

ccna question and answers

46 Which addresses are valid host addresses?

- A. 201.222.5.17
- B. 201.222.5.18
- C. 201.222.5.16
- D. 201.222.5.19
- E. 201.222.5.31

Ans A,B & D

Subnet addresses in this situation are all in multiples of 8. In this example, 201.222.5.16 is the subnet, 201.22.5.31 is the broadcast address. The rest are valid host IDs on subnet 201.222.5.16.

47 You are a network administrator and have been assigned the IP address of 201.222.5.0. You need to have 20 subnets with 5 hosts per subnet. What subnet mask will you use?

- A. 255.255.255.248
- B. 255.255.255.128
- C. 255.255.255.192
- D. 255.255.255.240

Ans A

By borrowing 5 bits from the last octet, you can have 30 subnets. If you borrowed only 4 bits you could only have 14 subnets. The formula is $(2 \text{ to the power of } n) - 2$. By borrowing 4 bits, you have $(2 \times 2 \times 2 \times 2) - 2 = 14$. By borrowing 5 bits, you have $(2 \times 2 \times 2 \times 2 \times 2) - 2 = 30$. To get 20 subnets, you would need to borrow 5 bits so the subnet mask would be 255.255.255.248.

48 You are given the IP address of 172.16.2.160 with a subnet mask of 255.255.0.0. What is the network address in binary?

- A. 10101100 00010000
- B. 00000010 10100000
- C. 10101100 00000000
- D. 11100000 11110000

Ans: A

To find the network address, convert the IP address to binary--10101100 000100000 00000010 10100000--then ANDed it with the subnet mask--11111111

11111111 00000000 00000000. The rest is 10101100 00010000
00000000 00000000, which is 172.16.0.0 in decimal.

The first octet rule states that the class of an address can
be determined by the numerical value of the first octet.

49 Which addresses are INCORRECTLY paired with their class?

- A. 128 to 191, Class B
- B. 192 to 223 Class B
- C. 128 to 191, Class C
- D. 192 to 223, Class C

Ans B & C

Address classes are: 1 to 126, Class A; 128 to
191, Class B, 192 to 223, Class C; 224 to 239, Class D; and
240 to 255, Class E.

The first octet rule states that the class of an address can
be determined by the numerical value of the first octet.

50 Which addresses are INCORRECTLY paired with their class?

- A. 1 to 126, Class A
- B. 128 to 191, Class A
- C. 1 to 126, Class B
- D. 128 to 191, Class B

Ans: B & C.

Address classes are: 1 to 126, Class A; 128 to
191, Class B, 192 to 223, Class C; 224 to 239, Class D; and
240 to 255, Class E.

The first octet rule states that the class of an address can
be determined by the numerical value of the first octet.

51 Which addresses are INCORRECTLY paired with their class?

- A. 240 - 255, Class D
- B. 240 - 255, Class E
- C. 224 - 239, Class D
- D. 224 - 239, Class E

Ans A & D

Address classes are: 1 to 126, Class A; 128 to
191, Class B, 192 to 223, Class C; 224 to 239, Class D; and
240 to 255, Class E.

52 Which IP Address Class is INCORRECTLY paired with its range

of network numbers?

- A. Class A addresses include 192.0.0.0 through 223.255.255.0
- B. Class A addresses include 1.0.0.0 through 126.0.0.0
- C. Class B addresses include 128.0.0.0 through 191.255.0.0
- D. Class C addresses include 192.0.0.0 through 223.255.255.0
- E. Class D addresses include 224.0.0.0 through 239.255.255.0

Ans A

Class A addresses include 1.0.0.0 through 126.0.0.0

Class B addresses include 128.0.0.0 through 191.255.0.0

Class C addresses include 192.0.0.0 through 223.255.255.0

Class D addresses include 224.0.0.0 through 239.255.255.0

53 Which IP Address Class can have 16 million subnets but support 254 hosts?

- A. Class C
- B. Class A
- C. Class B
- D. Class D

Ans A

Possible Subnets IP Address Class Possible Hosts

254 A 16M.

64K B 64K

16M C 254

54 Which IP Address Class can have 64,000 subnets with 64,000 hosts per subnet?

- A. Class B
- B. Class A
- C. Class C
- D. Class D

Ans A

IP Address Class

Possible Subnets Possible Hosts

254 A 16M

64K B 64K

16M C 254

55 There are two processes to pair MAC address with IP addresses. Which process finds an IP address from a MAC address?

- A. RARP
- B. ARP
- C. RIP
- D. IGRP

Ans A

ARP (Address Resolution Protocol) maps an IP address to the MAC address, RARP (Reverse Address Resolution Protocol) maps the MAC address to the IP address. ARP and RARP work at the internet layer of the Internet Model or the network layer of the OSI model.

