TCOM 515 IP Routing

Lab1: Static IP Routing

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Router: Dallas

Team Members: None

1. Introduction

In order for packets to be routed throughout the network, each router must generate a routing table. This routing table serves as a map to direct which interface the packet needs to be sent at. There are three ways the routing table is created.

1. Directly connected interfaces. (C-connected)
2. Static routes. (S-static)
3. Dynamic routing protocols. (O-OSPF/R-RIP/B-BGP)

In this lab, the static route method will be explored to generate a routing table.

The route table will contain the following information:

1. Destination Address – network address of a subnet
2. Next Hop – interface or IP address of next hop in path
3. Egress interface – the interface to the next hop
4. Type of route – C-Connect, S-Static, R-RIP, O-OSPF
5. Metric – arbitrary number used to help choose the best route. Cost to the next route.
   <*Information from TCOM515 Lecture1>

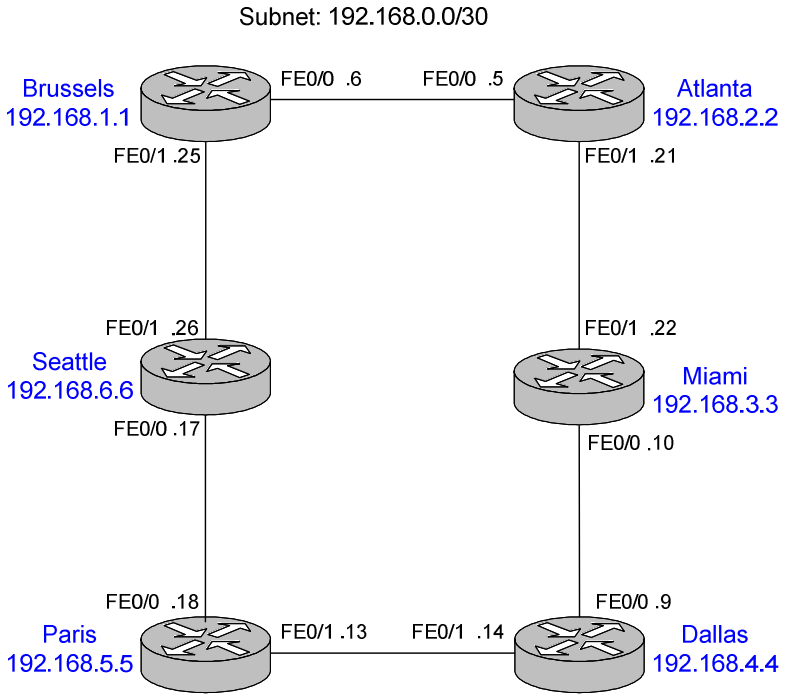
2. Purpose

The goal of this lab is stated as follows:

1. Learn to establish hardware(router) connections.
2. Learn to login to terminal server via telnet
3. Learn to configure router and its interfaces
   (get familiar with Cisco iOS commands & environment)
4. Learn to configure static routes.
5. Clear router configuration

3. Procedure

1. The six Cisco 2811 ISRs were set up in the topology shown in figure below. The router that I configured was Dallas (192.168.4.4 – loopback address) and made connection as follows:
   - Dallas FE0/0.9 ←→ Miami FE0/0.10
   - Dallas FE0/0.14 ←→ Paris FE0/1.13



The management network of the routers were connected through the Cisco 2511 (terminal server) and connected to the PC workstations.

2. Using the PC workstations, I was able to telnet into the Dallas router by login in using UserID and Password (student/nocnoc).

   When I first login the the router, I am in the "USER MODE". The command line shows: `Router>`

   2.1. I enter the "ENABLE MODE" by entering "`Router>enable`". Prompt now looks like: `Router#`

   2.2. By typing "`Router#show ?`" options are shown. Three options from many available options are:

```
 i.  access-enable    Create a temporary Access-List entry
ii.  access-profile   Apply user-profile to interface
iii. access-template  Create a temporary Access-List entry
```

   2.3. By typing "`Router#show ?`" options are shown. Three options from many available options are:

```
 i.   aaa                    Show AAA values
ii.   aal2                   Show commands for AAL2
iii.  access-expression      List access expression
```

   2.4. By typing "`Router#show IP ?`"options are shown. Three options from many available options are:

```
 i.   access-lists          List IP access lists
ii.   accounting            The active IP accounting database
iii.  admission             Network Admission Control information
```

   2.5. Router configuration. This must be done in "GLOBAL CONFIG MODE".
   To enter global mode, the command is "`Router#config terminal`".
   The prompt now looks like: `Router(config)#`

   2.6. Configuring the Name of the Router is done with command, "`Router(config)#hostname dallas`"
   The prompt now looks like: `dallas(config)#`

   2.7. To get out of global config mode and go back to enable mode, type "`dallas(config)#exit`". The command line now shows: `dallas#`

   "`dallas# show run`" command will build the configuration and show the router information such as current basic router configuration and list of available interface:

```
dallas# show run
Building configuration...
Current configuration : 1091 bytes
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname dallas
!
boot-start-marker
boot-end-marker
!
logging message-counter syslog
!
no aaa new-model
```

```
!
dot11 syslog
ip source-route
!
!
ip cef
!
!
no ipv6 cef
multilink bundle-name authenticated
!
!
voice-card 0
 no dspfarm
!
!
!
 archive
 log config
  hidekeys
!
!
!
interface FastEthernet0/0
 no ip address
 shutdown
 duplex auto
 speed auto
!
interface FastEthernet0/1
 no ip address
 shutdown
 duplex auto
 speed auto
!
interface FastEthernet0/0/0
!
interface FastEthernet0/0/1
!
interface FastEthernet0/0/2
!
interface FastEthernet0/0/3
!
interface Serial0/1/0
 no ip address
 shutdown
 clock rate 125000
!
interface Serial0/1/1
 no ip address
 shutdown
 clock rate 125000
!
interface Vlan1
 no ip address
```

```
!
ip forward-protocol nd
no ip http server
no ip http secure-server
!
!
control-plane
!
!
!
line con 0
line aux 0
line vty 0 4
 login
!
scheduler allocate 20000 1000
end
```

