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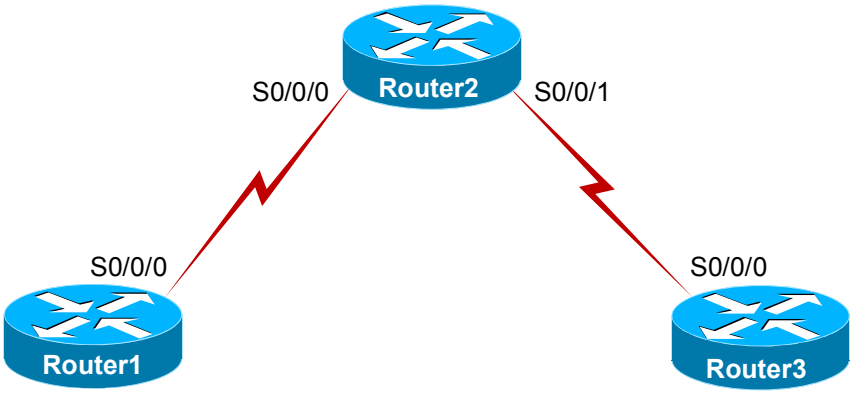
Stand-Alone Lab: Creating a Host Table

Objective

Become familiar with the router's host table. Host tables can be used to set names for commonly used IP addresses. Configure all three routers with the appropriate settings.

Lab Topology

The topology diagram below represents the NetMap in the Simulator.



Command Summary

Command	Description
clock rate *clock-rate*	sets the clock rate for a Data Communications Equipment (DCE) interface
configure terminal	enters global configuration mode from privileged EXEC mode
enable	enters privileged EXEC mode
end	ends and exits configuration mode
exit	exits one level in the menu structure
hostname *host-name*	sets the device name
interface *type number*	changes from global configuration mode to interface configuration mode
ip address *ip-address subnet-mask*	assigns an IP address to an interface
ip host *host-name ip-address*	configures a static host name-to-address mapping in the host cache of a device
no shutdown	enables an interface
ping *ip-address*	sends an Internet Control Message Protocol (ICMP) echo request to the specified address
show hosts	displays the default domain name, a list of name server hosts, and a cached list of host names and addresses
show running-config	displays the active configuration file

The IP addresses and subnet masks used in this lab are shown in the table below:

IP Addresses

Device	Interface	IP Address	Subnet Mask
Router1 (Tampa)	Serial 0/0/0	195.42.36.10	255.255.255.240
Router2 (California)	Serial 0/0/0 Serial 0/0/1	195.42.36.12 179.42.36.2	255.255.255.240 255.255.255.240
Router3 (Washington)	Serial 0/0/0	179.42.36.1	255.255.255.240

Lab Tasks

Task 1: Configure the Routers

In this task, you will be configuring the interfaces of Router1 and Router2 and adding a host table entry. A host table entry is the host name and IP address of another device on a network. The host name is mapped to its IP address in the host table, which enables you to issue commands by using the host name instead of an IP address.

1. Configure Router1 with a host name of **Tampa**.

2. On Router1, configure the appropriate IP address on the Serial 0/0/0 interface; refer to the IP Addresses table. Enable the interface.

3. Configure Router2 with a host name of **California**.

4. On Router2, configure the appropriate IP address on the Serial 0/0/0 interface; refer to the IP Addresses table. Configure a clock rate of **1000000**, and enable the interface.

5. When troubleshooting, it is inconvenient to memorize every IP address that you might need, so adding host table entries will permit you to use the names of the devices you wish to reach. On Router1, configure an entry in the host table for Router2, California, and map it to the IP address of Router2's Serial 0/0/0 interface.

Task 2: Verify IP Host Table Entries

Verify the host table entry you created in Task 1. Perform the following steps on Router1.

1. Issue the **ping California** command to test connectivity to Router2. The ping should be successful.

2. Verify the host entry by issuing the **show hosts** command.

Task 3: Configure the Routers

1. Configure Router3 with a host name of **Washington**.

2. On Router3, configure the appropriate IP address on the Serial 0/0/0 interface; refer to the IP Addresses table. Enable the interface.

3. On Router2, configure the appropriate IP address on the Serial 0/0/1 interface; refer to the IP Addresses table. Configure a clock rate of **1000000**, and enable the interface.

4. On Router2, configure an entry in the host table for Washington and map it to the IP address of Router3's Serial 0/0/0 interface.

5. On Router2, configure a host table entry for Tampa and map it to the IP address of Router1's Serial 0/0/0 interface.

6. On Router3, configure a host table entry for California and map it to the IP address of Router2's Serial 0/0/1 interface.

Task 4: Verify IP Host Table Entries

Verify the host table entries you created in Task 3.

1. On Router2, ping Tampa and Washington to test connectivity. The pings should be successful.

2. Verify the host entries on Router 2.

3. On Router3, ping California to test connectivity. The ping should be successful.

4. Verify the host entry on Router3.

Lab Solutions

Task 1: Configure the Routers

In this task, you will be configuring the interfaces of Router1 and Router2 and adding a host table entry.

