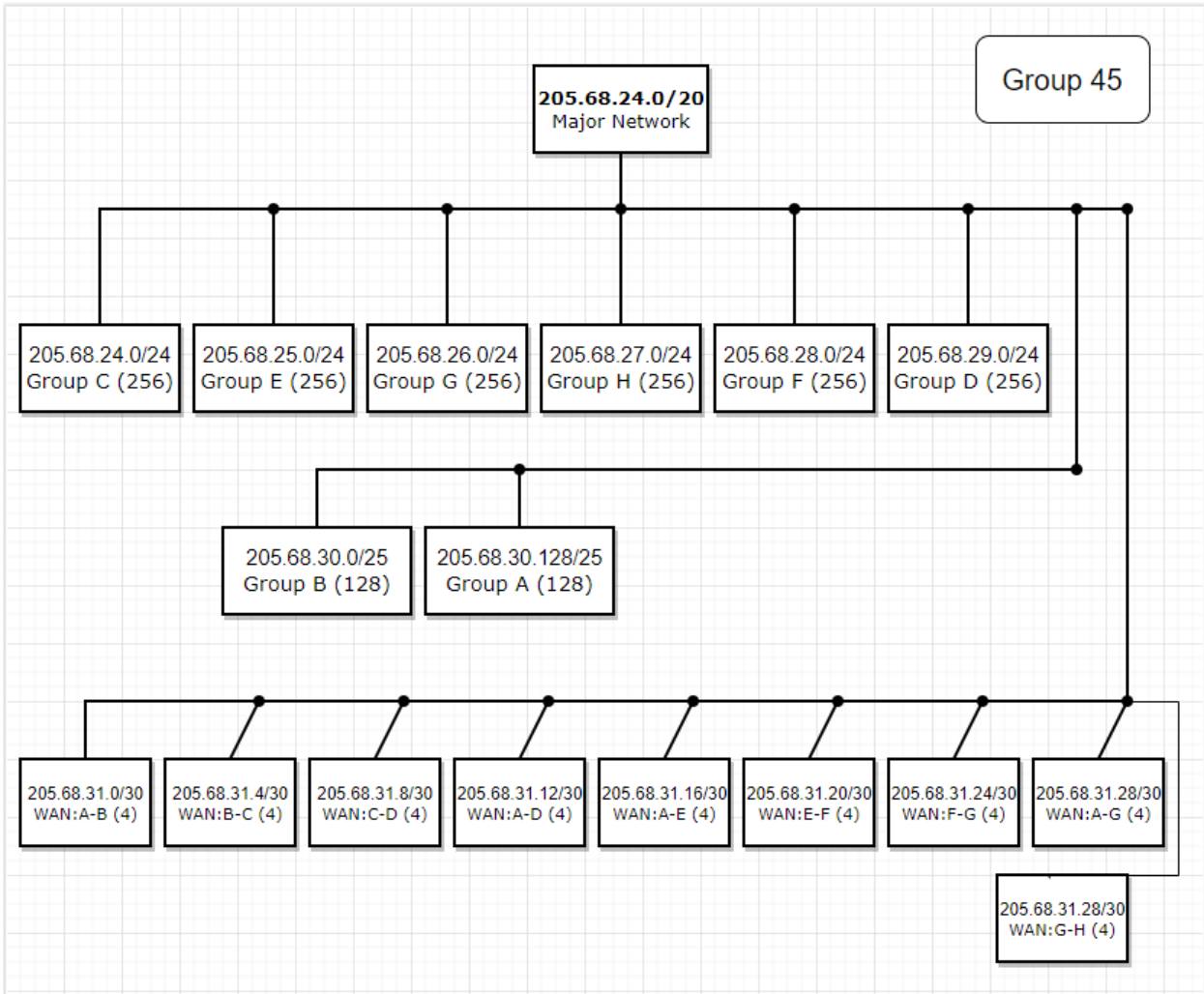


VLSM TREE



VLSM TREE TABLE

Subnet Name	Address	Host No.	+2	Allocated Size	Host bit (2 ⁿ)	Mask	Assignable Range
Group C	205.68.24.0	220	222	256	8	24	205.68.24.1 - 205.68.24.254
Group E	205.68.25.0	220	222	256	8	24	205.68.25.1 - 205.68.25.254
Group G	205.68.26.0	180	182	256	8	24	205.68.26.1 - 205.68.26.254
Group H	205.68.27.0	180	182	256	8	24	205.68.27.1 - 205.68.27.254
Group F	205.68.28.0	140	142	256	8	24	205.68.28.1 - 205.68.28.254
Group D	205.68.29.0	130	132	256	8	24	205.68.29.1 - 205.68.29.254
Group B	205.68.30.0	100	102	128	7	25	205.68.30.1 - 205.68.30.126
Group A	205.68.30.128	90	92	128	7	25	205.68.30.129 - 205.68.30.254
WAN: A-B	205.68.31.0	2	4	4	2	30	205.68.31.1 - 205.68.31.2
WAN: B-C	205.68.31.4	2	4	4	2	30	205.68.31.5 - 205.68.31.6
WAN: C-D	205.68.31.8	2	4	4	2	30	205.68.31.9 - 205.68.31.10
WAN: A-D	205.68.31.12	2	4	4	2	30	205.68.31.13 - 205.68.31.14
WAN: A-E	205.68.31.16	2	4	4	2	30	205.68.31.17 - 205.68.31.18
WAN: E-F	205.68.31.20	2	4	4	2	30	205.68.31.21 - 205.68.31.22
WAN: F-G	205.68.31.24	2	4	4	2	30	205.68.31.25 - 205.68.31.26