2.8. "dallas# show ip interface brief" shows the available interface as well as it's states.

```
dallas# show ip interface brief
Interface                  IP-Address      OK? Method Status                Prot
ocol
FastEthernet0/0            unassigned      YES unset  administratively down down
FastEthernet0/1            unassigned      YES unset  administratively down down
FastEthernet0/0/0          unassigned      YES unset  up                    down
FastEthernet0/0/1          unassigned      YES unset  up                    down
FastEthernet0/0/2          unassigned      YES unset  up                    down
FastEthernet0/0/3          unassigned      YES unset  up                    down
Serial0/1/0                unassigned      YES unset  administratively down down
Serial0/1/1                unassigned      YES unset  administratively down down
Vlan1                      unassigned      YES unset  up                    down
SSLVPN-VIF0                unassigned      NO  unset  up                    up
```

The types of interfaces are FastEthernet, Serial, VLAN(logical), SSLVPN(logical)

2.9. "dallas#show ip route"

```
dallas#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route
Gateway of last resort is not set
     192.168.4.0/32 is subnetted, 1 subnets
C       192.168.4.4 is directly connected, Loopback0
     192.168.0.0/30 is subnetted, 2 subnets
C       192.168.0.8 is directly connected, FastEthernet0/0
C       192.168.0.12 is directly connected, FastEthernet0/1
```

Configuring the physical interfaces. Based on the below table the connections were made as such:

- Dallas 192.168.0.9/30 ←→ Miami 192.168.0.10/30
- Dallas 192.168.0.14/30 ←→ Paris 192.168.0.13/30

Router Name	Loopback0	FastEthernet Interface 0/0 and mask	FastEthernet Interface 0/1 and mask
Brussels	192.168.1.1/32	192.168.0.6/30	192.168.0.25/30
Atlanta	192.168.2.2/32	192.168.0.5/30	192.168.0.21/30
Miami	192.168.3.3/32	**192.168.0.10/30**	192.168.0.22/30
Dallas	**192.168.4.4/32**	**192.168.0.9/30**	**192.168.0.14/30**
Paris	192.168.5.5/32	192.168.0.18/30	**192.168.0.13/30**
Seattle	192.168.6.6/32	192.168.0.17/30	192.168.0.26/30

(Configuring Dallas←→Miami Interface)
To configure, this was done in INTERFACE CONFIGURATION MODE.
First enter GLOBAL CONFIG MODE by entering, "`dallas#config terminal`"
Output: `dallas(config)#`

Enter INTERFACE CONFIGURATION MODE by entering, "`dallas(config)#interface FastEthernet0/0`"
Output: `dallas(config-if)#`

Enter FastEthernet description in format of:
"`dallas(config-if)#description Link to DestRouterName NetworkIPAddress?(Did you mean DestRouterInterface?)`"
"`dallas(config-if)#description Link to Miami 192.168.0.10/30`"

Enter IP Address description in format of (This is of the source router interface IP):
"`dallas(config)#ip route SourceRouter_InterfaceIPAddress NetworkMask`"
"`dallas(config-if)#ip address 192.168.0.9 255.255.255.252`"
(Note: 255.255.255.252 = /30)

To bring up the interface, command is
"`dallas(config-if)#no shutdown`"
Output:

```
*Feb  9 00:27:35.535: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Feb  9 00:27:36.535: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
```

(Configuring Dallas←→Paris Interface)
To configure, this was done in INTERFACE CONFIGURATION MODE.
First enter GLOBAL CONFIG MODE by entering, "`dallas#config terminal`"
Output: `dallas(config)#`

Enter INTERFACE CONFIGURATION MODE by entering, "`dallas(config)#interface FastEthernet0/1`"
Output: `dallas(config-if)#`

Enter FastEthernet description in format of:

“dallas(config-if)#description Link to DestRouterName NetworkIPAddress?(Did you mean DestRouterInterface?)”
“dallas(config-if)#description Link to Paris 192.168.0.13”

Enter IP Address description in format of (This is of the source router interface IP):
“dallas(config)#ip route SourceRouter_InterfaceIPAddress NetworkMask”
“dallas(config-if)#ip address 192.168.0.14 255.255.255.252”
(Note: 255.255.255.252 = /30)

To bring up the interface, command is
“dallas(config-if)#no shutdown”
Output:

```
*Feb  9 00:36:38.191: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state t
o up
*Feb  9 00:36:39.191: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/1, changed state to up
```

(Configuring Loopback Interface)
Loopback is a logical interface. To configure, type:
“dallas(config-if)#interface loopback 0”
Output:
dallas(config-if)#interface loopback 0
dallas(config-if)#
*Feb 9 00:37:11.831: %LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up

Assigning IP Address to the loopback Address in format of:
“dallas(config)#ip route LoopbackIP 255.255.255.255”
“dallas(config-if)#ip address 192.168.4.4 255.255.255.255”

To bring up the loopback interface:
dallas(config-if)#no shutdown

Exit the INTERFACE CONFIGURATION MODE and GLOBLA CONFIGURATION MODE by typing, “end” or “ctrl-z”
Output:
dallas(config-if)#end
dallas#

(Gathering and Verifying Router Configuration)
“dallas#show run” - To look at entire running config from enable mode.
“dallas#show ip interface brief” – To see status of specific interface.

```
dallas#show ip interface brief
Interface                  IP-Address      OK? Method Status                Prot
ocol
FastEthernet0/0            192.168.0.9     YES manual up                    up
FastEthernet0/1            192.168.0.14    YES manual up                    up
FastEthernet0/0/0          unassigned      YES unset  up                    down
FastEthernet0/0/1          unassigned      YES unset  up                    down
FastEthernet0/0/2          unassigned      YES unset  up                    down
FastEthernet0/0/3          unassigned      YES unset  up                    down
Serial0/1/0                unassigned      YES unset  administratively down down
Serial0/1/1                unassigned      YES unset  administratively down down
Vlan1                      unassigned      YES unset  up                    down
```

```
SSLVPN-VIF0                unassigned      NO  unset  up                    up
Loopback0                  192.168.4.4     YES manual up                    up
```