56 When the router runs out of buffer space, this is called _____.

- A. Source Quench
- B. Redirect
- C. Information Request
- D. Low Memory

Ans A

Source quench is the process where the destination router, or end internetworking device will "quench" the data from the "source", or the source router. This usually happens when the destination router runs out of buffer space to process packets.

Posted by jack at [4:25 PM](#) [0 comments](#) _

Monday, June 11, 2007

[ccna question and answers](#)

34 You have typed "ping" 172.16.101.1 and get the following display:

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echoes to 172.16.101.1, timeout is 2 seconds:

..!!!

What does the "." signify?

A. That one message timed out.

- B. That all messages were successful.
- C. That one message was successful.
- D. That one message completed in under the allotted timeframe.

Ans A

The possible responses from the ping command are:

- ! Successful receipt of an echo reply.
- . Timed out waiting for a reply
- U Destination unreachable
- C Congestion-experienced packet
- I Ping interrupted
- ? Packet type unknown
- & Packet TTL exceeded

35 Which command, that is used to test address configuration, uses Time-To-Live (TTL) values to generate messages from each router.

- A. trace
- B. ping
- C. telnet
- D. bootp

Ans: A

The Cisco IOS EXEC command "trace [protocol] [destination]" is used to discover routes that packets will travel to their destination hosts. Trace uses TTL (Time to Live) values to report destination route information.

36 What does the command "IP name-server 255.255.255.255" accomplish?

- A. It sets the domain name lookup to be a local broadcast.
- B. This is an illegal command.
- C. It disables domain name lookup.
- D. The command is now defunct and has been replaced by "IP server-name ip any"

Ans A

By default DNS is enabled on a router with a server address of 255.255.255.255, which provides for a local broadcast.

37 As a system administrator, you need to provide your routers

with a Domain Name System (DNS) server. How many DNS servers can you specify with one command?

- A. 6
- B. 1
- C. 2
- D. 4

Ans A

You can only specify six name servers in one command. The syntax is "IP name-server server-address1 [[server-address2]...server-address6]. You must also enable DNS.

38 How would you configure one host name that points to two IP addresses?

- A. IP host jacob 1.0.0.5 2.0.0.8
- B. IP jacob 1.0.0.5 2.0.0.8
- C. IP host jacob 1.0.0.5
- D. IP host duplicate "all"

Ans A

The correct syntax is IP host name [TCP-port-number] address [address]..... So, "IP host P1R1 1.0.0.5 2.0.0.8" is the correct choice. "IP host jacob 1.0.0.5" only points the host name jacob to one IP address--1.0.0.5.

39 The following selections show the command prompt and the configuration of the IP network mask. Which two are correct?

- A. Router#term IP netmask-format { bitcount | decimal | hexadecimal }
- B. Router(config-if)#IP netmask-format { bitcount | decimal | hexadecimal }
- C. Router(config-if)#netmask-format { bitcount | decimal | hexadecimal }
- D. Router#ip netmask-format { bitcount | decimal | hexadecimal }

Ans A & B

Router#term IP netmask-format { bitcount | decimal | hexadecimal } and Router(config-if)#IP netmask-format { bitcount | decimal | hexadecimal } are correct. You can configure the mask for the current session and you can configure it for a specific line.

40 When configuring the subnet mask for an IP address, which formats can be used? A. dotted-decimal.

- B. Hexadecimal
- C. Bit-count
- D. Octal
- E. Binary

Ans A, B & C

41 You are given the following address: 153.50.6.27/25.
Determine the subnet mask, address class, subnet address,
and broadcast address.

