interface ethernet 1/5 rx
switch(config-erspan-src)#
```

Related Commands

Command	Description
destination (SPAN, ERSPAN)	Configures a destination SPAN port.
monitor session	Creates a new SPAN session configuration.
show monitor session	Displays SPAN session configuration information.
show running-config monitor	Displays the running configuration information of a SPAN session.

spanning-tree bridge assurance

To enable Spanning Tree Protocol (STP) Bridge Assurance on all network ports on the switch, use the **spanning-tree bridge assurance** command. To disable Bridge Assurance, use the **no** form of this command.

spanning-tree bridge assurance

no spanning-tree bridge assurance

Syntax Description

This command has no arguments or keywords.

Command Default

Enabled

Command Modes

Global configuration mode

Command History

Release	Modification
4.1(3)	This command was introduced.

Usage Guidelines

You can use Bridge Assurance to protect against certain problems that can cause bridging loops in the network.

Note Bridge Assurance is supported only by Rapid per VLAN Spanning Tree Plus (Rapid PVST+) and Multiple Spanning Tree (MST). Legacy 802.1D spanning tree does not support Bridge Assurance.

Bridge Assurance is enabled by default and can only be disabled globally.

Bridge Assurance is enabled globally by default but is disabled on an interface by default. You can enable Bridge Assurance on an interface by using the **spanning-tree port type network** command.

For more information on Bridge Assurance, see the *Cisco Nexus 5000 Series NX-OS Layer 2 Switching Configuration Guide*.

This command does not require a license.

Examples

This example shows how to enable Bridge Assurance globally on the switch:

```
switch# configure terminal
switch(config)# spanning-tree bridge assurance
switch(config)#
```

Related Commands

Command	Description
show spanning-tree bridge	Displays the status and configuration of the local Spanning Tree Protocol (STP) bridge.
spanning-tree port type network	Configures an interface as a network spanning tree port.

spanning-tree bpdufilter

To enable bridge protocol data unit (BPDU) Filtering on the interface, use the **spanning-tree bpdufilter** command. To return to the default settings, use the **no** form of this command.

spanning-tree bpdufilter {**enable** | **disable**}

no spanning-tree bpdufilter

Syntax Description

enable	Enables BPDU Filtering on this interface.
disable	Disables BPDU Filtering on this interface.

Command Default

The setting that is already configured when you enter the **spanning-tree port type edge bpdufilter default** command.

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Entering the **spanning-tree bpdufilter enable** command to enable BPDU Filtering overrides the spanning tree edge port configuration. That port then returns to the normal spanning tree port type and moves through the normal spanning tree transitions.

Caution Be careful when you enter the **spanning-tree bpdufilter enable** command on specified interfaces. Explicitly configuring BPDU Filtering on a port this is not connected to a host can cause a bridging loop because the port will ignore any BPDU that it receives, and the port moves to the STP forwarding state.

Use the **spanning-tree port type edge bpdufilter default** command to enable BPDU Filtering on all spanning tree edge ports.

Examples

This example shows how to explicitly enable BPDU Filtering on the Ethernet spanning tree edge port 1/4:

```
switch (config)# interface ethernet 1/4
switch(config-if)# spanning-tree bpdufilter enable
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree state.

spanning-tree bpduguard

To enable bridge protocol data unit (BPDU) Guard on an interface, use the **spanning-tree bpduguard** command. To return to the default settings, use the **no** form of this command.

spanning-tree bpduguard {**enable** | **disable**}

no spanning-tree bpduguard

Syntax Description

enable	Enables BPDU Guard on this interface.
disable	Disables BPDU Guard on this interface.

Command Default

The setting that is already configured when you enter the **spanning-tree port type edge bpdufilter default** command.

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

BPDU Guard prevents a port from receiving BPDUs. If the port still receives a BPDU, it is put in the error-disabled state as a protective measure.

Caution Be careful when using this command. You should use this command only with interfaces that connect to end stations; otherwise, an accidental topology loop could cause a data-packet loop and disrupt the switch and network operation.

When you enable this BPDU Guard command globally, the command applies only to spanning tree edge ports. See the **spanning-tree port type edge bpdufilter default** command for more information on the global command for BPDU Guard. However, when you enable this feature on an interface, it applies to that interface regardless of the spanning tree port type.

This command has three states:

- **spanning-tree bpduguard enable**—Unconditionally enables BPDU Guard on the interface.
- **spanning-tree bpduguard disable**—Unconditionally disables BPDU Guard on the interface.
- **no spanning-tree bpduguard**—Enables BPDU Guard on the interface if it is an operational spanning tree edge port and if the **spanning-tree port type edge bpdufilter default** command is configured.

Typically, this feature is used in a service-provider environment where the network administrator wants to prevent an access port from participating in the spanning tree.

Examples

This example shows how to enable BPDU Guard on this interface:

```
switch(config-if)# spanning-tree bpduguard enable
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree state.

spanning-tree cost

To set the path cost of the interface for Spanning Tree Protocol (STP) calculations, use the **spanning-tree cost** command. To return to the default settings, use the **no** form of this command.

spanning-tree [**vlan** *vlan-id*] **cost** {*value* | **auto**}

no spanning-tree [**vlan** *vlan-id*] **cost**

Syntax Description

vlan *vlan-id*	(Optional) Lists the VLANs on this trunk interface for which you want to assign the path cost. You do not use this parameter on access ports. The range is from 1 to 4094.
value	Value of the port cost. The available cost range depends on the path-cost calculation method as follows: • short—The range is from 1 to 65536. • long—The range is from 1 to 200,000,000.
auto	Sets the value of the port cost by the media speed of the interface (see Table 1 for the values).

Command Default

Port cost is set by the media speed.

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

The STP port path cost default value is determined from the media speed and path cost calculation method of a LAN interface (see Table 1). See the **spanning-tree pathcost method** command for information on setting the path cost calculation method for Rapid per VLAN Spanning Tree Plus (Rapid PVST+).

Table 1 Default Port Cost

Bandwidth	Short Path Cost Method Port Cost	Long Path Cost Method Port Cost
10 Mbps	100	2,000,000
100 Mbps	19	200,000
1-Gigabit Ethernet	4	20,000
10-Gigabit Ethernet	2	2,000

When you configure the *value*, higher values will indicate higher costs.

On access ports, assign the port cost by port. On trunk ports, assign the port cost by VLAN; you can configure all the VLANs on a trunk port as the same port cost.

The EtherChannel bundle is considered as a single port. The port cost is the aggregation of all the configured port costs assigned to that channel.

Note Use this command to set the port cost for Rapid PVST+. Use the **spanning-tree mst cost** command to set the port cost for MST.

Examples

This example shows how to access an interface and set a path cost value of 250 for the spanning tree VLAN that is associated with that interface:

```
switch(config)# interface ethernet 1/4
switch(config-if)# spanning-tree cost 250
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree configuration.

spanning-tree domain

To configure a Spanning Tree Protocol (STP) domain, use the **spanning-tree domain** command. To remove an STP domain, use the **no** form of this command.

spanning-tree domain *domain-num*

no spanning-tree domain *domain-num*

Syntax Description

domain-num	STP domain number. The range is from 1 to 1023.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure a spanning-tree domain:

```
switch# configure terminal
switch(config)# spanning-tree domain 1
switch(config)#
```

Related Commands

Command	Description
show spanning-tree	Displays the configuration information of the Spanning Tree Protocol (STP).

spanning-tree guard

To enable or disable Loop Guard or Root Guard, use the **spanning-tree guard** command. To return to the default settings, use the **no** form of this command.

spanning-tree guard {**loop** | **none** | **root**}

no spanning-tree guard

Syntax Description

loop	Enables Loop Guard on the interface.
none	Sets the guard mode to none.
root	Enables Root Guard on the interface.

Command Default

Disabled

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You cannot enable Loop Guard if Root Guard is enabled, although the switch accepts the command to enable Loop Guard on **spanning tree edge ports**.

Examples

This example shows how to enable Root Guard:

```
switch(config-if)# spanning-tree guard root
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree state.

spanning-tree link-type

To configure a link type for a port, use the **spanning-tree link-type** command. To return to the default settings, use the **no** form of this command.

spanning-tree link-type {**auto** | **point-to-point** | **shared**}

no spanning-tree link-type

Syntax Description

auto	Sets the link type based on the duplex setting of the interface.
point-to-point	Specifies that the interface is a point-to-point link.
shared	Specifies that the interface is a shared medium.

Command Default

Link type set automatically based on the duplex setting.

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Fast transition (specified in IEEE 802.1w) functions only on point-to-point links between two bridges.

By default, the switch derives the link type of a port from the duplex mode. A full-duplex port is considered as a point-to-point link while a half-duplex configuration is assumed to be on a shared link.

Note On a Cisco Nexus 5000 Series switch, port duplex is not configurable.

Examples

This example shows how to configure the port as a shared link:

```
switch(config-if)# spanning-tree link-type shared
```

Related Commands

Command	Description
show spanning-tree interface	Displays information about the spanning tree state.

spanning-tree loopguard default

To enable Loop Guard as a default on all spanning tree normal and network ports, use the **spanning-tree loopguard default** command. To disable Loop Guard, use the **no** form of this command.

spanning-tree loopguard default

no spanning-tree loopguard default

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Loop Guard provides additional security in the bridge network. Loop Guard prevents alternate or root ports from becoming the designated port because of a failure that could lead to a unidirectional link.

Loop Guard operates only on ports that are considered point-to-point links by the spanning tree, and it does not run on spanning tree edge ports.

Entering the **spanning-tree guard loop** command for the specified interface overrides this global Loop Guard command.

Examples

This example shows how to enable Loop Guard:

```
switch(config)# spanning-tree loopguard default
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree state.

spanning-tree mode

To switch between Rapid per VLAN Spanning Tree Plus (Rapid PVST+) and Multiple Spanning Tree (MST) Spanning Tree Protocol (STP) modes, use the **spanning-tree mode** command. To return to the default settings, use the **no** form of this command.

spanning-tree mode {**rapid-pvst** | **mst**}

no spanning-tree mode

Syntax Description

rapid-pvst	Sets the STP mode to Rapid PVST+.
mst	Sets the STP mode to MST.

Command Default

Rapid PVST+

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You cannot simultaneously run MST and Rapid PVST+ on the switch.

Caution Be careful when using the **spanning-tree mode** command to switch between Rapid PVST+ and MST modes. When you enter the command, all STP instances are stopped for the previous mode and are restarted in the new mode. Using this command may cause the user traffic to be disrupted.

Examples

This example shows how to switch to MST mode:

```
switch(config)# spanning-tree mode mst
switch(config-mst)#
```

Related Commands

Command	Description
show spanning-tree summary	Displays the information about the spanning tree configuration.

spanning-tree mst configuration

To enter the Multiple Spanning Tree (MST) configuration mode, use the **spanning-tree mst configuration** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst configuration

no spanning-tree mst configuration

Syntax Description

This command has no arguments or keywords.

Command Default

The default value for the MST configuration is the default value for all its parameters:

- No VLANs are mapped to any MST instance. All VLANs are mapped to the Common and Internal Spanning Tree (CIST) instance.
- The region name is an empty string.
- The revision number is 0.

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

The MST configuration consists of three main parameters:

- Instance VLAN mapping—See the **instance vlan** command.
- Region name—See the **name (MST configuration)** command.
- Configuration revision number—See the **revision** command.

The **abort** and **exit** commands allow you to exit MST configuration mode. The difference between the two commands depends on whether you want to save your changes or not:

- The **exit** command commits all the changes before leaving MST configuration mode.
- The **abort** command leaves MST configuration mode without committing any changes.

If you do not map secondary VLANs to the same instance as the associated primary VLAN, when you exit MST configuration mode, the following warning message is displayed:

```
These secondary vlans are not mapped to the same instance as their primary:
-> 3
```

See the **switchport mode private-vlan host** command to fix this problem.

Changing an MST configuration mode parameter can cause connectivity loss. To reduce service disruptions, when you enter MST configuration mode, make changes to a copy of the current MST configuration. When you are done editing the configuration, you can apply all the changes at once by using the **exit** keyword.

In the unlikely event that two administrators commit a new configuration at exactly the same time, this warning message is displayed:

```
% MST CFG:Configuration change lost because of concurrent access
```

Examples

This example shows how to enter MST-configuration mode:

```
switch(config)# spanning-tree mst configuration
switch(config-mst)#
```

This example shows how to reset the MST configuration (name, instance mapping, and revision number) to the default settings:

```
switch(config)# no spanning-tree mst configuration
```

Related Commands

Command	Description
instance vlan	Maps a VLAN or a set of VLANs to an MST instance.
name (MST configuration)	Sets the name of an MST region.
revision	Sets the revision number for the MST configuration.
show spanning-tree mst	Displays the information about the MST protocol.

spanning-tree mst cost

To set the path-cost parameter for any Multiple Spanning Tree (MST) instance (including the Common and Internal Spanning Tree [CIST] with instance ID 0), use the **spanning-tree mst cost** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst *instance-id* **cost** {*cost* | **auto**}

no spanning-tree mst *instance-id* **cost**

Syntax Description

instance-id	Instance ID number. The range is from 0 to 4094.
cost	Port cost for an instance. The range is from 1 to 200,000,000.
auto	Sets the value of the port cost by the media speed of the interface.

Command Default

Automatically set port cost values:

- 10 Mbps—2,000,000
- 100 Mbps—200,000
- 1-Gigabit Ethernet—20,000
- 10-Gigabit Ethernet—2,000

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

The port cost depends on the port speed; the faster interface speeds indicate smaller costs. MST always uses long path costs.

Higher cost values indicate higher costs. When entering the cost, do not include a comma in the entry; for example, enter 1000, not 1,000.

The EtherChannel bundle is considered as a single port. The port cost is the aggregation of all the configured port costs assigned to that channel.

Examples

This example shows how to set the interface path cost:

```
switch(config-if)# spanning-tree mst 0 cost 17031970
```

Related Commands

Command	Description
show spanning-tree mst	Displays the information about the MST protocol.

spanning-tree mst forward-time

To set the forward-delay timer for all the instances on the switch, use the **spanning-tree mst forward-time** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst forward-time *seconds*

no spanning-tree mst forward-time

Syntax Description

seconds	Number of seconds to set the forward-delay timer for all the instances on the switch. The range is from 4 to 30 seconds.

Command Default

15 seconds

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to set the forward-delay timer:

```
switch(config)# spanning-tree mst forward-time 20
```

Related Commands

Command	Description
show spanning-tree mst	Displays the information about the MST protocol.

spanning-tree mst hello-time

To set the hello-time delay timer for all the instances on the switch, use the **spanning-tree mst hello-time** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst hello-time *seconds*

no spanning-tree mst hello-time

Syntax Description

seconds	Number of seconds to set the hello-time delay timer for all the instances on the switch. The range is from 1 to 10 seconds.

Command Default

2 seconds

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

If you do not specify the *hello-time* value, the value is calculated from the network diameter.

Examples

This example shows how to set the hello-time delay timer:

```
switch(config)# spanning-tree mst hello-time 3
```

Related Commands

Command	Description
show spanning-tree mst	Displays the information about the MST protocol.

spanning-tree mst max-age

To set the max-age timer for all the instances on the switch, use the **spanning-tree mst max-age** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst max-age *seconds*

no spanning-tree mst max-age

Syntax Description

seconds	Number of seconds to set the max-age timer for all the instances on the switch. The range is from 6 to 40 seconds.

Command Default

20 seconds

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

This parameter is used only by Instance 0 or the IST.

Examples

This example shows how to set the max-age timer:

```
switch(config)# spanning-tree mst max-age 40
```

Related Commands

Command	Description
show spanning-tree mst	Displays the information about the MST protocol.

spanning-tree mst max-hops

To specify the number of possible hops in the region before a bridge protocol data unit (BPDU) is discarded, use the **spanning-tree mst max-hops** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst max-hops *hop-count*

no spanning-tree mst max-hops

Syntax Description

hop-count	Number of possible hops in the region before a BPDU is discarded. The range is from 1 to 255 hops.

Command Default

20 hops

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to set the number of possible hops:

```
switch(config)# spanning-tree mst max-hops 25
```

Related Commands

Command	Description
show spanning-tree mst	Displays the information about the MST protocol.

spanning-tree mst port-priority

To set the port-priority parameters for any Multiple Spanning Tree (MST) instance, including the Common and Internal Spanning Tree (CIST) with instance ID 0, use the **spanning-tree mst port-priority** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst *instance-id* **port-priority** *priority*

no spanning-tree mst *instance-id* **port-priority**

Syntax Description

instance-id	Instance ID number. The range is from 0 to 4094.
priority	Port priority for an instance. The range is from 0 to 224 in increments of 32.

Command Default

Port priority value is 128.

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Higher **port-priority** *priority* values indicate smaller priorities.

The priority values are 0, 32, 64, 96, 128, 160, 192, and 224. All other values are rejected.

Examples

This example shows how to set the interface priority:

```
switch(config-if)# spanning-tree mst 0 port-priority 64
```

Related Commands

Command	Description
show spanning-tree mst	Displays the information about the MST protocol.
spanning-tree port-priority	Configures the port priority for the default STP, which is Rapid PVST+.

spanning-tree mst pre-standard

To force a prestandard Multiple Spanning Tree (MST) bridge protocol data unit (BPDU) transmission on an interface port, use the **spanning-tree mst pre-standard** command. To revert to the defaults, use the **no** form of this command.

spanning-tree mst pre-standard

no spanning-tree mst pre-standard

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to force a prestandard MST BPDU transmission on port:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# spanning-tree mst pre-standard
switch(config-if)#
```

Related Commands

Command	Description
show spanning-tree mst	Displays the information about the MST protocol.

spanning-tree mst priority

To set the bridge priority, use the **spanning-tree mst priority** command. To return to the default setting, use the **no** form of this command.

spanning-tree mst *instance-id* **priority** *priority-value*

no spanning-tree mst *instance-id* **priority**

Syntax Description

instance-id	Instance identification number. The range is from 0 to 4094.
priority-value	Bridge priority. See the "Usage Guidelines" section for valid values and additional information.

Command Default

Bridge priority default is 32768.

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You can set the bridge priority in increments of 4096 only. When you set the priority, valid values are 0, 4096, 8192, 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152, 53248, 57344, and 61440.

You can set the *priority-value* argument to 0 to make the switch root.

You can enter the *instance-id* argument as a single instance or a range of instances, for example, 0-3,5,7-9.

Examples

This example shows how to set the bridge priority:

```
switch(config)# spanning-tree mst 0 priority 4096
```

Related Commands

Command	Description
show spanning-tree mst	Displays the information about the MST protocol.

spanning-tree mst root

To designate the primary and secondary root and set the timer value for an instance, use the **spanning-tree mst root** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst *instance-id* **root** {**primary** | **secondary**} [**diameter** *dia* [**hello-time** *hello-time*]]

no spanning-tree mst *instance-id* **root**

Syntax Description

instance-id	Instance identification number. The range is from 0 to 4094.
primary	Specifies the high priority (low value) that is high enough to make the bridge root of the spanning-tree instance.
secondary	Specifies the switch as a secondary root, if the primary root fails.
diameter *dia*	(Optional) Specifies the timer values for the bridge that are based on the network diameter.
hello-time *hello-time*	(Optional) Specifies the duration between the generation of configuration messages by the root switch. The range is from 1 to 10 seconds; the default is 2 seconds.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You can enter the *instance-id* argument as a single instance or a range of instances, for example, 0-3,5,7-9.

If you do not specify the *hello-time* argument, the argument is calculated from the network diameter. You must first specify the **diameter** *dia* keyword and argument before you can specify the **hello-time** *hello-time* keyword and argument.

Examples

This example shows how to designate the primary root:

```
switch(config)# spanning-tree mst 0 root primary
```

This example shows how to set the priority and timer values for the bridge:

```
switch(config)# spanning-tree mst 0 root primary diameter 7 hello-time 2
```

Related Commands

Command	Description
show spanning-tree mst	Displays the information about the MST protocol.

spanning-tree mst simulate pvst

To reenable specific interfaces to automatically interoperate between Multiple Spanning Tree (MST) and Rapid per VLAN Spanning Tree Plus (Rapid PVST+), use the **spanning-tree mst simulate pvst** command. To prevent specific MST interfaces from automatically interoperating with a connecting device running Rapid PVST+, use the **spanning-tree mst simulate pvst disable** command. To return specific interfaces to the default settings that are set globally for the switch, use the **no** form of this command.

spanning-tree mst simulate pvst

spanning-tree mst simulate pvst disable

no spanning-tree mst simulate pvst

Syntax Description

This command has no arguments or keywords.

Command Default

Enabled. By default, all interfaces on the switch interoperate seamlessly between MST and Rapid PVST+. See the **spanning-tree mst simulate pvst global** command to change this setting globally.

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

MST interoperates with Rapid PVST+ with no need for user configuration. The PVST+ simulation feature enables this seamless interoperability. However, you may want to control the connection between MST and Rapid PVST+ to protect against accidentally connecting an MST-enabled port to a Rapid PVST+-enabled port.

When you use the **spanning-tree mst simulate pvst disable** command, specified MST interfaces that receive a Rapid PVST+ (SSTP) bridge protocol data unit (BPDU) move into the STP blocking state. Those interfaces remain in the inconsistent state until the port stops receiving Rapid PVST+ BPDUs, and then the port resumes the normal STP transition process.

Note To block automatic MST and Rapid PVST+ interoperability for the entire switch, use **no spanning-tree mst simulate pvst global** command.

This command is useful when you want to prevent accidental connection with a device running Rapid PVST+.

To reenable seamless operation between MST and Rapid PVST+ on specific interfaces, use the **spanning-tree mst simulate pvst** command.

Examples

This example shows how to prevent specified ports from automatically interoperating with a connected device running Rapid PVST+:

```
switch(config-if)# spanning-tree mst simulate pvst disable
```

Related Commands

Command	Description
spanning-tree mst simulate pvst global	Enables global seamless interoperation between MST and Rapid PVST+.

spanning-tree mst simulate pvst global

To prevent the Multiple Spanning Tree (MST) switch from automatically interoperating with a connecting device running Rapid per VLAN Spanning Tree Plus (Rapid PVST+), use the **spanning-tree mst simulate pvst global** command. To return to the default settings, which is a seamless operation between MST and Rapid PVST+ on the switch, use the **no spanning-tree mst simulate pvst global** command.

spanning-tree mst simulate pvst global

no spanning-tree mst simulate pvst global

Syntax Description

This command has no arguments or keywords.

Command Default

Enabled. By default, the switch interoperates seamlessly between MST and Rapid PVST+.

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

MST does not require user configuration to interoperate with Rapid PVST+. The PVST+ simulation feature enables this seamless interoperability. However, you may want to control the connection between MST and Rapid PVST+ to protect against accidentally connecting an MST-enabled port to a Rapid PVST+-enabled port.

When you use the **no spanning-tree mst simulate pvst global** command, the switch running in MST mode moves all interfaces that receive a Rapid PVST+ (SSTP) bridge protocol data unit (BPDU) into the Spanning Tree Protocol (STP) blocking state. Those interfaces remain in the inconsistent state until the port stops receiving Rapid PVST+ BPDUs, and then the port resumes the normal STP transition process.

You can also use this command from the interface mode, and the configuration applies to the entire switch.

Note To block automatic MST and Rapid PVST+ interoperability for specific interfaces, see the **spanning-tree mst simulate pvst** command.

This command is useful when you want to prevent accidental connection with a device not running MST.

To return the switch to seamless operation between MST and Rapid PVST+, use the **spanning-tree mst simulate pvst global** command.

Examples

This example shows how to prevent all ports on the switch from automatically interoperating with a connected device running Rapid PVST+:

```
switch(config)# no spanning-tree mst simulate pvst global
```

Related Commands

Command	Description
spanning-tree mst simulate pvst	Enables seamless interoperation between MST and Rapid PVST+ by the interface.

spanning-tree pathcost method

To set the default path-cost calculation method, use the **spanning-tree pathcost method** command. To return to the default settings, use the **no** form of this command.

spanning-tree pathcost method {**long** | **short**}

no spanning-tree pathcost method

Syntax Description

long	Specifies the 32-bit based values for port path costs.
short	Specifies the 16-bit based values for port path costs.

Command Default

Short

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

The **long** path-cost calculation method uses all 32 bits for path-cost calculations and yields valued in the range of 2 through 2,00,000,000.

The **short** path-cost calculation method (16 bits) yields values in the range of 1 through 65535.

Note This command applies only to the Rapid per VLAN Spanning Tree Plus (Rapid PVST+) spanning tree mode, which is the default mode. When you are using Multiple Spanning Tree (MST) spanning tree mode, the switch uses only the long method for calculating path cost; this is not user-configurable for MST.

Examples

This example shows how to set the default pathcost method to long:

```
switch(config)# spanning-tree pathcost method long
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree state.

spanning-tree port-priority

To set an interface priority when two bridges compete for position as the root bridge, use the **spanning-tree port-priority** command. The priority you set breaks the tie. To return to the default settings, use the **no** form of this command.

spanning-tree [**vlan** *vlan-id*] **port-priority** *value*

no spanning-tree [**vlan** *vlan-id*] **port-priority**

Syntax Description

vlan *vlan-id*	(Optional) Specifies the VLAN identification number. The range is from 0 to 4094.
value	Port priority. The range is from 1 to 224, in increments of 32.

Command Default

Port priority default value is 128.

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Do not use the **vlan** *vlan-id* parameter on access ports. The software uses the port priority value for access ports and the VLAN port priority values for trunk ports.

The priority values are 0, 32, 64, 96, 128, 160, 192, and 224. All other values are rejected.

Note Use this command to configure the port priority for Rapid per VLAN Spanning Tree Plus (Rapid PVST+) spanning tree mode, which is the default STP mode. To configure the port priority for Multiple Spanning Tree (MST) spanning tree mode, use the **spacing-tree mst port-priority** command.

Examples

This example shows how to increase the probability that the spanning tree instance on access port interface 2/0 is chosen as the root bridge by changing the port priority to 32:

```
switch(config-if)# spanning-tree port-priority 32
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree state.
spanning-tree interface priority	Displays information on the spanning tree port priority for the interface.

spanning-tree port type edge

To configure an interface connected to a host as an edge port, which automatically transitions the port to the spanning tree forwarding state without passing through the blocking or learning states, use the **spanning-tree port type edge** command. To return the port to a normal spanning tree port, use the **no spanning-tree port type** command.

spanning-tree port type edge [**trunk**]

no spanning-tree port type

Syntax Description

trunk	(Optional) Configures the trunk port as a spanning tree edge port.

Command Default

The default is the global setting for the default port type edge that is configured when you entered the **spanning-tree port type edge default** command. If you did not configure a global setting, the default spanning tree port type is normal.

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You can also use this command to configure a port in trunk mode as a spanning tree edge port.

Caution You should use this command only with interfaces that connect to end stations; otherwise, an accidental topology loop could cause a data-packet loop and disrupt the switch and network operation.

When a linkup occurs, spanning tree edge ports are moved directly to the spanning tree forwarding state without waiting for the standard forward-time delay.

Note This is the same functionality that was previously provided by the Cisco-proprietary PortFast feature.

When you use this command, the system returns a message similar to the following:

```
Warning: portfast should only be enabled on ports connected to a single
 host. Connecting hubs, concentrators, switches, bridges, etc... to this
 interface when portfast is enabled, can cause temporary bridging loops.
 Use with CAUTION
```

When you use this command without the **trunk** keyword, the system returns an additional message similar to the following:

```
%Portfast has been configured on Ethernet1/40 but will only
 have effect when the interface is in a non-trunking mode.
```

To configure trunk interfaces as spanning tree edge ports, use the **spanning-tree port type trunk** command. To remove the spanning tree edge port type setting, use the **no spanning-tree port type** command.

The default spanning tree port type is normal.

Examples

This example shows how to configure an interface connected to a host as an edge port, which automatically transitions that interface to the forwarding state on a linkup:

```
switch(config-if)# spanning-tree port type edge
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree state.

spanning-tree port type edge bpdufilter default

To enable bridge protocol data unit (BPDU) Filtering by default on all spanning tree edge ports, use the **spanning-tree port type edge bpdufilter default** command. To disable BPDU Filtering by default on all edge ports, use the **no** form of this command.

spanning-tree port type edge bpdufilter default

no spanning-tree port type edge bpdufilter default

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Notification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

To enable BPDU Filtering by default, you must do the following:

- Configure the interface as a spanning tree edge port, using the **spanning-tree port type edge** or the **spanning-tree port type edge default** command.
- Enable BPDU Filtering.

Use this command to enable BPDU Filtering globally on all spanning tree edge ports. BPDU Filtering prevents a port from sending or receiving any BPDUs.

Caution Be cautious when using this command; incorrect usage can cause bridging loops.

You can override the global effects of this **spanning-tree port type edge bpdufilter default** command by configuring BPDU Filtering at the interface level. See the **spanning-tree bpdufilter** command for complete information on using this feature at the interface level.

Note The BPDU Filtering feature's functionality is different when you enable it on a per-port basis or globally. When enabled globally, BPDU Filtering is applied only on ports that are operational spanning tree edge ports. Ports send a few BPDUs at a linkup before they effectively filter outbound BPDUs. If a BPDU is received on an edge port, that port immediately becomes a normal spanning tree port with all the normal transitions and BPDU Filtering is disabled. When enabled locally on a port, BPDU Filtering prevents the switch from receiving or sending BPDUs on this port.

Examples

This example shows how to enable BPDU Filtering globally on all spanning tree edge operational ports by default:

```
switch(config)# spanning-tree port type edge bpdufilter default
```

Related Commands

Command	Description
show spanning-tree summary	Displays the information about the spanning tree configuration.
spanning-tree bpdufilter	Enables BPDU Filtering on the interface.
spanning-tree port type edge	Configures an interface as a spanning tree edge port.

spanning-tree port type edge bpduguard default

To enable bridge protocol data unit (BPDU) Guard by default on all spanning tree edge ports, use the **spanning-tree port type edge bpduguard default** command. To disable BPDU Guard on all edge ports by default, use the **no** form of this command.

spanning-tree port type edge bpduguard default

no spanning-tree port type edge bpduguard default

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

To enable BPDU Guard by default, you must do the following:

- Configure the interface as spanning tree edge ports by entering the **spanning-tree port type edge** or the **spanning-tree port type edge default** command.
- Enable BPDU Guard.

Use this command to enable BPDU Guard globally on all spanning tree edge ports. BPDU Guard disables a port if it receives a BPDU.

Global BPDU Guard is applied only on spanning tree edge ports.

You can also enable BPDU Guard per interface; see the **spanning-tree bpduguard** command for more information.

Note We recommend that you enable BPDU Guard on all spanning tree edge ports.

Examples

This example shows how to enable BPDU Guard by default on all spanning tree edge ports:

```
switch(config)# spanning-tree port type edge bpduguard default
```

Related Commands

Command	Description
show spanning-tree summary	Displays the information about the spanning tree configuration.
spanning-tree bpduguard	Enables BPDU guard on the interface.
spanning-tree port type edge	Configures an interface as a spanning tree edge port.

spanning-tree port type edge default

To configure all access ports that are connected to hosts as edge ports by default, use the **spanning-tree port type edge default** command. To restore all ports connected to hosts as normal spanning tree ports by default, use the **no** form of this command.

spanning-tree port type edge default

no spanning-tree port type edge default

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Use this command to automatically configure all interfaces as spanning tree edge ports by default. This command will not work on trunk ports.

Caution Be careful when using this command. You should use this command only with interfaces that connect to end stations; otherwise, an accidental topology loop could cause a data-packet loop and disrupt the switch and network operation.

When a linkup occurs, an interface configured as an edge port automatically moves the interface directly to the spanning tree forwarding state without waiting for the standard forward-time delay. (This transition was previously configured as the Cisco-proprietary PortFast feature.)

When you use this command, the system returns a message similar to the following:

```
Warning: this command enables portfast by default on all interfaces. You
 should now disable portfast explicitly on switched ports leading to hubs,
 switches and bridges as they may create temporary bridging loops.
```

You can configure individual interfaces as edge ports using the **spanning-tree port type edge** command.

The default spanning tree port type is normal.

Examples

This example shows how to globally configure all ports connected to hosts as spanning tree edge ports:

```
switch(config)# spanning-tree port type edge default
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree configuration.
spanning-tree port type edge	Configures an interface as a spanning tree edge port.

spanning-tree port type network

To configure the interface that connects to a switch as a network spanning tree port, regardless of the global configuration, use the **spanning-tree port type network** command. To return the port to a normal spanning tree port, use the use the **no** form of this command.

spanning-tree port type network

no spanning-tree port type

Syntax Description

This command has no arguments or keywords.

Command Default

The default is the global setting for the default port type network that is configured when you entered the **spanning-tree port type network default** command. If you did not configure a global setting, the default spanning tree port type is normal.

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Use this command to configure an interface that connects to a switch as a spanning tree network port. Bridge Assurance runs only on Spanning Tree Protocol (STP) network ports.

Note If you mistakenly configure ports connected to hosts as STP network ports and enable Bridge Assurance, those ports will automatically move into the blocking state.

Note Bridge Assurance is enabled by default, and all interfaces configured as spanning tree network ports have Bridge Assurance enabled.

To configure a port as a spanning tree network port, use the **spanning-tree port type network** command. To remove this configuration, use the **no spanning-tree port type** command. When you use the **no spanning-tree port type** command, the software returns the port to the global default setting for network port types.

You can configure all ports that are connected to switches as spanning tree network ports by default by entering the **spanning-tree port type network default** command.

The default spanning tree port type is normal.

Examples

This example shows how to configure an interface connected to a switch or bridge as a spanning tree network port:

```
switch(config-if)# spanning-tree port type network
```

Related Commands

Command	Description
show spanning-tree interface	Displays information about the spanning tree configuration per specified interface.

spanning-tree port type network default

To configure all ports as spanning tree network ports by default, use the **spanning-tree port type network default** command. To restore all ports to normal spanning tree ports by default, use the **no** form of this command.

spanning-tree port type network default

no spanning-tree port type network default

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Use this command to automatically configure all interfaces that are connected to switches as spanning tree network ports by default. You can then use the **spanning-tree port type edge** command to configure specified ports that are connected to hosts as spanning-tree edge ports.

Note If you mistakenly configure ports connected to hosts as Spanning Tree Protocol (STP) network ports and Bridge Assurance is enabled, those ports will automatically move into the blocking state.

Configure only the ports that connect to other switches as network ports because the Bridge Assurance feature causes network ports that are connected to hosts to move into the spanning tree blocking state.

You can identify individual interfaces as network ports by using the **spanning-tree port type network** command.

The default spanning tree port type is normal.

Examples

This example shows how to globally configure all ports connected to switches as spanning tree network ports:

```
switch(config)# spanning-tree port type network default
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree configuration.

spanning-tree port type normal

To configure an interface as a normal spanning tree port, use the **spanning-tree port type normal** command. To revert to the default settings, use the **no** command.

spanning-tree port type normal

no spanning-tree port type normal

Syntax Description

This command has no arguments or keywords.

Command Default

Default spanning tree port type is normal.

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure an interface as a normal port:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# spanning-tree port type normal
switch(config-if)#
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree state.

spanning-tree pseudo-information

To configure spanning tree pseudo information parameters for two Layer 2 gateway switches, use the **spanning-tree pseudo-information** command.

spanning-tree pseudo-information

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

Use this command in a topology with hybrid switches (for example, a virtual port channel [vPC] connected to a non-vPC switch) to configure VLAN-based load balancing.

To meet the VLAN-based load-balancing criteria, you must configure a different Spanning Tree Protocol (STP) bridge priority value for the root bridge and the designated bridge.

This command does not require a license.