1. Issue the following commands to configure Router1 with a host name of **Tampa**:

```
Router>enable
Router#configure terminal
Router(config)#hostname Tampa
```

2. On Router1, issue the following commands to configure the appropriate IP address on the Serial 0/0/0 interface and to enable the interface:

```
Tampa(config)#interface serial 0/0/0
Tampa(config-if)#ip address 195.42.36.10 255.255.255.240
Tampa(config-if)#no shutdown
```

3. Issue the following commands to configure Router2 with a host name of **California**:

```
Router>enable
Router#configure terminal
Router(config)#hostname California
```

4. On Router2, issue the following commands to configure the appropriate IP address on the Serial 0/0/0 interface, to configure a clock rate of **1000000**, and to enable the interface:

```
California(config)#interface serial 0/0/0
California(config-if)#ip address 195.42.36.12 255.255.255.240
California(config-if)#clock rate 1000000
California(config-if)#no shutdown
```

5. When troubleshooting, it is inconvenient to memorize every IP address that you might need, so adding host table entries will permit you to use the names of the devices you wish to reach. On Router1, issue the following commands to configure an entry in the host table for Router2, California, and to map it to the IP address of Router2's Serial 0/0/0 interface:

```
Tampa(config-if)#exit
Tampa(config)#ip host California 195.42.36.12
```

A host table entry is the host name and IP address of another device on a network. The host name is mapped to its IP address in the host table, which enables you to issue commands by using the host name instead of an IP address.

Task 2: Verify IP Host Table Entries

Verify the host table entry you created in Task 1. Perform the following steps on Router1.

1. Issue the **ping California** command to test connectivity to Router2. The ping should be successful.

```
Tampa(config)#end
Tampa#ping California

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 195.42.36.12, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
```

2. Verify the host entry by issuing the show hosts command on Tampa. Sample output is shown below:

```
Tampa#show hosts
Name lookup view: Global
Default domain is not set
Name/address lookup uses static mappings

Codes: UN - unknown, EX - expired, OK - OK, ?? – revalidate
       temp - temporary, perm – permanent
       NA - Not Applicable None - Not defined

Host                      Port  Flags      Age Type   Address(es)
California                None  (perm, OK),  0   IP   195.42.36.12
```

Task 3: Configure the Routers

1. You should issue the following commands to configure Router3 with a host name of **Washington**:

```
Router>enable
Router#configure terminal
Router(config)#hostname Washington
```

2. You should issue the following commands on Router3 to configure the appropriate IP address on the Serial 0/0/0 interface and to enable the interface:

```
Washington(config)#interface serial 0/0/0
Washington(config-if)#ip address 179.42.36.1 255.255.255.240
Washington(config-if)#no shutdown
```

3. You should issue the following commands on Router2 to configure the appropriate IP address on the Serial 0/0/1 interface, to configure a clock rate, and to enable the interface:

```
California(config)#interface serial 0/0/1
California(config-if)#ip address 179.42.36.2 255.255.255.240
California(config-if)#clock rate 1000000
California(config-if)#no shutdown
```

4. You should issue the following commands on Router2 to configure an entry in the host table for Washington and to map it to the IP address of Router3's Serial 0/0/0 interface:

```
California(config-if)#exit
California(config)#ip host Washington 179.42.36.1
```

5. You should issue the following command on Router2 to configure a host table entry for Tampa and to map it to the IP address of Router1's Serial 0/0/0 interface:

```
California(config)#ip host Tampa 195.42.36.10
```

6. You should issue the following commands on Router3 to configure a host table entry for California and to map it to the IP address of Router2's Serial 0/0/1 interface:

```
Washington(config-if)#exit
Washington(config)#ip host California 179.42.36.2
```

Task 4: Verify IP Host Table Entries

1. You should issue the following commands on Router2 to test connectivity to Tampa and Washington. The pings should be successful.

```
California(config)#end
California#ping Tampa
California#ping Washington
```

2. You should issue the following command on Router2 to verify the host entry:

```
California#show hosts
Name lookup view: Global
Default domain is not set
Name/address lookup uses static mappings

Codes: UN - unknown, EX - expired, OK - OK, ?? – revalidate
       temp - temporary, perm – permanent
       NA - Not Applicable None - Not defined

Host                      Port  Flags      Age Type   Address(es)
Washington                None  (perm, OK),  0   IP   179.42.36.1
Tampa                     None  (perm, OK),  0   IP   195.42.36.10
```

3. You should issue the **ping California** command on Router3 to test connectivity to Router2. The ping should be successful.

```
Washington(config)#end
Washington#ping California
```

4. You should issue the **show hosts** command on Router3 to verify the host entry. Sample output is shown below:

```
Washington#show hosts
Name lookup view: Global
Default domain is not set
Name/address lookup uses static mappings

Codes: UN - unknown, EX - expired, OK - OK, ?? - revalidate
       temp - temporary, perm - permanent
       NA - Not Applicable None - Not defined

Host                      Port  Flags      Age Type   Address(es)
California                None  (perm, OK),  0   IP   179.42.36.2
```

Sample Configuration Script

Tampa	Tampa (continued)
Tampa#show running-config Building configuration... ! Version 12.3 service timestamps debug uptime service timestamps log uptime no service password-encryption ! hostname Tampa ! ip subnet-zero ! ip cef no ip domain-lookup ip host California 195.42.36.12 ! interface Serial0/0/0 ip address 195.42.36.10 255.255.240.0 no ip directed-broadcast ! interface Serial0/0/1 no ip address no ip directed-broadcast shutdown !	interface FastEthernet0/0 no ip address no ip directed-broadcast shutdown ! interface FastEthernet0/1 no ip address no ip directed-broadcast shutdown ! ip classless no ip http server ! line con 0 line aux 0 line vty 0 4 ! no scheduler allocate end