WAN: A-G	205.68.31.28	2	4	4	2	30	205.68.31.29 - 205.68.31.30
WAN: G-H	205.68.31.32	2	4	4	2	30	205.68.31.33 - 205.68.31.34

IP Address Table

Devices	Interface	IPv4	Subnet Mask	Default Gateway
A	Fa0/0	205.68.30.129	255.255.255.128	N/A
	Se0/0/0	205.68.31.1	255.255.255.252	N/A
	Se0/0/1	205.68.31.13	255.255.255.252	N/A
	Se0/1/0	205.68.31.29	255.255.255.252	N/A
	Se0/1/1	205.68.31.17	255.255.255.252	N/A
B	Fa0/0	205.68.30.1	255.255.255.128	N/A
	Se0/0/0	205.68.31.2	255.255.255.252	N/A
	Se0/0/1	205.68.31.5	255.255.255.252	N/A
C	Fa0/0	205.68.24.1	255.255.255.0	N/A
	Se0/0/0	205.68.31.9	255.255.255.252	N/A
	Se0/0/1	205.68.31.6	255.255.255.252	N/A
D	Fa0/0	205.68.29.1	255.255.255.0	N/A
	Se0/0/0	205.68.31.10	255.255.255.252	N/A
	Se0/0/1	205.68.31.14	255.255.255.252	N/A
E	Fa0/0	205.68.25.1	255.255.255.0	N/A
	Se0/0/0	205.68.31.21	255.255.255.252	N/A
	Se0/0/1	205.68.31.18	255.255.255.252	N/A
F	Fa0/0	205.68.28.1	255.255.255.0	N/A
	Se0/0/0	205.68.31.22	255.255.255.252	N/A
	Se0/0/1	205.68.31.25	255.255.255.252	N/A
G	Fa0/0	205.68.26.1	255.255.255.0	N/A
	Se0/0/0	205.68.31.33	255.255.255.252	N/A
	Se0/0/1	205.68.31.30	255.255.255.252	N/A
	Se0/1/0	205.68.31.26	255.255.255.252	N/A

H	Fa0/0	205.68.27.1	255.255.255.0	N/A
	Se0/0/0	205.68.31.34	255.255.255.252	N/A
PC0	NIC(Fa0/0)	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC1	NIC(Fa0/0)	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC2	NIC(Fa0/0)	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC3	NIC(Fa0/0)	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC4	NIC(Fa0/0)	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC5	NIC(Fa0/0)	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC6	NIC(Fa0/0)	205.68.25.2	255.255.255.0	205.68.25.1/24
PC7	NIC(Fa0/0)	205.68.25.3	255.255.255.0	205.68.25.1/24
PC8	NIC(Fa0/0)	205.68.28.2	255.255.255.0	205.68.28.1/24
PC9	NIC(Fa0/0)	205.68.28.3	255.255.255.0	205.68.28.1/24
PC10	NIC(Fa0/0)	205.68.26.2	255.255.255.0	205.68.26.1/24
PC11	NIC(Fa0/0)	205.68.26.3	255.255.255.0	205.68.26.1/24
PC12	NIC(Fa0/0)	205.68.27.2	255.255.255.0	205.68.27.1/24
PC13	NIC(Fa0/0)	205.68.27.3	255.255.255.0	205.68.27.1/24
PC14	NIC(Fa0/0)	205.68.30.135	255.255.255.128	205.68.30.129
PC15	NIC(Fa0/0)	205.68.30.134	255.255.255.128	205.68.30.129
Printer0	NIC(Fa0/0)	DHCP Assigned	DHCP Assigned	DHCP Assigned
Printer1	NIC(Fa0/0)	DHCP Assigned	DHCP Assigned	DHCP Assigned
Printer2	NIC(Fa0/0)	DHCP Assigned	DHCP Assigned	DHCP Assigned
Printer3	NIC(Fa0/0)	205.68.25.4	255.255.255.0	205.68.25.1/24
Printer4	NIC(Fa0/0)	205.68.28.4	255.255.255.0	205.68.28.1/24
Printer5	NIC(Fa0/0)	205.68.26.4	255.255.255.0	205.68.26.1/24
Printer6	NIC(Fa0/0)	205.68.27.4	255.255.255.0	205.68.27.1/24
Printer7	NIC(Fa0/0)	205.68.30.131	255.255.255.128	205.68.30.129
Email Server	NIC(Fa0/0)	205.68.30.132	255.255.255.128	205.68.30.129
DHCP Server	NIC(Fa0/0)	205.68.30.136	255.255.255.128	205.68.30.129
Web Server	NIC(Fa0/0)	205.68.30.130	255.255.255.128	205.68.30.129
DNS Server	NIC(Fa0/0)	205.68.30.133	255.255.255.128	205.68.30.129

Commands

A:

Static routing:

A>en

A#conf t

Enter configuration commands, one per line. End with CNTL/Z.

