Essential
Cisco IOS Commands


Please consider the environment before printing this document

IOS Basics

Router>? - Display the help menu
Router>enable - Enter privileged EXEC mode
Router#disable - Exit privileged mode to go back to user EXEC mode
exit - Exit from any mode
Router#reload - Restart the router

Router#trace 19.0.0.1 - Send a trace route to IP address 19.0.0.1
Router#ping 1.0.0.2 - Send a ping request to the IP address 1.0.0.2
Router#ping 172.16.0.1 source loopback 1 - Ping the IP 172.16.0.1 with a source IP address of the loopback 1 interface

Router#show version - Shows information about the router, including the configuration register value
Router#show startup-config - Displays the startup configuration
Router#show running-config - Displays the running configuration
Router#copy running-config startup-config - Save the running configuration to the startup configuration

Router#config terminal - Enter global configuration mode
Router(config)#hostname NewYork - Change the system's network name to NewYork
Router(config)#enable password cisco - Set the enable password to cisco
Router(config)#enable secret cisco123 - Set the enable secret password to cisco123
Router(config)#banner motd # Property of InternetworkTraining.com # - Configure a message of the day banner
Router(config)#config-register 0x2142 - Change the config register to ignore contents of NVRAM

Router(config)#line console 0 - Configure the line console
Router(config-line)#login - Enable password checking in line configuration mode
Router(config)#line aux 0 - Configure the auxiliary line
Router(config)#line vty 0 4 - Configure the virtual terminal lines

Configuring Router Interfaces

Router#config terminal - Enter global configuration mode
Router(config)#interface s0/0 - Configure the serial 0/0 interface
Router(config-if)#ip address 13.0.0.1 255.0.0.0 - Assign an IP address and subnet mask to an interface
Router(config-if)#clock rate 64000 - Configure a clock rate on a DCE interface
Router(config-if)#no shutdown - Bring up the interface

Configure Static and Default Routes

Router(config)#ip route 13.0.0.0 255.0.0.0 s0 - Create a static route to 13.0.0.0/8 network via Serial 0 interface
Router(config)#ip route 0.0.0.0 0.0.0.0 null0 - Create a default route and send all default traffic to the 'bit bucket'

Router#show ip protocols - View routing protocol information on the router
Router#show ip route - View the contents of the routing table.
Router#show interface s0/0 - Show details about the interface s0/0 (Serial 0/0)

Configure RIP Routing Protocol

Router(config)#router rip - Configure the RIP routing protocol
Router(config-router)#network 15.0.0.0 - Assign a network to RIP
Router(config-router)#version 1 - Explicitly state you want to use RIP version 1
Router(config-router)#version 2 - Explicitly state you want to use RIP version 2

Router>show ip route - View the contents of the routing table.
Router>show ip route rip - View the routes in the routing table discovered by RIP.

Configure EIGRP Routing Protocol

Router(config-if)#bandwidth 1 - Change the bandwidth parameter used by EIGRP for the interface to 1kbps
Router(config)#router eigrp 10 - Enable EIGRP routing protocol for autonomous system 10
Router(config-router)#network 15.0.0.0 - Tell EIGRP what networks to advertise
Router#show ip route eigrp - Display routes discovered only by the EIGRP protocol

Configure OSPF Routing Protocol

Router(config-if)#ip ospf priority 10 - Set the priority which will determine the designated OSPF router
Router(config-if)#ip ospf cost 25 - Manually set the OSPF link cost
Router(config)#router ospf 10 - Enable OSPF routing protocol using a process ID of 10
Router(config-router)#network 172.16.1.0 0.0.0.255 area 0 - Advertise a network using OSPF and assign it to area 0
Router(config-router)#default-information originate - Allow default routes to be propagated

Router#show ip ospf neighbor - View the OSPF neighbors
Router#show ip ospf - View general information about the OSPF routing processes
Router#show ip ospf interface - View the OSPF protocol information for the interfaces on the router
Router#show ip ospf interface loopback1 - View the OSPF protocol information for the loopback1 interface

Configuring IP Access Lists

Router(config)#ip access-list extended BLOCK_TELNET_TFTP - Configure an extended named access control list called BLOCK_TELNET_TFTP
Router(config-ext-nacl)#deny tcp any any eq telnet - Deny all telnet packets from any source with any destination
Router(config-ext-nacl)#deny udp any host 172.16.0.2 eq tftp - Deny any TFTP traffic from any host with the destination 172.16.0.2
Router(config-ext-nacl)#permit ip any any - Permit any IP traffic
Router(config-if)#ip access-group BLOCK_TELNET_TFTP out - Assign a named access control list called BLOCK_TELNET_TFTP to an outbound interface
Router(config)#ip access-list standard 10 - Configure a standard access control list and assign it the number 10
Router(config-std-nacl)#deny host 192.168.0.2 - Deny all traffic from host 192.168.0.2
Router(config-std-nacl)#permit any - Permit any traffic
Router(config-if)#ip access-group 10 out - Assign a numbered access control list 10 to an outbound interface

Configuring NAT (Network Address Translation)

Router(config-if)#ip nat inside - Associate an interface as being inside a network
Router(config-if)#ip nat outside - Associate an interface as being outside a network
Router(config)#ip nat inside source static 192.168.0.1 68.10.150.1 - Configure a static NAT mapping from the inside local IP address 192.168.0.1 to the inside global IP 68.10.150.1
Router(config)#no ip nat inside source static 192.168.0.1 68.10.150.1 - Remove the static NAT mapping created earlier

Router(config)#ip access-list standard NAT_ADDRESSES - Create a standard named ACL
Router(config-std-nacl)#permit 192.168.0.1 0.0.0.0 - Permit the IP address 192.168.0.1
Router(config)#ip nat inside source list NAT_ADDRESSES interface serial0 overload - Create an overloaded NAT mapping using the access control list called NAT_ADDRESSES and assign it to the inside global interface.