2.10. All interfaces are up.
2.11. We can successfully ping the interfaces by following format:
"dallas(config)# ping InterfaceIP"
(**ping Miami Interface)**
"dallas#ping 192.168.0.10"

```
Sending 5, 100-byte ICMP Echos to 192.168.0.10, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 1/1/4 ms
```

(ping Paris Interface)
"dallas#ping 192.168.0.13"

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.13, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/4 ms
```

"dallas#show ip route"

```
dallas#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route
Gateway of last resort is not set
     192.168.4.0/32 is subnetted, 1 subnets
C       192.168.4.4 is directly connected, Loopback0
     192.168.0.0/30 is subnetted, 2 subnets
C       192.168.0.8 is directly connected, FastEthernet0/0
C       192.168.0.12 is directly connected, FastEthernet0/1
```

2.12. Show IP route results in no change.
2.13. What type of routes are these?
2.14. How can you tell?

(Adding Static Route to the Router)
Based on the below table, I need to reach 192.168.0.18 at the Network Address of 192.168.0.16/30.

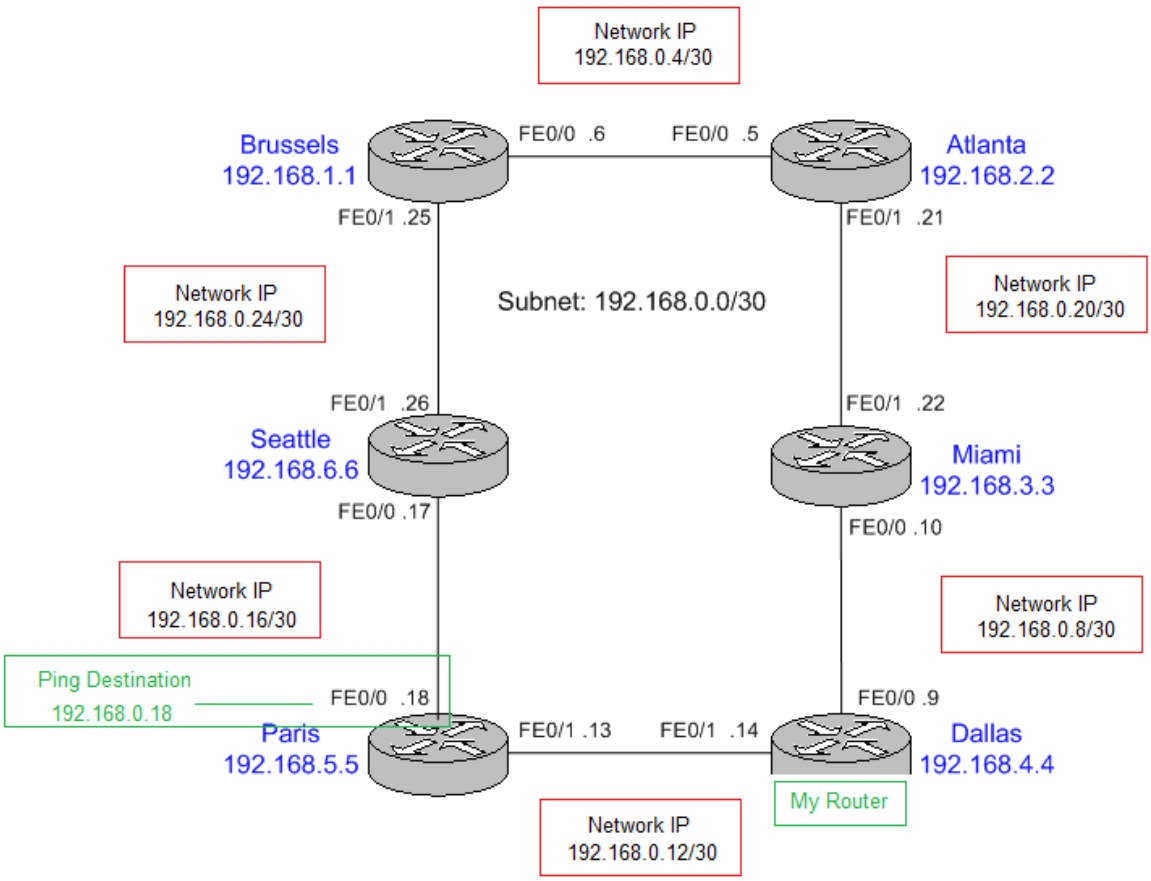
Router Name	Static Route Destination (Network Address)	Ping Test (Dest Interface Address)
Brussels	192.168.0.20/30	192.168.0.21
Atlanta	192.168.0.8/30	192.168.0.10
Miami	192.168.0.12/30	192.168.0.14
Dallas	**192.168.0.16/30**	**192.168.0.18**
Paris	192.168.0.24/30	192.168.0.26

Seattle	192.168.0.4/30	192.168.0.6

The static route is made up of:

i. Destination Network IP Address
ii. Destination Network IP subnetMask
iii. Local Interface(next hop IP)

For this exercise, egress interface of local router will be set to static route as shown in below diagram.



3.1. The local egress interface chosen is 192.168.0.18 (ParisFE0/0)
To configure this route, use the command in following format:
"dallas(config)#ip route DestNetworkIP 255.255.255.252 localEgressInterface"
"dallas(config)#ip route 192.168.0.16 255.255.255.252 192.168.0.13"

3.2 192.168.0.13 (ParisFE0/1) can be used as the next hop for this static route.

3.3 When "show ip route" is entered, the following routes are visible. There is total of 5 entries. Note, the static route has been set.