Examples

This example shows how to enable Bridge Assurance globally on the switch:

```
switch# configure terminal
switch(config)# spanning-tree pseudo-information
switch(config-pseudo)#
```

Related Commands

Command	Description
mst (STP)	Configures the Multiple Spanning Tree (MST) designated bridge and root bridge priority.
show running-config spanning-tree	Displays the running configuration information for spanning trees.
show spanning-tree summary	Displays the summary information of the STP.
vlan (STP)	Configures the designated bridge and root bridge priority for VLANs.

spanning-tree vlan

To configure Spanning Tree Protocol (STP) parameters on a per-VLAN basis, use the **spanning-tree vlan** command. To return to the default settings, use the **no** form of this command.

spanning-tree vlan *vlan-id* [**forward-time** *value* | **hello-time** *value* | **max-age** *value* | **priority** *value* | [**root** {**primary** | **secondary**} [**diameter** *dia* [**hello-time** *value*]]]]

no spanning-tree vlan *vlan-id* [**forward-time** | **hello-time** | **max-age** | **priority** | **root**]

Syntax Description

vlan-id	VLAN identification number. The VLAN ID range is from 0 to 4094.
forward-time *value*	(Optional) Specifies the STP forward-delay time. The range is from 4 to 30 seconds.
hello-time *value*	(Optional) Specifies the number of seconds between the generation of configuration messages by the root switch. The range is from 1 to 10 seconds.
max-age *value*	(Optional) Specifies the maximum number of seconds that the information in a bridge protocol data unit (BPDU) is valid. The range is from 6 to 40 seconds.
priority *value*	(Optional) Specifies the STP-bridge priority; the valid values are 0, 4096, 8192, 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152, 53248, 57344, or 61440. All other values are rejected.
root primary	(Optional) Forces this switch to be the root bridge.
root secondary	(Optional) Forces this switch to be the root switch if the primary root fails.
diameter *dia*	(Optional) Specifies the maximum number of bridges between any two points of attachment between end stations.

Command Default

The defaults are as follows:

- **forward-time**—15 seconds
- **hello-time**—2 seconds
- **max-age**—20 seconds
- **priority**—32768

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Caution When disabling spanning tree on a VLAN using the **no spanning-tree vlan** *vlan-id* command, ensure that all switches and bridges in the VLAN have spanning tree disabled. You cannot disable spanning tree on some switches and bridges in a VLAN and leave it enabled on other switches and bridges in the same VLAN because switches and bridges with spanning tree enabled have incomplete information about the physical topology of the network.

Caution We do not recommend disabling spanning tree even in a topology that is free of physical loops. Spanning tree is a safeguard against misconfigurations and cabling errors. Do not disable spanning tree in a VLAN without ensuring that there are no physical loops present in the VLAN.

When setting the **max-age** *seconds*, if a bridge does not see BPDUs from the root bridge within the specified interval, it assumes that the network has changed and recomputes the spanning-tree topology.

The **spanning-tree root primary** alters this switch's bridge priority to 24576. If you enter the **spanning-tree root primary** command and the switch does not become the root, then the bridge priority is changed to 4096 less than the bridge priority of the current bridge. The command fails if the value required to be the root bridge is less than 1. If the switch does not become the root, an error results.

If the network devices are set for the default bridge priority of 32768 and you enter the **spanning-tree root secondary** command, the software alters the bridge priority of the current bridge to 28762. If the root switch fails, this switch becomes the next root switch.

Use the **spanning-tree root** commands on the backbone switches only.

Examples

This example shows how to enable spanning tree on VLAN 200:

```
switch(config)# spanning-tree vlan 200
```

This example shows how to configure the switch as the root switch for VLAN 10 with a network diameter of 4:

```
switch(config)# spanning-tree vlan 10 root primary diameter 4
```

This example shows how to configure the switch as the secondary root switch for VLAN 10 with a network diameter of 4:

```
switch(config)# spanning-tree vlan 10 root secondary diameter 4
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree state.

spanning-tree vlan cost

To change the spanning tree port path-cost of an interface, use the **spanning-tree vlan cost** command. To return to the default settings, use the **no** form of this command.

spanning-tree vlan *vlan-id* **cost** {*port_path_cost* | **auto**}

no spanning-tree vlan *vlan-id* **cost** {*port_path_cost* | **auto**}

Syntax Description

vlan-id	VLAN identification number. The VLAN ID range is from 0 to 4094.
port_path_cost	Port path cost. The range is from 1 to 200,000,000.
auto	Determines the cost based on the media speed of this interface.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to change the spanning tree port path cost of an interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# spanning-tree vlan 5 cost 200
switch(config-if)#
```

This example shows how to revert the interface to the default configuration:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# no spanning-tree vlan 5 cost 200
switch(config-if)#
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree state.

spanning-tree vlan port-priority

To change the spanning tree port priority of an interface, use the **spanning-tree vlan port-priority** command. To return to the default settings, use the **no** form of this command.

spanning-tree vlan *vlan-id* **port-priority** *port_priority_value*

no spanning-tree vlan *vlan-id* **port-priority** *port_priority_value*

Syntax Description

vlan-id	VLAN identification number. The VLAN ID range is from 0 to 4094.
port_priority_value	Port priority. The range is from 0 to 224 in increments of 32.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to change the spanning tree port priority of an interface to 20:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# spanning-tree vlan 5 port-priority 20
switch(config-if)#
```

This example shows how to revert the interface to the default configuration:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# no spanning-tree vlan 5 port-priority 20
switch(config-if)#
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree state.

speed (interface)

To configure the transmit and receive speed for an interface, use the **speed** command. To reset to the default speed, use the **no** form of this command.

speed {**100** | **1000** | **10000** | **auto**}

no speed

Syntax Description

100	Sets the interface speed to 100 Mbps. **Note** This keyword is not supported on a management interface.
1000	Sets the interface speed to 1 Gbps.
10000	Sets the interface speed to 10 Gbps. This is the default speed. **Note** This keyword is not supported on a management interface.
auto	Specifies that the speed of the interface is auto negotiated.

Command Default

The default speed is 10000 (10-Gigabit).

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(1a)N1(1)	This command was introduced.
5.1(3)N1(1)	Interface speed of 100 Mbps and the **auto** keyword was introduced.

Usage Guidelines

The first 8 ports of a Cisco Nexus 5010 switch and the first 16 ports of a Cisco Nexus 5020 switch are switchable 1-Gigabit and 10-Gigabit ports. The default interface speed is 10-Gigabit. To configure these ports for 1-Gigabit Ethernet, insert a 1-Gigabit Ethernet SFP transceiver into the applicable port and then set its speed with the speed command.

Note If the interface and transceiver speed is mismatched, the SFP validation failed message is displayed when you enter the **show interface ethernet** *slot*/*port* command. For example, if you insert a 1-Gigabit SFP transceiver into a port without configuring the **speed 1000** command, you will get this error.

By default, all ports on a Cisco Nexus 5000 Series switch are 10 Gigabits.

Examples

This example shows how to set the speed for a 1-Gigabit Ethernet port:

```
switch# configure terminal
switch(config)# interface ethernet 2/1
switch(config-if)# speed 1000
```

This example shows how to set the an interface port to automatically negotiate the speed:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# speed auto
switch(config-if)#
```

Related Commands

Command	Description
show interface	Displays the interface configuration information.

state

To set the operational state for a VLAN, use the **state** command. To return a VLAN to its default operational state, use the **no** form of this command.

state {**active** | **suspend**}

no state

Syntax Description

active	Specifies that the VLAN is actively passing traffic.
suspend	Specifies that the VLAN is not passing any packets.

Command Default

The VLAN is actively passing traffic.

Command Modes

VLAN configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You cannot suspend the state for VLAN 1 or VLANs 1006 to 4094.

VLANs in the suspended state do not pass packets.

Examples

This example shows how to suspend VLAN 2:

```
switch(config)# vlan 2
switch(config-vlan)# state suspend
```

Related Commands

Command	Description
show vlan	Displays VLAN information.

svi enable

To enable the creation of VLAN interfaces, use the **svi enable** command. To disable the VLAN interface feature, use the **no** form of this command.

svi enable

no svi enable

Syntax Description

This command has no arguments or keywords.

Command Default

VLAN interfaces are disabled.

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
4.0(1a)N1(1)	This command was deprecated and replaced with the **feature interface-vlan** command. For backwards compatibility, it will be maintained for a number of releases.

Usage Guidelines

You must use the **feature interface-vlan** command before you can create VLAN interfaces.

Examples

This example shows how to enable the interface VLAN feature on the switch:

```
switch(config)# svi enable
```

Related Commands

Command	Description
interface vlan	Creates a VLAN interface.

svs connection

To enable an SVS connection to connect a vCenter Server to a Cisco Nexus 5000 Series switch, use the **svs connection** command. To disable an SVS connection, use the **no** form of this command.

svs connection *svs-name*

no svs connection *svs-name*

Syntax Description

svs-name	Name of the SVS connection. The name can be a maximum of 64 alphanumeric characters.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

Only one SVS connection can be enabled per session.

This command does not require a license.

Examples

This example shows how to enable an SVS connection:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)#
```

This example shows how to disable an SVS connection:

```
switch# configure terminal
switch(config)# no svs connection SVSConn
switch(config)#
```

Related Commands

Command	Description
connect	Initiates a connection with a vCenter server.
protocol vmware-vim	Enables the VMware VI SDK.
show svs connections	Displays SVS connection information.
remote	Connects to remote machines.
vmware dvs	Creates a VMware virtual switch.

svs veth auto-delete

To enable the Virtual Supervisor Module (VSM) to automatically delete Distributed virtual ports (dvPorts) no longer used by a virtual NIC (vNIC) or hypervisor port, use the **svs veth auto-delete** command. To disable this control, use the **no** form of this command.

svs veth auto-delete

no svs veth auto-delete

Syntax Description

This command has no arguments or keywords.

Command Default

Enabled

Command Modes

Global configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

When enabled (the default), any virtual Ethernet interfaces that are in the administratively down state will be deleted after confirming with the vCenter server that no corresponding vNICs are in use.

This command does not require a license.

Examples

This example shows how to enable the Virtual Supervisor Module (VSM) to automatically delete dvPorts no longer used by a vNIC or hypervisor port:

```
switch# configure terminal
switch(config)# svs veth auto-delete
switch(config)#
```

This example shows how to disable the automatic deletion of dvPorts that are no longer used by a vNIC or hypervisor port:

```
switch# configure terminal
switch(config)# no svs veth auto-delete
switch(config)#
```

Related Commands

Command	Description
interface vethernet	Creates a virtual Ethernet interface.
show svs connections	Displays SVS connection information.
svs veth auto-setup	Enables the VSM to automatically create a virtual Ethernet interface when a new port is activated on a host.

svs veth auto-setup

To enable the Virtual Supervisor Module (VSM) to automatically create a virtual Ethernet interface when a new port is activated on a host, use the **svs veth auto-setup** command. To remove this control, use the **no** form of this command.

svs veth auto-setup

no svs veth auto-setup

Syntax Description

This command has no arguments or keywords.

Command Default

Enabled

Command Modes

Global configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to enable automatic creation and configuration of virtual Ethernet interfaces:

```
switch# configure terminal
switch(config)# svs veth auto-setup
switch(config)#
```

This example shows how to disable automatic creation and configuration of virtual Ethernet interfaces:

```
switch# configure terminal
switch(config)# no svs veth auto-setup
switch(config)#
```

Related Commands

Command	Description
interface vethernet	Creates a virtual Ethernet interface.
show svs connections	Displays SVS connection information.
svs veth auto-delete	Enables the VSM to automatically delete DVPorts no longer used by a vNIC or hypervisor port.

switchport access vlan

To set the access VLAN when the interface is in access mode, use the **switchport access vlan** command. To reset the access-mode VLAN to the appropriate default VLAN for the switch, use the **no** form of this command.

switchport access vlan *vlan-id*

no switchport access vlan

Syntax Description

vlan-id	VLAN to set when the interface is in access mode. The range is from 1 to 4094, except for the VLANs reserved for internal use.

Command Default

VLAN 1

Command Modes

Interface configuration mode
Virtual Ethernet interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.1(3)N1(1)	Support for virtual Ethernet interface was added.

Usage Guidelines

Use the **no** form of the **switchport access vlan** command to reset the access-mode VLAN to the appropriate default VLAN for the switch. This action may generate messages on the device to which the port is connected.

Examples

This example shows how to configure an Ethernet interface to join VLAN 2:

```
switch# configure terminal
switch(config)# interface ethernet 1/7
switch(config-if)# switchport access vlan 2
switch(config-if)#
```

This example shows how to configure a virtual Ethernet interface to join VLAN 5:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# switchport access vlan 5
switch(config-if)#
```

Related Commands

Command	Description
show interface switchport	Displays the administrative and operational status of a port.
show interface vethernet	Displays the virtual Ethernet interface information.

switchport backup interface

To configure Flex Links, which are two interfaces that provide backup to each other, on a Layer 2 interface, use the **switchport backup interface** command. To remove the Flex Links configuration, use the **no** form of this command.

switchport backup interface {**ethernet** *slot/port* | **port-channel** *channel-no*} [**multicast fast-convergence** | **preemption** {**delay** *delay-time* | **mode** [**bandwidth** | **forced** | **off**]}]

no switchport backup interface {**ethernet** *slot/port* | **port-channel** *channel-no*} [**multicast fast-convergence** | **preemption** {**delay** *delay-time* | **mode** [**bandwidth** | **forced** | **off**]}]

Syntax Description

ethernet *slot/port*	Specifies the backup Ethernet interface. The slot number is from 1 to 255 and the port number is from 1 to 128.
port-channel *channel-no*	Specifies the port channel interface. The interface number is from 1 to 4096.
multicast	(Optional) Specifies to configure the multicast parameters.
fast-convergence	(Optional) Configures fast convergence on the backup interface.
preemption	(Optional) Specifies to configure a preemption scheme for a backup interface pair.
delay *delay-time*	(Optional) Specifies a preemption delay. The range is from 1 to 300 seconds.
mode	(Optional) Specifies the preemption mode.
bandwidth	(Optional) Specifies that the interface with the higher available bandwidth always preempts the backup.
forced	(Optional) Specifies the interface that always preempts the backup.
off	(Optional) Specifies no preemption occurs from backup to active.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Usage Guidelines

Note This command is applicable to the Cisco Nexus 5548 Series switch and the Cisco Nexus 5596 Series switch.

Before you use this command, make sure that you enable Flex Links on the switch by using the **feature flexlink** command.

Note Make sure the virtual port channel (vPC) is disabled on the switch.

A Flex Links port can be a physical Ethernet port or a port channel.

You cannot configure Flex Links port on the following types of interface:

- Fabric Extender (FEX) fabric port and FEX host port
- Virtual Fibre Channel interface
- Virtual network tag (VNTag)
- Interface with port security enabled
- Layer 3 interface
- Switched Port Analyzer (SPAN) destination
- Port channel member
- Interface configured with private VLAN
- Endnode mode
- Fabric path core interface (Layer 2 multipath)

Examples

This example shows how to configure Ethernet 1/1 and Ethernet 1/12 as Flex Links:

```
switch# configure terminal
switch(config)# interface ethernet 1/1
switch(config-if)# switchport backup interface ethernet 1/12
switch(config-if)#
```

This example shows how to configure EtherChannel 100 and EtherChannel 101 as Flex Links:

```
switch# configure terminal
switch(config)# interface port-channel 100
switch(config-if)# switchport backup interface port-channel 101
switch(config-if)#
```

This example shows how to configure the Ethernet interface to always preempt the backup:

```
switch# configure terminal
switch(config)# interface ethernet1/10
switch(config-if)# switchport backup interface ethernet1/2 preemption mode forced
switch(config-if)#
```

This example shows how to configure the Ethernet interface preemption delay time:

```
switch# configure terminal
switch(config)# interface ethernet1/1
switch(config-if)# switchport backup interface ethernet1/12 preemption delay 150
switch(config-if)#
```

This example shows how to configure fast convergence on the backup interface:

```
switch# configure terminal
switch(config)# interface ethernet1/1
switch(config-if)# switchport backup interface ethernet1/12 multicast fast-convergence
switch(config-if)#
```

Related Commands

Command	Description
feature flexlink	Enables Flex Links for Layer 2 interfaces.
show interface switchport backup	Displays backup interfaces.

switchport block

To prevent the unknown multicast or unicast packets from being forwarded, use the **switchport block** command. To allow the unknown multicast or unicast packets to be forwarded, use the **no** form of this command.

switchport block {**multicast** | **unicast**}

no switchport block {**multicast** | **unicast**}

Syntax Description

multicast	Specifies that the unknown multicast traffic should be blocked.
unicast	Specifies that the unknown unicast traffic should be blocked.

Command Default

Unknown multicast and unicast traffic are not blocked. All traffic with unknown MAC addresses is sent to all ports.

Command Modes

Interface configuration mode
Virtual Ethernet interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.1(3)N1(1)	Support for virtual Ethernet interface was added.

Usage Guidelines

You can block the unknown multicast or unicast traffic on the switch ports.

Blocking the unknown multicast or unicast traffic is not automatically enabled on the switch ports; you must explicitly configure it.

Examples

This example shows how to block the unknown multicast traffic on an interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/1
switch(config-if)# switchport block multicast
switch(config-if)#
```

This example shows how to block the unknown unicast traffic on a virtual Ethernet interface:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# switchport block uniicast
switch(config-if)#
```

Related Commands

Command	Description
show interface switchport	Displays the switch port information for a specified interface or all interfaces.
show interface vethernet	Displays the virtual Ethernet interface configuration information.

switchport host

To configure the interface to be an access host port, use the **switchport host** command. To remove the host port, use the **no** form of this command.

switchport host

no switchport host

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Ensure that you are configuring the correct interface. It must be an interface that is connected to an end station.

An access host port handles the Spanning Tree Protocol (STP) like an edge port and immediately moves to the forwarding state without passing through the blocking and learning states. Configuring an interface as an access host port also disables EtherChannel on that interface.

Examples

This example shows how to set an interface as an Ethernet access host port with EtherChannel disabled:

```
switch(config)# interface ethernet 2/1
switch(config-if)# switchport host
switch(config-if)#
```

Related Commands

Command	Description
show interface brief	Displays a summary of the interface configuration information.
show interface switchport	Displays information on all interfaces configured as switch ports.

switchport mode

To configure the interface as a nontrunking nontagged single-VLAN Ethernet or virtual Ethernet interface, use the **switchport mode** command. To remove the configuration and restore the default, use the **no** form of this command.

switchport mode {**access** | **trunk** | **vntag**}

no switchport mode {**access** | **trunk** | **vntag**}

no switchport mode

Syntax Description

access	Specifies that the interface is in access mode.
trunk	Specifies that the interface is in trunk mode.
vntag	Specifies that the interface is in port mode. **Note** This keyword doe not apply to a virtual Ethernet interface.

Command Default

An access port carries traffic for VLAN 1.

Command Modes

Interface configuration mode
Virtual Ethernet interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.1(3)N1(1)	Support for a virtual Ethernet interface was added.

Usage Guidelines

An access port can carry traffic in one VLAN only. By default, an access port carries traffic for VLAN 1. To set the access port to carry traffic for a different VLAN, use the **switchport access vlan** command.

The VLAN must exist before you can specify that VLAN as an access VLAN. The system shuts down an access port that is assigned to an access VLAN that does not exist.

A virtual network tag (VNTag) port helps to identify the virtual interfaces on that physical port.

For a virtual Ethernet interface, use the **no** form of the command without the keywords.

Examples

This example shows how to set an interface as an Ethernet access port that carries traffic for a specific VLAN only:

```
switch(config)# interface ethernet 2/1
switch(config-if)# switchport mode access
switch(config-if)# switchport access vlan 5
switch(config-if)#
```

This example shows how to set an interface as a VNTag port:

```
switch(config)# interface ethernet 1/5
switch(config-if)# switchport mode vntag
switch(config-if)#
```

This example shows how to set a virtual Ethernet interface in trunk port mode:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# switchport mode trunk
switch(config-if)#
```

Related Commands

Command	Description
interface vethernet	Configures a virtual Ethernet interface.
show interface ethernet	Displays information about a specified Ethernet interface.
show interface switchport	Displays information on all interfaces configured as switch ports.
switchport access vlan	Sets the access VLAN when the interface is in access mode.

switchport mode private-vlan host

To set the interface type to be a host port for a private VLAN, use the **switchport mode private-vlan host** command. To remove the configuration, use the **no** form of this command.

switchport mode private-vlan host

no switchport mode

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Interface configuration mode
Virtual Ethernet interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.1(3)N1(1)	Support was added for virtual Ethernet interfaces.

Usage Guidelines

When you configure a port as a host private VLAN port and one of the following applies, the port becomes inactive:

- The port does not have a valid private VLAN association configured.
- The port is a Switched Port Analyzer (SPAN) destination.
- The private VLAN association is suspended.

If you delete a private VLAN port association or if you configure a private port as a SPAN destination, the deleted private VLAN port association or the private port that is configured as a SPAN destination becomes inactive.

Note We recommend that you enable spanning tree BPDU Guard on all private VLAN host ports.

Examples

This example shows how to set a port to host mode for private VLANs:

```
switch(config-if)# switchport mode private-vlan host
```

This example shows how to set a virtual Ethernet interface port to host mode for private VLANs:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# switchport mode private-vlan host
switch(config-if)#
```

Related Commands

Command	Description
interface vethernet	Configures a virtual Ethernet interface.
show interface switchport	Displays information on all interfaces configured as switch ports.
show vlan private-vlan	Displays the status of the private VLAN.

switchport mode private-vlan promiscuous

To set the interface type to be a promiscuous port for a private VLAN, use the **switchport mode private-vlan promiscuous** command.

switchport mode private-vlan promiscuous

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

When you configure a port as a promiscuous private VLAN port and one of the following applies, the port becomes inactive:

- The port does not have a valid private VLAN mapping configured.
- The port is a Switched Port Analyzer (SPAN) destination.

If you delete a private VLAN port mapping or if you configure a private port as a SPAN destination, the deleted private VLAN port mapping or the private port that is configured as a SPAN destination becomes inactive.

See the **private-vlan** command for more information on promiscuous ports.

Examples

This example shows how to set a port to promiscuous mode for private VLANs:

```
switch(config-if)# switchport mode private-vlan promiscuous
```

Related Commands

Command	Description
show interface switchport	Displays information on all interfaces configured as switch ports.
show vlan private-vlan	Displays the status of the private VLAN.

switchport mode private-vlan trunk

To configure the port as a secondary trunk port for a private VLAN, use the **switchport mode private-vlan trunk** command. To remove the isolated trunk port, use the **no** form of this command.

switchport mode private-vlan trunk [**promiscous** | **secondary**]

no switchport mode private-vlan trunk [**promiscous** | **secondary**]

Syntax Description

promiscous	(Optional) Specifies the promiscous port.
secondary	(Optional) Specifies the secondary port.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

In a private VLAN domain, isolated trunks are part of a secondary VLAN. Isolated trunk ports can carry multiple isolated VLANs.

Examples

This example shows how to configure Ethernet interface 1/1 as a promiscuous trunk port for a private VLAN:

```
switch(config)# interface ethernet 1/1
switch(config-if)# switchport mode private-vlan trunk promiscous
switch(config-if)#
```

This example shows how to configure Ethernet interface 1/5 as a secondary trunk port for a private VLAN:

```
switch(config)# interface ethernet 1/5
switch(config-if)# switchport mode private-vlan trunk secondary
switch(config-if)#
```

Related Commands

Command	Description
show interface switchport	Displays information on all interfaces configured as switch ports.
switchport private-vlan association trunk	Associates the isolated trunk port with the primary and secondary VLANs of a private VLAN.

switchport monitor rate-limit

To configure a rate limit to monitor traffic on an interface, use the **switchport monitor rate-limit** command. To remove a rate limit, use the **no** form of this command.

switchport monitor rate-limit 1G

no switchport monitor rate-limit [**1G**]

Syntax Description

1G	(Optional) Specifies that the rate limit is 1 GB.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

This command is applicable to the following Cisco Nexus 5000 Series switches:

- Cisco Nexus 5010 Series
- Cisco Nexus 5020 Series

This command does not require a license.

Examples

This example shows how to limit the bandwidth on Ethernet interface 1/2 to 1 GB:

```
switch(config)# interface ethernet 1/2
switch(config-if)# switchport monitor rate-limit 1G
switch(config-if)#
```

Related Commands

Command	Description
show interface switchport	Displays information on all interfaces configured as switch ports.
switchport private-vlan association trunk	Associates the isolated trunk port with the primary and secondary VLANs of a private VLAN.

switchport port-security

To enable port security on an interface, use the **switchport port-security** command. To disable port security on a port, use the **no** form of this command.

switchport port-security

no switchport port-security

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to enable port security on a Layer 2 interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# switchport port-security
switch(config-if)#
```

This example shows how to disable port security on an interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport port-security
switch(config-if)#
```

Related Commands

Command	Description
show port-security	Displays the port security configuration information.

switchport port-security aging

To enable port security aging on a Layer 2 port, use the **switchport port-security aging** command. To disable port security on a port, use the **no** form of this command.

switchport port-security aging {**time** *aging-time* | **type** {**absolute** | **inactivity**}}

no switchport port-security aging {**time** *aging-time* | **type** {**absolute** | **inactivity**}}

Syntax Description

time *aging-time*	Sets the duration for which all addresses are secured; valid values are from 1 to 1440 minutes.
type	Specifies the type of aging.
absolute	Specifies absolute aging.
inactivity	Specifies that the timer starts to run only when there is no traffic.

Command Default

Aging time is 0

Aging type is **absolute**

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure the secure MAC address aging type on a port:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# switchport port-security aging type absolute
switch(config-if)#
```

This example shows how to set the secure MAC address aging time to 2 minutes:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# switchport port-security aging time 2
switch(config-if)#
```

Related Commands

Command	Description
show port-security	Displays the port security configuration information.
switchport port-security	Configures the switchport parameters to establish port security.

switchport port-security mac-address

To add a static secure MAC address on a Layer 2 interface or to enable sticky MAC address learning on an interface, use the **switchport port-security mac-address** command. To revert to the default settings, use the **no** form of this command.

switchport port-security mac-address {*MAC-addr* [**vlan** *vlan-ID*] | **sticky**}

no switchport port-security mac-address {*MAC-addr* [**vlan** *vlan-ID*] | **sticky**}

Syntax Description

MAC-addr	MAC address in the format *E.E.E.*
vlan *vlan-ID*	(Optional) Specifies the VLAN on which the MAC address should be secured. The range is from 1 to 4094.
sticky	Configures the dynamic MAC addresses as sticky on an interface.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure a static secure MAC address on a port:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# switchport port-security mac-address 0050.3e8d.6400
switch(config-if)#
```

This example shows how to enable port security with sticky MAC addresses on a port:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# switchport port-security mac-address sticky
switch(config-if)#
```

This example shows how to remove a MAC address from the list of secure MAC addresses:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport port-security mac-address 0050.3e8d.6400
switch(config-if)#
```

Related Commands

Command	Description
show port-security	Displays the port security configuration information.

switchport port-security maximum

To set the maximum number of secure MAC addresses on a port, use the **switchport port-security maximum** command. To revert to the default settings, use the **no** form of this command.

switchport port-security maximum *max-addr* [**vlan** *vlan-ID*]

no switchport port-security maximum *max-addr* [**vlan** *vlan-ID*]

Syntax Description

max-addr	Maximum number of secure MAC addresses for the interface; valid values are from 1 to 1025.
vlan *vlan-ID*	(Optional) Specifies the VLAN on which the MAC address should be secured. The range is from 1 to 4094.

Command Default

1

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure the maximum number of secure MAC addresses on a port:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# switchport port-security maximum 5
switch(config-if)#
```

This example shows how to override the maximum number of secure MAC addresses set for a specific VLAN:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# switchport port-security maximum 3 vlan 10
switch(config-if)#
```

This example shows how to set the maximum number of secure MAC addresses on a port to the default value:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport port-security maximum 5
switch(config-if)#
```

Related Commands

Command	Description
show port-security	Displays the port security configuration information.

switchport port-security violation

To set the action to be taken when a security violation is detected, use the **switchport port-security violation** command. To revert to the default settings, use the **no** form of this command.

switchport port-security violation {**protect** | **restrict** | **shutdown**}

no switchport port-security violation {**protect** | **restrict** | **shutdown**}

Syntax Description

protect	Drops all the packets from the insecure hosts at the port-security process level but does not increment the security-violation count.
restrict	Drops all the packets from the insecure hosts at the port-security process level and increments the security-violation count.
shutdown	Shuts down the port if there is a security violation.

Command Default

shutdown

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure the port security violation mode on a port:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# switchport port-security violation protect
switch(config-if)#
```

This example shows how to set the port security violation mode on a port to the default value:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport port-security violation protect
switch(config-if)#
```

Related Commands

Command	Description
show port-security	Displays the port security configuration information.

switchport priority extend

To configure the switch to override the priority of frames arriving on the Cisco IP phone port from connected devices, use the **switchport priority extende** command. To return the port to its default setting, use the **no** form of this command.

switchport priority extend {**cos** *cos-value* | **trust**}

no switchport priority extend

Syntax Description

cos	Specifies that the switch will send CDP packets to instruct the Cisco IP phone to mark data traffic with class of service (CoS) value.
cos-value	CoS value. The range is from 0 to 7.
trust	Specifies that the switch will send CDP packets to instruct the Cisco IP phone to trust tagged data traffic.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to set the Cisco IP phone port to trust tagged data traffic:

```
switch(config)# interface ethernet 1/28
switch(config-if)# switchport priority extend trust
switch(config-if)#
```

This example shows how to set the Cisco IP phone port to mark data traffic with CoS value:

```
switch(config)# interface ethernet 1/28
switch(config-if)# switchport priority extend cos 3
switch(config-if)#
```

This example shows how to return to the default settings:

```
switch(config)# interface ethernet 1/28
switch(config-if)# no switchport priority extend
switch(config-if)#
```

Related Commands

Command	Description
show interface switchport	Displays information on all interfaces configured as switch ports.

switchport private-vlan association trunk

To associate an isolated trunk port with the primary and secondary VLANs of a private VLAN, use the **switchport private-vlan association trunk** command. To remove the isolated trunk port association, use the **no** form of this command.

switchport private-vlan association trunk *primary-id secondary-id*

no switchport private-vlan association trunk

Syntax Description

primary-id	Primary VLAN ID. The range is from 1 to 3967 and from 4048 to 4093.
secondary-id	Secondary VLAN ID. The range is from 1 to 3967 and from 4048 to 4093.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

The secondary VLAN should be an isolated VLAN. Only one isolated VLAN under a given primary VLAN can be associated to an isolated trunk port.

Examples

This example shows how to map the secondary VLANs to the primary VLAN:

```
switch(config)# interface ethernet 1/1
switch(config-if)# switchport mode private-vlan trunk secondary
switch(config-if)# switchport private-vlan association trunk 5 100
switch(config-if)#
```

Related Commands

Command	Description
show interface switchport	Displays information on all interfaces configured as switch ports.
switchport mode private-vlan trunk	Configures the port as a secondary trunk port for a private VLAN.
show vlan private-vlan	Displays the status of the private VLAN.

switchport private-vlan host-association

To define a private VLAN association for an isolated or community port, use the **switchport private-vlan host-association** command. To remove the private VLAN association from the port, use the **no** form of this command.

switchport private-vlan host-association {*primary-vlan-id*} {*secondary-vlan-id*}

no switchport private-vlan host-association

Syntax Description

primary-vlan-id	Number of the primary VLAN of the private VLAN relationship. The range is from 1 to 3967 and 4048 to 4093.
secondary-vlan-id	Number of the secondary VLAN of the private VLAN relationship. The range is from 1 to 3967 and 4048 to 4093.

Command Default

None

Command Modes

Interface configuration mode
Virtual Ethernet interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.1(3)N1(1)	Support was added for virtual Ethernet interfaces.

Usage Guidelines

There is no run-time effect on the port unless it is in private VLAN-host mode. If the port is in private VLAN-host mode but neither of the VLANs exist, the command is allowed but the port is made inactive. The port also may be inactive when the association between the private VLANs is suspended.

The secondary VLAN may be an isolated or community VLAN.

See the **private-vlan** command for more information on primary VLANs, secondary VLANS, and isolated or community ports.

Note A private VLAN-isolated port on a Cisco Nexus 5000 Series switch running the current release of Cisco NX-OS does not support IEEE 802.1Q encapsulation and cannot be used as a trunk port.