- A. 255.255.255.128, B, 153.50.6.0, 153.50.6.127
- B. 255.255.255.128, C, 153.50.6.0, 153.50.6.127
- C. 255.255.255.128, C, 153.50.6.127, 153.50.6.0
- D. 255.255.255.224, C, 153.50.6.0, 153.50.6.127

Ans A

42 You are given the following address: 128.16.32.13/30.
Determine the subnet mask, address class, subnet address,
and broadcast address.

- A. 255.255.255.252, B, 128.16.32.12, 128.16.32.15
- B. 255.255.255.252, C, 128.16.32.12, 128.16.32.15
- C. 255.255.255.252, B, 128.16.32.15, 128.16.32.12
- D. 255.255.255.248, B, 128.16.32.12, 128.16.32.15

Ans A

43 You are given the following address: 15.16.193.6/21.
Determine the subnet mask, address class, subnet address,
and broadcast address.

- A. 255.255.248.0, A, 15.16.192.0, 15.16.199.255
- B. 255.255.248.0, B, 15.16.192.0, 15.16.199.255
- C. 255.255.248.0, A, 15.16.199.255, 14.15.192.0
- D. 255.255.242.0, A, 15.16.192.0, 15.16.199.255

Ans A

44 You have an IP host address of 201.222.5.121 and a subnet
mask of 255.255.255.248. What is the broadcast address?

- A. 201.222.5.127
- B. 201.222.5.120
- C. 201.222.5.121
- D. 201.222.5.122

Ans A

The easiest way to calculate this is to subtract 255.255.255.248 (subnet mask) from 255.255.255.255, this equals 7. Convert the address 201.222.5.121 to binary--11001001 11011110 00000101 01111001. Convert the mask 255.255.255.248 to binary--11111111 11111111 11111111 11111000. AND them together to get: 11001001 11011110 00000101 01111000 or 201.222.5.120. 201.222.5.120 is the subnet address, add 7 to this address for 201.222.5.127 or the broadcast address. 201.222.5.121 through 201.222.5.126 are the valid host addresses.

45 Given the address 172.16.2.120 and the subnet mask of 255.255.255.0. How many hosts are available?

- A. 254
- B. 510
- C. 126
- D. 16,372

Ans A

172.16.2.120 is a standard Class B address with a subnet mask that allows 254 hosts.

You are a network administrator and have been assigned the IP address of 201.222.5.0. You need to have 20 subnets with 5 hosts per subnet. The subnet mask is 255.255.255.248.

Posted by jack at [8:56 AM](#) [0 comments](#) _

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26 IGRP uses flash updates, poison reverse updates, holddown times, and split horizon. How often does it broadcast its routing table updates?

- A. 90 seconds
- B. 10 seconds
- C. 30 seconds
- D. 45 seconds

Ans A

27 The command "show IP protocol" displays which information?

- A. routing timers
- B. network information
- C. contents of the IP routing table
- D. information about all known network and subnetworks

Ans A & B

"show IP protocol" displays routing timers and network information. "show IP route" displays the routing table with information about all known networks and subnetworks.

28 When using RIP, routing updates are broadcast every ____ seconds.

- A. 30
- B. 10
- C. 60
- D. 90

Ans: A

Novell's RIP updates routing tables every 60 seconds, Apple's RTMP is every 10 seconds, routers ARP every 60 seconds, DECnet hosts and IGRP signal every 15 seconds, and Banyan VINES signals every 90 seconds.

29 An autonomous system can only exist if all routers in that system meet which criteria?

- A. interconnected
- B. run the same routing protocol
- C. assigned same autonomous system number
- D. run IGRP only
- E. run RIP only

Ans A,B &C

An autonomous system is a set of routers and networks under the same administration. Each router must be interconnected, run the same routing protocol, and assigned the same autonomous system number. The network Information Center (NIC) assigns a unique autonomous system number to enterprises.

30 A default route is analogous to a _____.

- A. default gateway
- B. static route
- C. dynamic route
- D. one-way route

Ans: A

A default route is analogous to a default gateway. It is used to reduce the length of routing tables and to provide complete routing capabilities when a router might not know the routes to all other networks.

31 Routers can learn about destinations through static routes, default, or dynamic routing. By default, a router will use information derived from _____.

- A. IGRP
- B. RIP
- C. IP
- D. TCP

Ans A

The quality of information is rated:

Connected interface 0

Static route 1

IGRP 100

RIP 120

Unknown 255

The lower the value, the more reliable the source with 255 signifying information that the router will ignore. So, the router will use IGRP, rated at 100, before RIP, rated at 120.