```
dallas#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route
Gateway of last resort is not set
     192.168.4.0/32 is subnetted, 1 subnets
C       192.168.4.4 is directly connected, Loopback0
```

```
     192.168.0.0/30 is subnetted, 3 subnets
C       192.168.0.8 is directly connected, FastEthernet0/0
C       192.168.0.12 is directly connected, FastEthernet0/1
S       192.168.0.16 [1/0] via 192.168.0.13
```

3.4. The table has changed and now shows the Static route connection.

3.5 Route table:

Table Entry Format: Next Hop IP (Local Interface)

Router	Brussels	Atlanta	Miami	Dallas	Paris	Seattle
Brussels	XXXX	192.168.0.5 (FE0/0)	192.168.0.5 (FE0/0)	192.168.0.5 (FE0/0) OR 192.168.0.26 (FE0/1)	192.168.0.26 (FE0/1)	192.168.0.26 (FE0/1)
Atlanta	192.168.0.6 (FE0/0)	XXXX	192.168.0.22 (FE0/1)	192.168.0.22 (FE0/1)	192.168.0.6 (FE0/0) OR 192.168.0.22 (FE0/1)	192.168.0.6 (FE0/0)
Miami	192.168.0.21 (FE0/1)	192.168.0.21 (FE0/1)	XXXX	192.168.0.9 (FE0/0)	192.168.0.9 (FE0/0)	192.168.0.21 (FE0/1) OR 192.168.0.9 (FE0/0)
Dallas	192.168.0.13 (FE0/1) OR 192.168.0.10 (FE0/0)	192.168.0.10 (FE0/0)	192.168.0.10 (FE0/0)	XXXX	192.168.0.13 (FE0/1)	192.168.0.13 (FE0/1)
Paris	192.168.0.17 (FE0/0)	192.168.0.17 (FE0/0) OR 192.168.0.14 (FE0/1)	192.168.0.14 (FE0/1)	192.168.0.14 (FE0/1)	XXXX	192.168.0.17 (FE0/0)
Seattle	192.168.0.25 (FE0/1)	192.168.0.25 (FE0/1)	192.168.0.25 (FE0/1) OR 192.168.0.18 (FE0/0)	192.168.0.18 (FE0/0)	192.168.0.18 (FE0/0)	XXXX

Note: The above table is produced based on the smallest number of hops only. Based on only the number of hops, there may be some routes which may have multiple routes to a single router. We will learn about best routes which may not necessarily depend only on the number of hops.

Lab Questions: Answer these questions in addition to all questions contained within the lab itself. **2-3 sentence answers** should suffice.

1. What was the most important piece of knowledge you took away from this lab?
    - Crossover Ethernet Cables are used when connecting same layer devices.
    - Loopback is the address of the router.
    - Different MODEs:
        - USER MODE – `Router>`
        - ENABLE MODE – `Router#`
        - GLOBAL CONFIGURATION MODE – `dallas(config)#`
        - INTERFACE CONFIGURATION MODE – `dallas(config-if)#`

2. What new command did you find most useful and why?

`route LoopbackIP 255.255.255.255 – configuring Loopback IP.`

3. Identify at least one problem you experienced in this lab. How did you figure out the problem? How did you resolve it?
    - I got a bit confused between the Interface IP and Network IP. It took a bit quick learning curve to figure out the difference.

iOS Command Prompt Script:

```
login: student
Password:
System Bootstrap, Version 12.4(1r) [hqluong 1r], RELEASE SOFTWARE (fc1)
Copyright (c) 2005 by cisco Systems, Inc.
Initializing memory for ECC
.
c2811 processor with 262144 Kbytes of main memory
Main memory is configured to 64 bit mode with ECC enabled
Readonly ROMMON initialized
program load complete, entry point: 0x8000f000, size: 0xc940
program load complete, entry point: 0x8000f000, size: 0xc940
program load complete, entry point: 0x8000f000, size: 0x3539494
Self decompressing the image : ##################################################
################################################################################
################################################################################
################################################################################
######################## [OK]
Smart Init is enabled
smart init is sizing iomem
  ID          MEMORY_REQ              TYPE
0003E7        0X00473800 C2811 Mainboard
000056        0X000C2800 4-port FE Switch HWIC
              0X00264050 Onboard VPN
              0X000021B8 Onboard USB
              0X002C29F0 public buffer pools
              0X00211000 public particle pools
TOTAL:        0X00C6FBF8
If any of the above Memory Requirements are
"UNKNOWN", you may be using an unsupported
configuration or there is a software problem and
system operation may be compromised.
Rounded IOMEM up to: 14Mb.
Using 5 percent iomem. [14Mb/256Mb]
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          cisco Systems, Inc.
          170 West Tasman Drive
          San Jose, California 95134-1706
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, RELEASE SOFTWARE (fc3)
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This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.
A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html
If you require further assistance please contact us by sending email to
export@cisco.com.
Installed image archive
Cisco 2811 (revision 49.46) with 247808K/14336K bytes of memory.
Processor board ID FTX1035A1KF
6 FastEthernet interfaces
2 Low-speed serial(sync/async) interfaces
1 Virtual Private Network (VPN) Module
DRAM configuration is 64 bits wide with parity enabled.
239K bytes of non-volatile configuration memory.
62720K bytes of ATA CompactFlash (Read/Write)
        --- System Configuration Dialog ---
Would you like to enter the initial configuration dialog? [yes/no]:
Press RETURN to get started!
*Feb  8 23:41:29.699: %ESWMRVL_FLTMG-5-NOTICE: Notice: FPGA Rev 0x71
*Feb  8 23:41:48.619: %VPN_HW-6-INFO_LOC: Crypto engine: onboard 0  State change
d to: Initialized
*Feb  8 23:41:48.623: %VPN_HW-6-INFO_LOC: Crypto engine: onboard 0  State change
d to: Enabled
*Feb  8 23:41:50.475: %LINEPROTO-5-UPDOWN: Line protocol on Interface VoIP-Null0
, changed state to up
*Feb  8 23:41:50.475: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Feb  8 23:41:50.475: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state t
o up
*Feb  8 23:41:50.479: %LINK-3-UPDOWN: Interface Serial0/1/0, changed state to do
wn
*Feb  8 23:41:50.479: %LINK-3-UPDOWN: Interface Serial0/1/1, changed state to do
wn
*Feb  8 23:41:50.479: %LINEPROTO-5-UPDOWN: Line protocol on Interface SSLVPN-VIF
0, changed state to up
*Feb  8 23:41:50.963: %LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, cha
nged state to down
*Feb  8 23:41:52.015: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
e
Router>
Routet0/0, changed state to up
*Feb  8 23:41:52.015: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/1, changed state to down
*Feb  8 23:41:52.015: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/
0, changed state to down
*Feb  8 23:41:52.015: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/
1, changed state to down
*Feb  8 23:43:40.687: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/1, changed state to up
*Feb  8 23:44:42.915: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to down
*Feb  8 23:44:44.643: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
```