Router#show ip nat translations - View the NAT translations table to view static and dynamic mappings
Router#show ip nat statistics - View the NAT statistics

Configuring PPP

Router(config)#username internetwork password cisco - Specify the username and password that is to be used with authentication
Router(config-if)#encapsulation ppp - Set the encapsulation to PPP
Router(config-if)#ppp authentication pap - Set PPP authentication to use PAP
Router(config-if)#ppp authentication chap - Set PPP authentication to use CHAP
Router(config-if)#ppp pap sent-username internetwork password cisco - Specify what username and password the client should use to authenticate when connecting to the server using PAP

Configuring Frame Relay

Router(config-if)#encapsulation frame-relay - Change the serial interface encapsulation to Frame Relay
Router(config-if)#frame-relay lmi-type cisco - Change the LMI type to Cisco
Router(config-if)#no frame-relay inverse-arp - Disable Inverse ARP
Router(config-if)#frame-relay map - Create manual IP-to-DLCI mapping

Router#show frame-relay lmi - Displays statistics about LMI
Router#show frame-relay map - Show current Frame Relay map entries
Router#show frame-relay pvc - Displays Frame Relay interface statistics for permanent virtual circuits

Configuring IPv6

Router(config)#interface FastEthernet 0/0 - Configure the fast Ethernet 0/0 interface
Router(config-if)#ipv6 address 2001:cdba:0000:0000:0000:0000:0000:0001/64 - Assign an IPv6 address to an interface
Router(config-if)#ipv6 enable - Enable IPv6 addressing on an interface without specifying the IPv6 address

Router(config)#show ipv6 interface brief - Show the IPv6 addresses for all interfaces
Router#show int fa0/0 | inc bia - Show the interface fast Ethernet 0/0 burned in address (bia)
Router>ping 2001:cdba::2 - Ping an IPv6 address

Switch IOS Commands

Switch#dir flash: - Displays the contents of flash memory

Switch#dir nvram: - Displays the contents of NVRAM
Switch#dir system: - Displays the contents of RAM
Switch#dir all-filesystems - Displays the contents of all the switch memory banks

Switch#show boot - Shows the boot options
Switch#erase startup-config - Erases the startup configuration

Switch(config)#interface vlan1 - Enters vlan1 interface configuration
Switch(config)#ip default-gateway 192.168.75.1 - Sets the default gateway

Switch(config)#interface fastEthernet 0/3 - Enters interface configuration mode for fa0/3
Switch(config)#switchport mode access - Assigns the port to access mode
Switch(config)#switchport port-security - Enables port security on the port
Switch(config)#switchport port-security maximum 1 - Specifies the maximum hosts that can connect to the port
Switch(config)#switchport port-security mac-address sticky - Specifies that the first host to connect will 'stick' to the port
Switch(config)#switchport port-security violation shutdown - Specifies what will happen if a port violation occurs

Switch#show port-security - Shows a summary of the ports and security on those ports
Switch#show port-security address - Shows the secure MAC address table
Switch#show mac-address-table - Displays the MAC address table
Switch#show port-security interface fastEthernet 0/3 - Shows the port security settings for interface fa0/3

Configuring VLANs

Switch(config)#show vlan - Display current VLANs
Switch(config)#vlan 10 - Create a VLAN with the number 10
Switch(config)#name sales - Give the VLAN a name “sales”
Switch(config-if)#switchport access vlan 10 - Assign an interface to VLAN 10

Switch(config)#vtp domain CCNA - Set the VTP domain to “CCNA”
Switch(config)#vtp mode server - Set the switch VTP mode to server
Switch(config)#vtp mode client - Set the switch VTP mode to client
Switch(config-if)#switchport mode trunk - Set a switch interface to trunk mode
Switch#show vtp status - View the VTP status on a switch

Switch#show spanning vlan 1 - Display the spanning tree information for VLAN 1
Switch#show vlan brief - Display basic VLAN information

Configuring EtherChannel

Switch(config-if)#channel group 1 mode on - Assign a physical interface to a port-channel

Switch#show interface port-channel 1 - Display information about the EtherChannel
Switch#show interface trunk - Displays the trunk information on the switch
Switch#show etherchannel 1 - Verify EtherChannel 1 status

Configuring STP (Spanning Tree Protocol)

Switch#show spanning-tree vlan 1 - Show details about the spanning tree instance on VLAN 1
Switch#show spanning-tree int fa0/10 - Show details about the spanning tree for a particular port
Switch(config)#spanning-tree vlan 1 priority 4096 - Change the bridge priority on VLAN 1
Switch(config)#no spanning-tree vlan 1 - Disable spanning tree protocol

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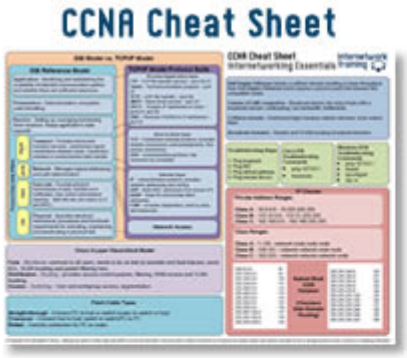

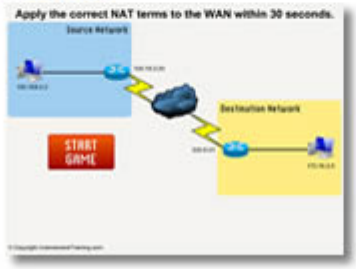

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