32 You are logged into a router, what command would show you the IP addresses of routers connected to you?

- A. show cdp neighbors detail
- B. show run
- C. show neighbors
- D. show cdp

Ans A

33 As a system administrator, you perform an extended ping at the privileged EXEC prompt. As part of the display, you see

"Set DF bit in IP header? [yes] :" What would happen if you answered no at the prompt.

- A. This lets the router fragment the packet.
- B. It tells the router not to fragment the packet.
- C. This lets the router direct the packet to the destination it finds in its routing table.
- D. It tell the router to send the packet to the next hop router.

Ans A

"Set DF bit in IP header?" is a response to an extended ping at the router. If you answer yes (the default) the router will not fragment the packet. If you answer no, the router will fragment the packet.

18 You are a system administrator on a NetWare network, you are running NetWare 4.11 and you cannot communicate with your router. What is the likely problem?

- A. NetWare 4.11 defaults to 802.2 encapsulation.
- B. NetWare 4.11 defaults to 802.3 encapsulation
- C. Cisco routers only work with NetWare 3.11.
- D. NetWare 3.11 defaults to 802.2 encapsulation.

Ans A

The default encapsulation on Cisco routers is Novell Ethernet_802.3 and NetWare 3.12 and later defaults to 802.2 encapsulation, 3.11 and earlier defaults to 802.3.

19 NetWare IPX addressing uses a network number and a node number. Which statements are true?

- A. The network address is administratively assigned and can be up to 16 hexadecimal digits long.
- B. The node address is always administratively assigned.
- C. The node address is usually the MAC address.
- D. If the MAC address is used as the node address, then IPX eliminates the use of ARP.

Ans A, C &D

The network address can be up to 16 hexadecimal digits in length. The node number is 12 hexadecimal digits. The node address is usually the MAC address. An example IPX address is 4a1d.0000.0c56.de33.

The network part is 4a1d. The node part is 0000.0c56.de33.
The network number is assigned by the system administrator of the Novell network.

20 Which NetWare protocol works on layer 3--network layer--of the OSI model?

- A. IPX
- B. NCP
- C. SPX
- D. NetBIOS

Ans A

IPX (Internetwork Packet Exchange) is a NetWare network layer 3 protocol used for transferring information on LANs.

21 Which NetWare protocol provides link-state routing?

- A. NLSP
- B. RIP
- C. SAP
- D. NCP

Ans: A

NetWare Link Services Protocol (NLSP) provides link-state routing. SAP (Service Advertisement Protocol) advertises network services. NCP (NetWare Core Protocol) provides client-to-server connections and applications. RIP is a distance vector routing protocol.

22 As a system administrator, you want to debug igrp but are worried that the "debug IP igrp transaction" command will flood the console. What is the command that you should use?

- A. debug IP igrp event
- B. debug IP igrp-events
- C. debug IP igrp summary
- D. debug IP igrp events

Ans D

The "debug IP igrp events" is used to only display a summary of IGRP routing information. You can append an IP address onto either command to see only the

IGRP updates from a neighbor.

23 What does the following series of commands accomplish?

```
router igrp 71
network 10.0.0.0
router igrp 109
network 172.68.7.0
```

- A. It isolates networks 10.0.0.0 and 172.68.7.0.
- B. It loads igrp for networks 109 and 71.
- C. It disables RIP.
- D. It disables all routing protocols.

Ans A

It isolates network 10.0.0.0 and 172.68.7.0 and associates autonomous systems 109 and 71 with IGRP. IGRP does not disable RIP, both can be used at the same time.

24 In the command "router igrp 109" what does 109 signify?

- A. an autonomous system
- B. any network number which the router is attached to
- C. the allowable length of the routing table
- D. the network socket number

Ans A

The Cisco IOS global configuration command "router igrp xxx" is used to configure the Interior Gateway Routing Protocol. In this case, the 109 is called the process-id, which can also be used for an autonomous system number.

25 IGRP supports a feature that allows traffic to be distributed among up to 6 (4 default) paths to provide greater overall throughput and reliability. What is this called?