Examples

This example shows how to configure a Layer 2 host private VLAN port with a primary VLAN (VLAN 18) and a secondary VLAN (VLAN 20):

```
switch(config-if)# switchport private-vlan host-association 18 20
```

This example shows how to remove the private VLAN association from the port:

```
switch(config-if)# no switchport private-vlan host-association
```

This example shows how to configure a virtual Ethernet interface host private VLAN port with a primary VLAN (VLAN 5) and a secondary VLAN (VLAN 23):

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# switchport private-vlan host-association 5 23
switch(config-if)#
```

Related Commands

Command	Description
interface vethernet	Configures a virtual Ethernet interface.
show vlan private-vlan	Displays information on private VLANs.

switchport private-vlan mapping

To define the private VLAN association for a promiscuous port, use the **switchport private-vlan mapping** command. To clear all mapping from the primary VLAN, use the **no** form of this command.

switchport private-vlan mapping {*primary-vlan-id* | **trunk** *primary-vlan-id*} {*secondary-vlan-id* | {**add** | **remove**} *secondary-vlan-id*}

no switchport private-vlan mapping [{*primary-vlan-id* | **trunk** *primary-vlan-id*} *secondary-vlan-id*]

Syntax Description

primary-vlan-id	Number of the primary VLAN of the private VLAN relationship.
trunk	Specifies the private VLAN promiscuous trunk port. **Note** This keyword applies to only Layer 2 interfaces.
add	(Optional) Associates the secondary VLANs to the primary VLAN.
secondary-vlan-id	Number of the secondary VLAN of the private VLAN relationship.
remove	Clears the association between the secondary VLANs and the primary VLAN.

Command Default

None

Command Modes

Interface configuration mode
Virtual Ethernet interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.0(2)N2(1)	Number of secondary VLANs is limited to 16.
5.1(3)N1(1)	Support was added for virtual Ethernet interfaces.

Usage Guidelines

There is no run-time effect on the port unless it is in private VLAN-promiscuous mode. If the port is in private VLAN-promiscuous mode but the primary VLAN does not exist, the command is allowed but the port is made inactive.

The secondary VLAN may be an isolated or community VLAN.

See the **private-vlan** command for more information on primary VLANs, secondary VLANS, and isolated or community ports.

Note A private VLAN-isolated port on a Cisco Nexus 5000 Series switch running the current release of Cisco NX-OS does not support IEEE 802.1Q encapsulation and cannot be used as a trunk port.

Note Beginning with Cisco NX-OS Release 5.0(2)N2(1), the number of mappings on a private-vlan trunk port is limited to 16.

Examples

This example shows how to configure the associated primary VLAN 18 to secondary isolated VLAN 20 on a private VLAN promiscuous port:

```
switch# configure terminal
switch(config)# interface ethernet 1/1
switch(config-if)# switchport mode private-vlan promiscous
switch(config-if)# switchport private-vlan mapping 18 20
```

This example shows how to add a VLAN to the association on the promiscuous port:

```
switch# configure terminal
switch(config)# interface ethernet 1/2
switch(config-if)# switchport mode private-vlan promiscous
switch(config-if)# switchport private-vlan mapping 18 add 21
```

This example shows how to configure the associated primary VLAN 30 to secondary isolated VLANs 20-32 on a private VLAN promiscuous trunk port:

```
switch# configure terminal
switch(config)# interface ethernet 1/21
switch(config-if)# switchport mode private-vlan promiscous trunk
switch(config-if)# switchport private-vlan mapping trunk 30 20-32
switch(config-if)#
```

This example shows the error message that appears when you configure the associated primary VLAN 30 to secondary isolated VLANs 50-100 (beyond the total permissible limit of 16 secondary VLANs) on a private VLAN promiscuous trunk port:

```
switch# configure terminal
switch(config)# interface ethernet 1/12
switch(config-if)# switchport mode private-vlan promiscous trunk
switch(config-if)# switchport private-vlan mapping trunk 30 50-100
ERROR: secondary VLAN list contains primary VLAN id in trunk promiscuous port mapping.
switch(config-if)#
```

This example shows how to remove all private VLAN associations from the port:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport private-vlan mapping
switch(config-if)#
```

This example shows how to configure the primary VLAN 12 to secondary isolated VLAN 20 on a virtual Ethernet interface host:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# switchport private-vlan mapping 12 20
switch(config-if)#
```

Related Commands

Command	Description
interface vethernet	Configures a virtual Ethernet interface.
show interface switchport	Displays information on all interfaces configured as switch ports.
show interface private-vlan mapping	Displays the information about the private VLAN mapping for VLAN interfaces or SVIs.

switchport private-vlan trunk allowed vlan

To configure the allowed VLANs for the private trunk interface, use the **switchport private-vlan trunk allowed vlan** command. To remove the allowed VLANs, sue the **no** form of this command.

switchport private-vlan trunk allowed vlan {*vlan-list* | {**add** | **except** | **remove**} *vlan-list* | **all** | **none**}

no switchport private-vlan trunk allowed vlan *vlan-list*

Syntax Description

vlan-list	VLAN IDs of the allowed VLANs when the interface is in private-vlan trunking mode. The range is from 1 to 4094, except for the VLANs reserved for internal use. Use a hyphen (-) to separate the beginning and ending IDs of a range of VLAN IDs; for example, 70-100. Use a comma (,) to separate individual VLAN IDs and ranges of VLAN IDs; for example, 20,70-100,142.
add	Specifies the VLANs to be added to the current list.
except	Specifies all VLANs to be added to the current list, except the specified VLANs.
remove	Specifies the VLANs to be removed from the current list.
all	Specifies all VLANs to be added to the current list.
none	Specifies that no VLANs be added to the current list.

Command Default

Allows only associated VLANs on the private VLAN trunk interface.

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

The primary VLANs do not need to be explicitly added to the allowed VLAN list. They are added automatically once there is a mapping between primary and secondary VLANs.

Examples

This example shows how to add VLANs to the list of allowed VLANs on an Ethernet private VLAN trunk port:

```
switch(config)# interface ethernet 1/3
switch(config-if)# switchport private-vlan trunk allowed vlan 15-20
switch(config-if)#
```

Related Commands

Command	Description
show interface switchport	Displays information on all interfaces configured as switch ports.
switchport mode private-vlan trunk	Configures the port as a secondary trunk port for a private VLAN.
show vlan private-vlan	Displays the status of the private VLAN.

switchport private-vlan trunk native

To configure the native VLAN ID for the private VLAN trunk, use the **switchport private-vlan trunk native** command. To remove the native VLAN ID from the private VLAN trunk, use the **no** form of this command.

switchport private-vlan trunk native vlan *vlan-list*

no switchport private-vlan trunk native vlan *vlan-list*

Syntax Description

vlan *vlan-list*	Specifies the VLAN ID. The range is from 1 to 3967 and from 4048 to 4093.

Command Default

VLAN 1

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Secondary VLANs cannot be configured with a native VLAN ID on promiscuous trunk ports. Primary VLANs cannot be configured with a native VLAN ID on isolated trunk ports.

Examples

This example shows how to map the secondary VLANs to the primary VLAN:

```
switch(config)# interface ethernet 1/1
switch(config-if)# switchport private-vlan trunk native vlan 5
switch(config-if)#
```

Related Commands

Command	Description
show interface switchport	Displays information on all interfaces configured as switch ports.
switchport mode private-vlan trunk	Configures the port as a secondary trunk port for a private VLAN.
show vlan private-vlan	Displays the status of the private VLAN.

switchport trunk allowed vlan

To configure the allowed VLANs for a virtual Ethernet interface, use the **switchport trunk allowed vlan** command. To remove the configuration, use the **no** form of this command.

switchport trunk allowed vlan {{**add** | **except** | **remove**} *vlan_list* | **all** | **none**}

no switchport trunk allowed vlan

Syntax Description

add	Specifies the VLANs to be added to the current list.
except	Specifies all VLANs to be added to the current list, except the specified VLANs.
remove	Specifies the VLANs to be removed from the current list.
vlan_list	VLAN IDs of the allowed VLANs when the interface is in trunking mode. The range is from 1 to 4094, except for the VLANs reserved for internal use. Use a hyphen (-) to separate the beginning and ending IDs of a range of VLAN IDs; for example, 70-100. Use a comma (,) to separate individual VLAN IDs and ranges of VLAN IDs; for example, 20,70-100,142.
all	Specifies all VLANs to be added to the current list.
none	Specifies that no VLANs be added to the current list.

Command Default

None

Command Modes

Interface configuration mode
Virtual Ethernet interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to add VLANs to the list of allowed VLANs on a virtual Ethernet interface trunk port:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# switchport trunk allowed vlan 5-15
switch(config-if)#
```

Related Commands

Command	Description
interface vethernet	Configures a virtual Ethernet interface.
show running-config	Displays the running system configuration information.

switchport trunk native vlan

To configure the native VLAN ID for the virtual Ethernet interface, use the **switchport trunk native vlan** command. To remove the native VLAN ID from the virtual Ethernet interface, use the **no** form of this command.

switchport trunk native vlan *vlan_ID*

no switchport trunk native vlan

Syntax Description

vlan_ID	VLAN ID of the native VLAN when this port is in trunking mode. The range is from 1 to 4094.

Command Default

None

Command Modes

Interface configuration mode
Virtual Ethernet interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to set VLAN 3 as the native trunk port:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# switchport trunk native vlan 3
switch(config-if)#
```

Related Commands

Command	Description
interface vethernet	Configures a virtual Ethernet interface.
show running-config	Displays the running system configuration information.

switchport voice vlan

To configure the voice VLAN on a port, use the **switchport voice vlan** command. To remove a voice VLAN, use the **no** form of this command.

switchport voice vlan {*vlan-list* | **dot1p** | **untagged**}

no switchport voice vlan

Syntax Description

vlan-list	VLAN ID. The range is from 1 to 3967 and from 4048 to 4093.
dot1p	Specifies that the Cisco IP phone uses priority tagging and uses an 802.1P VLAN ID of 0 for voice traffic.
untagged	Specifies that the Cisco IP phone does not tag frames for voice traffic.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to configure VLAN 3 as the voice VLAN:

```
switch(config)# interface ethernet 1/28
switch(config-if)# switchport voice vlan 3
switch(config-if)#
```

This example shows how to configure an Ethernet port to send CDP packets that configure the Cisco IP phone to transmit voice traffic in 802.1p frames:

```
switch(config)# interface ethernet 1/28
switch(config-if)# switchport voice vlan dot1p
switch(config-if)#
```

This example shows how to configure an Ethernet port to send CDP packets that configure the Cisco IP phone to transmit untagged voice traffic:

```
switch(config)# interface ethernet 1/28
switch(config-if)# switchport voice vlan untagged
switch(config-if)#
```

This example shows how to stop voice traffic on an Ethernet port:

```
switch(config)# interface ethernet 1/28
switch(config-if)# no switchport voice vlan
switch(config-if)#
```

system private-vlan fex trunk

To configure a PVLAN FEX trunk on port, use the **system private-vlan fex trunk** command. To remove the PVLAN FEX trunk ports, use the **no** form of this command.

system private-vlan fex trunk

no system private-vlan fex trunk

Caution You must disable all the FEX Isolated trunk ports before configuring PVLANs on the FEX trunk ports. If the FEX Isolated trunk ports and the FEX trunk ports are both enabled, unwanted traffic might occur.

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(3)N2(1)	This command was introduced.

Examples

This example shows how to configure PVLAN over a FEX trunk port:

```
switch# configure terminal
switch(config-if)# System private-vlan fex trunk
switch(config-if)# copy running-config startup-config
```

Related Commands

Command	Description
feature private-vlan	Enables private VLANs.

system vlan reserve

To configure a reserved VLAN range, use the **system vlan reserve** command. To delete the reserved VLAN range configuration, use the **no** form of this command.

system vlan *vlan-start* **reserve**

no system vlan *vlan-start* **reserve**

Syntax Description

vlan-start	Starting VLAN ID. 80 VLANs are reserved starting from the start VLAN ID. For example, if you specify the starting VLAN ID as 1006, the reserved VLAN range is from 2006 to 1085.

Command Default

3968-4096

Command Modes

Global configuration mode

Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

Usage Guidelines

The user-configured system reserved VLAN range comes in to effect only after a reload.

This command does not require a license.

Examples

This example shows how to configure a reserved VLAN range:

```
switch(config)# system vlan 1006 reserve
This will delete all configs on vlans 1006-1085. Continue anyway? (y/n) [no] yes
Note: After switch reload, VLANs 1006-1085 will be reserved for internal use.
      This requires copy running-config to startup-config before
      switch reload.  Creating VLANs within this range is not allowed.
```

This example shows how to remove the reserved VLAN configuration:

```
switch# no system vlan 1006 reserve
This will delete all configs on vlans 3968-4047. Continue anyway? (y/n) [no] yes
Note: After switch reload, VLANs 3968-4047 will be reserved for internal use.
      This requires copy running-config to startup-config before
      switch reload.  Creating VLANs within this range is not allowed.
```

Related Commands

Command	Description
write erase	Reverts to the default reserved VLAN range.
show system vlan reserved	Displays information about the reserved VLAN usage.

Show Commands

This chapter describes the Cisco NX-OS Ethernet **show** commands.

show cdp all

To display the interfaces in the Cisco Discovery Protocol (CDP) database, use the **show cdp all** command.

show cdp all

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to display the interfaces in the CDP database:

```
switch# show cdp all
mgmt0 is up
    CDP enabled on interface
    Refresh time is 60 seconds
    Hold time is 180 seconds
Ethernet1/1 is down
    CDP enabled on interface
    Refresh time is 60 seconds
    Hold time is 180 seconds
Ethernet1/2 is down
    CDP enabled on interface
    Refresh time is 60 seconds
    Hold time is 180 seconds
Ethernet1/3 is down
    CDP enabled on interface
    Refresh time is 60 seconds
    Hold time is 180 seconds
Ethernet1/4 is down
    CDP enabled on interface
    Refresh time is 60 seconds
    Hold time is 180 seconds
Ethernet1/5 is down
    CDP enabled on interface
    Refresh time is 60 seconds
    Hold time is 180 seconds
Ethernet1/6 is down
    CDP enabled on interface
    Refresh time is 60 seconds
    Hold time is 180 seconds
<--Output truncated-->
switch#
```

Related Commands

Command	Description
cdp	Enables CDP on the switch.

show cdp entry

To display the interfaces in the Cisco Discovery Protocol (CDP) database, use the **show cdp entry** command.

show cdp entry {**all** | **name** *device-name*}

Syntax Description

all	Displays all interfaces in the CDP database.
name *device-name*	Displays a specific CDP entry matching a name. The device name can be a maximum of 256 alphanumeric characters.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to display all the entries in the CDP database:

```
switch# show cdp entry all
----------------------------------------
Device ID:savbu-qa-dist-120
System Name:
Interface address(es):
    IPv4 Address: 192.168.0.82
Platform: cisco WS-C3750E-24TD, Capabilities: Switch IGMP Filtering
Interface: mgmt0, Port ID (outgoing port): GigabitEthernet1/0/13
Holdtime: 179 sec

Version:
Cisco IOS Software, C3750E Software (C3750E-UNIVERSAL-M), Version 12.2(35)SE5, RELEASE
SOFTWARE (fc1)
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Thu 19-Jul-07 16:17 by nachen

Advertisement Version: 2
Native VLAN: 16
VTP Management Domain:
Duplex: full
Mgmt address(es):
    IPv4 Address: 192.168.0.82

----------------------------------------
Device ID:swor96(SSI13110AAQ)
System Name:swor96
Interface address(es):
    IPv4 Address: 192.168.0.1
Platform: N5K-C5010P-BF, Capabilities: Switch IGMP Filtering Supports-STP-Dispute
Interface: Ethernet1/17, Port ID (outgoing port): Ethernet1/19
```

```
Holdtime: 167 sec

Version:
Cisco Nexus Operating System (NX-OS) Software, Version 5.0(3)N2(1)

Advertisement Version: 2
Native VLAN: 1
Duplex: full
Physical Location: snmplocation
Mgmt address(es):
    IPv4 Address: 192.168.0.96

----------------------------------------
Device ID:swor96(SSI13110AAQ)
System Name:swor96
Interface address(es):
    IPv4 Address: 192.168.0.1
Platform: N5K-C5010P-BF, Capabilities: Switch IGMP Filtering Supports-STP-Dispute
Interface: Ethernet1/18, Port ID (outgoing port): Ethernet1/20
Holdtime: 167 sec

Version:
Cisco Nexus Operating System (NX-OS) Software, Version 5.0(3)N2(1)

Advertisement Version: 2
Native VLAN: 1
Duplex: full
Physical Location: snmplocation
Mgmt address(es):
    IPv4 Address: 192.168.0.96

----------------------------------------
Device ID:swor95(SSI13110AAS)
System Name:swor95
Interface address(es):
    IPv4 Address: 192.168.0.95
Platform: N5K-C5010P-BF, Capabilities: Switch IGMP Filtering Supports-STP-Dispute
Interface: Ethernet1/29, Port ID (outgoing port): Ethernet1/19
Holdtime: 173 sec

Version:
Cisco Nexus Operating System (NX-OS) Software, Version 5.0(3)N2(1)

Advertisement Version: 2
Native VLAN: 1
Duplex: full
Physical Location: snmplocation
Mgmt address(es):
    IPv4 Address: 192.168.0.95

switch#
```

This example shows how to display a specific entry from the CDP database:

```
switch# show cdp entry name swor95(SSI13110AAS)
----------------------------------------
Device ID:swor95(SSI13110AAS)
System Name:swor95
Interface address(es):
    IPv4 Address: 192.168.0.95
Platform: N5K-C5010P-BF, Capabilities: Switch IGMP Filtering Supports-STP-Dispute
Interface: Ethernet1/29, Port ID (outgoing port): Ethernet1/19
Holdtime: 173 sec
```

```
Version:
Cisco Nexus Operating System (NX-OS) Software, Version 5.0(3)N2(1)

Advertisement Version: 2
Native VLAN: 1
Duplex: full
Physical Location: snmplocation
Mgmt address(es):
    IPv4 Address: 192.168.0.95

switch#
```

Related Commands

Command	Description
cdp	Enables CDP on the switch.

show cdp global

To display the Cisco Discovery Protocol (CDP) global parameters, use the **show cdp global** command.

show cdp global

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to display the CDP global parameters:

```
switch# show cdp global
Global CDP information:
    CDP enabled globally
    Refresh time is 60 seconds
    Hold time is 180 seconds
    CDPv2 advertisements is enabled
    DeviceID TLV in System-Name(Default) Format
switch#
```

Related Commands

Command	Description
cdp	Enables CDP on the switch.

show cdp interface

To display the Cisco Discovery Protocol (CDP) parameters for an interface, use the **show cdp interface** command.

show cdp interface {**ethernet** *slot*/*port* | **mgmt** *mgmt-num*}

Syntax Description

ethernet *slot*/*port*	Specifies an Ethernet interface. The slot number is from 1 to 255 and the port number is from 1 to 128.
mgmt *mgmt-num*	Specifies a management interface. The management interface number is 0.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to display the CDP parameters for an Ethernet interface:

```
switch# show cdp interface ethernet 1/30
Ethernet1/30 is down
    CDP enabled on interface
    Refresh time is 60 seconds
    Hold time is 180 seconds
switch#
```

This example shows how to display the CDP parameters for a management interface:

```
switch# show cdp interface mgmt 0
mgmt0 is up
    CDP enabled on interface
    Refresh time is 60 seconds
    Hold time is 180 seconds
switch#
```

Related Commands

Command	Description
cdp	Enables CDP on the switch.

show cdp neighbors

To display the Cisco Discovery Protocol (CDP) neighbors, use the **show cdp neighbors** command.

show cdp neighbors [**interface** {**ethernet** *slot/port* | **mgmt** *mgmt-num*}] [**detail**]

Syntax Description

interface	(Optional) Displays CDP neighbor information for an interface, Ethernet or management.
ethernet *slot/port*	(Optional) Displays CDP neighbor information for an Ethernet interface. The slot number is from 1 to 255 and the port number is from 1 to 128
mgmt *mgmt-num*	(Optional) Displays CDP neighbor information for a management interface. The management interface number is 0.
detail	(Optional) Displays the detailed information about CDP neighbors.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to display all CDP neighbors:

```
switch# show cdp neighbors
Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater,
                  V - VoIP-Phone, D - Remotely-Managed-Device,
                  s - Supports-STP-Dispute, M - Two-port Mac Relay


Device ID              Local Intrfce   Hldtme  Capability  Platform      Port ID
savbu-qa-dist-120      mgmt0           177     S I         WS-C3750E-24T Gig1/0/13
swor96(SSI13110AAQ)    Eth1/17         165     S I s       N5K-C5010P-BF Eth1/19

swor96(SSI13110AAQ)    Eth1/18         165     S I s       N5K-C5010P-BF Eth1/20

swor95(SSI13110AAS)    Eth1/29         171     S I s       N5K-C5010P-BF Eth1/19

switch#
```

This example shows how to display the CDP neighbors for a specific Ethernet interface:

```
switch# show cdp neighbors interface ethernet 1/29
Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater,
                  V - VoIP-Phone, D - Remotely-Managed-Device,
                  s - Supports-STP-Dispute, M - Two-port Mac Relay
```

```
Device ID              Local Intrfce   Hldtme  Capability  Platform      Port ID
swor95(SSI13110AAS)    Eth1/29         146     S I s       N5K-C5010P-BF Eth1/19

switch#
```

This example shows how to display the detailed information of the CDP neighbors for a specific Ethernet interface:

```
switch# show cdp neighbors interface ethernet 1/29 detail
----------------------------------------
Device ID:swor95(SSI13110AAS)
System Name:swor95
Interface address(es):
    IPv4 Address: 192.168.0.95
Platform: N5K-C5010P-BF, Capabilities: Switch IGMP Filtering Supports-STP-Disput
e
Interface: Ethernet1/29, Port ID (outgoing port): Ethernet1/19
Holdtime: 141 sec

Version:
Cisco Nexus Operating System (NX-OS) Software, Version 5.0(3)N2(1)

Advertisement Version: 2
Native VLAN: 1
Duplex: full
Physical Location: snmplocation
Mgmt address(es):
    IPv4 Address: 192.168.0.95

switch#
```

This example shows how to display the CDP neighbors for the management interface:

```
switch# show cdp neighbors interface mgmt 0
Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater,
                  V - VoIP-Phone, D - Remotely-Managed-Device,
                  s - Supports-STP-Dispute, M - Two-port Mac Relay


Device ID              Local Intrfce   Hldtme  Capability  Platform      Port ID
savbu-qa-dist-120      mgmt0           126     S I         WS-C3750E-24T Gig1/0/13

switch#
```

This example shows how to display the detailed information of the CDP neighbors for the management interface:

```
switch# show cdp neighbors interface mgmt 0 detail
----------------------------------------
Device ID:savbu-qa-dist-120
System Name:
Interface address(es):
    IPv4 Address: 192.168.0.82
Platform: cisco WS-C3750E-24TD, Capabilities: Switch IGMP Filtering
Interface: mgmt0, Port ID (outgoing port): GigabitEthernet1/0/13
Holdtime: 179 sec

Version:
Cisco IOS Software, C3750E Software (C3750E-UNIVERSAL-M), Version 12.2(35)SE5, R
ELEASE SOFTWARE (fc1)
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Compiled Thu 19-Jul-07 16:17 by nachen
```

```
Advertisement Version: 2
Native VLAN: 16
VTP Management Domain:
Duplex: full
Mgmt address(es):
    IPv4 Address: 192.168.0.82

switch#
```

This example shows how to display the detailed information of all CDP neighbors:

```
switch# show cdp neighbors detail
----------------------------------------
Device ID:savbu-qa-dist-120
System Name:
Interface address(es):
    IPv4 Address: 192.168.0.82
Platform: cisco WS-C3750E-24TD, Capabilities: Switch IGMP Filtering
Interface: mgmt0, Port ID (outgoing port): GigabitEthernet1/0/13
Holdtime: 128 sec

Version:
Cisco IOS Software, C3750E Software (C3750E-UNIVERSAL-M), Version 12.2(35)SE5, R
ELEASE SOFTWARE (fc1)
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Thu 19-Jul-07 16:17 by nachen

Advertisement Version: 2
Native VLAN: 16
VTP Management Domain:
Duplex: full
Mgmt address(es):
    IPv4 Address: 192.168.0.82

----------------------------------------
Device ID:swor96(SSI13110AAQ)
System Name:swor96
Interface address(es):
    IPv4 Address: 192.168.0.1
Platform: N5K-C5010P-BF, Capabilities: Switch IGMP Filtering Supports-STP-Disput
e
Interface: Ethernet1/17, Port ID (outgoing port): Ethernet1/19
Holdtime: 175 sec

Version:
Cisco Nexus Operating System (NX-OS) Software, Version 5.0(3)N2(1)

Advertisement Version: 2
Native VLAN: 1
Duplex: full
Physical Location: snmplocation
Mgmt address(es):
    IPv4 Address: 192.168.0.96

----------------------------------------
Device ID:swor96(SSI13110AAQ)
System Name:swor96
Interface address(es):
    IPv4 Address: 192.168.0.1
Platform: N5K-C5010P-BF, Capabilities: Switch IGMP Filtering Supports-STP-Disput
e
Interface: Ethernet1/18, Port ID (outgoing port): Ethernet1/20
Holdtime: 175 sec
```

```
Version:
Cisco Nexus Operating System (NX-OS) Software, Version 5.0(3)N2(1)

Advertisement Version: 2
Native VLAN: 1
Duplex: full
Physical Location: snmplocation
Mgmt address(es):
    IPv4 Address: 192.168.0.96

----------------------------------------
Device ID:swor95(SSI13110AAS)
System Name:swor95
Interface address(es):
    IPv4 Address: 192.168.0.95
Platform: N5K-C5010P-BF, Capabilities: Switch IGMP Filtering Supports-STP-Disput
e
Interface: Ethernet1/29, Port ID (outgoing port): Ethernet1/19
Holdtime: 121 sec

Version:
Cisco Nexus Operating System (NX-OS) Software, Version 5.0(3)N2(1)

Advertisement Version: 2
Native VLAN: 1
Duplex: full
Physical Location: snmplocation
Mgmt address(es):
    IPv4 Address: 192.168.0.95

switch#
```

Related Commands

Command	Description
cdp	Enables CDP on the switch.

show cdp traffic

To display the Cisco Discovery Protocol (CDP) traffic statistics, use the **show cdp traffic** command.

show cdp traffic interface {**ethernet** *slot*/*port* | **mgmt** *mgmt-num*}}

Syntax Description

interface	Displays CDP traffic statistics for an interface, Ethernet or management.
ethernet *slot*/*port*	Displays CDP traffic statistics for an Ethernet interface. The slot number is from 1 to 255 and the port number is from 1 to 128.
mgmt *mgmt-num*	Displays CDP traffic statistics for a management interface. The management interface number is 0.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to display the CDP traffic statistics for an Ethernet interface:

```
switch# show cdp traffic interface ethernet 1/29
----------------------------------------
Traffic statistics for Ethernet1/29
Input Statistics:
    Total Packets: 3203
    Valid CDP Packets: 3203
        CDP v1 Packets: 0
        CDP v2 Packets: 3203
    Invalid CDP Packets: 0
        Unsupported Version: 0
        Checksum Errors: 0
        Malformed Packets: 0

Output Statistics:
    Total Packets: 3203
        CDP v1 Packets: 0
        CDP v2 Packets: 3203
    Send Errors: 0

switch#
```

This example shows how to display CDP traffic statistics for a management interface:

```
switch# show cdp traffic interface mgmt 0
----------------------------------------
Traffic statistics for mgmt0
Input Statistics:
    Total Packets: 3201
```

```
    Valid CDP Packets: 3201
        CDP v1 Packets: 0
        CDP v2 Packets: 3201
    Invalid CDP Packets: 0
        Unsupported Version: 0
        Checksum Errors: 0
        Malformed Packets: 0

Output Statistics:
    Total Packets: 3201
        CDP v1 Packets: 0
        CDP v2 Packets: 3201
    Send Errors: 0

switch#
```

Related Commands

Command	Description
cdp	Enables CDP on the switch.

show interface brief

To display a brief summary of the interface configuration information, use the **show interface brief** command.

show interface brief

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.0(3)N1(1)	Support for Layer 3 interfaces was added.
5.1(3)N1(1)	Support to display FabricPath ports was added.

Examples

This example shows how to display the summary configuration information of the specified interface:

```
switch# show interface brief

--------------------------------------------------------------------------------
Ethernet      VLAN   Type Mode   Status  Reason                   Speed     Port
Interface                                                                  Ch #
--------------------------------------------------------------------------------
Eth1/1        1      eth  trunk  up      none                       10G(D) 4000
Eth1/2        1      eth  trunk  up      none                       10G(D) 4000
Eth1/3        1      eth  trunk  up      none                       10G(D) 4000
Eth1/4        1      eth  trunk  up      none                       10G(D) 4000
Eth1/5        1      eth  access down    SFP not inserted           10G(D) --
Eth1/6        1      eth  access down    SFP not inserted           10G(D) --
Eth1/7        1      eth  trunk  up      none                       10G(D) 10
Eth1/8        1      eth  trunk  up      none                       10G(D) 10
Eth1/9        1      eth  trunk  up      none                       10G(D) 10
Eth1/10       1      eth  trunk  up      none                       10G(D) 10
Eth1/11       1      eth  access down    SFP not inserted           10G(D) --
Eth1/12       1      eth  access down    SFP not inserted           10G(D) --
Eth1/13       1      eth  access down    SFP not inserted           10G(D) --
Eth1/14       1      eth  access down    SFP not inserted           10G(D) --
Eth1/15       1      eth  access down    SFP not inserted           10G(D) --
Eth1/16       1      eth  access down    SFP not inserted           10G(D) --
Eth1/17       1      eth  access down    SFP not inserted           10G(D) --
Eth1/18       1      eth  access down    SFP not inserted           10G(D) --
Eth1/19       1      eth  access down    SFP not inserted           10G(D) --
Eth1/20       1      eth  access down    SFP not inserted           10G(D) --
Eth1/21       1      eth  access down    SFP not inserted           10G(D) --
Eth1/22       1      eth  access down    SFP not inserted           10G(D) --
Eth1/23       1      eth  access down    Link not connected         10G(D) --
Eth1/24       1      eth  access down    Link not connected         10G(D) --
```

```
Eth1/25       1       eth  access down    SFP not inserted            10G(D) --
Eth1/26       1       eth  access down    SFP not inserted            10G(D) --
Eth1/27       1       eth  access down    SFP not inserted            10G(D) --
Eth1/28       1       eth  access down    SFP not inserted            10G(D) --
Eth1/29       1       eth  access down    SFP not inserted            10G(D) --
Eth1/30       1       eth  access down    SFP not inserted            10G(D) --
Eth1/31       1       eth  access down    SFP not inserted            10G(D) --
Eth1/32       1       eth  access down    SFP not inserted            10G(D) --
Eth1/33       1       eth  access down    SFP not inserted            10G(D) --
Eth1/34       1       eth  access down    SFP not inserted            10G(D) --
Eth1/35       1       eth  access down    SFP not inserted            10G(D) --
Eth1/36       1       eth  access down    SFP not inserted            10G(D) --
Eth1/37       1       eth  access down    SFP not inserted            10G(D) --
Eth1/38       1       eth  access down    SFP not inserted            10G(D) --
Eth1/39       1       eth  access down    SFP not inserted            10G(D) --
Eth1/40       1       eth  trunk  up      none                        10G(D) --
Eth2/1        1       eth  access down    SFP not inserted            10G(D) --
Eth2/2        1       eth  access up      none                        10G(D) --
Eth2/3        1       eth  access down    SFP not inserted            10G(D) --
Eth2/4        1       eth  access up      none                        10G(D) --
Eth2/5        1       eth  access up      none                        10G(D) --
Eth2/6        1       eth  access down    SFP not inserted            10G(D) --

--------------------------------------------------------------------------------
Port-channel VLAN  Type Mode   Status  Reason                   Speed  Protocol
Interface
--------------------------------------------------------------------------------
Po10         1     eth  trunk  up      none                      a-10G(D)  lacp
Po4000       1     eth  trunk  up      none                      a-10G(D)  lacp

--------------------------------------------------------------------------------
Port   VRF          Status IP Address                              Speed    MTU
--------------------------------------------------------------------------------
mgmt0  --           up     192.168.10.37                           100      1500

--------------------------------------------------------------------------------
Interface Secondary VLAN(Type)                   Status Reason
--------------------------------------------------------------------------------
Vlan1     --                                     down   Administratively down

switch#
```

This example shows how to display the summary configuration information of interfaces, including routed interfaces:

```
switch# show interface brief

--------------------------------------------------------------------------------
Ethernet      VLAN   Type Mode   Status  Reason                   Speed     Port
Interface                                                                  Ch #
--------------------------------------------------------------------------------
Eth1/1        1      eth  access down    Link not connected          10G(D) --
Eth1/2        1      eth  trunk  up      none                        10G(D) --
Eth1/3        1      eth  access down    SFP not inserted            10G(D) --
Eth1/4        1      eth  access down    SFP not inserted            10G(D) --
Eth1/5        --     eth  routed up      none                        10G(D) --
Eth1/5.2      --     eth  routed down    Configuration Incomplete    10G(D) --
Eth1/6        1      eth  access up      none                        10G(D) --
Eth1/7        1      eth  access up      none                        10G(D) --
Eth1/8        1      eth  trunk  up      none                        10G(D) 100
Eth1/9        1      eth  access up      none                        10G(D) --
Eth1/10       1      eth  access down    Link not connected          10G(D) --
Eth1/11       1      eth  access down    SFP not inserted            10G(D) --
Eth1/12       1      eth  access down    SFP not inserted            10G(D) --
```

```
Eth1/13       1       eth  access down    SFP not inserted            10G(D) --
Eth1/14       1       eth  access down    SFP not inserted            10G(D) --
Eth1/15       1       eth  access down    SFP not inserted            10G(D) --
Eth1/16       1       eth  access down    SFP not inserted            10G(D) --
Eth1/17       1       eth  access up      none                        10G(D) --
Eth1/18       1       eth  access up      none                        10G(D) --
Eth1/19       1       eth  fabric up      none                        10G(D) --
Eth1/20       1       eth  access down    Link not connected          10G(D) --
Eth1/21       1       eth  access up      none                        10G(D) --
Eth1/22       1       eth  access down    Link not connected          10G(D) --
Eth1/23       1       eth  access down    SFP not inserted            10G(D) --
Eth1/24       1       eth  access down    SFP not inserted            10G(D) --
Eth1/25       1       eth  access down    Link not connected          10G(D) --
Eth1/26       1       eth  access down    SFP not inserted            10G(D) --
Eth1/27       1       eth  access down    SFP not inserted            10G(D) --
Eth1/28       1       eth  access down    SFP not inserted            10G(D) --
Eth1/29       1       eth  access down    Link not connected          10G(D) --
Eth1/30       1       eth  access down    SFP not inserted            10G(D) --
Eth1/31       1       eth  access down    SFP not inserted            10G(D) --
Eth1/32       1       eth  access up      none                        10G(D) --

--------------------------------------------------------------------------------
Port-channel VLAN  Type Mode   Status  Reason                   Speed  Protocol
Interface
--------------------------------------------------------------------------------
Po100        1     eth  trunk  up      none                     a-10G(D)  none

--------------------------------------------------------------------------------
Port   VRF          Status IP Address                              Speed    MTU
--------------------------------------------------------------------------------
mgmt0  --           up     172.29.231.33                           1000     1500

--------------------------------------------------------------------------------
Interface Secondary VLAN(Type)                    Status Reason
--------------------------------------------------------------------------------
Vlan1     --                                      up     --
Vlan100   --                                      up     --

--------------------------------------------------------------------------------
Ethernet      VLAN    Type Mode   Status  Reason                   Speed     Port
Interface                                                                    Ch #
--------------------------------------------------------------------------------
Eth100/1/1    1       eth  access up      none                      10G(D) --
Eth100/1/2    1       eth  access down    Link not connected      auto(D) --
Eth100/1/3    1       eth  access up      none                      10G(D) --
Eth100/1/4    1       eth  access down    Link not connected      auto(D) --
Eth100/1/5    1       eth  access down    Link not connected      auto(D) --
Eth100/1/6    1       eth  access down    Link not connected      auto(D) --
Eth100/1/7    1       eth  access down    Link not connected      auto(D) --
Eth100/1/8    1       eth  access down    Link not connected      auto(D) --
Eth100/1/9    1       eth  access down    Link not connected      auto(D) --
Eth100/1/10   1       eth  access up      none                      10G(D) --
Eth100/1/11   1       eth  access down    Link not connected      auto(D) --
Eth100/1/12   1       eth  access down    Link not connected      auto(D) --
Eth100/1/13   1       eth  access down    Link not connected      auto(D) --
Eth100/1/14   1       eth  access down    Link not connected      auto(D) --
Eth100/1/15   1       eth  access up      none                      10G(D) --
Eth100/1/16   1       eth  access down    Link not connected      auto(D) --

--------------------------------------------------------------------------------
Interface     Status     Description
--------------------------------------------------------------------------------
Lo10          up         --
switch#
```

Note the following in the above display:

- Ethernet 1/5 is a Layer 3-ready interface. The following fields in the display help identify an interface as a configured Layer 3 interface:
  - Mode—routed
  - Status—up
  - Reason—none
- Ethernet 1/5.2 is a Layer 3 subinterface; however, the interface is not ready for Layer 3 configuration (Status—down).
- Interface Lo10 is a Layer 3 loopback interface.

This example shows how to display a brief summary of interfaces configured as FabricPath interfaces on a switch that runs Cisco NX-OS Release 5.1(3)N1(1):

```
switch# show interface brief
--------------------------------------------------------------------------------
Ethernet      VLAN    Type Mode   Status  Reason                   Speed     Port
Interface                                                                    Ch#
--------------------------------------------------------------------------------
Eth1/1        1       eth  access down    SFP not inserted           1000(D) --
Eth1/2        --      eth  routed down    SFP not inserted           1000(D) --
Eth1/3        1       eth  access down    SFP not inserted            10G(D) --
Eth1/4        1       eth  access down    SFP not inserted            10G(D) --
Eth1/5        1       eth  f-path down    SFP not inserted            10G(D) --
Eth1/6        1       eth  access down    Link not connected          10G(D) --
Eth1/7        1       eth  fabric down    Link not connected          10G(D) --
Eth1/8        1       eth  access down    SFP not inserted            10G(D) --
Eth1/9        1       eth  access down    SFP not inserted            10G(D) --
Eth1/10       1       eth  access down    SFP not inserted            10G(D) --
Eth1/11       1       eth  access down    SFP not inserted            10G(D) --
Eth1/12       1       eth  access down    SFP not inserted            10G(D) --
Eth1/13       1       eth  access down    SFP not inserted            10G(D) --
Eth1/14       1       eth  access down    SFP not inserted            10G(D) --
Eth1/15       1       eth  pvlan  up      none                       1000(D) --
Eth1/16       1       eth  access down    SFP not inserted            10G(D) --
Eth1/17       1       eth  access down    SFP not inserted            10G(D) --
switch#
```

In the above display, Ethernet 1/5 has the mode shown as “f-path” indicating that it has been configured as a FabricPath port.

Related Commands

Command	Description
interface ethernet	Configures an Ethernet IEEE 802.3 interface.

show interface capabilities

To display detailed information about the capabilities of an interface, use the **show interface capabilities** command.

show interface ethernet *slot/port* **capabilities**

Syntax Description

ethernet *slot/port*	Specifies an Ethernet interface slot number and port number. The *slot* number is from 1 to 255, and the *port* number is from 1 to 128.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You can use the **show interface capabilities** command only for physical interfaces.

Examples

This example shows how to display the interface capabilities for a specific interface:

```
switch# show interface ethernet 1/1 capabilities
Ethernet1/1
  Model:                 N5K-C5020P-BF-XL-SU
  Type (SFP capable):    SFP-H10GB-CU1M
  Speed:                 1000,10000
  Duplex:                full
  Trunk encap. type:     802.1Q
  Channel:               yes
  Broadcast suppression: percentage(0-100)
  Flowcontrol:           rx-(off/on),tx-(off/on)
  Rate mode:             none
  QOS scheduling:        rx-(6q1t),tx-(1p6q0t)
  CoS rewrite:           no
  ToS rewrite:           no
  SPAN:                  yes
  UDLD:                  yes
  Link Debounce:         yes
  Link Debounce Time:    yes
  MDIX:                  no
  Pvlan Trunk capable:   yes
  TDR capable:           no
  Port mode:             Switched
  FEX Fabric:            yes

switch#
```

Related Commands

Command	Description
interface ethernet	Configures an Ethernet IEEE 802.3 interface.

show interface debounce

To display the debounce time information for all interfaces, use the **show interface debounce** command.

show interface debounce

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display the debounce status of all interfaces:

```
switch# show interface debounce

--------------------------------------------------------------------------------
Port          Debounce time   Value(ms)
--------------------------------------------------------------------------------
Eth1/1        enable               100
Eth1/2        enable               100
Eth1/3        enable               100
Eth1/4        enable               100
Eth1/5        enable               100
Eth1/6        enable               100
Eth1/7        enable               100
Eth1/8        enable               100
Eth1/9        enable               100
Eth1/10       enable               100
Eth1/11       enable               100
Eth1/12       enable               100
Eth1/13       enable               100
Eth1/14       enable               100
Eth1/15       enable               100
Eth1/16       enable               100
Eth1/17       enable               100
Eth1/18       enable               100
Eth1/19       enable               100
Eth1/20       enable               100
Eth1/21       enable               100
Eth1/22       enable               100
Eth1/23       enable               100
Eth1/24       enable               100
Eth1/25       enable               100
Eth1/26       enable               100
Eth1/27       enable               100
Eth1/28       enable               100
Eth1/29       enable               100
```

```
Eth1/30       enable              100
Eth1/31       enable              100
Eth1/32       enable              100
--More--
switch#
```

Related Commands

Command	Description
link debounce	Enables the debounce timer on an interface.

show interface ethernet

To display information about the interface configuration, use the **show interface ethernet** command.

show interface ethernet *slot/port*[*.subintf-port-no*] [**brief** | **counters** | **description** | **status** | **switchport**]

Syntax Description

slot/port	Ethernet interface slot number and port number. The *slot* number is from 1 to 255, and the *port* number is from 1 to 128.
.	(Optional) Specifies the subinterface separator. **Note** This keyword applies to Layer 3 interfaces.
subintf-port-no	(Optional) Port number for the subinterface. The range is from 1 to 48. **Note** This argument applies to Layer 3 interfaces.
brief	(Optional) Displays brief information about the interfaces.
counters	(Optional) Displays information about the counters configured on an interface.
description	(Optional) Displays the description of an interface configuration.
status	(Optional) Displays the operational state of the interface.
switchport	(Optional) Displays the switchport information of an interface.

Command Default

Displays all information for the interface.

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.0(3)N1(1)	Support for Layer 3 interfaces and subinterfaces was added. The **switchport** keyword was added.

Examples

This example shows how to display the detailed configuration of the specified interface:

```
switch# show interface ethernet 1/1
Ethernet1/1 is up
  Hardware: 1000/10000 Ethernet, address: 000d.ece7.df48 (bia 000d.ece7.df48)
  MTU 1500 bytes, BW 10000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA
  Port mode is fex-fabric
  full-duplex, 10 Gb/s, media type is 1/10g
  Beacon is turned off
  Input flow-control is off, output flow-control is off
  Rate mode is dedicated
  Switchport monitor is off
  Last link flapped 09:03:57
```

```
  Last clearing of "show interface" counters never
  30 seconds input rate 2376 bits/sec, 0 packets/sec
  30 seconds output rate 1584 bits/sec, 0 packets/sec
  Load-Interval #2: 5 minute (300 seconds)
    input rate 1.58 Kbps, 0 pps; output rate 792 bps, 0 pps
  RX
    0 unicast packets  10440 multicast packets  0 broadcast packets
    10440 input packets  11108120 bytes
    0 jumbo packets  0 storm suppression packets
    0 runts  0 giants  0 CRC  0 no buffer
    0 input error  0 short frame  0 overrun   0 underrun  0 ignored
    0 watchdog  0 bad etype drop  0 bad proto drop  0 if down drop
    0 input with dribble  0 input discard
    0 Rx pause
  TX
    0 unicast packets  20241 multicast packets  105 broadcast packets
    20346 output packets  7633280 bytes
    0 jumbo packets
    0 output errors  0 collision  0 deferred  0 late collision
    0 lost carrier  0 no carrier  0 babble
    0 Tx pause
  1 interface resets

switch#
```

This example shows how to display the counters configured on a specified interface:

```
switch# show interface ethernet 1/1 counters

--------------------------------------------------------------------------------
Port                InOctets       InUcastPkts      InMcastPkts      InBcastPkts
--------------------------------------------------------------------------------
Eth1/1              17193136                 0            16159                0
--------------------------------------------------------------------------------
Port               OutOctets      OutUcastPkts     OutMcastPkts     OutBcastPkts
--------------------------------------------------------------------------------
Eth1/1           11576758                 0            28326              106
switch#
```

This example shows how to display the detailed configuration information of a specified subinterface:

```
switch# show interface ethernet 1/5.2
Ethernet1/5.2 is up
  Hardware: 1000/10000 Ethernet, address: 0005.73a6.1dbc (bia 0005.73a6.1d6c)
  Description: Eth 1/5.2 subinterfaces
  Internet Address is 192.0.0.3/24
  MTU 1500 bytes, BW 1500 Kbit, DLY 2000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 100
  EtherType is 0x8100

switch#
```

This example shows how to display the brief configuration information of a specified subinterface:

```
switch# show interface ethernet 1/5.2 brief

--------------------------------------------------------------------------------
Ethernet      VLAN   Type Mode   Status  Reason                   Speed     Port
Interface                                                                  Ch #
--------------------------------------------------------------------------------
Eth1/5.2      100    eth  routed up      none                       10G(D) --
switch#
```

This example shows how to display the purpose of a specified subinterface:

```
switch# show interface ethernet 1/5.2 description

--------------------------------------------------------------------------------
Port          Type   Speed   Description
--------------------------------------------------------------------------------
Eth1/5.2      eth    10G     Eth 1/5.2 subinterfaces
switch#
```

This example shows how to display the switchport information for a specific interface:

```
switch# show interface ethernet 1/2 switchport
Name: Ethernet1/2
  Switchport: Enabled
  Switchport Monitor: Not enabled
  Operational Mode: trunk
  Access Mode VLAN: 1 (default)
  Trunking Native Mode VLAN: 1 (default)
  Trunking VLANs Enabled: 1,300-800
  Pruning VLANs Enabled: 2-1001
  Administrative private-vlan primary host-association: none
  Administrative private-vlan secondary host-association: none
  Administrative private-vlan primary mapping: none
  Administrative private-vlan secondary mapping: none
  Administrative private-vlan trunk native VLAN: none
  Administrative private-vlan trunk encapsulation: dot1q
  Administrative private-vlan trunk normal VLANs: none
  Administrative private-vlan trunk private VLANs: none
  Operational private-vlan: none
  Unknown unicast blocked: disabled
  Unknown multicast blocked: disabled
  Monitor destination rate-limit: 1G

switch#
```

In the above display, the Monitor destination rate-limit field displays the rate limit configured on a switchport interface on a Cisco Nexus 5010 Series switch.

Note You can configure the monitor destination rate-limit only on a Cisco Nexus 5010 Series switch or Cisco Nexus 5020 Series switch.

Related Commands

Command	Description
interface ethernet	Configures an Ethernet IEEE 802.3 interface.
interface ethernet (Layer 3)	Configures a Layer 3 Ethernet IEEE 802.3 interface.
switchport mode vntag	Configures an Ethernet interface as a VNTag port.
switchport monitor rate-limit	Configures the rate limit for traffic on an interface.

show interface loopback

To display information about the loopback interface, use the **show interface loopback** command.

show interface loopback *lo-number* [**brief** | **description**]

Syntax Description

lo-number	Loopback interface number. The range is from 0 to 1023.
brief	(Optional) Displays a brief summary of the loopback interface information.
description	(Optional) Displays the description provided for the loopback interface.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(3)N1(1)	This command was introduced.

Examples

This example shows how to display the configuration information for a specific loopback interface:

```
switch# show interface loopback 10
loopback10 is up
  Hardware: Loopback
  MTU 1500 bytes, BW 8000000 Kbit, DLY 5000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation LOOPBACK
    0 packets input 0 bytes
    0 multicast frames 0 compressed
    0 input errors 0 frame 0 overrun 0 fifo
    0 packets output 0 bytes 0 underruns
    0 output errors 0 collisions 0 fifo

switch#
```

Table 1 describes the significant fields shown in the display.

Table 1 show interface loopback Field Description

Field	Description
Loopback is ...	Indicates whether the interface hardware is currently active (whether carrier detect is present), is currently inactive (down), or has been taken down by an administrator (administratively down).
Hardware	Hardware is Loopback.
MTU	Maximum transmission unit (MTU) of the interface.
BW	Bandwidth (BW) of the interface in kilobits per second.
DLY	Delay (DLY) of the interface in microseconds.

Table 1 show interface loopback Field Description (continued)

Field	Description
reliability	Reliability of the interface as a fraction of 255 (255/255 is 100 percent reliability), calculated as an exponential average over 5 minutes.
txload	Load on the interface for transmitting packets as a fraction of 255 (255/255 is completely saturated), calculated as an exponential average over 5 minutes.
rxload	Load on the interface for receiving packets as a fraction of 255 (255/255 is completely saturated), calculated as an exponential average over 5 minutes.
Encapsulation	Encapsulation method assigned to interface.
LOOPBACK	Indicates whether loopback is set.
packets input	Total number of error-free packets received by the system.
bytes	Total number of bytes, including data and MAC encapsulation, in the error-free packets received by the system.
multicast frames	Total number of multicast frames enabled on the interface.
compressed	Total number of multicast frames compressed on the interface.
input errors	Sum of all errors that prevented the receipt of datagrams on the interface being examined. This may not balance with the sum of the enumerated output errors, because some datagrams may have more than one error and others may have errors that do not fall into any of the specifically tabulated categories.
frame	Number of packets received incorrectly having a CRC error and a noninteger number of octets. On a serial line, this is usually the result of noise or other transmission problems.
overrun	Number of times the serial receiver hardware was unable to hand received data to a hardware buffer because the input rate exceeded the receiver's ability to handle the data.
fifo	Number of First In, First Out (FIFO) errors in the receive direction.
packets output	Total number of messages transmitted by the system.
bytes	Total number of bytes, including data and MAC encapsulation, transmitted by the system.
underruns	Number of times that the far-end transmitter has been running faster than the near-end router's receiver can handle. This may never happen (be reported) on some interfaces.
output errors	Sum of all errors that prevented the final transmission of datagrams out of the interface being examined. Note that this may not balance with the sum of the enumerated output errors, as some datagrams may have more than one error, and others may have errors that do not fall into any of the specifically tabulated categories.
collisions	Loopback interface does not have collisions.
fifo	Number of First In, First Out (FIFO) errors in the transmit direction.

This example shows how to display the brief information for a specific loopback interface:

```
switch# show interface loopback 10 brief

--------------------------------------------------------------------------------
Interface     Status     Description
--------------------------------------------------------------------------------
loopback10    up         --
switch#
```

Related Commands

Command	Description
interface loopback	Configures a loopback interface.

show interface mac-address

To display the information about the MAC address, use the **show interface mac-address** command.

show interface [*type slot/port* | *portchannel-no*] **mac-address**

Syntax Description

type	(Optional) Interface for which MAC addresses should be displayed. The *type* can be either Ethernet or EtherChannel.
slot/port	Ethernet interface port number and slot number. The slot number is from 1 to 255, and the port number is from 1 to 128.
portchannel-no	EtherChannel number. The EtherChannel number is from 1 to 4096.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

If you do not specify an interface, the system displays all the MAC addresses.

Examples

This example shows how to display the information on MAC addresses for the entire switch:

```
switch# show interface mac-address

--------------------------------------------------------------------------------
Interface                   Mac-Address     Burn-in Mac-Address
--------------------------------------------------------------------------------
Ethernet1/1                 0005.9b78.6e7c  0005.9b78.6e48
Ethernet1/2                 0005.9b78.6e7c  0005.9b78.6e49
Ethernet1/3                 0005.9b78.6e7c  0005.9b78.6e4a
Ethernet1/4                 0005.9b78.6e7c  0005.9b78.6e4b
Ethernet1/5                 0005.9b78.6e7c  0005.9b78.6e4c
Ethernet1/6                 0005.9b78.6e7c  0005.9b78.6e4d
Ethernet1/7                 0005.9b78.6e7c  0005.9b78.6e4e
Ethernet1/8                 0005.9b78.6e7c  0005.9b78.6e4f
Ethernet1/9                 0005.9b78.6e7c  0005.9b78.6e50
Ethernet1/10                0005.9b78.6e7c  0005.9b78.6e51
Ethernet1/11                0005.9b78.6e7c  0005.9b78.6e52
Ethernet1/12                0005.9b78.6e7c  0005.9b78.6e53
Ethernet1/13                0005.9b78.6e7c  0005.9b78.6e54
Ethernet1/14                0005.9b78.6e7c  0005.9b78.6e55
Ethernet1/15                0005.9b78.6e7c  0005.9b78.6e56
Ethernet1/16                0005.9b78.6e7c  0005.9b78.6e57
Ethernet1/17                0005.9b78.6e7c  0005.9b78.6e58
Ethernet1/18                0005.9b78.6e7c  0005.9b78.6e59
Ethernet1/19                0005.9b78.6e7c  0005.9b78.6e5a
```

```
Ethernet1/20              0005.9b78.6e7c  0005.9b78.6e5b
Ethernet1/21              0005.9b78.6e7c  0005.9b78.6e5c
Ethernet1/22              0005.9b78.6e7c  0005.9b78.6e5d
--More--
switch#
```

This example shows how to display the MAC address information for a specific port channel:

```
switch# show interface port-channel 5 mac-address

--------------------------------------------------------------------------------
Interface                 Mac-Address     Burn-in Mac-Address
--------------------------------------------------------------------------------
port-channel5             0005.9b78.6e7c  0005.9b78.6e7c
switch#
```

Related Commands

Command	Description
mac address-table static	Adds static entries to the MAC address table or configures a static MAC address with IGMP snooping disabled for that address.
show mac address-table	Displays information on the MAC address table.

show interface mgmt

To display the configuration information for a management interface, use the **show interface mgmt** command.

show interface mgmt *intf-num* [**brief** | **capabilities** | **counters** [**detailed** [**all**] | **errors** [**snmp**]] | **description** | **status**]

Syntax Description

intf-num	Management interface number. The value is 0.
brief	(Optional) Displays a summary of the configuration information for the management interface.
capabilities	(Optional) Displays the interface capabilities information.
counters	(Optional) Displays information about the management interface counters.
detailed	(Optional) Displays detailed information of only the nonzero interface counters.
all	(Optional) Displays all nonzero interface counters.
errors	(Optional) Displays the interface error counters, such as receive or transmit error counters.
snmp	(Optional) Displays the Simple Network Management Protocol (SNMP) MIB values for the nonzero interface counters.
description	(Optional) Displays the interface description.
status	(Optional) Displays the interface line status.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display the configuration information of the management interface:

```
switch# show interface mgmt 0
mgmt0 is up
  Hardware: GigabitEthernet, address: 0005.9b74.a6c1 (bia 0005.9b74.a6c1)
  Internet Address is 10.193.51.174/21
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec
  reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA
  full-duplex, 1000 Mb/s
  EtherType is 0x0000
  1 minute input rate 11336 bits/sec, 9 packets/sec
  1 minute output rate 2248 bits/sec, 3 packets/sec
  Rx
    22722587 input packets 7487592 unicast packets 7082728 multicast packets
```

```
    8152267 broadcast packets 3375124199 bytes
  Tx
    7618171 output packets 7283211 unicast packets 334751 multicast packets
    209 broadcast packets 1056259251 bytes

switch#
```

This example shows how to display the summary configuration information of the management interface:

```
switch# show interface mgmt 0 brief
```

Related Commands

Command	Description
interface mgmt	Configures a management interface.

show interface port-channel

To display the information about an EtherChannel interface configuration, use the **show interface port-channel** command.

show interface port-channel *number*[**.***subinterface-number*] [**brief** | **counters** | **description** | **status**]

Syntax Description

number	EtherChannel number. The range is from 1 to 4096.
.*subinterface-number*	(Optional) Port-channel subinterface configuration. Use the EtherChannel number followed by a dot (.) indicator and the subinterface number. The format is: *portchannel-number***.***subinterface-number*
counters	(Optional) Displays information about the counters configured on the EtherChannel interface.
description	(Optional) Displays the description of the EtherChannel interface configuration.
status	(Optional) Displays the operational state of the EtherChannel interface.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.0(3)N1(1)	Support for Layer 3 interfaces and subinterfaces was added.

Examples

This example shows how to display the configuration information of a specified EtherChannel interface:

```
switch# show interface port-channel 21
port-channel21 is up
  Hardware: Port-Channel, address: 000d.ece7.df72 (bia 000d.ece7.df72)
  MTU 1500 bytes, BW 10000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA
  Port mode is trunk
  full-duplex, 10 Gb/s
  Beacon is turned off
  Input flow-control is on, output flow-control is on
  Switchport monitor is off
  Members in this channel: Eth2/3
  Last clearing of "show interface" counters never
  30 seconds input rate 0 bits/sec, 0 packets/sec
  30 seconds output rate 352 bits/sec, 0 packets/sec
  Load-Interval #2: 5 minute (300 seconds)
    input rate 0 bps, 0 pps; output rate 368 bps, 0 pps
```

```
  RX
    0 unicast packets  0 multicast packets  0 broadcast packets
    0 input packets  0 bytes
    0 jumbo packets  0 storm suppression packets
    0 runts  0 giants  0 CRC  0 no buffer
    0 input error  0 short frame  0 overrun   0 underrun  0 ignored
    0 watchdog  0 bad etype drop  0 bad proto drop  0 if down drop
    0 input with dribble  0 input discard
    0 Rx pause
  TX
    0 unicast packets  15813 multicast packets  9 broadcast packets
    15822 output packets  1615917 bytes
    0 jumbo packets
    0 output errors  0 collision  0 deferred  0 late collision
    0 lost carrier  0 no carrier  0 babble
    0 Tx pause
  1 interface resets

switch#
```

Related Commands

Command	Description
interface port-channel	Configures an EtherChannel interface.

show interface private-vlan mapping

To display information about private VLAN mapping for primary VLAN interfaces, use the **show interface private-vlan mapping** command.

show interface private-vlan mapping

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Before you can configure private VLANs, you must enable them by using the **feature private-vlan** command. The commands for configuring private VLANs are not visible until you enable private VLANs.

This command displays the mapping information between the primary and secondary VLANs that allows both VLANs to share the VLAN interface of the primary VLAN.

Examples

This example shows how to display information about primary and secondary private VLAN mapping:

```
switch# show interface private-vlan mapping
```

Related Commands

Command	Description
feature private-vlan	Enables private VLANs.
show interface switchport	Displays information about the ports, including those in private VLANs.
show vlan	Displays summary information for all VLANs.
show vlan private-vlan	Displays information for all private VLANs on the device.

show interface status err-disabled

To display the error disabled state of interfaces, use the **show interface status err-disabled** command.

show interface status err-disabled

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.2(1)N1(1)	This command was introduced.

Examples

This example shows how to display the error disabled state of interfaces:

```
switch# show interface status err-disabled

--------------------------------------------------------------------------------
Port          Name               Status    Reason
--------------------------------------------------------------------------------
Eth114/1/27   --                 down      BPDUGuard errDisable
Eth114/1/28   --                 down      BPDUGuard errDisable
Eth114/1/29   --                 down      BPDUGuard errDisable
Eth114/1/30   --                 down      BPDUGuard errDisable
Eth114/1/31   --                 down      BPDUGuard errDisable
Eth114/1/32   --                 down      BPDUGuard errDisable
Eth114/1/33   --                 down      BPDUGuard errDisable
Eth114/1/34   --                 down      BPDUGuard errDisable
Eth114/1/35   --                 down      BPDUGuard errDisable
Eth114/1/36   --                 down      BPDUGuard errDisable
Eth114/1/39   --                 down      BPDUGuard errDisable
Eth114/1/40   --                 down      BPDUGuard errDisable
Eth114/1/41   --                 down      BPDUGuard errDisable
Eth114/1/42   --                 down      BPDUGuard errDisable
Eth114/1/43   --                 down      BPDUGuard errDisable
Eth114/1/44   --                 down      BPDUGuard errDisable
Eth114/1/45   --                 down      BPDUGuard errDisable
Eth114/1/46   --                 down      BPDUGuard errDisable
Eth114/1/47   --                 down      BPDUGuard errDisable
--More--
switch#
```

Related Commands

Command	Description
errdisable detect cause	Enables the error disabled (err-disabled) detection.
errdisable recovery cause	Enables error disabled recovery on an interface.

show interface switchport

To display information about all the switch port interfaces, use the **show interface switchport** command.

show interface switchport

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.0(3)N1(1)	Support to configure traffic rate limit on a switch port was added.

Usage Guidelines

You can configure the rate limit on the following Cisco Nexus 5000 Series switches using the **switchport monitor rate-limit 1G** command:

- Cisco Nexus 5010 Series
- Cisco Nexus 5020 Series

This command does not require a license.

Examples

This example shows how to display information for all Ethernet interfaces:

```
switch# show interface switchport
Name: Ethernet1/1
  Switchport: Enabled
  Switchport Monitor: Not enabled
  Operational Mode: fex-fabric
  Access Mode VLAN: 1 (default)
  Trunking Native Mode VLAN: 1 (default)
  Trunking VLANs Enabled: 1-3967,4048-4093
  Administrative private-vlan primary host-association: none
  Administrative private-vlan secondary host-association: none
  Administrative private-vlan primary mapping: none
  Administrative private-vlan secondary mapping: none
  Administrative private-vlan trunk native VLAN: none
  Administrative private-vlan trunk encapsulation: dot1q
  Administrative private-vlan trunk normal VLANs: none
  Administrative private-vlan trunk private VLANs:
  Operational private-vlan: none
  Unknown unicast blocked: disabled
  Unknown multicast blocked: disabled

Name: Ethernet1/2
```

```
  Switchport: Enabled
  Switchport Monitor: Not enabled
  Operational Mode: fex-fabric
  Access Mode VLAN: 1 (default)
  Trunking Native Mode VLAN: 1 (default)
  Trunking VLANs Enabled: 1-3967,4048-4093
  Administrative private-vlan primary host-association: none
--More--
switch#
```

This example shows how to display information for all Ethernet interfaces on a switch that runs Cisco NX-OS Release 5.0(3)N1(1):

```
switch# show interface switchport
Name: Ethernet1/1
  Switchport: Enabled
  Switchport Monitor: Not enabled
  Operational Mode: fex-fabric
  Access Mode VLAN: 1 (default)
  Trunking Native Mode VLAN: 1 (default)
  Trunking VLANs Enabled: 1,300-795,900,1002-1005
  Pruning VLANs Enabled: 2-1001
  Administrative private-vlan primary host-association: none
  Administrative private-vlan secondary host-association: none
  Administrative private-vlan primary mapping: none
  Administrative private-vlan secondary mapping: none
  Administrative private-vlan trunk native VLAN: none
  Administrative private-vlan trunk encapsulation: dot1q
  Administrative private-vlan trunk normal VLANs: none
  Administrative private-vlan trunk private VLANs: none
  Operational private-vlan: none
  Unknown unicast blocked: disabled
  Unknown multicast blocked: disabled

Name: Ethernet1/2
  Switchport: Enabled
  Switchport Monitor: Not enabled
  Operational Mode: vntag
  Access Mode VLAN: 1 (default)
  Trunking Native Mode VLAN: 1 (default)
  Trunking VLANs Enabled: 1,300-795
  Pruning VLANs Enabled: 2-1001
  Administrative private-vlan primary host-association: none
  Administrative private-vlan secondary host-association: none
  Administrative private-vlan primary mapping: none
  Administrative private-vlan secondary mapping: none
  Administrative private-vlan trunk native VLAN: none
  Administrative private-vlan trunk encapsulation: dot1q
  Administrative private-vlan trunk normal VLANs: none
  Administrative private-vlan trunk private VLANs: none
  Operational private-vlan: none
  Unknown unicast blocked: disabled
  Unknown multicast blocked: disabled

Name: Ethernet1/3
  Switchport: Enabled
  Switchport Monitor: Not enabled
  Operational Mode: trunk
  Access Mode VLAN: 700 (VLAN0700)
  Trunking Native Mode VLAN: 1 (default)
  Trunking VLANs Enabled: 1,300-795
<--snip-->
:
:
```

```
Name: port-channel4000
  Switchport: Enabled
  Switchport Monitor: Not enabled
  Operational Mode: access
  Access Mode VLAN: 1 (default)
  Trunking Native Mode VLAN: 1 (default)
  Trunking VLANs Enabled: 1,300-795,900,1002-1005
  Pruning VLANs Enabled: 2-1001
  Administrative private-vlan primary host-association: none
  Administrative private-vlan secondary host-association: none
  Administrative private-vlan primary mapping: none
  Administrative private-vlan secondary mapping: none
  Administrative private-vlan trunk native VLAN: none
  Administrative private-vlan trunk encapsulation: dot1q
  Administrative private-vlan trunk normal VLANs: none
  Administrative private-vlan trunk private VLANs: none
  Operational private-vlan: none
  Unknown unicast blocked: disabled
  Unknown multicast blocked: disabled

Name: Ethernet101/1/1
  Switchport: Enabled
  Switchport Monitor: Not enabled
  Operational Mode: access
  Access Mode VLAN: 1 (default)
  Trunking Native Mode VLAN: 1 (default)
  Trunking VLANs Enabled: 1,300-795,900,1002-1005
  Pruning VLANs Enabled: 2-1001
  Administrative private-vlan primary host-association: none
<--Output truncated-->
switch#
```

This example shows how to display the rate limit status for Ethernet interface 1/2:

```
switch# show interface switchport
BEND-2(config-if)# show interface switchport
Name: Ethernet1/1
  Switchport: Enabled
  Switchport Monitor: Not enabled
  Operational Mode: fex-fabric
  Access Mode VLAN: 1 (default)
  Trunking Native Mode VLAN: 1 (default)
  Trunking VLANs Enabled: 1,300-800,900
  Pruning VLANs Enabled: 2-1001
  Administrative private-vlan primary host-association: none
  Administrative private-vlan secondary host-association: none
  Administrative private-vlan primary mapping: none
  Administrative private-vlan secondary mapping: none
  Administrative private-vlan trunk native VLAN: none
  Administrative private-vlan trunk encapsulation: dot1q
  Administrative private-vlan trunk normal VLANs: none
  Administrative private-vlan trunk private VLANs: none
  Operational private-vlan: none
  Unknown unicast blocked: disabled
  Unknown multicast blocked: disabled

Name: Ethernet1/2
  Switchport: Enabled
  Switchport Monitor: Not enabled
  Operational Mode: trunk
  Access Mode VLAN: 1 (default)
  Trunking Native Mode VLAN: 1 (default)
  Trunking VLANs Enabled: 1,300-800
  Pruning VLANs Enabled: 2-1001
```

```
  Administrative private-vlan primary host-association: none
  Administrative private-vlan secondary host-association: none
  Administrative private-vlan primary mapping: none
  Administrative private-vlan secondary mapping: none
  Administrative private-vlan trunk native VLAN: none
  Administrative private-vlan trunk encapsulation: dot1q
  Administrative private-vlan trunk normal VLANs: none
  Administrative private-vlan trunk private VLANs: none
  Operational private-vlan: none
  Unknown unicast blocked: disabled
  Unknown multicast blocked: disabled
  Monitor destination rate-limit: 1G

Name: Ethernet1/3
  Switchport: Enabled
  Switchport Monitor: Not enabled
  Operational Mode: trunk
  Access Mode VLAN: 700 (VLAN0700)
  Trunking Native Mode VLAN: 1 (default)
<--Output truncated-->
switch #
```

In the above display, the significant field for Ethernet interface 1/2 is highlighted.

This example shows how to display the voice VLAN information for an Ethernet interface on a switch that runs Cisco NX-OS Release 5.0(3)N2(1):

```
switch# show interface ethernet 1/28 switchport
Name: Ethernet1/28
  Switchport: Enabled
  Switchport Monitor: Not enabled
  Operational Mode: access
  Access Mode VLAN: 3000 (VLAN3000)
  Trunking Native Mode VLAN: 1 (default)
  Trunking VLANs Enabled: 1,200,300-302,500,2001-2248,3000-3001,4049,4090
  Pruning VLANs Enabled: 2-1001
  Voice VLAN: 3
  Extended Trust State : not trusted [COS = 0]
  Administrative private-vlan primary host-association: none
  Administrative private-vlan secondary host-association: none
  Administrative private-vlan primary mapping: none
  Administrative private-vlan secondary mapping: none
  Administrative private-vlan trunk native VLAN: none
  Administrative private-vlan trunk encapsulation: dot1q
  Administrative private-vlan trunk normal VLANs: none
  Administrative private-vlan trunk private VLANs: none
  Operational private-vlan: none
  Unknown unicast blocked: disabled
  Unknown multicast blocked: disabled

switch#
```

Related Commands

Command	Description
switchport access vlan	Sets the access VLAN when the interface is in access mode.
switchport monitor rate-limit	Configures the rate limit for traffic on an interface.

show interface switchport backup

To display information about all the switch port Flex Links interfaces, use the **show interface switchport backup** command.

show interface switchport backup [**detail**]

Syntax Description

detail	(Optional) Displays detailed information for backup interfaces.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to display information for all Flex Links:

```
switch# show interface switchport backup


Switch Backup Interface Pairs:

Active Interface        Backup Interface        State
------------------------------------------------------------------------
Ethernet1/2             Ethernet1/1             Active Down/Backup Down
Ethernet1/20            Ethernet1/21            Active Down/Backup Down
port-channel300         port-channel301         Active Up/Backup Down
port-channel500         port-channel501         Active Down/Backup Down
port-channel502         port-channel503         Active Down/Backup Down
port-channel504         Ethernet2/1             Active Down/Backup Down
switch#
```

This example shows how to display the detailed information for all Flex Links:

```
switch# show interface switchport backup detail


Switch Backup Interface Pairs:

Active Interface        Backup Interface        State
------------------------------------------------------------------------
Ethernet1/2             Ethernet1/1             Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : Off
        Bandwidth : 1000000 Kbit (Ethernet1/2), 10000000 Kbit (Ethernet1/1)

Ethernet1/20            Ethernet1/21            Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : Off
        Bandwidth : 10000000 Kbit (Ethernet1/20), 10000000 Kbit (Ethernet1/21)
```

```
port-channel300         port-channel301         Active Up/Backup Down
        Preemption Mode  : forced
        Preemption Delay : 35 seconds (default)
        Multicast Fast Convergence  : On
        Bandwidth : 20000000 Kbit (port-channel300), 10000000 Kbit (port-channel
301)

port-channel500         port-channel501         Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : On
        Bandwidth : 100000 Kbit (port-channel500), 100000 Kbit (port-channel501)

port-channel502         port-channel503         Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : Off
        Bandwidth : 100000 Kbit (port-channel502), 100000 Kbit (port-channel503)

port-channel504         Ethernet2/1             Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : Off
        Bandwidth : 100000 Kbit (port-channel504), 0 Kbit (Ethernet2/1)
switch#
```

Table 2 describes the significant fields displayed in the output.

Table 2 show interface switchport backup Field Descriptions

Field	Description
Active Interface	Layer 2 interface being configured.
Backup Interface	Layer 2 interface to act as a backup link to the interface being configured.
State	Flex Links status.
Preemption Mode	Preemption scheme for a backup interface pair.
Preemption Delay	Preemption delay configured for a backup interface pair.
Multicast Fast Convergence	Fast convergence configured on the backup interface.
Bandwidth	Bandwidth configured on the backup interface.

Related Commands

Command	Description
switchport backup interface	Configures Flex Links.
show running-config backup	Displays the running configuration information for backup interfaces.
show running-config flexlink	Displays the running configuration information for Flex Links.

show interface transceiver

To display the information about the transceivers connected to a specific interface, use the **show interface transceiver** command.

show interface ethernet *slot*/*port* **transceiver** [**details**]

Syntax Description

ethernet *slot*/*port*	Displays information about an Ethernet interface slot number and port number. The *slot* number is from 1 to 255, and the *port* number is from 1 to 128.
details	(Optional) Displays detailed information about the transceivers on an interface.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You can use the **show interface transceiver** command only for physical interfaces.

Examples

This example shows how to display the transceivers connected to a specified Ethernet interface:

```
switch# show interface ethernet 1/1 transceiver
Ethernet1/1
    transceiver is present
    type is SFP-H10GB-CU1M
    name is CISCO-MOLEX
    part number is 74752-9044
    revision is 07
    serial number is MOC14081360
    nominal bitrate is 10300 MBit/sec
    Link length supported for copper is 1 m
    cisco id is --
    cisco extended id number is 4

switch#
```

Related Commands

Command	Description
interface ethernet	Configures an Ethernet IEEE 802.3 interface.
show interface capabilities	Displays detailed information about the capabilities of an interface.

show interface vethernet

To display information about a virtual Ethernet (vEth) interface configuration, use the **show interface vethernet** command.

show interface vethernet *veth-id* [**brief** | **description** | **detail** | **mac-address** | **status** | **switchport** | **trunk**]

Syntax Description

veth-id	Virtual Ethernet interface number. The range is from 1 to 1,048,575.
brief	(Optional) Displays brief information about the vEth interface.
description	(Optional) Displays the vEth interface description.
detail	(Optional) Displays detailed configuration information about the vEth interface.
mac-address	(Optional) Displays the MAC address of the vEth interface.
status	(Optional) Displays the vEth interface line status.
switchport	(Optional) Displays the vEth interface switchport information.
trunk	(Optional) Displays the vEth interface trunk information.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Examples

This example shows how to display the configuration information of a specified virtual Ethernet interface:

```
switch# show interface vethernet 1
Vethernet1 is down (nonParticipating)
    Bound Interface is --
    Hardware is Virtual, address is 0005.9b74.a6c0
    Port mode is access
    Speed is auto-speed
    Duplex mode is auto
  300 seconds input rate 0 bits/sec, 0 packets/sec
  300 seconds output rate 0 bits/sec, 0 packets/sec
  Rx
    0 unicast packets  0 multicast packets  0 broadcast packets
    0 input packets  0 bytes
    0 input packet drops
  Tx
    0 unicast packets  0 multicast packets  0 broadcast packets
    0 output packets  0 bytes
    0 flood packets
    0 output packet drops
```

```
switch#
```

This example shows how to display a brief information about a specified virtual Ethernet interface:

```
switch# show interface vethernet 1 brief

--------------------------------------------------------------------------------
Vethernet     VLAN    Type Mode   Status  Reason                   Speed
--------------------------------------------------------------------------------
Veth1         1       virt access down    nonParticipating           auto
switch#
```

This example shows how to display the description provided for a specified virtual Ethernet interface:

```
switch# show interface vethernet 10 description

--------------------------------------------------------------------------------
Interface                Description
--------------------------------------------------------------------------------
Veth10                    Active VIF
switch#
```

This example shows how to display the switchport information of a specified virtual Ethernet interface:

```
switch# show interface vethernet 1 switchport
Name: Vethernet1
  Switchport: Enabled
  Switchport Monitor: Not enabled
  Operational Mode: access
  Access Mode VLAN: 1 (default)
  Trunking Native Mode VLAN: 1 (default)
  Trunking VLANs Allowed: 1-3967,4048-4093
  Voice VLAN: none
  Extended Trust State : not trusted [COS = 0]
  Administrative private-vlan primary host-association: none
  Administrative private-vlan secondary host-association: none
  Administrative private-vlan primary mapping: none
  Administrative private-vlan secondary mapping: none
  Administrative private-vlan trunk native VLAN: none
  Administrative private-vlan trunk encapsulation: dot1q
  Administrative private-vlan trunk normal VLANs: none
  Administrative private-vlan trunk private VLANs: none
  Operational private-vlan: none
  Unknown unicast blocked: disabled
  Unknown multicast blocked: disabled

switch#
```

Related Commands

Command	Description
interface vethernet	Configures a virtual Ethernet interface.

show interface vethernet counters

To display information about the virtual Ethernet (vEth) interface counters, use the **show interface vethernet counters** command.

show interface vethernet *veth-id* **counters** [**brief** | **detailed** [**all**] [**snmp**] | **errors** [**snmp**] | **snmp**]

Syntax Description

veth-id	Virtual Ethernet interface number. The range is from 1 to 1,048,575.
brief	(Optional) Displays brief information about the vEth interface counters.
detailed	(Optional) Displays detailed information of only the nonzero vEth interface counters.
all	(Optional) Displays all nonzero vEth interface counters.
errors	(Optional) Displays the vEth interface error counters, such as receive or transmit error counters.
snmp	(Optional) Displays the Simple Network Management Protocol (SNMP) MIB values for the nonzero vEth interface counters.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Examples

This example shows how to display a brief information about the counters configured on a specified virtual Ethernet interface:

```
switch# show interface vethernet 10 counters brief

--------------------------------------------------------------------------------
Interface         Input Rate (avg)    Output Rate (avg)
                  ------------------  ------------------
                  Rate     Total      Rate     Total        Rate averaging
                  MB/s     Frames     MB/s     Frames       interval (seconds)
--------------------------------------------------------------------------------
Vethernet10            0        0                0        0
switch#
```

Related Commands

Command	Description
interface vethernet	Configures a virtual Ethernet interface.

show interface virtual

To display the status of all virtual interfaces, use the **show interface virtual** command.

show interface virtual {{**status** | **summary**} [**adapter-fex** | **bound interface ethernet** *slot*/*port* | **vm-fex**]}

Syntax Description

status	Displays the status of all virtual Ethernet interfaces (vEth) and floating virtual interfaces.
summary	Displays the summary information about virtual Ethernet interfaces.
adapter-fex	(Optional) Displays information about fixed virtual ethernet interfaces.
bound interface	(Optional) Displays information about virtual interfaces on a bound interface.
ethernet *slot*/*port*	(Optional) Displays information about a specific ethernet interface. The slot number is from 1 to 255 and the port number is from 1 to 128.
vm-fex	(Optional) Displays information about all floating virtual interfaces.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

Before you use this command, make sure that you enable Cisco Virtual Machine Fabric Extender (VM-FEX) on the switch by using the **feature vmfex** command.

Examples

This example shows how to display brief information about the counters configured on a specified virtual Ethernet interface:

```
switch# show interface virtual status
Interface VIF-index   Bound If      Chan  Vlan  Status     Mode     Vntag
--------------------------------------------------------------------------------
Total 1 Veth interfaces
switch#
```

Related Commands

Command	Description
feature vmfex	Enables VM-FEX on the switch.
interface vethernet	Configures a virtual Ethernet interface.

show interface vlan

To display brief descriptive information about specified VLANs, use the **show interface vlan** command.

show interface vlan *vlan-id* [**brief** | **private-vlan mapping**]

Syntax Description

vlan-id	Number of the VLAN. The range is from 1 to 4094.
brief	(Optional) Displays a summary information for the specified VLAN.
private-vlan mapping	(Optional) Displays the private VLAN mapping information, if any, for the specified VLAN.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

You must enable interface VLANs by using the **feature interface-vlan** command. The commands for configuring interface VLANs are not visible until you enable this feature.

This command displays descriptive information for the specified VLAN, including private VLANs.

The switch displays output for the **show interface vlan** *vlan-id* **private-vlan mapping** command only when you specify a primary private VLAN. If you specify a secondary private VLAN, the output is blank.

Examples

This example shows how to display information about the specified VLAN:

```
switch# show interface vlan 10
Vlan10 is up, line protocol is up
  Hardware is EtherSVI, address is  0005.9b78.6e7c
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,

switch#
```

This example shows how to display a brief description for the specified VLAN:

```
switch# show interface vlan 10 brief

--------------------------------------------------------------------------------
Interface Secondary VLAN(Type)                    Status Reason
--------------------------------------------------------------------------------
Vlan10    --                                      up     --
switch#
```

This example shows how to display the private VLAN mapping information, if any, for the VLAN:

```
switch# show interface vlan 10 private-vlan mapping
```

When you specify a primary VLAN, the switch displays all secondary VLANs mapped to that primary VLAN.

Related Commands

Command	Description
show interface switchport	Displays information about the ports, including those in private VLANs.
show vlan	Displays summary information for all VLANs.
show vlan private-vlan	Displays summary information for all private VLANs.

show ip igmp snooping

To display the Internet Group Management Protocol (IGMP) snooping configuration of the switch, use the **show ip igmp snooping** command.

show ip igmp snooping [**explicit-tracking vlan** *vlan-id* | **groups** [**detail** | **vlan** *vlan-id*] | **mrouter** [**vlan** *vlan-id*] | **querier** [**vlan** *vlan-id*] | **vlan** *vlan-id*]

Syntax Description

explicit-tracking	(Optional) Displays information about the explicit host-tracking status for IGMPv3 hosts. If you provide this keyword, you must specify a VLAN.
vlan *vlan-id*	(Optional) Specifies a VLAN. The VLAN ID range is from1 to 4094.
groups	(Optional) Displays information for the IGMP group address.
detail	(Optional) Displays detailed information for the group.
mrouter	(Optional) Displays information about dynamically detected multicast routers.
querier	(Optional) Displays information about the snooping querier if defined.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display the IGMP snooping configuration of the switch:

```
switch# show ip igmp snooping
Global IGMP Snooping Information:
  IGMP Snooping enabled
  IGMPv1/v2 Report Suppression enabled
  IGMPv3 Report Suppression disabled
  Link Local Groups Suppression enabled

IGMP Snooping information for vlan 1
  IGMP snooping enabled
  IGMP querier none
  Switch-querier disabled
  IGMPv3 Explicit tracking enabled
  IGMPv2 Fast leave disabled
  IGMPv1/v2 Report suppression enabled
  IGMPv3 Report suppression disabled
  Link Local Groups suppression enabled
  Router port detection using PIM Hellos, IGMP Queries
  Number of router-ports: 1
  Number of groups: 0
  VLAN vPC function enabled
  Active ports:
```

```
    Po19        Po400   Eth170/1/17     Eth171/1/7
    Eth171/1/8  Eth198/1/11     Eth199/1/13
IGMP Snooping information for vlan 300
  IGMP snooping enabled
  IGMP querier none
  Switch-querier disabled
  IGMPv3 Explicit tracking enabled
--More--
switch#
```

Related Commands

Command	Description
ip igmp snooping (EXEC)	Globally enables IGMP snooping. IGMP snooping must be globally enabled in order to be enabled on a VLAN.
ip igmp snooping (VLAN)	Enables IGMP snooping on the VLAN interface.

show lacp

To display Link Aggregation Control Protocol (LACP) information, use the **show lacp** command.

show lacp {**counters** | **interface ethernet** *slot*/*port* | **neighbor** [**interface port-channel** *number*] | **port-channel** [**interface port-channel** *number*] | **system-identifier**}

Syntax Description

counters	Displays information about the LACP traffic statistics.
interface ethernet *slot*/*port*	Displays LACP information for a specific Ethernet interface. The *slot* number is from 1 to 255, and the *port* number is from 1 to 128.
neighbor	Displays information about the LACP neighbor.
port-channel	Displays information about all EtherChannels.
interface port-channel *number*	(Optional) Displays information about a specific EtherChannel. The EtherChannel number is from 1 to 4096.
system-identifier	Displays the LACP system identification. It is a combination of the port priority and the MAC address of the device.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Use the **show lacp** command to troubleshoot problems related to LACP in a network.

Examples

This example shows how to display the LACP system identification:

```
switch# show lacp system-identifier
32768,0-5-9b-78-6e-7c
switch#
```

This example shows how to display the LACP information for a specific interface:

```
switch# show lacp interface ethernet 1/1
Interface Ethernet1/1 is up
  Channel group is 1 port channel is Po1
  PDUs sent: 1684
  PDUs rcvd: 1651
  Markers sent: 0
  Markers rcvd: 0
  Marker response sent: 0
  Marker response rcvd: 0
  Unknown packets rcvd: 0
  Illegal packets rcvd: 0
```

```
Lag Id: [ [(8000, 0-5-9b-78-6e-7c, 0, 8000, 101), (8000, 0-d-ec-c9-c8-3c, 0, 800
0, 101)] ]
Operational as aggregated link since Wed Apr 21 00:37:27 2010

Local Port: Eth1/1   MAC Address= 0-5-9b-78-6e-7c
  System Identifier=0x8000,0-5-9b-78-6e-7c
  Port Identifier=0x8000,0x101
  Operational key=0
  LACP_Activity=active
  LACP_Timeout=Long Timeout (30s)
  Synchronization=IN_SYNC
  Collecting=true
  Distributing=true
  Partner information refresh timeout=Long Timeout (90s)
Actor Admin State=(Ac-1:To-1:Ag-1:Sy-0:Co-0:Di-0:De-0:Ex-0)
Actor Oper State=(Ac-1:To-0:Ag-1:Sy-1:Co-1:Di-1:De-0:Ex-0)
Neighbor: 1/1
  MAC Address= 0-d-ec-c9-c8-3c
  System Identifier=0x8000,0-d-ec-c9-c8-3c
  Port Identifier=0x8000,0x101
  Operational key=0
  LACP_Activity=active
  LACP_Timeout=Long Timeout (30s)
  Synchronization=IN_SYNC
  Collecting=true
  Distributing=true
Partner Admin State=(Ac-0:To-1:Ag-0:Sy-0:Co-0:Di-0:De-0:Ex-0)
Partner Oper State=(Ac-1:To-0:Ag-1:Sy-1:Co-1:Di-1:De-0:Ex-0)
switch#
```

Related Commands

Command	Description
clear lacp counters	Clears LACP counters.
lacp port-priority	Sets the priority for the physical interfaces for the LACP.
lacp system-priority	Sets the system priority of the switch for the LACP.

show mac address-table aging-time

To display information about the time-out values for the MAC address table, use the **show mac address-table aging-time** command.

show mac address-table aging-time [**vlan** *vlan-id*]

Syntax Description

vlan *vlan-id*	(Optional) Displays information for a specific VLAN. The VLAN ID range is from 1 to 4094.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
4.2(1)N1(1)	The command syntax is changed to **show mac address-table aging-time**.

Examples

This example shows how to display MAC address aging times:

```
switch# show mac address-table aging-time
Vlan  Aging Time
----- ----------
2023  300
2022  300
2021  300
2020  300
2019  300
2018  300
2017  300
2016  300
2015  300
2014  300
2013  300
2012  300
2011  300
2010  300
2009  300
2008  300
2007  300
2006  300
2005  300
2004  300
2003  300
--More--
switch#
```

Related Commands

Command	Description
mac address-table aging-time	Configures the aging time for entries in the MAC address table.
show mac address-table	Displays information about the MAC address table.

show mac address-table count

To display the number of entries currently in the MAC address table, use the **show mac address-table count** command.

show mac address-table count [**address** *EEEE.EEEE.EEEE*] [**dynamic** | **static**] [**interface** {**ethernet** *slot/port* | **port-channel** *number*}] [**vlan** *vlan-id*]

Syntax Description

address *EEEE.EEEE.EEEE*	(Optional) Displays a count of the MAC address table entries for a specific address.
dynamic	(Optional) Displays a count of the dynamic MAC addresses.
static	(Optional) Displays a count of the static MAC addresses.
interface	(Optional) Specifies the interface. The interface can be Ethernet or EtherChannel.
ethernet *slot/port*	(Optional) Specifies the Ethernet interface slot number and port number. The *slot* number is from 1 to 255, and the *port* number is from 1 to 128.
port-channel *number*	(Optional) Specifies the EtherChannel interface. The EtherChannel number is from 1 to 4096.
vlan *vlan-id*	(Optional) Displays information for a specific VLAN. The range is from 1 to 4094.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
4.2(1)N1(1)	The command syntax is changed to **show mac address-table count**.

Examples

This example shows how to display the number of dynamic entries currently in the MAC address table:

```
switch# show mac address-table count dynamic
MAC Entries for all vlans:
Total MAC Addresses in Use: 7
switch#
```

Related Commands

Command	Description
show mac address-table	Displays information about the MAC address table.

show mac address-table notification

To display notifications about the MAC address table, use the **show mac address-table notification** command.

show mac address-table notification {**mac-move** | **threshold**}

Syntax Description

mac-move	Displays notification messages about MAC addresses that were moved.
threshold	Displays notification messages sent when the MAC address table threshold was exceeded.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
4.2(1)N1(1)	The command syntax is changed to **show mac address-table notification**.

Examples

This example shows how to display MAC address move notifications:

```
switch# show mac address-table notification mac-move
MAC Move Notify : disabled
switch#
```

Related Commands

Command	Description
show mac address-table	Displays information about the MAC address table.

show mac address-table

To display the information about the MAC address table, use the **show mac address-table** command.

show mac address-table [**address** *mac-address*] [**dynamic** | **multicast** | **static**] [**interface** {**ethernet** *slot*/*port* | **port-channel** *number*}] [**vlan** *vlan-id*]

Syntax Description

address *mac-address*	(Optional) Displays information about a specific MAC address.
dynamic	(Optional) Displays information about the dynamic MAC address table entries only.
interface	(Optional) Specifies the interface. The interface can be either Ethernet or EtherChannel.
ethernet *slot*/*port*	(Optional) Specifies the Ethernet interface slot number and port number. The *slot* number is from 1 to 255, and the *port* number is from 1 to 128.
port-channel *number*	(Optional) Specifies the EtherChannel interface. The EtherChannel number is from 1 to 4096.
multicast	(Optional) Displays information about the multicast MAC address table entries only.
static	(Optional) Displays information about the static MAC address table entries only.
vlan *vlan-id*	(Optional) Displays information for a specific VLAN. The VLAN ID range is from 1 to 4094.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
4.2(1)N1(1)	The command syntax is changed to **show mac address-table**.

Usage Guidelines

The switch maintains static MAC address entries that are saved in its startup configuration across reboots and flushes the dynamic entries.

Examples

This example shows how to display information about the entries for the MAC address table:

```
switch# show mac address-table
Legend:
        * - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
        age - seconds since last seen,+ - primary entry using vPC Peer-Link
   VLAN     MAC Address      Type      age     Secure NTFY    Ports
---------+-----------------+--------+---------+------+----+------------------
```

```
+ 100      0000.0001.0003    dynamic   0          F    F  Po1
+ 100      0000.0001.0004    dynamic   0          F    F  Po1
+ 100      0000.0001.0009    dynamic   0          F    F  Po1
+ 100      0000.0001.0010    dynamic   0          F    F  Po1
* 1        001d.7172.6c40    dynamic   300        F    F  Eth100/1/20
switch#
```

This example shows how to display information about the entries for the MAC address table for a specific MAC address:

```
switch# show mac address-table address 0018.bad8.3fbd
```

This example shows how to display information about the dynamic entries for the MAC address table:

```
switch# show mac address-table dynamic
Legend:
        * - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
        age - seconds since last seen,+ - primary entry using vPC Peer-Link
   VLAN     MAC Address      Type      age     Secure NTFY    Ports
---------+-----------------+--------+---------+------+----+------------------
+ 100      0000.0001.0003    dynamic   0          F    F  Po1
+ 100      0000.0001.0004    dynamic   0          F    F  Po1
+ 100      0000.0001.0009    dynamic   0          F    F  Po1
+ 100      0000.0001.0010    dynamic   0          F    F  Po1
* 1        001d.7172.6c40    dynamic   300        F    F  Eth100/1/20
switch#
```

This example shows how to display information about the MAC address table for a specific interface:

```
switch# show mac address-table interface ethernet 1/3
```

This example shows how to display static entries in the MAC address table:

```
switch# show mac address-table static
```

This example shows how to display entries in the MAC address table for a specific VLAN:

```
switch# show mac address-table vlan 1
Legend:
        * - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
        age - seconds since last seen,+ - primary entry using vPC Peer-Link
   VLAN     MAC Address      Type      age     Secure NTFY    Ports
---------+-----------------+--------+---------+------+----+------------------
* 1        001d.7172.6c40    dynamic   60         F    F  Eth100/1/20
switch#
```

Related Commands

Command	Description
mac address-table static	Adds static entries to the MAC address table or configures a static MAC address with IGMP snooping disabled for that address.
show mac address-table aging-time	Displays information about the time-out values for the MAC address table.
show mac address-table count	Displays the number of entries currently in the MAC address table.
show mac address-table notifications	Displays information about notifications for the MAC address table.

show monitor session

To display information about the Switched Port Analyzer (SPAN) or Encapsulated Remote Switched Port Analyzer (ERSPAN) sessions, use the **show monitor session** command.

show monitor session [*session* | **all** [**brief**] | **range** *range* [**brief**] | **status**]

Syntax Description

session	(Optional) Number of the session. The range is from 1 to 18.
all	(Optional) Displays all sessions.
brief	(Optional) Displays a brief summary of the information.
range *range*	(Optional) Displays a range of sessions. The range is from 1 to 18.
status	(Optional) Displays the operational state of all sessions. **Note** This keyword applies only to SPAN sessions.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.1(3)N1(1)	Support for ERSPAN was added.

Examples

This example shows how to display information about SPAN session 1:

```
switch# show monitor session 1
session 1
---------------
description       : A Local SPAN session
type              : local
state             : down (No operational src/dst)
source intf       :
    rx            : Eth1/5
    tx            : Eth1/5
    both          : Eth1/5
source VLANs      :
    rx            :
source VSANs      :
    rx            :
destination ports : Eth1/21

Legend: f = forwarding enabled, l = learning enabled

switch#
```

This example shows how to display a brief information about a SPAN session:

```
switch# show monitor session range 1 brief
```

```
session 1
---------------
description       : A Local SPAN session
type              : local
state             : down (No operational src/dst)
source intf       :
    rx            : Eth1/5
    tx            : Eth1/5
    both          : Eth1/5
source VSANs      :
destination ports : Eth1/21

Legend: f = forwarding enabled, l = learning enabled

switch#
```

This example shows how to display the information about an ERSPAN session on a switch that runs Cisco NX-OS Release 5.1(3)N1(1):

```
switch# show monitor session 1
session 1
---------------
description       : ERSPAN Source configuration
type              : erspan-source
state             : down (No valid global IP Address)
flow-id           : 1
vrf-name          : default
destination-ip    : 192.0.2.1
ip-ttl            : 255
ip-dscp            : 0
origin-ip         : origin-ip not specified
source intf       :
    rx            : Eth1/5
    tx            : Eth1/5
    both          : Eth1/5
source VLANs      :
    rx            : 5

switch#
```

Related Commands

Command	Description
monitor session	Creates a new Switched Port Analyzer (SPAN) session configuration.
show running-config monitor	Displays the running configuration information about SPAN sessions.

show mvr

To display information about Multicast VLAN Registration (MVR), use the **show mvr** command.

show mvr

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Examples

This example shows how to display information about MVRs:

```
switch# show mvr
MVR Status          : enabled
Global MVR VLAN     : 5
Number of MVR VLANs : 1
switch#
```

Related Commands

Command	Description
mvr group	Configures an MVR group for an interface.
mvr type	Configures an MVR port type for an interface.
mvr vlan	Configures an MVR VLAN for an interface.
show mvr groups	Displays the MVR groups.
show mvr members	Displays the active MVR groups.

show mvr groups

To display information about Multicast VLAN Registration (MVR) groups, use the **show mvr groups** command.

show mvr groups

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Examples

This example shows how to display information about MVR groups:

```
switch# show mvr groups
```

Related Commands

Command	Description
mvr group	Configures an MVR group for an interface.
mvr type	Configures an MVR port type for an interface.
mvr vlan	Configures an MVR VLAN for an interface.
show mvr members	Displays the active MVR groups.

show mvr interface

To display information about Multicast VLAN Registration (MVR) interfaces, use the **show mvr interfaces** command.

show mvr interface [**ethernet** *slot*/*port* | **port-channel** *channel-num* | **vethernet** *veth-num*]

Syntax Description

ethernet *slot*/*port*	(Optional) Displays information about Ethernet IEEE 802.3z interfaces. The slot number is from 1 to 255 and the port number is from 1 to 128.
port-channel *channel-num*	(Optional) Displays information about EtherChannel interfaces. The range is from 1 to 4096.
vethernet *veth-num*	(Optional) Displays information about virtual Ethernet interfaces. The range is from 1 to 1048575.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Examples

This example shows how to display information about MVR interfaces:

```
switch# show mvr interface
a) Interface is not a switchport.
b) MVR receiver is not in access, pvlan host or pvlan promiscuous mode.
c) MVR source is in fex-fabric mode.
switch#
```

Related Commands

Command	Description
mvr group	Configures an MVR group for an interface.
mvr type	Configures an MVR port type for an interface.
mvr vlan	Configures an MVR VLAN for an interface.
show mvr members	Displays the active MVR groups.

show mvr members

To display the active Multicast VLAN Registration (MVR) groups, use the **show mvr members** command.

show mvr members [**count** | **interface** [**ethernet** *slot/port* | **port-channel** *channel-num* | **vethernet** *veth-num*] | **vlan** *vlan-ID*]

Syntax Description

count	(Optional) Displays the active MVR groups on each MVR VLAN.
interface	(Optional) Displays the active MVR groups configured on an interface.
ethernet *slot/port*	(Optional) Displays the active MVR groups configured on an Ethernet IEEE 802.3z interface. The slot number is from 1 to 255 and the port number is from 1 to 128.
port-channel *channel-num*	(Optional) Displays the active MVR groups configured on an EtherChannel interface. The range is from 1 to 4096.
vethernet *veth-num*	(Optional) Displays the active MVR groups configured on a virtual Ethernet interface. The range is from 1 to 1048575.
vlan *vlan-ID*	(Optional) Displays the active MVR groups on VLANs. The range is from 1 to 4094.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Examples

This example shows how to display the active MVR groups:

```
switch# show mvr members
```

Related Commands

Command	Description
mvr group	Configures an MVR group for an interface.
mvr type	Configures an MVR port type for an interface.
mvr vlan	Configures an MVR VLAN for an interface.
show mvr	Displays general information about MVRs.

show mvr receiver-ports

To display the Multicast VLAN Registration (MVR) receiver ports, use the **show mvr receiver-ports** command.

show mvr receiver-ports [**ethernet** *slot*/*port* | **port-channel** *channel-num* | **vethernet** *veth-num*]

Syntax Description

ethernet *slot*/*port*	(Optional) Displays the MVR receiver ports on an Ethernet IEEE 802.3z interface. The slot number is from 1 to 255 and the port number is from 1 to 128.
port-channel *channel-num*	(Optional) Displays the MVR receiver ports on an EtherChannel interface. The range is from 1 to 4096.
vethernet *veth-num*	(Optional) Displays the MVR receiver ports on a virtual Ethernet interface. The range is from 1 to 1048575.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Examples

This example shows how to display the MVR receiver ports:

```
switch# show mvr receiver-ports
```

Related Commands

Command	Description
mvr group	Configures an MVR group for an interface.
mvr type	Configures an MVR port type for an interface.
mvr vlan	Configures an MVR VLAN for an interface.
show mvr	Displays general information about MVRs.
show mvr members	Displays the active MVR groups.

show mvr source-ports

To display the Multicast VLAN Registration (MVR) source ports, use the **show mvr source-ports** command.

show mvr source-ports [**ethernet** *slot/port* | **port-channel** *channel-num* | **vethernet** *veth-num*]

Syntax Description

ethernet *slot/port*	(Optional) Displays the MVR source ports on an Ethernet IEEE 802.3z interface. The slot number is from 1 to 255 and the port number is from 1 to 128.
port-channel *channel-num*	(Optional) Displays the MVR source ports on an EtherChannel interface. The range is from 1 to 4096.
vethernet *veth-num*	(Optional) Displays the MVR source ports on a virtual Ethernet interface. The range is from 1 to 1048575.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Examples

This example shows how to display the MVR source ports:

```
switch# show mvr source-ports
```

Related Commands

Command	Description
mvr group	Configures an MVR group for an interface.
mvr type	Configures an MVR port type for an interface.
mvr vlan	Configures an MVR VLAN for an interface.
show mvr	Displays general information about MVRs.
show mvr members	Displays the active MVR groups.
show mvr receiver-ports	Displays the MVR receiver ports.

show port-channel capacity

To display the total number of EtherChannel interfaces and the number of free or used EtherChannel interfaces, use the **show port-channel capacity** command.

show port-channel capacity

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display the EtherChannel capacity:

```
switch# show port-channel capacity
Port-channel resources
    768 total    29 used    739 free    3% used
switch#
```

Related Commands

Command	Description
port-channel load-balance ethernet	Configures the load-balancing algorithm for EtherChannels.
show tech-support port-channel	Displays Cisco Technical Support information about EtherChannels.

show port-channel compatibility-parameters

To display the parameters that must be the same among the member ports in order to join an EtherChannel interface, use the **show port-channel compatibility-parameters** command.

show port-channel compatibility-parameters

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display the EtherChannel interface parameters:

```
switch# show port-channel compatibility-parameters
* port mode

Members must have the same port mode configured.

* port mode

Members must have the same port mode configured, either E,F or AUTO. If
they are configured in AUTO port mode, they have to negotiate E or F mode
when they come up. If a member negotiates a different mode, it will be
suspended.

* speed

Members must have the same speed configured. If they are configured in AUTO
speed, they have to negotiate the same speed when they come up. If a member
negotiates a different speed, it will be suspended.

* MTU

Members have to have the same MTU configured. This only applies to ethernet
port-channel.

* shut lan

Members have to have the same shut lan configured. This only applies to
ethernet port-channel.

* MEDIUM

Members have to have the same medium type configured. This only applies to
ethernet port-channel.
```

```
* Span mode

Members must have the same span mode.

* load interval

Member must have same load interval configured.
--More--
<---output truncated--->
switch#
```

Related Commands

Command	Description
port-channel load-balance ethernet	Configures the load-balancing algorithm for EtherChannels.
show tech-support port-channel	Displays Cisco Technical Support information about EtherChannels.

show port-channel database

To display the aggregation state for one or more EtherChannel interfaces, use the **show port-channel database** command.

show port-channel database [**interface port-channel** *number*[*.subinterface-number*]]

Syntax Description

interface	(Optional) Displays information for an EtherChannel interface.
port-channel *number*	(Optional) Displays aggregation information for a specific EtherChannel interface. The *number* range is from 1 to 4096.
.subinterface-number	(Optional) Subinterface number. Use the EtherChannel number followed by a dot (.) indicator and the subinterface number. The format is *portchannel-number.subinterface-number*.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display the aggregation state of all EtherChannel interfaces:

```
switch# show port-channel database
port-channel19
    Last membership update is successful
    4 ports in total, 4 ports up
    First operational port is Ethernet199/1/24
    Age of the port-channel is 0d:09h:11m:30s
    Time since last bundle is 0d:09h:12m:20s
    Last bundled member is
    Ports:   Ethernet199/1/24  [active ] [up] *
             Ethernet199/1/28  [active ] [up]
             Ethernet199/1/30  [active ] [up]
             Ethernet199/1/31  [active ] [up]

port-channel21
    Last membership update is successful
    1 ports in total, 1 ports up
    First operational port is Ethernet2/3
    Age of the port-channel is 0d:09h:11m:30s
    Time since last bundle is 0d:09h:12m:20s
    Last bundled member is
    Ports:   Ethernet2/3     [on] [up] *

port-channel50
    Last membership update is successful
--More--
<---output truncated--->
```

```
switch#
```

This example shows how to display the aggregation state for a specific EtherChannel interface:

```
switch# show port-channel database interface port-channel 21
port-channel21
    Last membership update is successful
    1 ports in total, 1 ports up
    First operational port is Ethernet2/3
    Age of the port-channel is 0d:09h:13m:14s
    Time since last bundle is 0d:09h:14m:04s
    Last bundled member is
    Ports:   Ethernet2/3     [on] [up] *

switch#
```

Related Commands

Command	Description
port-channel load-balance ethernet	Configures the load-balancing algorithm for EtherChannels.
show tech-support port-channel	Displays Cisco Technical Support information about EtherChannels.

show port-channel load-balance

To display information about EtherChannel load balancing, use the **show port-channel load-balance** command.

show port-channel load-balance [**forwarding-path interface port-channel** *number* {**.** | **vlan** *vlan_ID*} [**dst-ip** *ipv4-addr*] [**dst-ipv6** *ipv6-addr*] [**dst-mac** *dst-mac-addr*] [**l4-dst-port** *dst-port*] [**l4-src-port** *src-port*] [**src-ip** *ipv4-addr*] [**src-ipv6** *ipv6-addr*] [**src-mac** *src-mac-addr*]]

Syntax Description

forwarding-path interface port-channel	(Optional) Identifies the port in the EtherChannel interface that forwards the packet.
number	EtherChannel number for the load-balancing forwarding path that you want to display. The range is from 1 to 4096.
.	(Optional) Subinterface number separator. Use the EtherChannel number followed by a dot (.) indicator and the subinterface number. The format is *portchannel-number.subinterface-number*.
vlan	(Optional) Identifies the VLAN for hardware hashing.
vlan_ID	VLAN ID. The range is from 1 to 3967 and 4048 to 4093.
dst-ip	(Optional) Displays the load distribution on the destination IP address.
ipv4-addr	IPv4 address to specify a source or destination IP address. The format is *A.B.C.D*.
dst-ipv6	(Optional) Displays the load distribution on the destination IPv6 address.
ipv6-addr	IPv6 address to specify a source or destination IP address. The format is *A:B::C:D*.
dst-mac	(Optional) Displays the load distribution on the destination MAC address.
dst-mac-addr	Destination MAC address. The format is *AAAA:BBBB:CCCC*.
l4-dst-port	(Optional) Displays the load distribution on the destination port.
dst-port	Destination port number. The range is from 0 to 65535.
l4-src-port	(Optional) Displays the load distribution on the source port.
src-port	Source port number. The range is from 0 to 65535.
src-ip	(Optional) Displays the load distribution on the source IP address.
src-ipv6	(Optional) Displays the load distribution on the source IPv6 address.
src-mac	(Optional) Displays the load distribution on the source MAC address.
src-mac-addr	source MAC address. The format is *AA:BB:CC:DD:EE:FF*.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
4.2(1)N1(1)	The **vlan** keyword was added.

Usage Guidelines

You must use the **vlan** keyword to determine the use of hardware hashing.

When you do not use hardware hashing, the output displays all parameters used to determine the outgoing port ID. Missing parameters are shown as zero values in the output.

If you do not use hardware hashing, the outgoing port ID is determined by using control-plane selection. Hardware hashing is not used in the following scenarios:

- The specified VLAN contains an unknown unicast destination MAC address.
- The specified VLAN contains a known or an unknown multicast destination MAC or destination IP address.
- The specified VLAN contains a broadcast MAC address.
- The EtherChannel has only one active member.
- The destination MAC address is unknown when the load distribution is configured on the source IP address (src-ip), source port (l4-src-port), or source MAC address (src-mac).
- If multichassis EtherChannel trunk (MCT) is enabled and the traffic flows from a virtual port channel (vPC) peer link, the output displays “Outgoing port id (vPC peer-link traffic)”.

To get accurate results, you must do the following:

- (For unicast frames) Provide the destination MAC address (dst-mac) and the VLAN for hardware hashing (vlan). When the destination MAC address is not provided, hardware hashing is assumed.
- (For multicast frames) For IP multicast, provide either the destination IP address (dst-ip) or destination MAC address (dst-mac) with the VLAN for hardware hashing (vlan). For non-ip multicast, provide the destination MAC address with the VLAN for hardware hashing.
- (For broadcast frames) Provide the destination MAC address (dst-mac) and the VLAN for hardware hashing (vlan).

Examples

This example shows how to display the port channel load-balancing information:

```
switch# show port-channel load-balance
Port Channel Load-Balancing Configuration:
System: source-dest-ip

Port Channel Load-Balancing Addresses Used Per-Protocol:
Non-IP: source-dest-mac
IP: source-dest-ip source-dest-mac

switch#
```

Table 3 describes the fields shown in the display.

Table 3 show port-channel load-balance Field Descriptions

Field	Description
System	The load-balancing method configured on the switch.
Non-IP	The field that will be used to calculate the hash value for non-IP traffic.
IP	The fileds used for IPv4 and IPv6 traffic.

This example shows how to display the port channel load-balancing information when hardware hashing is not used:

```
switch# show port-channel load-balance forwarding-path interface port-channel 5 vlan 3
dst-ip 192.168.2.37
Missing params will be substituted by 0's.
Load-balance Algorithm on FEX: source-dest-ip
crc8_hash: Not Used     Outgoing port id: Ethernet133/1/3
Param(s) used to calculate load-balance (Unknown unicast, multicast and broadcas
t packets):
        dst-mac:  0000.0000.0000
        vlan id:  3
switch#
```

This example shows how to display the port channel load-balancing information when hardware hashing is not used to determine the outgoing port ID:

```
switch# show port-channel load-balance forwarding-path interface port-channel 10 vlan 1
dst-ip 192.168.2.25 src-ip 192.168.2.10 dst-mac ffff.ffff.ffff src-mac aa:bb:cc:dd:ee:ff
l4-src-port 0 l4-dst-port 1
Missing params will be substituted by 0's.
Load-balance Algorithm on switch: source-dest-port
crc8_hash: Not Used     Outgoing port id: Ethernet1/1
Param(s) used to calculate load-balance (Unknown unicast, multicast and broadcast
packets):
        dst-mac:  ffff.ffff.ffff
        vlan id:  1

switch#
```

This example shows how to display the port channel load-balancing information when MCT is enabled and traffic flows from a vPC peer link:

```
switch# show port-channel load-balance forwarding-path interface port-channel 10 vlan 1
dst-ip 192.168.2.25 src-ip 192.168.2.10 dst-mac ffff.ffff.ffff src-mac aa:bb:cc:dd:ee:ff
l4-src-port 0 l4-dst-port 1
Missing params will be substituted by 0's.
Load-balance Algorithm on switch: source-dest-port
crc8_hash: Not Used     Outgoing port id (non vPC peer-link traffic): ethernet1/2
crc8_hash: Not Used     Outgoing port id (vPC peer-link traffic): Ethernet1/1
Param(s) used to calculate load-balance (Unknown unicast, multicast and broadcast
packets):
        dst-mac:  ffff.ffff.ffff
        vlan id:  1

switch#
```

This example shows how to display the port channel load-balancing information when hardware hashing is used to determine the outgoing port ID:

```
switch# show port-channel load-balance forwarding-path interface port-channel 10 vlan 1
dst-ip 192.168.2.25 src-ip 192.168.2.10 src-mac aa:bb:cc:dd:ee:ff l4-src-port 0
l4-dst-port 1
Missing params will be substituted by 0's.
Load-balance Algorithm on switch: source-dest-port
crc8_hash: 204  Outgoing port id: Ethernet1/1
Param(s) used to calculate load-balance:
        dst-port: 1
        src-port: 0
        dst-ip:   192.168.2.25
        src-ip:   192.168.2.10
        dst-mac:  0000.0000.0000
       src-mac:  aabb.ccdd.eeff

switch#
```

Related Commands

Command	Description
port-channel load-balance ethernet	Configures the load-balancing method among the interfaces in the channel-group bundle.

show port-channel summary

To display summary information about EtherChannels, use the **show port-channel summary** command.

show port-channel summary

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Global configuration mode
EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Before you use this command, you must configure an EtherChannel group using the **interface port-channel** command.

Examples

This example shows how to display summary information about EtherChannels:

```
switch# show port-channel summary
Flags:  D - Down        P - Up in port-channel (members)
        I - Individual  H - Hot-standby (LACP only)
        s - Suspended   r - Module-removed
        S - Switched    R - Routed
        U - Up (port-channel)
--------------------------------------------------------------------------------
Group Port-       Type     Protocol  Member Ports
      Channel
--------------------------------------------------------------------------------
1     Po1(SU)     Eth      LACP      Eth1/1(P)    Eth1/2(P)    Eth1/3(P)
                                     Eth1/4(P)    Eth1/21(P)   Eth1/22(P)
                                     Eth1/23(P)   Eth1/24(P)   Eth1/25(P)
                                     Eth1/26(P)   Eth1/27(P)   Eth1/28(P)
                                     Eth1/29(P)   Eth1/30(P)   Eth1/31(P)
                                     Eth1/32(P)
3     Po3(SU)     Eth      NONE      Eth1/9(P)    Eth1/10(P)   Eth1/13(P)
                                     Eth1/14(P)   Eth1/40(P)
5     Po5(SU)     Eth      NONE      Eth3/5(P)    Eth3/6(P)
6     Po6(SU)     Eth      NONE      Eth1/5(P)    Eth1/6(P)    Eth1/7(P)
                                     Eth1/8(P)
12    Po12(SU)    Eth      NONE      Eth3/3(P)    Eth3/4(P)
15    Po15(SD)    Eth      NONE      --
20    Po20(SU)    Eth      NONE      Eth1/17(P)   Eth1/18(P)   Eth1/19(D)
                                     Eth1/20(P)
24    Po24(SU)    Eth      LACP      Eth105/1/27(P)  Eth105/1/28(P)  Eth105/1/29
(P)
```

```
                                        Eth105/1/30(P)  Eth105/1/31(P)  Eth105/1/32
(P)
25    Po25(SU)    Eth      LACP      Eth105/1/23(P)  Eth105/1/24(P)  Eth105/1/25
(P)
                                        Eth105/1/26(P)
33    Po33(SD)    Eth      NONE      --
41    Po41(SD)    Eth      NONE      --
44    Po44(SD)    Eth      NONE      --
48    Po48(SD)    Eth      NONE      --
100   Po100(SD)   Eth      NONE      --
101   Po101(SD)   Eth      NONE      --
102   Po102(SU)   Eth      LACP      Eth102/1/2(P)
103   Po103(SU)   Eth      LACP      Eth102/1/3(P)
104   Po104(SU)   Eth      LACP      Eth102/1/4(P)
105   Po105(SU)   Eth      LACP      Eth102/1/5(P)
106   Po106(SU)   Eth      LACP      Eth102/1/6(P)
107   Po107(SU)   Eth      LACP      Eth102/1/7(P)
108   Po108(SU)   Eth      LACP      Eth102/1/8(P)
109   Po109(SU)   Eth      LACP      Eth102/1/9(P)
110   Po110(SU)   Eth      LACP      Eth102/1/10(P)
111   Po111(SU)   Eth      LACP      Eth102/1/11(P)
<---output truncated--->
switch#
```

Related Commands

Command	Description
channel-group (Ethernet)	Assigns and configures a physical interface to an EtherChannel.
interface port-channel	Creates an EtherChannel interface and enters interface configuration mode.

show port-channel traffic

To display the traffic statistics for EtherChannels, use the **show port-channel traffic** command.

show port-channel traffic [interface port-channel *number*[**.***subinterface-number*]]

Syntax Description

interface	(Optional) Displays traffic statistics for a specified interface.
port-channel *number*	(Optional) Displays information for a specified EtherChannel. The range is from 1 to 4096.
.subinterface-number	(Optional) Subinterface number. Use the EtherChannel number followed by a dot (.) indicator and the subinterface number. The format is *portchannel-number***.***subinterface-number*.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display the traffic statistics for all EtherChannels:

```
switch# show port-channel traffic
ChanId      Port Rx-Ucst Tx-Ucst Rx-Mcst Tx-Mcst Rx-Bcst Tx-Bcst
------ --------- ------- ------- ------- ------- ------- -------
    10    Eth1/7    0.0%    0.0%    0.0%    0.0%    0.0%    0.0%
    10    Eth1/8    0.0%    0.0%    0.0%    0.0%    0.0%    0.0%
    10    Eth1/9    0.0%    0.0%    0.0%    0.0%    0.0%    0.0%
    10   Eth1/10    0.0%    0.0%    0.0%    0.0%    0.0%    0.0%
------ --------- ------- ------- ------- ------- ------- -------
  4000    Eth1/1    0.0%    0.0%  99.64%  99.81%    0.0%    0.0%
  4000    Eth1/2    0.0%    0.0%   0.06%   0.06%    0.0%    0.0%
  4000    Eth1/3    0.0%    0.0%   0.23%   0.06%    0.0%    0.0%
  4000    Eth1/4    0.0%    0.0%   0.06%   0.06%    0.0%    0.0%
switch#
```

This example shows how to display the traffic statistics for a specific EtherChannel:

```
switch# show port-channel traffic interface port-channel 10
ChanId      Port Rx-Ucst Tx-Ucst Rx-Mcst Tx-Mcst Rx-Bcst Tx-Bcst
------ --------- ------- ------- ------- ------- ------- -------
    10    Eth1/7    0.0%    0.0%    0.0%    0.0%    0.0%    0.0%
    10    Eth1/8    0.0%    0.0%    0.0%    0.0%    0.0%    0.0%
    10    Eth1/9    0.0%    0.0%    0.0%    0.0%    0.0%    0.0%
    10   Eth1/10    0.0%    0.0%    0.0%    0.0%    0.0%    0.0%
switch#
```

Related Commands

Command	Description
port-channel load-balance ethernet	Configures the load-balancing algorithm for EtherChannels.
show tech-support port-channel	Displays Cisco Technical Support information about EtherChannels.

show port-channel usage

To display the range of used and unused EtherChannel numbers, use the **show port-channel usage** command.

show port-channel usage

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display the EtherChannel usage information:

```
switch# show port-channel usage
Total 29 port-channel numbers used
============================================
Used  :   19 , 21 , 50 , 100 , 150 , 170 - 171 , 198 - 199 , 256
          301 , 400 - 401 , 1032 - 1033 , 1111 , 1504 , 1511 , 1514 , 1516 - 1520
          1532 , 1548 , 1723 , 1905 , 1912
Unused:   1 - 18 , 20 , 22 - 49 , 51 - 99 , 101 - 149 , 151 - 169
          172 - 197 , 200 - 255 , 257 - 300 , 302 - 399 , 402 - 1031
          1034 - 1110 , 1112 - 1503 , 1505 - 1510 , 1512 - 1513 , 1515 , 1521 - 1531
          1533 - 1547 , 1549 - 1722 , 1724 - 1904 , 1906 - 1911 , 1913 - 4096
          (some numbers may be in use by SAN port channels)

switch#
```

Related Commands

Command	Description
port-channel load-balance ethernet	Configures the load-balancing algorithm for EtherChannels.
show tech-support port-channel	Displays Cisco Technical Support information about EtherChannels.

show port-security

To display the port security configuration on an interface, use the **show port-security** command.

show port-security [**address** [**interface** {**ethernet** *slot/port* | **port-channel** *channel-num*}] | **interface** {**ethernet** *slot/port* | **port-channel** *channel-num*} | **state**]

Syntax Description

address	(Optional) Displays the secure MAC address of a port.
interface	(Optional) Displays the secure address for an interface.
ethernet *slot/port*	(Optional) Displays the secure address for an Ethernet interface. The slot number is from 1 to 255 and the port number is from 1 to 128.
port-channel *channel-num*	(Optional) Displays the secure address for an EtherChannel interface. The channel number is from 1 to 4096.
state	(Optional) Displays whether a port is secure.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display the port security configuration on an interface:

```
switch# show port-security


Total Secured Mac Addresses in System (excluding one mac per port)     : 0
Max Addresses limit in System (excluding one mac per port) : 8192

-------------------------------------------------------------------------------
Secure Port  MaxSecureAddr  CurrentAddr  SecurityViolation  Security Action
                (Count)       (Count)          (Count)
-------------------------------------------------------------------------------
Ethernet1/5          10              0              0              Shutdown
===============================================================================
switch#
```

Related Commands

Command	Description
clear port-security dynamic	Clears the dynamically secured addresses on a port.
show running-config port-security	Displays the port security configuration information.
switchport port-security	Configures the switchport parameters to establish port security.

show provision

To display information about provision, use the **show provision** command.

show provision failed-config *slot-number*

Syntax Description

failed-config	Displays the configuration that failed to be applied to the slot.
slot-number	Slot number in the chassis. The range is from 2 to 199.

Command Default

None

Command Modes

EXEC mode
Configuration synchronization mode

Command History

Release	Modification
5.0(2)N1(1)	This command was introduced.

Examples

This example shows how to display the preprovisioning configuration that failed to be applied to slot 2:

```
switch# show provision failed-config 2
Config has not been applied yet for this slot.

switch#
```

This example shows how to display the preprovisioning configuration that failed to be applied to slot 2 in a switch profile:

```
switch(config-sync)# show provision failed-config 2
Config has not been applied yet for this slot.

switch(config-sync)#
```

Related Commands

Command	Description
provision	Preprovisions a module in a slot.
show running-config exclude-provision	Displays the running configuration excluding the preprovisioned features.
slot	Enables a slot for preprovisioning a module.

show resource

To display the number of resources currently available in the system, use the **show resource** command.

show resource [*resource*]

Syntax Description

resource	Resource name, which can be one of the following: • **port-channel**—Displays the number of EtherChannels available in the system. • **vlan**—Displays the number of VLANs available in the system. • **vrf**—Displays the number of virtual routing and forwardings (VRFs) available in the system.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display the resources available in the system:

```
switch# show resource

     Resource              Min       Max      Used    Unused     Avail
    -----------           -----     -----    ------  --------   -------
     vlan                 16        4094       509         0         3
     monitor-session       0           2         0         0         2
     vrf                   2        1000         2         0       998
     port-channel          0         768         2         0       766
     u4route-mem          32          32         1        31        31
     u6route-mem          16          16         1        15        15
     m4route-mem          58          58         0        58        58
     m6route-mem           8           8         0         8         8
     bundle-map            0          16         2         0        14

switch#
```

Related Commands

Command	Description
show interface port-channel	Displays information about EtherChannels.

show running-config

To display the contents of the currently running configuration file, use the **show running-config** command.

show running-config [**all**]

Syntax Description

all	(Optional) Displays the full operating information including default settings.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display information on the running configuration:

```
switch# show running-config
```

This example shows how to display detailed information on the running configuration:

```
switch# show running-config all
```

Related Commands

Command	Description
show startup-config	Displays the contents of the startup configuration file.

show running-config backup

To display the running configuration for backup interfaces, use the **show running-config backup** command.

show running-config backup [**all**]

Syntax Description

all	(Optional) Displays backup interface information including default settings.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to display the running configuration for backup interfaces:

```
switch# show running-config backup

!Command: show running-config backup
!Time: Sun Jan  4 06:27:36 2009

version 5.0(3)N2(1)
feature flexlink

logging level Flexlink 5

interface port-channel300
  switchport backup interface port-channel301 preemption mode forced
  switchport backup interface port-channel301 multicast fast-convergence

interface port-channel500
  switchport backup interface port-channel501 preemption delay 36
  switchport backup interface port-channel501 multicast fast-convergence

interface port-channel502
  switchport backup interface port-channel503

interface port-channel504
  switchport backup interface Ethernet2/1

interface Ethernet1/2
  switchport backup interface Ethernet1/1

interface Ethernet1/20
  switchport backup interface Ethernet1/21

interface Ethernet2/2
```

```
  switchport backup interface port-channel507 preemption mode forced

switch#
```

This example shows how to display the detailed running configuration for backup interfaces:

```
switch# show running-config backup all

!Command: show running-config backup all
!Time: Sun Jan  4 06:28:04 2009

version 5.0(3)N2(1)
feature flexlink

logging level Flexlink 5

interface port-channel300
  switchport backup interface port-channel301 preemption mode forced
  switchport backup interface port-channel301 preemption delay 35
  switchport backup interface port-channel301 multicast fast-convergence

interface port-channel500
  switchport backup interface port-channel501 preemption mode off
  switchport backup interface port-channel501 preemption delay 36
  switchport backup interface port-channel501 multicast fast-convergence

interface port-channel502
  switchport backup interface port-channel503 preemption mode off
  switchport backup interface port-channel503 preemption delay 35

interface port-channel504
  switchport backup interface Ethernet2/1 preemption mode off
  switchport backup interface Ethernet2/1 preemption delay 35

interface Ethernet1/2
  switchport backup interface Ethernet1/1 preemption mode off
  switchport backup interface Ethernet1/1 preemption delay 35

interface Ethernet1/20
  switchport backup interface Ethernet1/21 preemption mode off
  switchport backup interface Ethernet1/21 preemption delay 35

interface Ethernet2/2
  switchport backup interface port-channel507 preemption mode forced
  switchport backup interface port-channel507 preemption delay 35

switch#
```

Related Commands

Command	Description
show running-config flexlink	Displays the Flex Links running configuration.
show startup-config backup	Displays the startup configuration for backup interfaces.
show startup-config flexlink	Displays the startup configuration for Flex Links.

Command	Description
show tech-support backup	Displays troubleshooting information for backup interfaces.
show tech-support flexlink	Displays troubleshooting information for Flex Links.

show running-config exclude-provision

To display the running configuration without the configuration for offline preprovisioned interfaces, use the **show running-config exclude-provision** command.

show running-config exclude-provision

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(2)N1(1)	This command was introduced.

Examples

This example shows how to display the running configuration without the offline preprovisioned interfaces:

```
switch# show running-config exclude-provision

!Command: show running-config exclude-provision
!Time: Mon Sep  6 08:10:16 2010

version 5.0(2)N1(1)
feature fcoe

feature telnet
feature tacacs+
cfs ipv4 distribute
cfs eth distribute
feature udld
feature interface-vlan
feature lacp
feature vpc
feature lldp
feature vtp
feature fex

username admin password 5 $1$wmFN7Wly$/pjqx1DfAkCCAg/KyxbUz/  role network-admin
username install password 5 !  role network-admin
username praveena password 5 !  role network-operator
no password strength-check
ip domain-lookup
ip domain-lookup
tacacs-server host 192.168.131.54 key 7 "wawy1234"
tacacs-server host 192.168.131.37
tacacs-server host 192.168.131.37 test username user1
aaa group server tacacs+ t1
    server 192.168.131.54
```

```
aaa group server tacacs+ tacacs
radius-server host 192.168.128.5 key 7 "KkwyCet" authentication accounting
aaa group server radius r1
    server 192.168.128.5
hostname BEND-2
vlan dot1Q tag native
logging event link-status default
logging event trunk-status default
no service recover-errdisable
errdisable recovery interval 600
no errdisable detect cause link-flap
errdisable recovery cause link-flap
errdisable recovery cause udld
--More--
<--output truncated-->
switch#
```

Related Commands

Command	Description
copy running-config startup-config	Copies the running configuration to the startup configuration.
provision	Preprovisions a module in a slot.
show provision	Displays the preprovisioned module information.
show startup-config exclude-provision	Displays the startup configuration without the preprovisioning information for offline interfaces.
slot	Configures a chassis slot for a predefined module.

show running-config flexlink

To display the running configuration for Flex Links, use the **show running-config flexlink** command.

show running-config flexlink [**all**]

Syntax Description

all	(Optional) Displays Flex Links information including default settings.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to display the running configuration for Flex Links:

```
switch# show running-config flexlink

!Command: show running-config flexlink
!Time: Sun Jan  4 06:26:17 2009

version 5.0(3)N2(1)
feature flexlink

logging level Flexlink 5

interface port-channel300
  switchport backup interface port-channel301 preemption mode forced
  switchport backup interface port-channel301 multicast fast-convergence

interface port-channel500
  switchport backup interface port-channel501 preemption delay 36
  switchport backup interface port-channel501 multicast fast-convergence

interface port-channel502
  switchport backup interface port-channel503

interface port-channel504
  switchport backup interface Ethernet2/1

interface Ethernet1/2
  switchport backup interface Ethernet1/1

interface Ethernet1/20
  switchport backup interface Ethernet1/21

interface Ethernet2/2
  switchport backup interface port-channel507 preemption mode forced

switch#
```

This example shows how to display the detailed running configuration for Flex Links:

```
switch# show running-config flexlink all

!Command: show running-config flexlink all
!Time: Sun Jan  4 06:26:55 2009

version 5.0(3)N2(1)
feature flexlink

logging level Flexlink 5

interface port-channel300
  switchport backup interface port-channel301 preemption mode forced
  switchport backup interface port-channel301 preemption delay 35
  switchport backup interface port-channel301 multicast fast-convergence

interface port-channel500
  switchport backup interface port-channel501 preemption mode off
  switchport backup interface port-channel501 preemption delay 36
  switchport backup interface port-channel501 multicast fast-convergence

interface port-channel502
  switchport backup interface port-channel503 preemption mode off
  switchport backup interface port-channel503 preemption delay 35

interface port-channel504
  switchport backup interface Ethernet2/1 preemption mode off
  switchport backup interface Ethernet2/1 preemption delay 35

interface Ethernet1/2
  switchport backup interface Ethernet1/1 preemption mode off
  switchport backup interface Ethernet1/1 preemption delay 35

interface Ethernet1/20
  switchport backup interface Ethernet1/21 preemption mode off
  switchport backup interface Ethernet1/21 preemption delay 35

interface Ethernet2/2
  switchport backup interface port-channel507 preemption mode forced
  switchport backup interface port-channel507 preemption delay 35

switch#
```

Related Commands

Command	Description
show running-config backup	Displays the running configuration information for backup interfaces.
show startup-config backup	Displays the startup configuration for backup interfaces.
show startup-config flexlink	Displays the startup configuration for Flex Links.
show tech-support backup	Displays troubleshooting information for backup interfaces.
show tech-support flexlink	Displays troubleshooting information for Flex Links.

show running-config interface

To display the running configuration for a specific port channel, use the **show running-config interface** command.

show running-config interface [{**ethernet** *slot/port* | **fc** *slot/port* | **loopback** *number* | **mgmt** *0* | **port-channel** *channel-number* [**membership**] | **vethernet** *veth-id*| **vlan** *vlan-id*}] [**all** | **expand-port-profile**]

Syntax Description

ethernet *slot/port*	(Optional) Displays the Ethernet interface slot number and port number. The slot number is from 1 to 255 and the port number is from 1 to 128.
fc *slot/port*	(Optional) Displays the configuration information of the Fibre Channel interface. The slot number is from 1 to 2 and the port number is from 1 to 48.
loopback *number*	(Optional) Displays the number of the loopback interface. The range of values is from 1 to 4096.
mgmt *0*	(Optional) Displays the configuration information of the management interface.
port-channel *channel-number*	(Optional) Displays the number of the port-channel group. The range of values is from 0 to 1023.
membership	Displays the membership of the specified port channel.
vethernet *veth-id*	(Optional) Displays the configuration information of the virtual Ethernet interface. The range is from 1 to 1048575.
vlan *vlan-id*	(Optional) Displays the configuration information of the VLAN. The range of values is from 1 to 4096.
all	(Optional) Displays configured and default information.
expand-port-profile	(Optional) Displays the configuration information of port profiles.

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
4.1(3)N1(1)	This command was introduced.
5.1(3)N1(1)	Support for displaying virtual Ethernet interface and management SVI was added.

Examples

This example shows how to display the running configuration for port channel 10:

```
switch(config)# show running-config interface port-channel 10
version 4.0(1)

interface port-channel10
```

```
  switchport
  switchport mode trunk

switch(config)#
```

This example shows how to display the running configuration for a virtual Ethernet interface:

```
switch# show running-config interface vethernet 10

!Command: show running-config interface Vethernet10
!Time: Fri Jan  2 01:40:37 2009

version 5.1(3)N1(1)

interface Vethernet10
  inherit port-profile ppVEth
  untagged cos 3
  switchport access vlan 101
  bind interface Ethernet1/5 channel 10

switch#
```

This example shows how to display the running configuration for VLAN 5 that has been configured as an SVI to be used for in-band management:

```
switch# show running-config interface vlan 5

!Command: show running-config interface Vlan5
!Time: Mon Apr  4 07:46:35 2005

version 5.1(3)N1(1)

interface Vlan5
  management

switch#
```

Related Commands

Command	Description
show startup-config	Displays the running configuration on the device.

show running-config monitor

To display the running configuration for the Switched Port Analyzer (SPAN) or Encapsulated Remote Switched Port Analyzer (ERSPAN) session, use the **show running-config monitor** command.

show running-config monitor [**all**]

Syntax Description

all	(Optional) Displays current SPAN configuration information including default settings.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.1(3)N1(1)	Support for ERSPAN was added.

Examples

This example shows how to display information on the running SPAN configuration:

```
switch# show running-config monitor

!Command: show running-config monitor
!Time: Thu Jan  1 06:48:56 2009

version 5.0(2)N1(1)
monitor session 1
  description A Local SPAN session
  source interface Ethernet1/5 both
  destination interface Ethernet1/21
  no shut

switch#
```

This example shows how to display detailed information on the running SPAN configuration:

```
switch# show running-config monitor all

!Command: show running-config monitor all
!Time: Thu Jan  1 06:51:08 2009

version 5.0(2)N1(1)
monitor session 1 type local
  description A Local SPAN session
  source interface Ethernet1/5 both
  destination interface Ethernet1/21
  no shut

switch#
```

Related Commands

Command	Description
monitor session	Configures SPAN or ERSPAN sessions.
show monitor session	Displays information about SPAN or ERSPAN sessions.

show running-config port-security

To display the running system configuration information about secure ports, use the **show running-config port-security** command.

show running-config port-security [**all**]

Syntax Description

all	(Optional) Displays detailed information about secure ports, including default settings.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display the running system configuration of all secure ports on an interface:

```
switch# show running-config port-security

!Command: show running-config port-security
!Time: Tue Apr 12 10:06:56 2005

version 5.1(3)N1(1)
feature port-security


interface Ethernet1/5
  switchport port-security
  switchport port-security aging time 3
  switchport port-security maximum 10
  switchport port-security mac-address sticky

switch#
```

Related Commands

Command	Description
clear port-security dynamic	Clears the dynamically secured addresses on a port.
show startup-config port-security	Displays the configuration information in the startup file.

show running-config spanning-tree

To display the running configuration for the Spanning Tree Protocol (STP), use the **show running-config spanning-tree** command.

show running-config spanning-tree [**all**]

Syntax Description

all	(Optional) Displays current STP operating information including default settings.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.
5.1(3)N1(1)	Support to display spanning tree pseudo information parameters was added.

Examples

This example shows how to display information on the running STP configuration:

```
switch# show running-config spanning-tree
```

This example shows how to display detailed information on the running STP configuration:

```
switch# show running-config spanning-tree all
```

Note Display output differs slightly depending on whether you are running Rapid Per VLAN Spanning Tree Plus (Rapid PVST+) or Multiple Spanning Tree (MST).

This example shows how to display information on the running STP configuration, including the spanning tree pseudo information, on a switch that runs Cisco NX-OS Release 5.1(3)N1(1):

```
switch# show running-config spanning-tree
spanning-tree domain 1
spanning-tree pseudo-information
  mst 1 root priority 4096
  mst 2 designated priority 4096
interface port-channel1
  spanning-tree port type network
switch#
```

Related Commands

Command	Description
show spanning-tree	Displays information about STP.

show running-config vlan

To display the running configuration for a specified VLAN, use the **show running-config vlan** command.

show running-config vlan *vlan-id*

Syntax Description

vlan-id	Number of VLAN or range of VLANs. Valid numbers are from 1 to 4096.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

This command provides information on the specified VLAN, including private VLANs.

The display varies with your configuration. If you have configured the VLAN name, shutdown status, or suspended status, these are also displayed.

Examples

This example shows how to display the running configuration for VLAN 5:

```
switch# show running-config vlan 5
```

Related Commands

Command	Description
show vlan	Displays information about all the VLANs on the switch.

show running-config vtp

To display the VLAN Trunking Protocol (VTP) running configuration, use the **show running-config vtp** command.

show running-config vtp

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.2(1)N1(1)	This command was introduced.

Examples

This example shows how to display the VTP running configuration on the switch:

```
switch# show running-config vtp

!Command: show running-config vtp
!Time: Tue Sep  7 08:45:14 2010

version 5.0(2)N1(1)
feature vtp

vtp mode transparent
vtp domain MyDomain
vtp file bootflash:/myvtp.txt


switch#
```

Related Commands

Command	Description
copy running-config startup-config	Copies the running configuration to the startup configuration file.
feature vtp	Enables VTP on the switch.
vtp domain	Configures the VTP administrative domain.
vtp file	Stores the VTP configuration in a file.
vtp mode	Configures a VTP device mode.

show spanning-tree

To display information about the Spanning Tree Protocol (STP), use the **show spanning-tree** command.

show spanning-tree [**blockedports** | **inconsistentports** | **pathcost method**]

Syntax Description

blockedports	(Optional) Displays the alternate ports blocked by STP.
inconsistentports	(Optional) Displays the ports that are in an inconsistent STP state.
pathcost method	(Optional) Displays whether short or long path cost method is used. The method differs for Rapid Per VLAN Spanning Tree Plus (Rapid PVST+) (configurable, default is short) and Multiple Spanning Tree (MST) (nonconfigurable, operational value is always long).

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

The STP port type displays only when you have configured the port as either an STP edge port or an STP network port. If you have not configured the STP port type, no port type displays.

Table 4 describes the fields that are displayed in the output of **show spanning-tree** commands.

Table 4 show spanning-tree Command Output Fields

Field	Definition
Role	Current port STP role. Valid values are as follows: • Desg (designated) • Root • Altn (alternate) • Back (backup)

Table 4 show spanning-tree Command Output Fields (continued)

Field	Definition
Sts	Current port STP state. Valid values are as follows: • BLK (blocking) • DIS (disabled) • LRN (learning) • FWD (forwarding)
Type	Status information. Valid values are as follows: • P2p/Shr—The interface is considered as a point-to-point (shared) interface by the spanning tree. • Edge—The port is configured as an STP edge port (either globally using the **default** command or directly on the interface) and no BPDU has been received. • Network—The port is configured as an STP network port (either globally using the **default** command or directly on the interface). • *ROOT_Inc, *LOOP_Inc, *PVID_Inc, *BA_Inc, and *TYPE_Inc—The port is in a broken state (BKN*) for an inconsistency. The broken states are Root inconsistent, Loopguard inconsistent, PVID inconsistent, Bridge Assurance inconsistent, or Type inconsistent.

Note Display output differs slightly depending on whether you are running Rapid Per VLAN Spanning Tree Plus (Rapid PVST+) or Multiple Spanning Tree (MST).

Examples

This example shows how to display spanning tree information:

```
switch# show spanning-tree

VLAN0001
  Spanning tree enabled protocol rstp
  Root ID    Priority    1
             Address     000d.ecb0.fdbc
             Cost        2
             Port        4096 (port-channel1)
             Hello Time  2  sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    61441  (priority 61440 sys-id-ext 1)
             Address     0005.9b78.6e7c
             Hello Time  2  sec  Max Age 20 sec  Forward Delay 15 sec

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------------
Po1              Root FWD 1         128.4096 (vPC peer-link) Network P2p
Po3              Root FWD 1         128.4098 (vPC) P2p
Po123            Desg FWD 4         128.4218 Edge P2p
Eth1/11          Desg BKN*2         128.139  P2p *TYPE_Inc
Eth1/12          Desg BKN*2         128.140  P2p *TYPE_Inc
Eth1/15          Desg BKN*2         128.143  P2p *TYPE_Inc
Eth1/16          Desg BKN*2         128.144  P2p *TYPE_Inc
Eth1/33          Desg FWD 2         128.161  Edge P2p
Eth1/35          Desg FWD 2         128.163  Edge P2p
```

```
Eth1/36          Desg FWD 2         128.164  Edge P2p
Eth1/38          Desg FWD 2         128.166  Edge P2p
Eth100/1/1       Desg FWD 1         128.1025 (vPC) Edge P2p
Eth100/1/2       Desg FWD 1         128.1026 (vPC) Edge P2p
Eth100/1/3       Desg FWD 1         128.1027 (vPC) Edge P2p
Eth100/1/4       Desg FWD 1         128.1028 (vPC) Edge P2p
--More--
switch#
```

This example shows how to display the blocked ports in spanning tree:

```
switch# show spanning-tree blockedports

Name                 Blocked Interfaces List
-------------------- ------------------------------------
VLAN0001             Eth1/11, Eth1/12, Eth1/15, Eth1/16


Number of blocked ports (segments) in the system : 4

switch#
```

This example shows how to determine if any ports are in any STP-inconsistent state:

```
switch# show spanning-tree inconsistentports

Name                 Interface             Inconsistency
-------------------- --------------------- ------------------
VLAN0001             Eth1/11               Port Type Inconsistent
VLAN0001             Eth1/12               Port Type Inconsistent
VLAN0001             Eth1/15               Port Type Inconsistent
VLAN0001             Eth1/16               Port Type Inconsistent


Number of inconsistent ports (segments) in the system : 4

switch#
```

This example shows how to display the path cost method:

```
switch(config)# show spanning-tree pathcost method
Spanning tree default pathcost method used is short
switch#
```

Related Commands

Command	Description
show spanning-tree active	Displays information about STP active interfaces only.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the switch.
show spanning-tree brief	Displays a brief summary about STP.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree mst	Displays information about Multiple Spanning Tree (MST) STP.

Command	Description
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this switch belongs.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information for specified VLANs.

show spanning-tree active

To display Spanning Tree Protocol (STP) information on STP-active interfaces only, use the **show spanning-tree active** command.

show spanning-tree active [**brief** | **detail**]

Syntax Description

brief	(Optional) Displays a brief summary of STP interface information.
detail	(Optional) Displays a detailed summary of STP interface information.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display STP information on the STP-active interfaces:

```
switch# show spanning-tree active
```

Related Commands

Command	Description
show spanning-tree	Displays information about STP.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the switch.
show spanning-tree brief	Displays a brief summary about STP.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree mst	Displays information about Multiple Spanning Tree (MST) STP.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this switch belongs.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information for specified VLANs.

show spanning-tree bridge

To display the status and configuration of the local Spanning Tree Protocol (STP) bridge, use the **show spanning-tree bridge** command.

show spanning-tree bridge [**address** | **brief** | **detail** | **forward-time** | **hello-time** | **id** | **max-age** | **priority** [**system-id**] | **protocol**]

Syntax Description

address	(Optional) Displays the MAC address for the STP local bridge.
brief	(Optional) Displays a brief summary of the status and configuration for the STP bridge.
detail	(Optional) Displays a detailed summary of the status and configuration for the STP bridge.
forward-time	(Optional) Displays the STP forward delay interval for the bridge.
hello-time	(Optional) Displays the STP hello time for the bridge.
id	(Optional) Displays the STP bridge identifier for the bridge.
max-age	(Optional) Displays the STP maximum-aging time for the bridge.
priority	(Optional) Displays the bridge priority for this bridge.
system-id	(Optional) Displays the bridge priority with the system ID extension for this bridge.
protocol	(Optional) Displays whether the Rapid Per VLAN Spanning Tree Plus (Rapid PVST+) or Multiple Spanning Tree (MST) protocol is active.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display STP information for the bridge:

```
switch# show spanning-tree bridge

                                                     Hello  Max  Fwd
Vlan                        Bridge ID                 Time  Age  Dly  Protocol
---------------- --------------------------------- -----  ---  ---  --------
VLAN0001            32769 (32768,1) 0005.9b74.a6fc    2    20   15  rstp
VLAN0005            32773 (32768,5) 0005.9b74.a6fc    2    20   15  rstp
switch#
```

This example shows how to display detailed STP information for the bridge:

```
switch# show spanning-tree bridge detail
```

```
VLAN0001
  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
             Address     0005.9b74.a6fc
             Hello Time  2  sec  Max Age 20 sec  Forward Delay 15 sec
VLAN0005
  Bridge ID  Priority    32773  (priority 32768 sys-id-ext 5)
             Address     0005.9b74.a6fc
             Hello Time  2  sec  Max Age 20 sec  Forward Delay 15 sec
switch#
```

Related Commands

Command	Description
spanning-tree bridge assurance	Enables Bridge Assurance on all network ports on the switch.
show spanning-tree summary	Displays summary information about STP.

show spanning-tree brief

To display a brief summary of the Spanning Tree Protocol (STP) status and configuration on the switch, use the **show spanning-tree brief** command.

show spanning-tree brief [**active**]

Syntax Description

active	(Optional) Displays information about STP active interfaces only.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display a brief summary of STP information:

```
switch(config)# show spanning-tree brief

VLAN0001
  Spanning tree enabled protocol rstp
  Root ID    Priority    32769
             Address     000d.ecb0.fc7c
             Cost        1
             Port        4495 (port-channel400)
             Hello Time  2  sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
             Address     000d.ece7.df7c
             Hello Time  2  sec  Max Age 20 sec  Forward Delay 15 sec

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------------
Po19             Desg FWD 1         128.4114 Edge P2p
Po400            Root FWD 1         128.4495 (vPC peer-link) Network P2p
Eth170/1/17      Desg FWD 2         128.3857 Edge P2p
Eth171/1/7       Desg FWD 1         128.3975 (vPC) Edge P2p
Eth171/1/8       Desg FWD 1         128.3976 (vPC) Edge P2p
Eth198/1/11      Desg FWD 1         128.1291 (vPC) Edge P2p
Eth199/1/13      Desg FWD 2         128.1677 Edge P2p


VLAN0300
  Spanning tree enabled protocol rstp
  Root ID    Priority    4396
--More--
switch#
```

Related Commands

Command	Description
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about STP active interfaces only.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the switch.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree mst	Displays information about Multiple Spanning Tree (MST) STP.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this switch belongs.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information for specified VLANs.

show spanning-tree detail

To display detailed information on the Spanning Tree Protocol (STP) status and configuration on the switch, use the **show spanning-tree detail** command.

show spanning-tree detail [**active**]

Syntax Description

active	(Optional) Displays information about STP active interfaces only.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display detailed information on the STP configuration on a switch that runs Cisco NX-OS Release 5.0(3)N2(1):

```
switch# show spanning-tree detail

 VLAN0001 is executing the rstp compatible Spanning Tree protocol
  Bridge Identifier has priority 32768, sysid 1, address 0005.9b23.407c
  Configured hello time 2, max age 20, forward delay 15
  We are the root of the spanning tree
  Topology change flag not set, detected flag not set
  Number of topology changes 0 last change occurred 663:31:38 ago
  Times:  hold 1, topology change 35, notification 2
          hello 2, max age 20, forward delay 15
  Timers: hello 0, topology change 0, notification 0

