250 useful commands

Siib

SHOW IP INT BRIEF

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| **Use this command...** | **To...** |
| show version | View hardware configuration, running IOS version, ROM bootstrap version, and RAM and processor information |
| show running-config | View the currently running configuration file |
| show startup-config or show config | View the startup configuration file stored in NVRAM (the saved copy of the configuration file) |
| show flash | View the size of the configuration files and the available flash memory View information for all IOS image files stored on the router |
| show history | View the commands in the command history list |
| show protocols or show interfaces or show ip interfaces | View the IP addresses assigned to a specific interface |
| show protocols or show interfaces | View the status of all interfaces |

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| **Use . . .** | **To . . .** |
| Router(config)#cdp holdtime <10-255> | Specify the amount of time that information in a packet is still valid (default = 180 seconds) Use the **no cdp holdtime** command to reset the value to its default. |
| Router(config)#cdp timer <5-900> | Specify how often CDP packets are exchanged (default = 60 seconds) Use the **no cdp timer** command to reset the value to its default. |
| Router(config)#cdp run | Enable CDP on the router |
| Router(config)#no cdp run | Disable CDP on a router, to prevent the router from exchanging CDP packets |
| Router(config-if)#cdp enable | Turns CDP for an interface on |
| Router(config-if)#no cdp enable | Turns CDP for an interface off |
| Router#show cdp | View CDP information |
| Router#show cdp interface | Show information about neighbors accessed through an interface Show CDP configuration information for the router including the holdtime, encapsulation, and CDP exchange interval |
| Router#show cdp neighbors | Show information about all neighboring Cisco devices including:   * Device ID * Local interface * Holdtime * Capability * Platform * Port ID |
| Router#show cdp neighbors detail | Shows all information for the**show cdp neighbors**command and adds:   * Network address (such as the IP address) * Enabled protocols * Software version |
| Router#show cdp entry \* | Show the same information as **show cdp neighbors detail** |
| Router#show cdp entry <name of the neighbor> | Show the same information as **show cdp neighbors detail**, but only for the named neighbor |
| Router#show cdp traffic | Show the number of CDP advertisements sent and received |

Router(config-if)#encapsulation pppSet the encapsulation type to PPP

Router(config-if)#ppp authentication <chap|pap>

Router(config-if)#ppp authentication chap pap

Set the authentication method(s)  
When multiple methods are specified, the first method will be tried firstRouter(config-if)#ppp compressionSet compression optionsRouter(config-if)#ppp chap|pap password <password>Set the password used with CHAP or PAP for an unknown hostRouter(config)#username <hostname> password <password>Set the username and password for the local routerRouter(config)#bandwidth <value>Set a bandwidth value for an interface

Router#[show interface](http://content.testout.com/c802_120cle/Resources/Cisco/c802v1/pppcomls/shppp.htm)

View encapsulation and PPP information on an interface

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| Router(config-if)#clock rate <rate> | Set the clock rate on the DCE serial interface.  **Note:** In the back-to back router lab configuration, if the**clock rate**command is not issued on the DCE, clocking is not provided, and the interface status between the two routers will not change to up. |
| Router(config-if)#ip address <address> <mask> | Assign an IP address and subnet mask to the interface. |
| Router(config-if)#encapsulation hdlc  Router(config-if)#encapsulation ppp Router(config-if)#encapsulation frame-relay | Modify the router encapsulation method.  **Note:** HDLC is the default encapsulation method. The encapsulation method should match for both routers. |
| Router#sh interfaces | View all interface configurations, including serial connection encapsulation and bandwidth. |
| Router#sh ip int brief | View a consolidated message concerning each IP interface, including its IP address, line and protocol status, and how the address was configured (DHCP or Manual) |
| Router#sh run | View the clock rate and bandwidth of a serial configuration. |
| Router#sh controllers <serial interface> | View the serial interface configuration, such as the type of serial cable and which end of the cable is connected to the device (DCE or DTE). |

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| router#show interfaces | List a large set of information about each interface. |
| router#show interface status | View summary information about the interface status. |
| router#show ip interfaces | View a small set of information about each IP interface. |
| router#show ip interfaces brief | View a single line of information about each IP interface. |
| router#show ip route <ip address> | View details about the route the router would match for a packet sent to the listed IP address. |
| router#show running-config | View the currently running configuration file. |
| router#show controllers <serial interface> | View the serial interface configuration, such as the type of serial cable and which end of the cable is connected to the device (DCE or DTE). |
| router#ping <ip address> | Test communication with a specific interface using its IP address. |