```
*Feb  8 23:44:51.415: %SYS-5-RESTART: System restarted --
Cisco IOS Software, 2800 Software (C2800NM-ADVIPSERVICESK9-M), Version 12.4(20)T
, RELEASE SOFTWARE (fc3)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2008 by Cisco Systems, Inc.
Compiled Thu 10-Jul-08 22:00 by prod_rel_team
*Feb  8 23:44:51.423: %SNMP-5-COLDSTART: SNMP agent on host Router is undergoing
 a cold start
*Feb  8 23:44:51.655: %CRYPTO-6-ISAKMP_ON_OFF: ISAKMP is OFF
*Feb  8 23:44:51.659: %CRYPTO-6-GDOI_ON_OFF: GDOI is OFF
*Feb  8 23:44:51.659: %CRYPTO-6-ISAKMP_ON_OFF: ISAKMP is OFF
*Feb  8 23:44:51.659: %CRYPTO-6-GDOI_ON_OFF: GDOI is OFF
*Feb  8 23:44:52.191: %LINK-5-CHANGED: Interface FastEthernet0/0, changed state
to administratively down
*Feb  8 23:44:52.191: %LINK-5-CHANGED: Interface FastEthernet0/1, changed state
to administratively down
*Feb  8 23:44:52.191: %LINK-5-CHANGED: Interface Serial0/1/0, changed state to a
dministratively down
*Feb  8 23:44:52.191: %LINK-5-CHANGED: Interface Serial0/1/1, changed state to a
dministratively down
*Feb  8 23:44:52.419: %LINK-3-UPDOWN: Interface FastEthernet0/0/3, changed state
 to up
*Feb  8 23:44:52.423: %LINK-3-UPDOWN: Interface FastEthernet0/0/2, changed state
 to up
*Feb  8 23:44:52.423: %LINK-3-UPDOWN: Interface FastEthernet0/0/1, changed state
 to up
*Feb  8 23:44:52.423: %LINK-3-UPDOWN: Interface FastEthernet0/0/0, changed state
 to up
*Feb  8 23:44:53.191: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to down
*Feb  8 23:44:53.191: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/1, changed state to down
*Feb  8 23:44:53.419: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0/3, changed state to down
*Feb  8 23:44:53.419: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0/2, changed state to down
*Feb  8 23:44:53.423: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0/1, changed state to down
*Feb  8 23:44:53.423: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0/0, changed state to downr>
Router>
Router>
Router>
Router>
Router>
Router>
Router>enable
Router#?
Exec commands:
  access-enable    Create a temporary Access-List entry
  access-profile   Apply user-profile to interface
  access-template  Create a temporary Access-List entry
  archive          manage archive files
  audio-prompt     load ivr prompt
  auto             Exec level Automation
  beep             Blocks Extensible Exchange Protocol commands
  bfe              For manual emergency modes setting
  calendar         Manage the hardware calendar
  call             Voice call
  ccm-manager      Call Manager Application exec commands
  cd               Change current directory
  cellular         cellular commands
  clear            Reset functions
  clock            Manage the system clock
  cns              CNS agents
  configure        Enter configuration mode
  connect          Open a terminal connection
  copy             Copy from one file to another
  credential       load the credential info from file system
  crypto           Encryption related commands.
  debug            Debugging functions (see also 'undebug')
  delete           Delete a file
  dir              List files on a filesystem
  disable          Turn off privileged commands
  disconnect       Disconnect an existing network connection
  dot11            IEEE 802.11 commands
  dot1x            IEEE 802.1X Exec Commands
  emadmin          Extension Mobility Commands
  emm              Run a configured Menu System
  enable           Turn on privileged commands
  eou              EAPoUDP
  ephone-hunt      ephone hunt exec command
  erase            Erase a filesystem
  ethernet         Ethernet parameters
  event            Event related commands
  exit             Exit from the EXEC
  file-acct        File mode accounting exec command
  flush            File mode accounting flush options
  format           Format a filesystem
  fsck             Fsck a filesystem
  help             Description of the interactive help system
  hms              Host Mapper Service
  isdn             Run an ISDN EXEC command on an ISDN interface
  license          License information
  lock             Lock the terminal
  login            Log in as a particular user
  logout           Exit from the EXEC
  microcode        microcode commands
  mkdir            Create new directory
  modemui          Start a modem-like user interface
  monitor          Monitoring different system events
  more             Display the contents of a file
  mpls             MPLS commands
  mpoa             MPOA exec commands
  mrinfo           Request neighbor and version information from a multicast
                   router
  mrm              IP Multicast Routing Monitor Test
  mstat            Show statistics after multiple multicast traceroutes
  mtrace           Trace reverse multicast path from destination to source
```