- A. unequal-cost load balancing
- B. equal-cost load balancing
- C. proportionate load balancing
- D. low cost load balancing

Ans A

An unequal-cost load balancing is used to

provide alternate paths for data distribution on an internetwork. Cisco developed this method to use unused or under utilized links to increase bandwidth and network availability.

Posted by jack at [12:12 PM](#) [0 comments](#) _

Wednesday, April 11, 2007

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7 What does the "IPX maximum-paths 2" command accomplish?

- A. It enables load sharing on 2 paths if the paths are equal metric paths.
- B. It sets up routing to go to network 2.
- C. It is the default for Cisco IPX load sharing.
- D. It enables load sharing on 2 paths if the paths are unequal metric paths.

Ans A

It enables load sharing on 2 paths if the paths are equal metric paths. The default is 1 path and the maximum is 512 paths.

8 You want to enable both arpa and snap encapsulation on one router interface. How do you do this?

- A. The interface can handle multiple encapsulation types with no extra configuration.
- B. Assign two network numbers, one for each encapsulation type.
- C. Enable Novell-ether to run multiple encapsulation types.
- D. Both arpa and snap are enabled by default so you don't have to configure anything.

Ans B

To assign multiple network numbers, you usually use subinterfaces. A sample configuration follows:

```
ipx ethernet 0.1
ipx encapsulation novell-ether
ipx network 9e
interface ethernet 0.2
ipx encapsulation sap
ipx network 6c
```

8 By default, Cisco routers forward GNS SAPs to remote networks.

- A. False
- B. True

Ans A

GNS is Novell's protocol to Get Nearest Server. If there is a server on the local network, that server will respond. If there isn't, the Cisco router has to be configured to forward the GNS SAP.

9 To prevent Service Advertisements (SAPs) from flooding a network, Cisco routers do not forward them. How are services advertised to other networks?

- A. Each router builds its own SAP table and forwards that every 60 seconds.
- B. Each router assigns a service number and broadcasts that.
- C. SAPs aren't necessary with Cisco routers.
- D. Cisco routers filter out all SAPs.

Ans: A

Cisco routers build SAP tables and forward the table every 60 seconds. All SAPs can't be filtered even with 4.x since NDS and time synchronization uses SAPs.

10 Novell's implementation of RIP updates routing tables every ____ seconds.

- A. 60
- B. 90
- C. 10
- D. 30

Ans A

Novell's RIP updates routing tables every 60 seconds, Apple's RTMP is every 10 seconds, routers ARP every 60 seconds, IGRP signal every 90 seconds, and Banyan VINES signals every 90 seconds.

11 In Novell's use of RIP, there are two metrics used to make routing decisions. Select the two metrics.

- A. Ticks.
- B. Hops
- C. Loops
- D. Counts

Ans: A & B

It first uses ticks (which is about 1/18 sec.); if there is a tie, it uses hops; if hops are equal, then it uses an administratively assigned tiebreaker.

12 What is the Cisco name for the encapsulation type used on a serial interface?

- A. HDLC
- B. SDLC
- C. SAP
- D. SNAP

Ans A

13 "arpa" is used by the Cisco IOS for which encapsulation types?

- A. Ethernet_II
- B. Ethernet_802.3
- C. Ethernet_802.2
- D. Ethernet_SNAP

Ans A

Novell's IPX and Cisco's IOS name their protocols differently. Cisco uses sap for Ethernet_802.2, Token-Ring, and Novell's FDDI_802.2. Cisco uses snap for Ethernet_SNAP, Token-Ring_SNAP, and FDDI_SNAP. Cisco uses arpa for Ethernet_II and, finally the default is Novell-ether for Novell's Ethernet_802.3.

14 "snap" is used by the Cisco IOS for which encapsulation types?

- A. Ethernet_SNAP
- B. Token-Ring_SNAP
- C. FDDI_SNAP
- D. Novell-SNAP
- E. Novell-FDDI.

Ans: A,B &C

Novell's IPX and Cisco's IOS name their protocols differently. Cisco uses sap for Ethernet_802.2, Token-Ring, and Novell's FDDI_802.2. Cisco uses snap for Ethernet_SNAP, Token-Ring_SNAP, and FDDI_SNAP. Cisco uses arpa for Ethernet_II and, finally the default is Novell-ether for Novell's Ethernet_802.3.

15 "sap" is used by the Cisco IOS for which encapsulation types?