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| (config)#interface ethernet 0/0 (config-if)#no ip address (config-if)#pppoe enable (config-if)#pppoe-client dial-pool-number <number> | * Configure PPPoE on an Ethernet interface. * Disable the IP address on the Ethernet interface. * Enable PPPoE and allow PPPoE sessions to be created through that interface. * Configure the PPPoE client and specify the dialer pool to use. |
| (config)#interface atm 0/0  (config-if)#no ip address  (config-if)#pppoe enable  (config-if)#pvc <name> <vpi/vci>  (config-if-atm-vc)#pppoe-client  dial-pool-number <number> | * Configure PPPoE on an ATM interface. * Disable the IP address on the ATM interface. * Enable PPPoE and allow PPPoE sessions to be created through that interface.   Create or assign a name to an ATM permanent virtual circuit (PVC), specify the encapsulation type on an ATM PVC, and enter ATM virtual circuit configuration mode.   * The Virtual Path Identifier (VPI) and Virtual Channel Identifier (VCI) values ranges vary, depending on the Cisco device. * The VPI and VCI cannot both be set to 0; if one is 0, the other cannot be 0.   Configure the PPPoE client and specify the dialer pool to use. |
| (config)#int dialer <number> | Configure a dialer interface and enter dialer interface configuration mode. |
| (config-if)#ip address negotiated | Specify that the IP address for the interface be obtained via PPP/IP Control Protocol (PPP/IPCP) address negotiation. |
| (config-if)#encapsulation ppp | Enable PPP encapsulation on the dialer interface. |
| (config-if)#dialer pool <number> | Specify the dialing pool to use to connect to a specific destination subnetwork.  **Note**: This number should match the value identified in the**pppoe-client dial-pool-number <number>** command. |
| (config-if)#ip mtu 1492 | Adjust the Maximum Transmission Unit (MTU) size. |
| (config-if)#ip nat outside | Enable Network Address Translation (NAT) on the outside source address.  **Note**: This command is issued on the dialer interface. |
| (config-if)#ppp authentication chap callin | Enable Challenge Handshake Authentication Protocol (CHAP) or Password Authentication Protocol (PAP) authentication.  **Note**: The **callin** keyword performs authentication on incoming (received) calls only. |
| (config-if)#ppp chap hostname <value> | To create a pool of dialup routers that all appear to be the same host when authenticating with CHAP. |
| (config-if)#ppp chap password <0-7> <value> | Configure a common CHAP secret password to use in response to challenges from an unknown peer. This is primarily for routers that do not support the **ppp chap hostname** command.   * This command replaces several username and password configuration commands with a single copy of this command on any dialer interface or asynchronous group interface. * This command is used for remote CHAP authentication only (when routers authenticate to the peer) and does not affect local CHAP authentication. |
| (config)#access-list <number> permit ip a.b.c.d m.m.m.m | Identify the source or interesting traffic for Port Address Translation (PAT). |
| (config)#ip nat inside source list  <number> int dialer <number> overload | Configure the router to perform PAT on the source traffic specified in the ACL.   * Packets with source addresses that pass the access list are dynamically translated using global addresses from the named pool. * The **overload** keyword enables the router to use one global address for many local addresses. When overloading is configured, the TCP or UDP port number of each inside host is the distinguishing item between the multiple conversations using the same local IP address. |
| (config)#ip route 0.0.0.0 0.0.0.0  dialer <number> permanent | Create a default route with the dialer interface as the virtual dialer interface.   * The number should match the dialer interface. * The **permanent** keyword should be included when using the **ip address negotiated**command under the dialer interface, because the dialer interface will lose its IP address when a PPPoE session is brought down (even if the dialer does not go down), and hence the route removal routine will take effect and remove all IP routes pointed at the dialer interface. |
| #show pppoe session | Display information about currently active PPPoE sessions, including the following:   * PPPoE session unique identifier * Session number * Remote MAC address * Port type and number * Session state * Local MAC address |

config - ip route

show ip route

show ip route <address>

config - router rip

config router - network <address>

show running-config

\*\*\* show ip interfaces \*\*\*

- Better overview

show ip int ... brief

11, 12, 13

**Frame Relay Command List**

The simplest method of configuring Frame Relay is to set the encapsulation type and let the router discover the LMI type and the DLCI values automatically. The following table lists various commands you can use for a simple Frame Relay configuration.

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| **Use . . .** | **To . . .** |
| Router(config-if)#encapsulation frame-relay | Set the encapsulation method Continue this command by adding various keywords to set a specific frame relay encapsulation protocol.   * Use the **cisco** encapsulation type to use the proprietary encapsulation method. Setting encapsulation without an encapsulation keyword uses this method. * Use the **ietf** type when connecting to a Frame Relay network. This is the industry-standard encapsulation method. |
| Router(config-if)#frame-relay inverse-arp | Turn on inverse ARP (it is on by default). |
| Router(config-if)#frame lmi-type <LMI type> | Configure the LMI type used. By default, the LMI type is automatically detected.  **Note**: When you manually set the LMI type, you disable automatic LMI discovery. You might also need to manually configure the **keepalive** parameter for the interface so the router uses a keepalive value equal to or less than what is used by the Frame Relay provider's equipment. |
| Router#show frame map | Display the contents of the frame-relay map cache (showing IP address to DLCI number mappings). |
| Router#clear frame-relay-inarp | Clear the dynamic entries from the frame-relay map cache. |
| Router#show frame pvc | Show DLCI statistics and information. |

**Note**: The **show** commands listed here are not enabled in the labs.

**Example**  
The following commands enable Frame Relay on serial interface 1 using IETF as the encapsulation method and dynamic addressing.