```
  name-connection  Name an existing network connection
  no               Disable debugging functions
  pad              Open a X.29 PAD connection
  partition        Partition disk
  ping             Send echo messages
  ppp              Start IETF Point-to-Point Protocol (PPP)
  pwd              Display current working directory
  radius           radius exec commands
  redundancy       Redundancy Facility (RF) exec commands
  release          Release a resource
  reload           Halt and perform a cold restart
  rename           Rename a file
  renew            Renew a resource
  restart          Restart Connection
  resume           Resume an active network connection
  rlogin           Open an rlogin connection
  rmdir            Remove existing directory
  rsh              Execute a remote command
  send             Send a message to other tty lines
  set              Set system parameter (not config)
  setup            Run the SETUP command facility
  show             Show running system information
  slip             Start Serial-line IP (SLIP)
  spec-file        format spec file commands
  ssh              Open a secure shell client connection
  start-chat       Start a chat-script on a line
  systat           Display information about terminal lines
  tarp             TARP (Target ID Resolution Protocol) commands
  tclquit          Quit Tool Command Language shell
  tclsafe          Tool Command Language shell SAFE mode
  tclsh            Tool Command Language shell
  telnet           Open a telnet connection
  terminal         Set terminal line parameters
  test             Test subsystems, memory, and interfaces
  tms              Threat Mitigation Service
  traceroute       Trace route to destination
  trm              Trend Registration Module
  tunnel           Open a tunnel connection
  udptn            Open an udptn connection
  undebug          Disable debugging functions (see also 'debug')
  upgrade          Upgrade commands
  verify           Verify a file
  vlan             Configure VLAN parameters
  voice            Voice Commands
  vtp              Configure global VTP state
  webvpn           WebVPN exec command
  where            List active connections
  which-route      Do OSI route table lookup and display results
  write            Write running configuration to memory, network, or terminal
  x28              Become an X.28 PAD
  x3               Set X.3 parameters on PAD
  xconnect         Xconnect EXEC commands
Router#show ?
  aaa                    Show AAA values
  aal2                   Show commands for AAL2
  access-expression      List access expression
  access-lists           List access lists
  accounting             Accounting data for active sessions
  adjacency              Adjacent nodes
  alarm-interface        Display information about a specific Alarm
                         Interface Card
  aliases                Display alias commands
  alignment              Show alignment information
  appfw                  Application Firewall information
  archive                Archive of the running configuration information
  arp                    ARP table
  ase                    Display ASE specific information
  async                  Information on terminal lines used as router
                         interfaces
  auto                   Show Automation Template
  autoupgrade            Show autoupgrade related information
  backhaul-session-manager  Backhaul Session Manager information
  backup                 Backup status
  bcm560x                BCM560x HW Table
  beep                   Show BEEP information
  bfd                    BFD protocol info
  bgp                    BGP information
  bridge                 Bridge Forwarding/Filtering Database [verbose]
  buffers                Buffer pool statistics
  calendar               Display the hardware calendar
  call                   Show call
  call-manager-fallback  Show call-manager fallback configuration & stats
  caller                 Display information about dialup connections
  callmon                Show call monitor info
  capf-server            Display CAPF server details
  cca                    CCA information
  ccm-manager            Call Manager Application information
  cdapi                  CDAPI information
  cdp                    CDP information
  cef                    CEF address family independent status
  cellular               Cellular Status
  cem                    cem channel information
  cfmpal                 Show CFM Commands
  checkpoint             Checkpoint Facility (CPF)
  class-map              Show QoS Class Map
  clns                   CLNS network information
  clock                  Display the system clock
  cls                    DLC user information
  cns                    CNS agents
  compress               Show compression statistics
  configuration          Configuration details
  connection             Show Connection
  context                Show context information about recent crash(s)
  control-plane          Control Plane information
  controllers            Interface controller status
  cops                   COPS information
  credentials            Show credentials service configuration
  crm                    Carrier Resource Manager info
  crypto                 Encryption module
```

```
ctl-client              Display CTL Client details
cwmp                    Show CPE WAN Management Protocol(cwmp) information
dampening               Display dampening information
data-corruption         Show data errors
debugging               State of each debugging option
derived-config          Derived operating configuration
dhcp                    Dynamic Host Configuration Protocol status
diag                    Show diagnostic information for port
                        adapters/modules
dial-peer               Dial Plan Mapping Table for, e.g. VoIP Peers
dialer                  Dialer parameters and statistics
dialplan                Voice telephony dial plan
dmvpn                   Display DMVPN session related information
dn-numbers              Directory number information of CME
dnsix                   Shows Dnsix/DMDP information
dot11                   IEEE 802.11 show information
dot1x                   Dot1x information
dspfarm                 Display DSPFARM related information
dtp                     DTP information
dxi                     atm-dxi information
eap                     Shows EAP registration/session information
echo-cancel             Show Echo-cancellation Info
eigrp                   EIGRP show commands
entry                   Queued terminal entries
environment             Environmental monitor statistics
eou                     EAPoUDP
ephone                  Show all or one ephone status
ephone-dn               Show all or one IP phone line
ephone-hunt             Show all or one hunt group
epm                     EPM information
errdisable              Error disable
etherchannel            EtherChannel information
ethernet                Ethernet parameters
event                   Embedded event related commands
event-manager           Event manager information
exception               exception information
fb-its-log              Call-Manager-Fallback or IP Telephony Service Log
file                    Show filesystem information
flash:                  display information about flash: file system
flow                    Flow information
flow-sampler            Display the flow samplers configured
format                  Show format information
frame-relay             Frame-Relay information
funi                    FUNI information
gateway                 Show status of gateway
glbp                    GLBP information
h323                    Show H.323 VoIP information
hardware                Hardware specific information
history                 Display the session command history
hms                     Host Mapper Service
hosts                   IP domain-name, lookup style, nameservers, and host
                        table
html                    HTML helper commands
http                    Display HTTP info
iapp                    DDP IAPP
idb                     List of Interface Descriptor Blocks
interfaces              Interface status and configuration
inventory               Show the physical inventory
ip                      IP information
ipc                     Interprocess communications commands
iphc-profile            Show IPHC Profile
ipv6                    IPv6 information
irec-agent              Show IREC Agent service configuration
isis                    IS-IS routing information
iua                     ISDN User Adaptation Layer information
kerberos                Show Kerberos Values
key                     Key information
kron                    Kron Subsystem
l2cac                   L2 CAC
license                 Show license information
line                    TTY line information
llc2                    IBM LLC2 circuit information
location                Display the system location
logging                 Show the contents of logging buffers
login                   Display Secure Login Configurations and State
mac-address-table       MAC forwarding table
management              Display the management applications
management-interface    Host management-interface information
mdf                     Show the names of configured EMM menus
media                   Display media related information
memory                  Memory statistics
mgcp                    Display Media Gateway Control Protocol information
microcode               show configured microcode for downloadable hardware
mls                     Show MultiLayer Switching information
modem                   Show modem
modem-pool              Display modem pool information
modemcap                Show Modem Capabilities database
monitor                 Monitoring different system events
mpls                    MPLS information
mpoa                    MPOA show commands
mrcp                    MRCP information
mwi                     mwi related information
nbf                     NBF (NetBEUI) information
netbios-cache           NetBIOS name cache contents
netconf                 Show NETCONF information
network-clocks          Network clocks information
nhrp                    Display NHRP related information
ntp                     Network time protocol
num-exp                 Number Expansion (Speed Dial) information
object-group            List object groups
odm-format              Show the schema used for ODM input file
oer                     Optimized Exit Routing information
pagp                    Port channel information
parameter-map           parameter map information