- A. Ethernet_802.2
- B. Token-Ring
- C. FDDI_SNAP
- D. Ethernet_802.3
- E. FDDI_802.2

Ans A,B &E

Novell's IPX and Cisco's IOS name their protocols differently. Cisco uses sap for Ethernet_802.2, Token-Ring, and Novell's FDDI_802.2. Cisco uses snap for Ethernet_SNAP, Token-Ring_SNAP, and FDDI_SNAP. Cisco uses arpa for Ethernet_II and, finally the default is Novell-ether for Novell's Ethernet_802.3.

16 Which type of Ethernet framing is used for TCP/IP and AppleTalk?

- A. Ethernet 802.3
- B. Ethernet 802.2
- C. Ethernet II
- D. Ethernet SNAP

Ans D

Ethernet 802.3 is used with NetWare versions 2 through 3.11, Ethernet 802.2 is used with NetWare 3.12 and later plus OSI routing, Ethernet II is used with TCP/IP and DECnet, and Ethernet SNAP is used with TCP/IP and AppleTalk.

17 Which type of Ethernet framing is used for TCP/IP and DECnet?

- A. Ethernet 802.3

- B. Ethernet 802.2
- C. Ethernet II
- D. Ethernet SNAP

Ans: C

Ethernet 802.3 is used with NetWare versions 2 through 3.11, Ethernet 802.2 is used with NetWare 3.12 and later plus OSI routing, Ethernet II is used with TCP/IP and DECnet, and Ethernet SNAP is used with TCP/IP and AppleTalk.

Posted by jack at [6:44 PM](#) [0 comments](#) _

Thursday, February 22, 2007

[ccna question and answers](#)

1 As system administrator, you type "debug ipx sap" and receive the following lines as part of the IOS response:
type 0x4, "HELLO2", 199.0002.0003.0006 (451), 2 hops
type 0x4, "HELLO1", 199.0002.0003.0008 (451), 2 hops
What does "0x4" signify?

- A. That is a Get Nearest Server response.
- B. That it is a General query.
- C. That it is a General response.
- D. That it is a Get Nearest Server request.

Ans A

2 To monitor IP igmp traffic, you can use "debug IP igmp transaction" or "debug IP igmp events". How do you display information about IPX routing update packets?

- A. debug routing
- B. debug ipx transaction
- C. debug ipx routing activity
- D. debug ipx events

Ans: C

3 To monitor ipx traffic on a network, what command would you use?

- A. debug ipx transaction
- B. show ipx traffic
- C. show ipx events
- D. display ipx traffic

Ans B

4 What command would you use to find out the names of Novell servers on a network?

- A. show ipx servers
- B. show ipx hosts
- C. show ipx sap
- D. show ipx nodes.

Ans A

5 The "ipx delay number" command will allow an administrator to change the default settings. What are the default settings?

- A. For LAN interfaces, one tick; for WAN interfaces, six ticks
- B. For LAN interfaces, six ticks; for WAN interfaces, one tick
- C. For LAN interfaces, zero ticks; for WAN interfaces, five ticks
- D. For LAN interfaces, five ticks; for WAN interfaces, zero Ticks

Ans A

The default is--for LAN interfaces, one tick;
for WAN interfaces, six ticks

6 As a system administrator, you need to set up one Ethernet interface on the Cisco router to allow for both sap and Novell-ether encapsulations. Which set of commands will accomplish this?

A. interface ethernet 0.1
ipx encapsulation Novell-ether
ipx network 9e
interface ethernet 0.2
ipx network 6c

B. interface ethernet 0
ipx encapsulation Novell-ether
ipx network 9e

```
interface ethernet 0
ipx encapsulation sap
ipx network 6c
```

```
C. interface ethernet 0.1
ipx encapsulation Novell-ether
interface ethernet 0.2
ipx encapsulation sap
```

```
D. interface ethernet 0.1
ipx encapsulation Novell-ether
ipx network 9e
interface ethernet 0.2
ipx encapsulation sap
ipx network 6c
```

Ans D

The following commands setup the subinterfaces to allow for two types of encapsulation:

```
interface ethernet 0.1
ipx encapsulation Novell-ether
ipx network 9e
interface ethernet 0.2
ipx encapsulation sap
ipx network 6c
```