Router(config)#int s1  
Router(config-if)#encap frame-relay ietf

The following commands enable Frame Relay on serial interface 0 using Cisco as the encapsulation method, disable inverse ARP, and map IP address 10.1.1.55 to DLCI 25.

Router(config)#int s0  
Router(config-if)#encap frame-relay   
Router(config-if)#no frame inverse  
Router(config-if)#frame-relay map ip 10.1.1.55 25

**Frame Relay Subinterface Command List**

Using subinterfaces also lets you send routing updates out the same physical interface on which they were received. Using subinterfaces in this manner overcomes the split horizon problem that can occur when sending updates out the same interface. To configure Frame Relay on a subinterface, complete the following tasks:

* Enable Frame Relay on the interface and set the encapsulation method.
* Create the subinterface, specifying either point-to-point or multipoint.
* For a point-to-point connection or a multipoint connection using inverse ARP, assign the DLCI number to the subinterface.
* For a multipoint connection using static assignments, map DLCIs to protocol addresses.

In addition, you will need to assign a Network layer address to the subinterface. Do *not*assign an IP address to the main interface.

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| **Use . . .** | **To . . .** |
| Router(config-if)#int sX.X <type> | Create the subinterface |
| Router(config-subif)#frame-relay interface-dlci | Assign the DLCI to the interface |
| Router(config-subif)#frame-relay map | Map protocol addresses to DLCIs |

**Examples**   
The following commands create a point-to-point subinterface on the first serial interface and assign it to DLCI 44. The subinterface is configured to use inverse ARP.

Router(config)#int s0

Router(config-if)#encap frame

Router(config-if)#int s0.55 point

Router(config-subif)#frame interface-dlci 44

The following commands create a multipoint subinterface on the second serial interface, and configure it with a static IP mapping of device 199.12.16.155 to DLCI 111.

Router(config)#int s1

Router(config-if)#encap frame

Router(config-if)#int s1.103 mult

Router(config-subif)#frame map ip 199.12.16.155 111

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| **Use...** | **To...** |
| (config-if)#ipv6 address  <ipv6-prefix/prefix-length> eui-64 | Configure a global IPv6 address with an interface identifier (ID) in the low-order 64 bits of the IPv6 address.   * Only the 64-bit network prefix for the address needs to be specified * The last 64 bits are automatically computed from the interface ID. * This command automatically configures an IPv6 link-local address on the interface while also enabling the interface for IPv6 processing. |
| #show ipv6 interface <type> <number> | Verify that IPv6 addresses are configured correctly for the specified interface and validate the IPv6 status.   * If the interface's hardware is usable, the interface is marked up. * If the interface can provide two-way communication for IPv6, the line protocol is marked up. |
| #show ipv6 interface brief | Display a brief summary of IPv6 status and configuration for each interface. |

NAT

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| **Method** | **Configuration Task** | **Command Examples** |
| Static NAT | Configure static mappings (mapping inside local addresses to outside local addresses) | Router(config)#ip nat inside source static 192.168.1.1 203.44.55.1 |
| Identify inside and outside interfaces | Router(config)#interface ethernet0 Router(config-if)#ip nat inside Router(config-if)#interface serial0 Router(config-if)#ip nat outside |
| Overloaded with PAT | Identify allowed translated inside local addresses | Router(config)#access-list 1 permit 192.168.1.0 0.0.0.255 |
| Associate the allowed list with the outside interface and identify the translation type as overloaded | Router(config)#ip nat inside source list 1 interface serial0 overload |
| Identify inside and outside interfaces | Router(config)#interface ethernet0 Router(config-if)#ip nat inside Router(config-if)#interface serial0 Router(config-if)#ip nat outside |
| Dynamic NAT | Define an inside global address pool | Router(config)#ip nat pool pooled\_addr 203.44.55.1 203.44.55.254 netmask 255.255.255.0 |
| Identify allowed translated inside local addresses | Router(config)#access-list 1 permit 192.168.1.0 0.0.0.255 |
| Associate the allowed list with the pool | Router(config)#ip nat inside source list 1 pool pooled\_addr |
| Identify inside and outside interfaces | Router(config)#interface ethernet0 Router(config-if)#ip nat inside Router(config-if)#interface serial0 Router(config-if)#ip nat outside |

**Example**