Router#show
% Type "show ?" for a list of subcommands
Router#
Router#show IP
```

```
% Incomplete command.
Router#show IP?
ip  ipc  iphc-profile  ipv6
Router#show IP
Router#show IP ?
  access-lists           List IP access lists
  accounting             The active IP accounting database
  admission              Network Admission Control information
  aliases                IP alias table
  arp                    IP ARP table
  as-path-access-list    List AS path access lists
  auth-proxy             Authentication Proxy information
  bgp                    BGP information
  cache                  IP fast-switching route cache
  cef                    Cisco Express Forwarding
  community-list         List community-list
  ddns                   Dynamic DNS
  device                 Show IP Tracking Hosts
  dfp                    DFP information
  dhcp                   Show items in the DHCP database
  dns                    Show DNS information
  drp                    Director response protocol
  dvmrp                  DVMRP information
  eigrp                  IP-EIGRP show commands
  explicit-paths         Show IP explicit paths
  extcommunity-list      List extended-community list
  flow                   NetFlow switching
  helper-address         helper-address table

Router#show IP
% Incomplete command.
Router#
Router#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
Router(config)#hostname <dallas>
% Hostname contains one or more illegal characters.
Router(config)#hostname dallas
dallas(config)#exit
dallas#
*Feb  8 23:59:40.715: %SYS-5-CONFIG_I: Configured from console by consoleshow ru
% Ambiguous command:  "show ru"
dallas#show run
Building configuration...
Current configuration : 1091 bytes
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname dallas
!
boot-start-marker
boot-end-marker
!
logging message-counter syslog
!
no aaa new-model
!
dot11 syslog
ip source-route
!
!
ip cef
!
!
!
no ipv6 cef
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
voice-card 0
 no dspfarm
!
!
!
!
!
archive
 log config
  hidekeys
!
!
!
!
!
!
!
!
!
interface FastEthernet0/0
```

```
 no ip address
 shutdown
 duplex auto
 speed auto
!
interface FastEthernet0/1
 no ip address
 shutdown
 duplex auto
 speed auto
!
interface FastEthernet0/0/0
!
interface FastEthernet0/0/1
!
interface FastEthernet0/0/2
!
interface FastEthernet0/0/3
!
interface Serial0/1/0
 no ip address
 shutdown
 clock rate 125000
!
interface Serial0/1/1
 no ip address
 shutdown
 clock rate 125000
!
interface Vlan1
 no ip address
!
ip forward-protocol nd
no ip http server
no ip http secure-server
!
!
!
!
!
!
!
!
!
!
control-plane
!
!
!
!
!
!
!
!
!
!
line con 0
line aux 0
line vty 0 4
 login
!
scheduler allocate 20000 1000
end
dallas# show ip interface brief
Interface                  IP-Address      OK? Method Status                Prot
ocol
FastEthernet0/0            unassigned      YES unset  administratively down down

FastEthernet0/1            unassigned      YES unset  administratively down down

FastEthernet0/0/0          unassigned      YES unset  up                    down

FastEthernet0/0/1          unassigned      YES unset  up                    down

FastEthernet0/0/2          unassigned      YES unset  up                    down

FastEthernet0/0/3          unassigned      YES unset  up                    down

Serial0/1/0                unassigned      YES unset  administratively down down

Serial0/1/1                unassigned      YES unset  administratively down down

Vlan1                      unassigned      YES unset  up                    down

SSLVPN-VIF0                unassigned      NO  unset  up                    up

dallas#
dallas#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route
Gateway of last resort is not set
dallas#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
dallas(config)#inter
dallas(config)#interface Fa
dallas(config)#interface FastEthernet0/0 192.168.0.9/30
                                         ^
% Invalid input detected at '^' marker.
dallas(config)#interface FastEthernet0/0 192.168.0.9
                                         ^
% Invalid input detected at '^' marker.
dallas(config)#interface FastEthernet0/0 192.168.0.9/30
                                         ^
% Invalid input detected at '^' marker.
```