 Port 159 (Ethernet1/31) of VLAN0001 is designated forwarding
   Port path cost 2, Port priority 128, Port Identifier 128.159
   Designated root has priority 32769, address 0005.9b23.407c
   Designated bridge has priority 32769, address 0005.9b23.407c
   Designated port id is 128.159, designated path cost 0
   Timers: message age 0, forward delay 0, hold 0
   Number of transitions to forwarding state: 1
   The port type is edge by port type edge trunk configuration
   Link type is point-to-point by default
   Bpdu guard is enabled
   Bpdu filter is enabled
   BPDU: sent 0, received 0

switch#
```

Related Commands

Command	Description
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about STP active interfaces only.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the switch.
show spanning-tree brief	Displays a brief summary about STP.
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree mst	Displays information about Multiple Spanning Tree (MST) STP.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this switch belongs.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information for specified VLANs.

show spanning-tree interface

To display information on the Spanning Tree Protocol (STP) interface status and configuration of specified interfaces, use the **show spanning-tree interface** command.

show spanning-tree interface {**ethernet** *slot/port* | **port-channel** *number*} [**active** [**brief** | **detail**] | **brief** [**active**] | **cost** | **detail** [**active**] | **edge** | **inconsistency** | **priority** | **rootcost** | **state**]

Syntax Description

interface	Specifies the interface. The interface can be Ethernet or EtherChannel.
ethernet *slot/port*	Specifies the Ethernet interface slot number and port number. The *slot* number is from 1 to 255, and the *port* number is from 1 to 128.
port-channel *number*	Specifies the EtherChannel interface and number. The EtherChannel number is from 1 to 4096.
active	(Optional) Displays information about STP active interfaces only on the specified interfaces.
brief	(Optional) Displays brief summary of STP information on the specified interfaces.
detail	(Optional) Displays detailed STP information about the specified interfaces.
cost	(Optional) Displays the STP path cost for the specified interfaces.
edge	(Optional) Displays the STP-type edge port information for the specified interfaces.
inconsistency	(Optional) Displays the port STP inconsistency state for the specified interfaces.
priority	(Optional) Displays the STP port priority for the specified interfaces.
rootcost	(Optional) Displays the path cost to the root for specified interfaces.
state	(Optional) Displays the current port STP state.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

The STP port type displays only when you have configured the port as either an STP edge port or an STP network port. If you have not configured the STP port type, no port type displays.

If you specify an interface that is not running STP, the switch returns an error message.

When you are running Multiple Spanning Tree (MST), this command displays the Per VLAN Spanning Tree (PVST) simulation setting.

Note If you are running Multiple Spanning Tree (MST), use the **show spanning-tree mst** command to show more detail on the specified interfaces.

Examples

This example shows how to display STP information on a specified interface:

```
switch(config)# show spanning-tree interface ethernet 1/3
```

This example shows how to display detailed STP information on a specified interface:

```
switch(config)# show spanning-tree interface ethernet 1/3 detail
```

Related Commands

Command	Description
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about STP active interfaces only.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the switch.
show spanning-tree brief	Displays a brief summary about STP.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree mst	Displays information about Multiple Spanning Tree (MST) STP.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this switch belongs.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information for specified VLANs.

show spanning-tree mst

To display information on Multiple Spanning Tree (MST) status and configuration, use the **show spanning-tree mst** command.

show spanning-tree mst [*instance-id* [**detail** | **interface** {**ethernet** *slot/port* | **port-channel** *number*} [**detail**]]

show spanning-tree mst [**configuration** [**digest**]]

show spanning-tree mst [**detail** | **interface** {**ethernet** *slot/port* | **port-channel** *number*} [**detail**]]

Syntax Description

instance-id	(Optional) Multiple Spanning Tree (MST) instance range that you want to display. For example, 0 to 3, 5, 7 to 9.
detail	(Optional) Displays detailed Multiple Spanning Tree (MST) information.
interface	(Optional) Specifies the interface. The interface can be Ethernet or EtherChannel.
ethernet *slot/port*	(Optional) Specifies the Ethernet interface and its slot number and port number. The *slot* number is from 1 to 255, and the *port* number is from 1 to 128.
port-channel *number*	(Optional) Specifies the EtherChannel interface and number. The EtherChannel number is from 1 to 4096.
configuration	(Optional) Displays current Multiple Spanning Tree (MST) regional information including the VLAN-to-instance mapping of all VLANs.
digest	(Optional) Displays information about the MD5 digest.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

If the switch is not running in STP Multiple Spanning Tree (MST) mode when you enter this command, it returns the following message:

```
ERROR: Switch is not in mst mode
```

Examples

This example shows how to display STP information about Multiple Spanning Tree (MST) instance information for the VLAN ports that are currently active:

```
switch# show spanning-tree mst
```

This example shows how to display STP information about a specific Multiple Spanning Tree (MST) instance:

```
switch)# show spanning-tree mst 0
```

This example shows how to display detailed STP information about the Multiple Spanning Tree (MST) protocol:

```
switch)# show spanning-tree mst detail
```

This example shows how to display STP information about specified Multiple Spanning Tree (MST) interfaces:

```
switch)# show spanning-tree mst interface ethernet 8/2
```

This example shows how to display information about the Multiple Spanning Tree (MST) configuration:

```
switch)# show spanning-tree mst configuration
```

This example shows how to display the MD5 digest included in the current Multiple Spanning Tree (MST) configuration:

```
switch)# show spanning-tree mst configuration digest
```

See Table 4 on page 365 for descriptions of the fields that are displayed in the output of the **show spanning-tree** commands.

Related Commands

Command	Description
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about STP active interfaces only.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the switch.
show spanning-tree brief	Displays a brief summary about STP.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this switch belongs.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information for specified VLANs.

show spanning-tree root

To display the status and configuration of the Spanning Tree Protocol (STP) root bridge, use the **show spanning-tree root** command.

show spanning-tree root [**address** | **brief** | **cost** | **detail** | **forward-time** | **hello-time** | **id** | **max-age** | **port** | **priority** [**system-id**]]

Syntax Description

address	(Optional) Displays the MAC address for the STP root bridge.
brief	(Optional) Displays a brief summary of the status and configuration for the root bridge.
cost	(Optional) Displays the path cost from the root to this bridge.
detail	(Optional) Displays detailed information on the status and configuration for the root bridge.
forward-time	(Optional) Displays the STP forward delay interval for the root bridge.
hello-time	(Optional) Displays the STP hello time for the root bridge.
id	(Optional) Displays the STP bridge identifier for the root bridge.
max-age	(Optional) Displays the STP maximum-aging time for the root bridge.
port	(Optional) Displays which port is the root port.
priority	(Optional) Displays the bridge priority for the root bridge.
system-id	(Optional) Displays the bridge identifier with the system ID extension for the root bridge.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display information for the root bridge:

```
switch(config)# show spanning-tree root
```

Related Commands

Command	Description
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about STP active interfaces only.

Command	Description
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the switch.
show spanning-tree brief	Displays a brief summary of STP information.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree mst	Displays information about Multiple Spanning Tree (MST) STP.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information for specified VLANs.

show spanning-tree summary

To display summary Spanning Tree Protocol (STP) information on the switch, use the **show spanning-tree summary** command.

show spanning-tree summary [**totals**]

Syntax Description

totals	(Optional) Displays totals only of STP information.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

The display output for this command differs when you are running Rapid Per VLAN Spanning Tree Plus (Rapid PVST+) or Multiple Spanning Tree (MST).

Examples

This example shows how to display a summary of STP information on the switch:

```
switch# show spanning-tree summary
Switch is in rapid-pvst mode
Root bridge for: VLAN0001, VLAN0005
Port Type Default                        is disable
Edge Port [PortFast] BPDU Guard Default  is disabled
Edge Port [PortFast] BPDU Filter Default is disabled
Bridge Assurance                         is enabled
Loopguard Default                        is disabled
Pathcost method used                     is short

Name                   Blocking Listening Learning Forwarding STP Active
---------------------- -------- --------- -------- ---------- ----------
VLAN0001                    2         0        0          5          7
VLAN0005                    1         0        0          0          1
---------------------- -------- --------- -------- ---------- ----------
2 vlans                     3         0        0          5          8
switch#
```

Related Commands

Command	Description
show spanning-tree	Displays information about STP.

show spanning-tree vlan

To display Spanning Tree Protocol (STP) information for specified VLANs, use the **show spanning-tree vlan** command.

show spanning-tree vlan {*vlan-id*} [**active** [**brief** | **detail**]]

show spanning-tree vlan {*vlan-id*} [**blockedports**]

show spanning-tree vlan {*vlan-id*} [**bridge** [**address**] | **brief** | **detail** | **forward-time** | **hello-time** | **id** | **max-age** | **priority** [**system-id**] | **protocol**]

show spanning-tree vlan {*vlan-id*} [**brief** [**active**]]

show spanning-tree vlan {*vlan-id*} [**detail** [**active**]]

show spanning-tree vlan {*vlan-id*} [**inconsistentports**]

show spanning-tree vlan {*vlan-id*} [**interface** {**ethernet** *slot/port* | **port-channel** *number*} [**active** [**brief** | **detail**]] | **brief** [**active**] | **cost** | **detail** [**active**] | **edge** | **inconsistency** | **priority** | **rootcost** | **state**]]

show spanning-tree vlan {*vlan-id*} [**root** [**address** | **brief** | **cost** | **detail** | **forward-time** | **hello-time** | **id** | **max-age** | **port** | **priority** [**system-id**]]

show spanning-tree vlan {*vlan-id*} [**summary**]

Syntax Description

vlan-id	VLAN or range of VLANs that you want to display.
active	(Optional) Displays information about STP VLANs and active ports.
brief	(Optional) Displays a brief summary of STP information for the specified VLANs.
detail	(Optional) Displays detailed STP information for the specified VLANs.
blockedports	(Optional) Displays the STP alternate ports in the blocked state for the specified VLANs.
bridge	(Optional) Displays the status and configuration of the bridge for the specified VLANs.
address	(Optional) Displays the MAC address for the specified STP bridge for the specified VLANs.
forward-time	(Optional) Displays the STP forward delay interval for the bridge for the specified VLANs.
hello-time	(Optional) Displays the STP hello time for the bridge for the specified VLANs.
id	(Optional) Displays the STP bridge identifier for the specified VLANs.
max-age	(Optional) Displays the STP maximum-aging time for the specified VLANs.
priority	(Optional) Displays the STP priority for the specified VLANs.
system-id	(Optional) Displays the bridge identification with the system ID added for the specified VLANs.
protocol	(Optional) Displays which STP protocol is active on the switch.

inconsistentports	(Optional) Displays the ports that are in an inconsistent STP state for specified VLANs.
interface	(Optional) Specifies the interface. The interface can be Ethernet or EtherChannel.
ethernet *slot/port*	(Optional) Specifies the Ethernet interface and its slot number and port number. The *slot* number is from 1 to 255, and the *port* number is from 1 to 128.
port-channel *number*	(Optional) Specifies the EtherChannel interface and number. The EtherChannel number is from 1 to 4096.
cost	(Optional) Displays the STP path cost for the specified VLANs.
edge	(Optional) Displays the STP-type edge port information for the specified interface for the specified VLANs.
inconsistency	(Optional) Displays the STP port inconsistency state for the specified interface for the specified VLANs.
priority	(Optional) Displays the STP priority for the specified VLANs.
rootcost	(Optional) Displays the path cost to the root for specified interfaces for the specified VLANs.
state	(Optional) Displays the current port STP state. Valid values are blocking, disabled, learning, and forwarding.
port	(Optional) Displays information about the root port for the specified VLANs.
summary	(Optional) Displays summary STP information on the specified VLANs.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display STP information on VLAN 1:

```
switch# show spanning-tree vlan 1
```

Related Commands

Command	Description
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about STP active interfaces only.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the switch.

Command	Description
show spanning-tree brief	Displays a brief summary about STP.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree mst	Displays information about Multiple Spanning Tree (MST) STP.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this switch belongs.
show spanning-tree summary	Displays summary information about STP.

show startup-config

To display the contents of the currently running configuration file, use the **show startup-config** command.

show startup-config

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display information from the startup configuration file:

```
switch# show startup-config
```

Related Commands

Command	Description
show running-config	Displays the contents of the currently running configuration file.

show startup-config backup

To display the startup configuration for backup interfaces, use the **show startup-config backup** command.

show startup-config backup [**all**]

Syntax Description

all	(Optional) Displays backup interface information including default settings.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to display the startup configuration for backup interfaces:

```
switch# show startup-config backup

!Command: show startup-config backup
!Time: Sun Jan  4 06:28:43 2009
!Startup config saved at: Thu Jan  1 03:40:28 2009

version 5.0(3)N2(1)
feature flexlink

logging level Flexlink 5

interface port-channel300
  switchport backup interface port-channel301 preemption mode forced

interface port-channel500
  switchport backup interface port-channel501 preemption delay 36
  switchport backup interface port-channel501 multicast fast-convergence

interface port-channel502
  switchport backup interface port-channel503

interface port-channel504
  switchport backup interface Ethernet2/1

interface Ethernet1/2
  switchport backup interface Ethernet1/1

interface Ethernet1/20
  switchport backup interface Ethernet1/21

interface Ethernet2/2
```

```
  switchport backup interface port-channel507 preemption mode forced

switch#
```

This example shows how to display the detailed startup configuration for backup interfaces:

```
switch# show startup-config backup all

!Command: show startup-config backup all
!Time: Sun Jan  4 06:29:17 2009
!Startup config saved at: Thu Jan  1 03:40:28 2009

version 5.0(3)N2(1)
feature flexlink

logging level Flexlink 5

interface port-channel300
  switchport backup interface port-channel301 preemption mode forced
  switchport backup interface port-channel301 preemption delay 35

interface port-channel500
  switchport backup interface port-channel501 preemption mode off
  switchport backup interface port-channel501 preemption delay 36
  switchport backup interface port-channel501 multicast fast-convergence

interface port-channel502
  switchport backup interface port-channel503 preemption mode off
  switchport backup interface port-channel503 preemption delay 35

interface port-channel504
  switchport backup interface Ethernet2/1 preemption mode off
  switchport backup interface Ethernet2/1 preemption delay 35

interface Ethernet1/2
  switchport backup interface Ethernet1/1 preemption mode off
  switchport backup interface Ethernet1/1 preemption delay 35

interface Ethernet1/20
  switchport backup interface Ethernet1/21 preemption mode off
  switchport backup interface Ethernet1/21 preemption delay 35

interface Ethernet2/2
  switchport backup interface port-channel507 preemption mode forced
  switchport backup interface port-channel507 preemption delay 35

switch#
```

Related Commands

Command	Description
copy running-config startup-config	Copies the running configuration information to the startup configuration file.
show running-config backup	Displays the running configuration information for backup interfaces.
show running-config flexlink	Displays Flex Links running configuration information.

Command	Description
show tech-support backup	Displays troubleshooting information for backup interfaces.
show tech-support flexlink	Displays troubleshooting information for Flex Links.

show startup-config exclude-provision

To display the startup configuration that excludes the configuration for offline preprovisioned interfaces, use the **show startup-config exclude-provision** command.

show startup-config exclude-provision

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(2)N1(1)	This command was introduced.

Examples

This example shows how to display the startup configuration without the offline preprovisioned interfaces:

```
switch# show startup-config exclude-provision

!Command: show startup-config exclude-provision
!Time: Mon Sep  6 08:24:27 2010
!Startup config saved at: Mon Sep  6 08:20:52 2010

version 5.0(2)N1(1)
feature fcoe

feature telnet
feature tacacs+
cfs ipv4 distribute
cfs eth distribute
feature udld
feature interface-vlan
feature lacp
feature vpc
feature lldp
feature vtp
feature fex

username admin password 5 $1$wmFN7Wly$/pjqx1DfAkCCAg/KyxbUz/  role network-admin
username install password 5 !  role network-admin
username ciscoUser1 password 5 !  role network-operator
no password strength-check
ip domain-lookup
ip domain-lookup
tacacs-server host 192.168.0.54 key 7 "wawy1234"
tacacs-server host 192.168.0.37
tacacs-server host 192.168.0.37 test username user1
aaa group server tacacs+ t1
```

```
    server 192.168.0.54
aaa group server tacacs+ tacacs
radius-server host 192.168.0.5 key 7 "KkwyCet" authentication accounting
aaa group server radius r1
    server 192.168.0.5
hostname BEND-2
vlan dot1Q tag native
logging event link-status default
logging event trunk-status default
no service recover-errdisable
errdisable recovery interval 600
no errdisable detect cause link-flap
errdisable recovery cause link-flap
--More--
<--output truncated-->
switch#
```

Related Commands

Command	Description
provision	Preprovisions a module in a slot.
show provision	Displays the preprovisioned module information.
show running-config exclude-provision	Displays the running configuration excluding the preprovisioned features.
slot	Configures a chassis slot for a predefined module.

show startup-config flexlink

To display the startup configuration for Flex Links, use the **show startup-config flexlink** command.

show startup-config flexlink [**all**]

Syntax Description

all	(Optional) Displays information about Flex Links including default settings.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to display the startup configuration for Flex Links:

```
switch# show startup-config flexlink

!Command: show startup-config flexlink
!Time: Sun Jan  4 06:29:46 2009
!Startup config saved at: Thu Jan  1 03:40:28 2009

version 5.0(3)N2(1)
feature flexlink

logging level Flexlink 5

interface port-channel300
  switchport backup interface port-channel301 preemption mode forced

interface port-channel500
  switchport backup interface port-channel501 preemption delay 36
  switchport backup interface port-channel501 multicast fast-convergence

interface port-channel502
  switchport backup interface port-channel503

interface port-channel504
  switchport backup interface Ethernet2/1

interface Ethernet1/2
  switchport backup interface Ethernet1/1

interface Ethernet1/20
  switchport backup interface Ethernet1/21

interface Ethernet2/2
  switchport backup interface port-channel507 preemption mode forced
```

```
switch#
```

This example shows how to display the detailed startup configuration for Flex Links:

```
switch# show startup-config flexlink all

!Command: show startup-config flexlink all
!Time: Sun Jan  4 06:30:08 2009
!Startup config saved at: Thu Jan  1 03:40:28 2009

version 5.0(3)N2(1)
feature flexlink

logging level Flexlink 5

interface port-channel300
  switchport backup interface port-channel301 preemption mode forced
  switchport backup interface port-channel301 preemption delay 35

interface port-channel500
  switchport backup interface port-channel501 preemption mode off
  switchport backup interface port-channel501 preemption delay 36
  switchport backup interface port-channel501 multicast fast-convergence

interface port-channel502
  switchport backup interface port-channel503 preemption mode off
  switchport backup interface port-channel503 preemption delay 35

interface port-channel504
  switchport backup interface Ethernet2/1 preemption mode off
  switchport backup interface Ethernet2/1 preemption delay 35

interface Ethernet1/2
  switchport backup interface Ethernet1/1 preemption mode off
  switchport backup interface Ethernet1/1 preemption delay 35

interface Ethernet1/20
  switchport backup interface Ethernet1/21 preemption mode off
  switchport backup interface Ethernet1/21 preemption delay 35

interface Ethernet2/2
  switchport backup interface port-channel507 preemption mode forced
  switchport backup interface port-channel507 preemption delay 35

switch#
```

Related Commands

Command	Description
copy running-config startup-config	Copies the running configuration information to the startup configuration file.
show running-config backup	Displays the running configuration information for backup interfaces.
show running-config flexlink	Displays Flex Links running configuration information.

Command	Description
show tech-support backup	Displays troubleshooting information for backup interfaces.
show tech-support flexlink	Displays troubleshooting information for Flex Links.

show startup-config port-security

To display the secure ports configuration information in the startup configuration file, use the **show startup-config port-security** command.

show startup-config port-security [**all**]

Syntax Description

all	(Optional) Displays detailed information about secure ports, including default settings.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display the information from the startup configuration file for all secure ports configured on an interface:

```
switch# show startup-config port-security
```

Related Commands

Command	Description
clear port-security dynamic	Clears the dynamically secured addresses on a port.

show startup-config vtp

To display the VLAN Trunking Protocol (VTP) configuration from the startup configuration file, use the **show startup-config vtp** command.

show startup-config vtp

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.2(1)N1(1)	This command was introduced.

Examples

This example shows how to display the VTP configuration stored in the startup configuration file:

```
switch# show startup-config vtp

!Command: show startup-config vtp
!Time: Tue Sep  7 08:45:33 2010
!Startup config saved at: Tue Sep  7 08:45:03 2010

version 5.0(2)N1(1)
feature vtp

vtp mode transparent
vtp domain MyDomain
vtp file bootflash:/myvtp.txt


switch#
```

Related Commands

Command	Description
copy running-config startup-config	Copies the running configuration to the startup configuration file.
feature vtp	Enables VTP on the switch.
vtp domain	Configures the VTP administrative domain.
vtp file	Stores the VTP configuration in a file.
vtp mode	Configures a VTP device mode.

show svs connections

To display the current SVS connections to the Cisco Nexus 5000 Series switch for verification, use the **show svs connections** command.

show svs connections [*conn_name*]

Syntax Description

conn-name	(Optional) Name of the SVS connection. The name can be a maximum of 64 alphanumeric characters.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display information about the local and remote SVS connections:

```
switch# show svs connections

Local Info:
-----------
connection SVSConn:
    ip address: 192.0.2.12
    remote port: 21
    vrf: default
    protocol: vmware-vim https
    certificate: default
    datacenter name: DCName
    extension key: Cisco_Nexus_1000V_1155927
    dvs name: DVS_DC
    DVS uuid: -
    config status: Disabled
    operational status: Disconnected
    sync status: -
    version: -


Peer Info:
----------
    hostname: -
    ip address: -
    vrf:
    protocol: -
    extension key: -
```

```
    certificate: -
    certificate match: -
    datacenter name: -
    dvs name: -
    DVS uuid: -
    config status: Disabled
    operational status: Connected
switch#
```

This example shows how to display the SVS information of the local machine:

```
switch# show svs connections SVSConn

Local Info:
-----------
connection SVSConn:
    ip address: 10.0.0.1
    remote port: 21
    vrf: default
    protocol: vmware-vim https
    certificate: default
    datacenter name: DCName
    extension key: Cisco_Nexus_1000V_1199955927
    dvs name: DVS_DC
    DVS uuid: -
    config status: Disabled
    operational status: Disconnected
    sync status: -
    version: -
switch#
```

Related Commands

Command	Description
svs connection	Enables an SVS connection.

show system vlan reserved

To display the system reserved VLAN range , use the **show system vlan reserved** command.

show system vlan reserved

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

Examples

This example shows how to display the system reserved VLAN range:

```
switch# show system vlan reserved
system current running vlan reservation: 3968-4095
switch#
```

Related Commands

Command	Description
system vlan reserve	Confiugres the reserved VLAN range.
write erase	Reverts to the default reserved VLAN range.

show tech-support

To display troubleshooting information about backup interfaces or Flex Links, use the **show tech-support** command.

show tech-support {**backup** | **flexlink**}

Syntax Description

backup	Displays troubleshooting information about backup interfaces.
flexlink	Displays troubleshooting information about Flex Links.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(3)N2(1)	This command was introduced.

Examples

This example shows how to display the troubleshooting information about backup interfaces:

```
switch# show tech-support backup
`show interface switchport backup detail`


Switch Backup Interface Pairs:

Active Interface        Backup Interface        State
------------------------------------------------------------------------
Ethernet1/2             Ethernet1/1             Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : Off
        Bandwidth : 1000000 Kbit (Ethernet1/2), 10000000 Kbit (Ethernet1/1)

Ethernet1/20            Ethernet1/21            Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : Off
        Bandwidth : 10000000 Kbit (Ethernet1/20), 10000000 Kbit (Ethernet1/21)

port-channel300         port-channel301         Active Up/Backup Down
        Preemption Mode  : forced
        Preemption Delay : 35 seconds (default)
        Multicast Fast Convergence  : On
        Bandwidth : 20000000 Kbit (port-channel300), 10000000 Kbit (port-channel
301)

port-channel500         port-channel501         Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : On
        Bandwidth : 100000 Kbit (port-channel500), 100000 Kbit (port-channel501)

port-channel502         port-channel503         Active Down/Backup Down
```

```
        Preemption Mode  : off
        Multicast Fast Convergence  : Off
        Bandwidth : 100000 Kbit (port-channel502), 100000 Kbit (port-channel503)

port-channel504         Ethernet2/1             Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : Off
        Bandwidth : 100000 Kbit (port-channel504), 0 Kbit (Ethernet2/1)
`show platform backup internal trace`
FLEXLINK Trace Dump in FIFO order
================================
Trace Buffer Size: 5 MB; Num of times buffer wrapped 0; Max Rec-Size 156; Rec_id
 for next Msg 6219
================================================================================

::0::[Thu Jan  1 00:01:21 2009 594649 usecs] flexlink_db_initialize: timer libra
ry initialization successful

::1::[Thu Jan  1 00:01:21 2009 594702 usecs] flexlink_db_initialize: starting VD
C 1

::2::[Thu Jan  1 00:01:21 2009 594752 usecs] flexlink_initialize: flexlink_db_in
itialize done

::3::[Thu Jan  1 00:01:21 2009 594946 usecs] flexlink_mts_queue_initialize: mts
bind for flexlink_q_mts(7) successful

::4::[Thu Jan  1 00:01:21 2009 595015 usecs] flexlink_mts_queue_initialize: regi
stered MTS_OPC_SDWRAP_DEBUG_DUMP(1530) with flexlink_q_mts

::5::[Thu Jan  1 00:01:21 2009 595064 usecs] flexlink_mts_queue_initialize: regi
stered MTS_OPC_SYSLOG_FACILITY_OPR(185) with flexlink_q_mts

::6::[Thu Jan  1 00:01:21 2009 595113 usecs] flexlink_mts_queue_initialize: regi
stered MTS_OPC_SYSMGR_CFG_ACTION(1360) with flexlink_q_mts

::7::[Thu Jan  1 00:01:21 2009 595161 usecs] flexlink_mts_queue_initialize: regi
stered MTS_OPC_SYSMGR_CFG_SAVED(1361) with flexlink_q_mts

::8::[Thu Jan  1 00:01:21 2009 595209 usecs] flexlink_mts_queue_initialize: regi
stered MTS_OPC_VSH_CMD_TLV(7679) with flexlink_q_mts

::9::[Thu Jan  1 00:01:21 2009 595257 usecs] flexlink_mts_queue_initialize: regi
stered MTS_OPC_VSH_CMD_TLV_SYNC(7682) with flexlink_q_mts

::10::[Thu Jan  1 00:01:21 2009 595304 usecs] flexlink_mts_queue_initialize: reg
istered MTS_OPC_FM_SRV_ENABLE_FEATURE(8925) with flexlink_q_mts

::11::[Thu Jan  1 00:01:21 2009 595351 usecs] flexlink_mts_queue_initialize: reg
istered MTS_OPC_FM_SRV_DISABLE_FEATURE(8926) with flexlink_q_mts

::12::[Thu Jan  1 00:01:21 2009 595400 usecs] flexlink_mts_queue_initialize: reg
istered MTS_OPC_IM_IF_CREATED(62467) with flexlink_q_mts

::13::[Thu Jan  1 00:01:21 2009 595448 usecs] flexlink_mts_queue_initialize: reg
istered MTS_OPC_IM_IF_REMOVED(62468) with flexlink_q_mts

::14::[Thu Jan  1 00:01:21 2009 595495 usecs] flexlink_mts_queue_initialize: reg
<--Output truncated-->
switch#
```

This example shows how to display the troubleshooting information for Flex Links:

```
switch# show tech-support flexlink
```

```
`show interface switchport backup detail`


Switch Backup Interface Pairs:

Active Interface        Backup Interface        State
------------------------------------------------------------------------
Ethernet1/2             Ethernet1/1             Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : Off
        Bandwidth : 1000000 Kbit (Ethernet1/2), 10000000 Kbit (Ethernet1/1)

Ethernet1/20            Ethernet1/21            Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : Off
        Bandwidth : 10000000 Kbit (Ethernet1/20), 10000000 Kbit (Ethernet1/21)

port-channel300         port-channel301         Active Up/Backup Down
        Preemption Mode  : forced
        Preemption Delay : 35 seconds (default)
        Multicast Fast Convergence  : On
        Bandwidth : 20000000 Kbit (port-channel300), 10000000 Kbit (port-channel
301)

port-channel500         port-channel501         Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : On
        Bandwidth : 100000 Kbit (port-channel500), 100000 Kbit (port-channel501)

port-channel502         port-channel503         Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : Off
        Bandwidth : 100000 Kbit (port-channel502), 100000 Kbit (port-channel503)

port-channel504         Ethernet2/1             Active Down/Backup Down
        Preemption Mode  : off
        Multicast Fast Convergence  : Off
        Bandwidth : 100000 Kbit (port-channel504), 0 Kbit (Ethernet2/1)
`show platform backup internal trace`
FLEXLINK Trace Dump in FIFO order
================================
Trace Buffer Size: 5 MB; Num of times buffer wrapped 0; Max Rec-Size 156; Rec_id
 for next Msg 6225
================================================================================

::0::[Thu Jan  1 00:01:21 2009 594649 usecs] flexlink_db_initialize: timer libra
ry initialization successful

::1::[Thu Jan  1 00:01:21 2009 594702 usecs] flexlink_db_initialize: starting VD
C 1

::2::[Thu Jan  1 00:01:21 2009 594752 usecs] flexlink_initialize: flexlink_db_in
itialize done

::3::[Thu Jan  1 00:01:21 2009 594946 usecs] flexlink_mts_queue_initialize: mts
bind for flexlink_q_mts(7) successful

::4::[Thu Jan  1 00:01:21 2009 595015 usecs] flexlink_mts_queue_initialize: regi
stered MTS_OPC_SDWRAP_DEBUG_DUMP(1530) with flexlink_q_mts

::5::[Thu Jan  1 00:01:21 2009 595064 usecs] flexlink_mts_queue_initialize: regi
stered MTS_OPC_SYSLOG_FACILITY_OPR(185) with flexlink_q_mts

::6::[Thu Jan  1 00:01:21 2009 595113 usecs] flexlink_mts_queue_initialize: regi
```

```
stered MTS_OPC_SYSMGR_CFG_ACTION(1360) with flexlink_q_mts

::7::[Thu Jan  1 00:01:21 2009 595161 usecs] flexlink_mts_queue_initialize: regi
stered MTS_OPC_SYSMGR_CFG_SAVED(1361) with flexlink_q_mts

::8::[Thu Jan  1 00:01:21 2009 595209 usecs] flexlink_mts_queue_initialize: regi
stered MTS_OPC_VSH_CMD_TLV(7679) with flexlink_q_mts

::9::[Thu Jan  1 00:01:21 2009 595257 usecs] flexlink_mts_queue_initialize: regi
stered MTS_OPC_VSH_CMD_TLV_SYNC(7682) with flexlink_q_mts

::10::[Thu Jan  1 00:01:21 2009 595304 usecs] flexlink_mts_queue_initialize: reg
istered MTS_OPC_FM_SRV_ENABLE_FEATURE(8925) with flexlink_q_mts

::11::[Thu Jan  1 00:01:21 2009 595351 usecs] flexlink_mts_queue_initialize: reg
istered MTS_OPC_FM_SRV_DISABLE_FEATURE(8926) with flexlink_q_mts

::12::[Thu Jan  1 00:01:21 2009 595400 usecs] flexlink_mts_queue_initialize: reg
istered MTS_OPC_IM_IF_CREATED(62467) with flexlink_q_mts
<--Output truncated-->
switch#
```

Related Commands

Command	Description
show running-config backup	Displays the running configuration information for backup interfaces.
show running-config flexlink	Displays Flex Links running configuration information.

show tech-support port-channel

To display troubleshooting information about EtherChannel interfaces, use the **show tech-support port-channel** command.

show tech-support port-channel

Syntax Description

This command has no arguments and keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

The output from the **show tech-support port-channel** command is very long. To better manage this output, you can redirect the output to a file.

Examples

This example shows how to display Cisco technical support information for EtherChannel interfaces:

```
switch# show tech-support port-channel
`show port-channel internal event-history all`
Low Priority Pending queue: len(0), max len(2) [Thu Jul  8 04:05:04 2010]
High Priority Pending queue: len(0), max len(32) [Thu Jul  8 04:05:04 2010]
PCM Control Block info:
pcm_max_channels        : 4096
pcm_max_channel_in_use  : 1912
pc count                : 29
hif-pc count            : 20
Max PC Cnt              : 768
==================================================
PORT CHANNELS:

port-channel19
channel       : 19
bundle        : 65535
ifindex       : 0x16000012
admin mode    : active
oper mode     : active
fop ifindex   : 0x1fc605c0
nports        : 4
active        : 4
pre cfg       : 0
ltl:          : 0
lif:          : 0
iod:          : 43
global id     : 1
```

```
flag          : 0
--More--
<---output truncated--->
switch#
```

Related Commands

Command	Description
port-channel load-balance ethernet	Configures the load-balancing method among the interfaces in the channel-group bundle.
show port-channel load-balance	Displays information on EtherChannel load balancing.

show udld

To display the Unidirectional Link Detection (UDLD) information for a switch, use the **show udld** command.

show udld [**ethernet** *slot/port* | **global** | **neighbors**]

Syntax Description

ethernet *slot/port*	Displays UDLD information for an Ethernet IEEE 802.3z interface. The *slot* number is from 1 to 255, and the *port* number is from 1 to 128.
global	Displays the UDLD global status and configuration information on all interfaces.
neighbors	Displays information about UDLD neighbor interfaces.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(1a)N1(1)	This command was introduced.

Examples

This example shows how to display UDLD information for all interfaces:

```
switch# show udld

Interface Ethernet1/1
---------------------------------
Port enable administrative configuration setting: device-default
Port enable operational state: enabled
Current bidirectional state: bidirectional
Current operational state:  advertisement - Single neighbor detected
Message interval: 15
Timeout interval: 5

        Entry 1
        ----------------
        Expiration time: 41
        Cache Device index: 1
        Current neighbor state: bidirectional
        Device ID: FLC12280095
        Port ID: Ethernet1/1
        Neighbor echo 1 devices: SSI130205RT
        Neighbor echo 1 port: Ethernet1/1

        Message interval: 15
        Timeout interval: 5
        CDP Device name: N5Kswitch-2(FLC12280095)


Interface Ethernet1/2
```

```
--------------------------------
Port enable administrative configuration setting: device-default
Port enable operational state: enabled
Current bidirectional state: bidirectional
Current operational state:  advertisement - Single neighbor detected
Message interval: 15
Timeout interval: 5

        Entry 1
        ----------------
--More--
switch#
```

This example shows how to display the UDLD information for a specified interface:

```
switch# show udld ethernet 1/1

Interface Ethernet1/1
--------------------------------
Port enable administrative configuration setting: device-default
Port enable operational state: enabled
Current bidirectional state: bidirectional
Current operational state:  advertisement - Single neighbor detected
Message interval: 15
Timeout interval: 5

        Entry 1
        ----------------
        Expiration time: 41
        Cache Device index: 1
        Current neighbor state: bidirectional
        Device ID: FLC12280095
        Port ID: Ethernet1/1
        Neighbor echo 1 devices: SSI130205RT
        Neighbor echo 1 port: Ethernet1/1

        Message interval: 15
        Timeout interval: 5
        CDP Device name: N5Kswitch-2(FLC12280095)

switch#
```

This example shows how to display the UDLD global status and configuration on all interfaces:

```
switch# show udld global

UDLD global configuration mode: enabled
UDLD global message interval: 15
switch#
```

This example shows how to display the UDLD neighbor interfaces:

```
switch# show udld neighbors
Port             Device Name    Device ID   Port ID         Neighbor State
-------------------------------------------------------------------------
Ethernet1/1      FLC12280095    1           Ethernet1/1     bidirectional
Ethernet1/2      FLC12280095    1           Ethernet1/2     bidirectional
Ethernet1/3      FLC12280095    1           Ethernet1/3     bidirectional
Ethernet1/4      FLC12280095    1           Ethernet1/4     bidirectional
Ethernet1/7      JAF1346000H    1           Ethernet1/7     bidirectional
Ethernet1/8      JAF1346000H    1           Ethernet1/8     bidirectional
Ethernet1/9      JAF1346000C    1           Ethernet1/9     bidirectional
Ethernet1/10     JAF1346000C    1           Ethernet1/10    bidirectional

switch#
```

Related Commands

Command	Description
udld (configuration mode)	Configures the UDLD protocol on the switch.
udld (Ethernet)	Configures the UDLD protocol on an Ethernet interface.

show vlan

To display VLAN information, use the **show vlan** command.

show vlan [**brief** | **name** {*name*} | **summary**]

Syntax Description

brief	(Optional) Displays only a single line for each VLAN, naming the VLAN, status, and ports.
name *name*	(Optional) Displays information about a single VLAN that is identified by the VLAN name.
summary	(Optional) Displays the number of existing VLANs on the switch.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

This command displays information for all VLANs, including private VLANs, on the switch.

Each access port can belong to only one VLAN. Trunk ports can be on multiple VLANs.

Note Although a port can be associated with a VLAN as an access VLAN, a native VLAN, or one of the trunk allowed ports, only access VLANS are shown under Ports in the display.

If you shut down a VLAN using the **state suspend** or the **state active** command, these values appear in the Status field:

- suspended—VLAN is suspended.
- active—VLAN is active.

If you shut down a VLAN using the **shutdown** command, these values appear in the Status field:

- act/lshut—VLAN status is active but shut down locally.
- sus/lshut—VLAN status is suspended but shut down locally.

If a VLAN is shut down internally, these values appear in the Status field:

- act/ishut—VLAN status is active but shut down internally.
- sus/ishut—VLAN status is suspended but shut down internally.

If a VLAN is shut down locally and internally, the value that is displayed in the Status field is act/ishut or sus/ishut. If a VLAN is shut down locally only, the value that is displayed in the Status field is act/lshut or sus/lshut.

Examples

This example shows how to display information for all VLANs on the switch:

```
switch# show vlan
```

This example shows how to display the VLAN name, status, and associated ports only:

```
switch# show vlan brief
```

This example shows how to display the VLAN information for a specific VLAN by name:

```
switch# show vlan name test
```

This example shows how to display information about the number of VLANs configured on the switch:

```
switch# show vlan summary
```

Related Commands

Command	Description
show interface switchport	Displays information about the ports, including those in private VLANs.
show vlan private-vlan	Displays private VLAN information.

show vlan dot1Q tag native

To display the status of tagging on the native VLANs, use the **show vlan dot1Q tag native** command.

show vlan dot1Q tag native

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display the status of 802.1Q tagging on the native VLANs:

```
switch# show vlan dot1Q tag native
vlan dot1q native tag is enabled
switch#
```

Related Commands

Command	Description
vlan dot1q tag native	Enables dot1q (IEEE 802.1Q) tagging for all native VLANs on all trunked ports on the switch.

show vlan id

To display information and statistics for an individual VLAN or a range of VLANs, use the **show vlan id** command.

show vlan id {*vlan-id*}

Syntax Description

vlan-id	VLAN or range of VLANs that you want to display.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Use this command to display information and statistics on an individual VLAN or a range of VLANs, including private VLANs.

Note You can also display information about individual VLANs using the **show vlan name** command.

Examples

This example shows how to display information for the individual VLAN 5:

```
switch# show vlan id 5
```

Related Commands

Command	Description
show vlan	Displays information about VLANs on the switch.

show vlan private-vlan

To display private VLAN information, use the **show vlan private-vlan** command.

show vlan [**id** {*vlan-id*}] **private-vlan** [**type**]

Syntax Description

id *vlan-id*	(Optional) Displays private VLAN information for the specified VLAN.
type	(Optional) Displays the private VLAN type (primary, isolated, or community).

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Examples

This example shows how to display information on all private VLANs on the switch:

```
switch(config)# show vlan private-vlan
```

This example shows how to display information for a specific private VLAN:

```
switch(config)# show vlan id 42 private-vlan
```

This example shows how to display information on the types of all private VLANs on the switch:

```
switch(config)# show vlan private-vlan type
```

This example shows how to display information on the type for the specified private VLAN:

```
switch(config)# show vlan id 42 private-vlan type
```

Related Commands

Command	Description
show interface private-vlan mapping	Displays information about the private VLAN mapping between the primary and secondary VLANs so that both VLANs share the same primary VLAN interface.
show interface switchport	Displays information about the ports, including those in private VLANs.
show vlan	Displays information about all the VLANs on the switch.

show vtp counters

To display the VLAN Trunking Protocol (VTP) statistics, use the **show vtp counters** command.

show vtp counters

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(2)N2(1)	This command was introduced.

Usage Guidelines

Before you use this command, you must enable VTP on the switch by using the **feature vtp** command.

Note VTP pruning is not supported in Cisco NX-OS Release 5.0(2)N2(1).

Examples

This example shows how to display the VTP counters on a switch that runs Cisco NX-OS Release 5.0(2)N2(1):

```
switch# show vtp counters
VTP statistics:
Summary advertisements received    : 0
Subset advertisements received     : 0
Request advertisements received    : 0
Summary advertisements transmitted : 0
Subset advertisements transmitted  : 0
Request advertisements transmitted : 0
Number of config revision errors   : 0
Number of config digest errors     : 0
Number of V1 summary errors        : 0


VTP pruning statistics:

Trunk            Join Transmitted Join Received    Summary advts received from
                                                   non-pruning-capable device
---------------- ---------------- ---------------- ---------------------------
port-channel23       0                0                0
port-channel67       0                0                0
port-channel400      0                0                0
port-channel1504     0                0                0
Ethernet1/2          0                0                0
Ethernet1/12         0                0                0
switch#
```

Related Commands

Command	Description
feature vtp	Enables VTP on the switch.
vtp	Enables VTP on an interface.
vtp mode	Configures the VTP device mode.

show vtp interface

To display the VLAN Trunking Protocol (VTP) interface status and configuration information, use the **show vtp interface** command.

show vtp interface [**ethernet** *slot*/*port* | **port-channel** *channel-no*]

Syntax Description

ethernet *slot*/*port*	(Optional) Displays the VTP configuration on Ethernet interfaces. The slot number is from 1 to 255, and the port number can be from 1 to 128.
port-channel *channel-no*	(Optional) Displays the VTP configuration on EtherChannel interfaces. The EtherChannel number can be from 1 to 4096.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(2)N2(1)	This command was introduced.

Usage Guidelines

Before you use this command, you must enable VTP on the switch by using the **feature vtp** command.

Examples

This example shows how to display the VTP configuration information on all interfaces:

```
switch# show vtp interface

 Interface         VTP Status
--------------------------------
port-channel23      Enabled
port-channel67      Enabled
port-channel400     Enabled
port-channel1504    Enabled
Ethernet1/2         Enabled
Ethernet1/12        Enabled
switch#
```

This example shows how to display the VTP configuration information for an Ethernet interface:

```
switch# show vtp interface ethernet 1/12

 Interface         VTP Status
--------------------------------
Ethernet1/12        Enabled
switch#
```

This example shows how to display the VTP configuration information for an EtherChannel interface:

```
switch# show vtp interface port-channel 23
```

```
 Interface         VTP Status
--------------------------------
port-channel23      Enabled
switch#
```

Related Commands

Command	Description
feature vtp	Enables VTP on the switch.
show interface ethernet	Displays the Ethernet interfaces configured on the switch.
show interface port-channel	Displays the EtherChannels configured on the switch.
show vtp status	Displays the VTP configuration status.
vtp	Enables VTP on an interface.

show vtp password

To display the VLAN Trunking Protocol (VTP) administrative password, use the **show vtp password** command.

show vtp password [**domain** *domain-id*]

Syntax Description

domain	(Optional) Specifies the VTP administrative domain.
domain-id	VTP domain ID. The ID can be from 0 to 4294967295.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.0(2)N2(1)	This command was introduced.

Usage Guidelines

Before you use this command, you must enable VTP on the switch by using the **feature vtp** command.

Examples

This example shows how to display the VTP password configured for administrative domain 1:

```
switch# show vtp password domain 1
VTP password: cisco
switch#
```

Related Commands

Command	Description
feature vtp	Enables VTP on the switch.
vtp domain	Configures the VTP domain.
vtp password	Configures the VTP administrative password.

show vtp status

To display the VLAN Trunking Protocol (VTP) domain status information, use the **show vtp status** command.

show vtp status

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
4.2(1)N1(1)	This command was introduced.

Usage Guidelines

Before you use this command, you must enable VTP on the switch by using the **feature vtp** command.

Examples

This example shows how to display the VTP domain status on a Cisco NX-OS Release 4.2(1)N1(1):

```
switch# show vtp status
VTP Version                     : 1
Configuration Revision          : 0
Maximum VLANs supported locally : 1005
VTP Operating Mode              : Transparent
VTP Domain Name                 :
VTP Pruning Mode                : Disabled
VTP V2 Mode                     : Disabled
VTP Traps Generation            : Disabled
switch#
```

This example shows how to display the VTP domain status in Cisco NX-OS Release 5.0(2)N1(1):

```
switch# show vtp status
VTP Status Information
----------------------
VTP Version                     : 2 (capable)
Configuration Revision          : 0
Maximum VLANs supported locally : 1005
Number of exisiting VLANs       : 504
VTP Operating Mode              : Transparent
VTP Domain Name                 : MyDomain
VTP Pruning Mode                : Disabled (Operationally Disabled)
VTP V2 Mode                     : Disabled
VTP Traps Generation            : Enabled
MD5 Digest                      : 0x55 0xDE 0xF3 0x03 0x0F 0xE5 0x9D 0x6B
Configuration last modified by 0.0.0.0 at 0-0-00 00:00:00
VTP version running             : 1
Local updater ID is 5.1.1.4
```

```
switch#
```

This example shows how to display the VTP domain status in Cisco NX-OS Release 5.0(2)N2(1):

```
switch# show vtp status
VTP Status Information
----------------------
VTP Version                     : 2 (capable)
Configuration Revision          : 0
Maximum VLANs supported locally : 1005
Number of existing VLANs        : 14
VTP Operating Mode              : Server
VTP Domain Name                 : cisco
VTP Pruning Mode                : Disabled (Operationally Disabled)
VTP V2 Mode                     : Disabled
VTP Traps Generation            : Disabled
MD5 Digest                      : 0x70 0x06 0xAE 0x94 0x0B 0x33 0xFB 0xD4
Configuration last modified by 0.0.0.0 at 0-0-00 00:00:00
Local updater ID is 0.0.0.0
VTP version running             : 1

switch#
```

Related Commands

Command	Description
feature vtp	Enables VTP on the switch.
vtp domain	Configures the VTP domain.
vtp mode	Configures the VTP device mode.
vtp version	Configures the VTP version.

U Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with U.

udld (configuration mode)

To configure the Unidirectional Link Detection (UDLD) protocol on the switch, use the **udld** command. To disable UDLD, use the **no** form of this command.

udld {**aggressive** | **message-time** *timer-time* | **reset**}

no udld {**aggressive** | **message-time** | **reset**}

Syntax Description

aggressive	Enables UDLD in aggressive mode on the switch.
message-time *timer-time*	Sets the period of time between UDLD probe messages on ports that are in advertisement mode and are currently determined to be bidirectional. The range is from 7 to 90 seconds. The default is 15 seconds.
reset	Resets all the ports that are shut down by UDLD and permit traffic to begin passing through them again. Other features, such as spanning tree, will behave normally if enabled.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(1a)N1(1)	This command was introduced.

Usage Guidelines

UDLD aggressive mode is disabled by default. You can configure UDLD aggressive mode only on point-to-point links between network devices that support UDLD aggressive mode. If UDLD aggressive mode is enabled, when a port on a bidirectional link that has a UDLD neighbor relationship established stops receiving UDLD frames, UDLD tries to reestablish the connection with the neighbor. After eight failed retries, the port is disabled.

To prevent spanning tree loops, normal UDLD with the default interval of 15 seconds is fast enough to shut down a unidirectional link before a blocking port transitions to the forwarding state (with default spanning tree parameters).

When you enable the UDLD aggressive mode, the following occurs:

- One side of a link has a port stuck (both transmission and receive)
- One side of a link remains up while the other side of the link is down

In these cases, the UDLD aggressive mode disables one of the ports on the link, which prevents traffic from being discarded.

Examples

This example shows how to enable the aggressive UDLD mode for the switch:

```
switch# configure terminal
```

```
switch(config)# udld aggressive
```

This example shows how to reset all ports that were shut down by UDLD:

```
switch# configure terminal
switch(config)# udld reset
```

Related Commands

Command	Description
show udld	Displays the administrative and operational UDLD status.

udld (Ethernet)

To enable and configure the Unidirectional Link Detection (UDLD) protocol on an Ethernet interface, use the **udld** command. To disable UDLD, use the **no** form of this command.

udld {**aggressive** | **disable** | **enable**}

no udld {**aggressive** | **disable** | **enable**}

Syntax Description

aggressive	Enables UDLD in aggressive mode on the interface.
disable	Disables UDLD on the interface.
enable	Enables UDLD in normal mode on the interface.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0(1a)N1(1)	This command was introduced.

Usage Guidelines

You can configure normal or aggressive UDLD modes for an Ethernet interface. Before you can enable a UDLD mode for an interface, you must make sure that UDLD is enabled on the switch. UDLD must also be enabled on the other linked interface and its device.

To use the normal UDLD mode on a link, you must configure one of the ports for normal mode and configure the port on the other end for the normal or aggressive mode. To use the aggressive UDLD mode, you must configure both ends of the link for aggressive mode.

Examples

This example shows how to enable the normal UDLD mode for an Ethernet port:

```
switch# configure terminal
switch(config)# interface ethernet 1/1
switch(config-if)# udld enable
```

This example shows how to enable the aggressive UDLD mode for an Ethernet port:

```
switch(config-if)# udld aggressive
```

This example shows how to disable UDLD for an Ethernet port:

```
switch(config-if)# udld disable
```

Related Commands

Command	Description
show udld	Displays the administrative and operational UDLD status.

V Commands

This chapter describes the Cisco NX-OS Ethernet and virtual Ethernet commands that begin with V.

vethernet auto-create

To enable the automatic creation of virtual Ethernet interfaces globally, use the **vethernet auto-create** command. To disable automatic creation of virtual Ethernet interfaces, use the **no** form of this command.

vethernet auto-create

no vethernet auto-create

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

Before you use a virtual Ethernet interface, you must enable Cisco Virtual Machine Fabric Extender (VM-FEX) on the switch by using the **feature vmfex** command.

Examples

This example shows how to enable automatic creation of virtual Ethernet interfaces on the switch:

```
switch(config)# vethernet auto-create
switch(config)#
```

This example shows how to disable automatic creation of virtual Ethernet interfaces:

```
switch(config)# no vethernet auto-create
switch(config)#
```

Related Commands

Command	Description
feature vmfex	Enables VM-FEX on the switch.
interface vethernet	Configures a virtual Ethernet interface.
port-profile	Configures a port profile.

vlan

To add a VLAN or to enter the VLAN configuration mode, use the **vlan** command. To delete the VLAN and exit the VLAN configuration mode, use the **no** form of this command.

vlan {*vlan-id* | *vlan-range*}

no vlan {*vlan-id* | *vlan-range*}

Syntax Description

vlan-id	Number of the VLAN. The range is from 1 to 4094. **Note** You cannot create, delete, or modify VLAN 1 or any of the internally allocated VLANs.
vlan-range	Range of configured VLANs; see the "Usage Guidelines" section for a list of valid values.

Command Default

None

Command Modes

Global configuration mode

Note You can also create and delete VLANs in the VLAN configuration mode using these same commands.

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

When you enter the **vlan** *vlan-id* command, a new VLAN is created with all default parameters and causes the CLI to enter VLAN configuration mode. If the *vlan-id* argument that you entered matches an existing VLAN, nothing happens except that you enter VLAN configuration mode.

You can enter the *vlan-range* using a comma (**,**), a dash (**-**), and the number.

VLAN 1 parameters are factory configured and cannot be changed; you cannot create or delete this VLAN. Additionally, you cannot create or delete VLAN 4095 or any of the internally allocated VLANs.

When you delete a VLAN, all the access ports in that VLAN are shut down and no traffic flows. On trunk ports, the traffic continues to flow for the other VLANs allowed on that port, but the packets for the deleted VLAN are dropped. However, the system retains all the VLAN-to-port mapping for that VLAN, and when you reenable, or recreate, that specified VLAN, the switch automatically reinstates all the original ports to that VLAN.

In Cisco NX-OS 5.0(2)N1(1), you can configure VLANs on a device configured as a VLAN Trunking Protocol (VTP) server or transparent device. If the VTP device is configured as a client, you cannot add a VLAN or enter the VLAN configuration mode.

Examples

This example shows how to add a new VLAN and enter VLAN configuration mode:

```
switch(config)# vlan 2
switch(config-vlan)#
```

This example shows how to add a range of new VLANs and enter VLAN configuration mode:

```
switch(config)# vlan 2,5,10-12,20,25,4000
switch(config-vlan)#
```

This example shows how to delete a VLAN:

```
switch(config)# no vlan 2
```

Related Commands

Command	Description
show vlan	Displays VLAN information.

vlan (STP)

To configure spanning tree designated bridge and root bridge priority for VLANs, use the **vlan** command. To revert to the default settings, use the **no** form of this command.

vlan *instance-id* [{**designated** | **root**} **priority** *priority-value*]

no vlan *instance-id* [{**designated** | **root**} **priority** *priority-value*]

Syntax Description

instance-id	MST instance. The range is from 0 to 4094.
designated	(Optional) Sets the designated bridge priority for the spanning tree.
root	(Optional) Sets the root bridge priority for the spanning tree.
priority *priority-value*	(Optional) Specifies the STP-bridge priority; the valid values are 0, 4096, 8192, 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152, 53248, 57344, 61440. All other values are rejected.

Command Default

None

Command Modes

Spanning-tree pseudo configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

You can enter the *instance-id* argument as a single instance or a range of instances, for example, 0-3,5,7-9.

This command does not require a license.

Examples

This example shows how to configure a spanning-tree domain:

```
switch# configure terminal
switch(config)# spanning-tree pseudo-information
switch(config-pseudo)# vlan 1 designated priority 4096
switch(config-pseudo)# vlan 1 root priority 8192
switch(config-pseudo)#
```

Related Commands

Command	Description
show running-config spanning-tree	Displays the running configuration information of the Spanning Tree Protocol (STP).

Command	Description
show spanning-tree	Displays the configuration information of the STP.
spanning-tree pseudo-information	Configures spanning tree pseudo information parameters.

vlan configuration

To configure a VLAN prior to or without needing to actually create the VLAN, use the **vlan configuration** command.

vlan configuration *vlan-id*

Syntax Description

vlan-id	The range is from 1 to 2499 and from 2628 to 4093. The VLAN range can be specified in the format shown in this example: 1-5, 10 or 2-5,7-19.

Defaults

None

Command Modes

Global configuration mode (config)

SupportedUserRoles

network-admin

vdc-admin

Command History

Release	Modification
5.1(3)	This command was introduced.

Usage Guidelines

If you use the **vlan configuration** command to configure a VLAN that you have not yet created and you later want to create that VLAN, use the **vlan** command to create the configured VLAN.

The **show vlan** command does not display any VLAN until and unless you actually create the VLAN.

This command does not require a license.

Examples

This example shows how to configure a VLAN and enter the VLAN configuration mode:

```
switch# configure terminal
switch(config)# vlan configuration 2-5,7-19
switch(config-vlan-config)#
```

Related Commands

Command	Description
show running-config vlan	Displays the running configuration for a specified VLAN.

vlan dot1Q tag native

To enable dot1q (IEEE 802.1Q) tagging for all native VLANs on all trunked ports on the switch, use the **vlan dot1Q tag native** command. To disable dot1q (IEEE 802.1Q) tagging for all native VLANs on all trunked ports on the switch, use the **no** form of this command.

vlan dot1Q tag native

no vlan dot1Q tag native

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

Typically, you configure 802.1Q trunks with a native VLAN ID, which strips tagging from all packets on that VLAN.

To maintain the tagging on the native VLAN and drop untagged traffic, use the **vlan dot1q tag native** command. The switch will tag the traffic received on the native VLAN and admit only 802.1Q-tagged frames, dropping any untagged traffic, including untagged traffic in the native VLAN.

Control traffic continues to be accepted as untagged on the native VLAN on a trunked port, even when the vlan dot1q tag native command is enabled.

Note The **vlan dot1q tag native** command is enabled on global basis.

Examples

This example shows how to enable 802.1Q tagging on the switch:

```
switch(config)# vlan dot1q tag native
switch(config)#
```

This example shows how to disable 802.1Q tagging on the switch:

```
switch(config)# no vlan dot1q tag native
Turning off vlan dot1q tag native may impact the functioning of existing dot1q tunnel
ports
switch(config)#
```

Related Commands

Command	Description
show vlan dot1q tag native	Displays the status of tagging on the native VLAN.

vmware (virtual Ethernet interface)

To configure a VMware policy on a virtual Ethernet interface, use the **vmware** command. To revert to the defaults, use the **no** form of this command.

vmware dvport *DVPort_number* [**dvswitch uuid** "*DVSwitch_uuid*"]

no vmware dvport *DVPort_number* [**dvswitch uuid** "*DVSwitch_uuid*"]

Syntax Description

dvport	Configures distributed virtual (DV) port mapping.
DVPort_number	Distributed virtual (DV) port number. The range is from 0 to 4294967294.
dvswitch uuid	(Optional) Configures the DV switch Universally Unique Identifier (UUID).
DVSwitch_uuid	DV switch UUID in quotes. The ID can be 48 alphanumeric characters.

Command Default

None

Command Modes

Virtual Ethernet interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure a VMware policy on a specific virtual Ethernet interface:

```
switch# configure terminal
switch(config)# interface vethernet 1
switch(config-if)# vmware dvport 3 dvswitch uuid "nexusDVswitch"
switch(config-if)#
```

Related Commands

Command	Description
show interface vethernet	Displays information about the virtual Ethernet interface configuration.
show running-config interface	Displays the running system configuration information for an interface.

vmware dvs

To create a VMware distributed virtual switch (DVS), use the **vmware dvs** command. To remove the virtual switch, use the **no** form of this command.

vmware dvs {**datacenter-name** *name* | **uuid** *dvs-uuid*}

no vmware dvs

Syntax Description

datacenter-name *name*	VMware data centre name, including the path. The name can be a maximum of 256 characters. For example, DCName, DCFolder/DCName.
uuid *dvs-uuid*	Universally Unique Identifier (UUID) of the Distributed Virtual Switch (DVS) that the Virtual Supervisor Module (VSM) manages. The DVS UUID must be enclosed in quotes and can be a maximum of 80 alphanumeric characters.

Command Default

None

Command Modes

SVS connection configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to create a VMware virtual switch:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# vmware dvs datacenter-name dc1
switch(config-svs-conn)#
```

This example shows how to remove a VMware virtual switch:

```
switch# configure terminal
switch(config)# svs connection SVSConn
switch(config-svs-conn)# no vmware dvs datacenter-name dc1
switch(config-svs-conn)#
```

Related Commands

Command	Description
show svs connections	Displays SVS connection information.
svs connection	Enables an SVS connection.

vsi (virtual Ethernet interface)

To configure virtual Ethernet interface as a Virtual Station Interface (VSI), use the **vsi** command. To revert to the default settings, use the **no** form of this command.

vsi mac *mac_ID*

no vsi mac *mac_ID*

Syntax Description

mac	Configures the VM MAC address mapping.
mac_ID	Virtual machine MAC address in the format *EEEE.EEEE.EEEE*.

Command Default

None

Command Modes

Virtual Ethernet interface configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

Before you use this command, make sure that you enable the Cisco Virtual Machine Fabric Extender (VM-FEX) on the switch by using the **feature vmfex** command.

This command does not require a license.

Examples

This example shows how to configure a VMware policy on a specific virtual Ethernet interface:

```
switch# configure terminal
switch(config)# install feature-set virtualization
switch(config)# feature-set virtualization
switch(config)# feature vmfex
switch(config)# interface vethernet 1
switch(config-if)# vsi mac 0005.9b74.a6fc
switch(config-if)#
```

Related Commands

Command	Description
feature vmfex	Enables VM-FEX on the switch.
show interface vethernet	Displays information about the virtual Ethernet interface configuration.
show running-config interface	Displays the running system configuration information for an interface.

vrf (ERSPAN)

To configure a virtual routing and forwarding (VRF) instance for Encapsulated Remote Switched Port Analyzer (ERSPAN) traffic forwarding in the source, use the **vrf** command. To revert to the defaults, use the **no** form of this command.

vrf {*vrf_name* | **default** | **management**}

no vrf {*vrf_name* | **default** | **management**}

Syntax Description

vrf_name	Name of the VRF. The VRF name can be any case-sensitive, alphanumeric string up to 32 characters.
default	Specifies the default VRF instance.
management	Specifies the management VRF instance.

Command Default

None

Command Modes

ERSPAN session configuration mode

Command History

Release	Modification
5.1(3)N1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure a VRF instance for the ESRSPAN source:

```
switch# configure terminal
switch(config)# monitor session 1 type erspan-source
switch(config-erspan-src)# vrf default
switch(config-erspan-src)#
```

Related Commands

Command	Description
monitor-session	Enters the monitor configuration mode for configuring an ERSPAN session for analyzing traffic between ports.
show monitor session	Displays information about the Ethernet switched port analyzer (SPAN) or ERSPAN monitor session.

vrf context

To create a virtual routing and forwarding instance (VRF) and enter VRF configuration mode, use the **vrf context** command. To remove a VRF entry, use the **no** form of this command.

vrf context {*name* | **management**}

no vrf context {*name* | **management**}

Syntax Description

name	Name of the VRF. The name can be a maximum of 32 alphanumeric characters and is case-sensitive.
management	Specifies the management VRF.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
4.0(0)N1(1a)	This command was introduced.

Usage Guidelines

When you enter the VRF configuration mode, the following commands are available:

- **exit**—Exits from the current command mode.
- **ip**—Enables configuration of IP features.

  Additional commands available in IP configuration mode:
  - **domain-list**—Adds additional domain names.
  - **domain-lookup**—Enables or disables DNS lookup.
  - **domain-name**—Specifies the default domain name.
  - **host**—Adds an entry to the IP hostname table.
  - **name-server**—Specifies the IP address of a DNS name server.
  - **route**—Adds route information by specifying IP addresses of the next hop servers.
- **no**—Negates a command or set its defaults.
- **shutdown**—Shuts down the current VRF context.

Examples

This example shows how to enter VRF context mode:

```
switch(config)# vrf context management
switch(config-vrf)#
```

Related Commands

Command	Description
show vrf	Displays VRF information.

vtp (interface)

To enable VLAN Trunking Protocol (VTP) on an interface, use the **vtp** command. To disable VTP on an interface, use the **no** form of this command.

vtp

no vtp

Syntax Description

This command has no arguments or keywords.

Command Default

VTP is enabled on a trunk interface

Command Modes

Interface configuration mode

Command History

Release	Modification
5.0(2)N2(1)	This command was introduced.

Usage Guidelines

Before you use this command, you must enable VTP on the switch by using the **feature vtp** command.

VLAN Trunking Protocol (VTP) is a Cisco Proprietary Layer 2 messaging protocol used to distribute the VLAN configuration information across multiple devices within a VTP domain.

Examples

This example shows how to enable VTP on an interface:

```
switch(config)# interface ethernet 1/1
switch(config-if)# vtp
switch(config-if)#
```

Related Commands

Command	Description
copy running-config startup-config	Copies the running configuration to the startup configuration.
feature vtp	Enables VTP on the switch.
show running-config vtp	Displays the running VTP configuration.
show vtp status	Displays VTP information.
snmp-server enable traps vtp	Enables Simple Network Management Protocol (SNMP) notifications.

vtp domain

To configure the name of the VLAN Trunking Protocol (VTP) administrative domain, use the **vtp domain** command. To remove the domain name, use the **no** form of this command.

vtp domain *name*

no vtp domain

Syntax Description

name	VTP domain name. The name can be a maximum of 32 ASCII characters.

Command Default

Blank (NULL)

Command Modes

Global configuration mode

Command History

Release	Modification
4.2(1)N1(1)	This command was introduced.

Usage Guidelines

Before you use this command, you must enable VTP on the switch by using the **feature vtp** command.

VLAN Trunking Protocol (VTP) is a Cisco Proprietary Layer 2 messaging protocol used to distribute the VLAN configuration information across multiple devices within a VTP domain. Without VTP, you must configure VLANs in each device in the network. Using VTP, you configure VLANs on a VTP server and then distribute the configuration to other VTP devices in the VTP domain.

Examples

This example shows how to create a VTP domain named accounting:

```
switch(config)# vtp domain accounting
switch(config)#
```

Related Commands

Command	Description
feature vtp	Enables VTP on the switch.
show running-config vtp	Displays the running VTP configuration.
show vtp status	Displays VTP information.

vtp file

To store the VLAN Trunking Protocol (VTP) configuration information in a file, use the **vtp file** command. To stop storing the configuration in a file, use the **no** form of this command.

vtp file bootflash:*server*[*directory*/]*filename*

no vtp file

Syntax Description

bootflash:	Specifies that the VTP configuration file is to be stored in the bootflash memory of the NVRAM. The colon character (:) is required after the file system name.
server	Name of the server. Valid values are **///**, **//module-1/**, **//sup-1/**, **//sup-active/**, or **//sup-local/**. The double slash (//) is required.
directory/	(Optional) Name of the destination directory. The directory name is case sensitive.
filename	Name of the VTP configuration file.

Note There can be no spaces in the **bootflash://***server*/*directory*/*filename* string. Individual elements of this string are separated by colons (:) and slashes (/).

Command Default

VTP database file, vlan.dat

Command Modes

Global configuration mode

Command History

Release	Modification
5.0(2)N2(1)	This command was introduced.

Usage Guidelines

Before you use this command, you must enable VTP on the switch by using the **feature vtp** command.

The default configuration file is stored in the VTP database, vlan.dat, in NVRAM. VTP configuration information is also stored in the startup configuration file.

Note Do not delete the vlan.dat file.

When a switch in a VTP domain reloads, the switch updates the VTP domain and VLAN configuration information from the information contained in the VTP database file (vlan.dat) or the startup configuration file. Depending on the VTP mode configured for the switch, the information is updated as follows:

- **server**—If the startup configuration file indicates the switch to be configured in VTP server mode, the switch recovers the VTP and VLAN configuration information from the VTP database file available in the bootflash storage file system. If the VTP configuration cannot be retrieved from the file in the bootflash file system, the default VLAN configuration (VLANs 1–1005) is applied to the VTP server configuration, and the configuration revision number is set to zero (0).
- **client**—If, within 5 seconds, the VTP client does not receive the VTP configuration information from the VTP server or other VTP devices in the VTP domain, it uses the locally configured VLAN information. This locally configured VTP information is overwritten by the configuration that it later receives from the VTP server.
- **transparent**—If both the VTP database and the startup configuration file show the VTP mode as transparent and the VTP domain names match, the VTP database is ignored. The VTP and VLAN configurations in the startup configuration file are used to restore the configuration in this VTP device.

  If the VTP domain information in the startup configuration file does not match with that in the VTP database file, then the configuration in the VTP database file is used to restore the configuration in the transparent VTP device.

Examples

This example shows how to store the VTP configuration to a file named myvtp.txt in the local writable storage file system, bootflash:

```
switch(config)# vtp file bootflash:///myvtp.txt
switch(config)#
```

Related Commands

Command	Description
feature vtp	Enables VTP on the switch.
show running-config vtp	Displays the running VTP configuration.
show vtp status	Displays VTP information.

vtp mode

To configure the VLAN Trunking Protocol (VTP) device mode, use the **vtp mode** command. To revert to the default server mode, use the **no** form of this command.

vtp mode {**client** | **off** | **server** | **transparent**}

no vtp mode

Syntax Description

client	Specifies the device as a client.
off	Specifies the device mode as off.
server	Specifies the device as a server.
transparent	Specifies the device mode as transparent.

Command Default

Server

Command Modes

Global configuration mode

Command History

Release	Modification
4.2(1)N1(1)	This command was introduced.
5.0(2)N2(1)	Added support for **client**, **server**, and **off** device modes.

Usage Guidelines

VLAN Trunking Protocol (VTP) is a Cisco Proprietary Layer 2 messaging protocol used to distribute the VLAN configuration information across multiple devices within a VTP domain. Without VTP, you must configure VLANs in each device in the network. Using VTP, you configure VLANs on a VTP server and then distribute the configuration to other VTP devices in the VTP domain.

In VTP transparent mode, you can configure VLANs (add, delete, or modify) and private VLANs. VTP transparent switches do not participate in VTP. A VTP transparent switch does not advertise its VLAN configuration and does not synchronize its VLAN configuration based on received advertisements. The VTP configuration revision number is always set to zero (0). Transparent switches do forward VTP advertisements that they receive out their trunk ports in VTP version 2.

A VTP device mode can be one of the following:

- **server**—You can create, modify, and delete VLANs and specify other configuration parameters, such as VTP version, for the entire VTP domain. VTP servers advertise their VLAN configuration to other switches in the same VTP domain and synchronize their VLAN configuration with other switches based on advertisements received over trunk links. VTP server is the default mode.

Note You can configure VLANs 1 to 1005. VLANs 1002 to 1005 are reserved for token ring in VTP version 2.

- **client**—VTP clients behave the same way as VTP servers, but you cannot create, change, or delete VLANs on a VTP client.
- **transparent**—You can configure VLANs (add, delete, or modify) and private VLANs. VTP transparent switches do not participate in VTP. A VTP transparent switch does not advertise its VLAN configuration and does not synchronize its VLAN configuration based on received advertisements. Because of this, the VTP configuration revision number is always set to zero (0). Transparent switches do forward VTP advertisements that they receive out their trunk ports in VTP version 2.
- **off**—In the above three described modes, VTP advertisements are received and transmitted as soon as the switch enters the management domain state. In the VTP **off** mode, switches behave the same as in VTP transparent mode with the exception that VTP advertisements are not forwarded. You can use this VTP device to monitor the VLANs.

Note If you use the **no vtp mode** command to remove a VTP device, the device will be configured as a VTP server. Use the **vtp mode off** command to remove a VTP device.

Examples

This example shows how to configure a VTP device in transparent mode and add VLANs 2, 3, and 4:

```
switch(config)# vtp mode transparent
switch(config)# vlan 2-4
switch(config-vlan)#
```

This example shows how to remove a device configured as a VTP device:

```
switch(config)# vtp mode off
switch(config)#
```

This example shows how to configure a VTP device as a VTP server and adds VLANs 2 and 3:

```
switch(config)# vtp mode server
switch(config)# vlan 2,3
switch(config-vlan)#
```

This example shows how to configure a VTP device as a client:

```
switch(config)# vtp mode client
switch(config)#
```

Related Commands

Command	Description
feature vtp	Enables VTP on the switch.
show vtp status	Displays VTP information.
vlan	Configures VLANs.

vtp password

To set the password for the VTP administrative domain, use the **vtp password** command. To remove the administrative password, use the **no** form of this command.

vtp password *password*

no vtp password

Syntax Description

password	VTP domain password. The password is in ASCII text and can be a maximum of 64 characters.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.0(2)N2(1)	This command was introduced.

Usage Guidelines

If you configure a password for VTP, you must configure the password on all switches in the VTP domain. The password must be the same password on all those switches. The VTP password that you configure is translated by an algorithm into a 16-byte word (MD5 value) that is carried in all summary-advertisement VTP packets.

Examples

This example shows how to configure a password for the VTP administrative domain named accounting:

```
switch(config)# vtp domain accounting
switch(config)# vtp password cisco
switch(config)#
```

Related Commands

Command	Description
show vtp password	Displays the VTP domain password.
show vtp status	Displays VTP information.

vtp version

To configure the administrative domain to a VLAN Trunking Protocol (VTP) version, use the **vtp version** command. To revert to the default version, use the **no** form of this command.

vtp version *version*

no vtp version

Syntax Description

version	VTP version. The range is from 1 to 2.

Command Default

Version 1 enabled
Version 2 disabled

Command Modes

Global configuration mode

Command History

Release	Modification
4.2(1)N1(1)	This command was introduced.

Usage Guidelines

Before you use this command, you must enable VTP on the switch by using the **feature vtp** command.

If you enable VTP, you must configure either version 1 or version 2. If you are using VTP in a Token Ring environment, you must use version 2.

Examples

This example shows how to enable VTP version 2 for Token Ring VLANs:

```
switch(config)# vtp version 2
switch(config)#
```

Related Commands

Command	Description
feature vtp	Enables VTP on the switch.
show vtp status	Displays VTP information.