```
dallas(config)#interface FastEthernet0/0
dallas(config-if)#
dallas(config-if)#
dallas(config-if)#
dallas(config-if)#show
dallas(config-if)#show ?
% Unrecognized command
dallas(config-if)#show
                   ^
% Invalid input detected at '^' marker.
dallas(config-if)#show
                   ^
% Invalid input detected at '^' marker.
dallas(config-if)#description Li
dallas(config-if)#description Link
dallas(config-if)#description Link to Miami 192.168.0.10/30
dallas(config-if)#description Link to Paris 192.168.0.13/30
dallas(config-if)#ip address 192.168.4.4/32
                             ^
% Invalid input detected at '^' marker.
dallas(config-if)#ip address 192.168.4.4
% Incomplete command.
dallas(config-if)#ip address 192.168.4.4 255.255.255.252
Bad mask /30 for address 192.168.4.4
dallas(config-if)#
dallas(config-if)#description Link to Miami 192.168.0.10/30
dallas(config-if)#ip address 192.168.0.9 255.255.255.252
dallas(config-if)#no shutdown
dallas(config-if)#
*Feb  9 00:27:35.535: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Feb  9 00:27:36.535: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
dallas(config-if)#interface Fa
dallas(config-if)#interface Fast
dallas(config-if)#interface FastE
dallas(config-if)#config terminal
                   ^
% Invalid input detected at '^' marker.
dallas(config-if)#config terminal
                   ^
% Invalid input detected at '^' marker.
dallas(config-if)#end
dallas#
*Feb  9 00:31:22.251: %SYS-5-CONFIG_I: Configured from console by console
dallas#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
dallas(config)#inter
dallas(config)#interface Fa
dallas(config)#interface FastEthernet0/1
dallas(config-if)#des
dallas(config-if)#description Link
dallas(config-if)#description Link to Paris 192.168.0.13
dallas(config-if)#ip addre
dallas(config-if)#ip address 192.168.0.14 255.255.255.252
dallas(config-if)#no shutdown
dallas(config-if)#
*Feb  9 00:36:38.191: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state t
o up
*Feb  9 00:36:39.191: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/1, changed state to up
dallas(config-if)#interface loopback 0
dallas(config-if)#
*Feb  9 00:37:11.831: %LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0,
 changed state to up
dallas(config-if)#ip address 192.168.4.4 255.255.255.255
dallas(config-if)#no shutdown
dallas(config-if)#
dallas(config-if)#end
dallas#
*Feb  9 00:39:15.247: %SYS-5-CONFIG_I: Configured from console by console
dallas#show run
Building configuration...
Current configuration : 1267 bytes
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname dallas
!
boot-start-marker
boot-end-marker
!
logging message-counter syslog
!
no aaa new-model
!
dot11 syslog
ip source-route
!
!
ip cef
!
!
!
no ipv6 cef
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
!
```

```
!
!
!
!
!
!
!
!
!
voice-card 0
 no dspfarm
!
!
!
!
!
archive
 log config
  hidekeys
!
!
!
!
!
!
!
!
!
interface Loopback0
 ip address 192.168.4.4 255.255.255.255
!
interface FastEthernet0/0
 description Link to Miami 192.168.0.10/30
 ip address 192.168.0.9 255.255.255.252
 duplex auto
 speed auto
!
interface FastEthernet0/1
 description Link to Paris 192.168.0.13
 ip address 192.168.0.14 255.255.255.252
 duplex auto
 speed auto
!
interface FastEthernet0/0/0
!
interface FastEthernet0/0/1
!
interface FastEthernet0/0/2
!
interface FastEthernet0/0/3
!
interface Serial0/1/0
 no ip address
 shutdown
 clock rate 125000
!
interface Serial0/1/1
 no ip address
 shutdown
 clock rate 125000
!
interface Vlan1
 no ip address
!
ip forward-protocol nd
no ip http server
no ip http secure-server
!
!
!
!
!
!
!
!
!
!
!
control-plane
!
!
!
!
!
!
!
!
!
!
!
line con 0
line aux 0
line vty 0 4
 login
!
scheduler allocate 20000 1000
end
dallas#show ip interface brief
Interface              IP-Address      OK? Method Status                Prot
ocol
FastEthernet0/0        192.168.0.9     YES manual up                    up

FastEthernet0/1        192.168.0.14    YES manual up                    up

FastEthernet0/0/0      unassigned      YES unset  up                    down

FastEthernet0/0/1      unassigned      YES unset  up                    down

FastEthernet0/0/2      unassigned      YES unset  up                    down

FastEthernet0/0/3      unassigned      YES unset  up                    down
```

```
Serial0/1/0              unassigned      YES unset  administratively down down

Serial0/1/1              unassigned      YES unset  administratively down down

Vlan1                    unassigned      YES unset  up                    down

SSLVPN-VIF0              unassigned      NO  unset  up                    up

Loopback0                192.168.4.4     YES manual up                    up

dallas#ping 192.168.0.10
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.10, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 1/1/4 ms
dallas#ping 192.168.0.13
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.13, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/4 ms
dallas#
dallas#
dallas#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route
Gateway of last resort is not set
     192.168.4.0/32 is subnetted, 1 subnets
C       192.168.4.4 is directly connected, Loopback0
     192.168.0.0/30 is subnetted, 2 subnets
C       192.168.0.8 is directly connected, FastEthernet0/0
C       192.168.0.12 is directly connected, FastEthernet0/1
dallas#
dallas#
dallas#
dallas#
dallas#
dallas#
dallas#ip rout
dallas#ip route 192.168.0.16 255.255.255.252 192.168.0.18
       ^
% Invalid input detected at '^' marker.
dallas#ip route 192.168.0.16 255.255.255.252 192.168.0.18
       ^
% Invalid input detected at '^' marker.
dallas#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
dallas(config)#ip route 192.168.0.16 255.255.255.252 192.168.0.18
dallas(config)#show ip route
               ^
% Invalid input detected at '^' marker.
dallas(config)#show IP route
               ^
% Invalid input detected at '^' marker.
dallas(config)#ip route 192.168.0.16 255.255.255.252 192.168.0.14
%Invalid next hop address (it's this router)
dallas(config)#
dallas(config)#
dallas(config)#no ip route 192.168.0.16 255.255.255.252
dallas(config)#ip route 192.168.0.16 255.255.255.252 192.168.0.14
%Invalid next hop address (it's this router)
dallas(config)#no ip route 192.168.0.16 255.255.255.252
%No matching route to delete
dallas(config)#ip route 192.168.0.16 255.255.255.252 192.168.0.13
dallas(config)#show ip route
               ^
% Invalid input detected at '^' marker.
dallas(config)#exit
dallas#show i
*Feb  9 01:14:08.087: %SYS-5-CONFIG_I: Configured from console by consol
% Type "show ?" for a list of subcommands
dallas#
dallas#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route
Gateway of last resort is not set
     192.168.4.0/32 is subnetted, 1 subnets
C       192.168.4.4 is directly connected, Loopback0
     192.168.0.0/30 is subnetted, 3 subnets
C       192.168.0.8 is directly connected, FastEthernet0/0
C       192.168.0.12 is directly connected, FastEthernet0/1
S       192.168.0.16 [1/0] via 192.168.0.13
dallas#
dallas#
dallas#
dallas#ping 192.168.0.18
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.18, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
dallas#
dallas con0 is now available
Press RETURN to get started.
```