A(config)#ip route 205.68.30.0 255.255.255.128 205.68.31.2

A(config)#ip route 205.68.24.0 255.255.255.0 205.68.31.6

A(config)#ip route 205.68.29.0 255.255.255.0 205.68.31.14

A(config)#ip route 205.68.25.0 255.255.2

^

% Invalid input detected at '^' marker.

A(config)#ip route 205.68.25.0 255.255.255.0 205.68.31.18

A(config)#ip route 205.68.28.0 255.255.255.0 205.68.31.22

A(config)#ip route 205.68.26.0 255.255.255.0 205.68.31.30

A(config)#ip route 205.68.27.0 255.255.255.0 205.68.31.34

A(config)#exit

A#

B:

Router>enable

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface FastEthernet0/0

Router(config-if)#

Router(config-if)#exit

Router(config)#interface FastEthernet0/0

Router(config-if)#

Router(config-if)#end

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#hostname B

B(config)#

%SYS-5-CONFIG_I: Configured from console by console

B(config)#interface FastEthernet0/0

B(config-if)#

```
B(config-if)#exit
B(config)#interface FastEthernet0/0
B(config-if)#ip address 205.68.30.1 255.255.255.0
B(config-if)#ip address 205.68.30.1 255.255.255.128
B(config-if)#no shutdown
B(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

```
B(config-if)#exit
B(config)#interface Serial0/0/0
B(config-if)#ip address 205.68.31.2 255.255.255.0
B(config-if)#ip address 205.68.31.2 255.255.255.252
B(config-if)#no shutdown
B(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
```

```
B(config-if)#exit
B(config)#interface Serial0/0/1
B(config-if)#ip address 205.68.31.5 255.255.255.252
B(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up
ip address 205.68.31.5 255.255.255.252
B(config-if)#no shutdown
B(config-if)#
```

Static routing:

```
B>en
B#conf t
Enter configuration commands, one per line. End with CNTL/Z.
B(config)##ip route 205.68.25.0 255.255.255.0 205.68.31.18
^
% Invalid input detected at '^' marker.
```

```
B(config)#ip route 205.68.25.0 255.255.255.0 205.68.31.18
B(config)#ip route 205.68.28.0 255.255.255.0 205.68.31.22
B(config)#ip route 205.68.26.0 255.255.255.0 205.68.31.30
B(config)#ip route 205.68.27.0 255.255.255.0 205.68.31.34
B(config)#ip route 205.68.30.128 255.255.255.128 205.68.31.17
%LINK-3-UPDOWN: Interface Serial0/0/0, changed state to down
```

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to down

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

```
B(config)#ip route 205.68.30.128 255.255.255.128 205.68.31.1
B(config)#ip route 205.68.24.0 255.255.255.0 205.68.31.6
B(config)#ip route 205.68.29.0 255.255.255.0 205.68.31.21
B(config)#exit
B#
```

DHCP:

```
B>en
B#conf t
Enter configuration commands, one per line. End with CNTL/Z.
B(config)#int f0/0
B(config-if)#ip helper-address 205.68.30.136
B(config-if)#exit
B(config)#exit
B#
```

C:

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname C
C(config)#
C(config)#interface FastEthernet0/0
C(config-if)#ip address 205.68.24.1 255.255.255.0
C(config-if)#ip address 205.68.24.1 255.255.255.0
C(config-if)#no shutdown
C(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

```
C(config-if)#exit
C(config)#interface Serial0/0/0
C(config-if)#ip address 205.68.31.9 255.255.255.0
C(config-if)#ip address 205.68.31.9 255.255.255.252
C(config-if)#no shutdown
```

```
C(config-if)#
C(config-if)#exit
C(config)#interface Serial0/0/1
C(config-if)#no ip address
C(config-if)#ip address 205.68.31.6 255.255.255.252
C(config-if)#ip address 205.68.31.6 255.255.255.252
C(config-if)#no shutdown
C(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
```

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up

Static routing:

```
C>en
C#conf t
Enter configuration commands, one per line. End with CNTL/Z.
C(config)#ip route 205.68.25.0 255.255.255.0 205.68.31.18
C(config)#ip route 205.68.28.0 255.255.255.0 205.68.31.22
C(config)#ip route 205.68.26.0 255.255.255.0 205.68.31.30
C(config)#ip route 205.68.27.0 255.255.255.0 205.68.31.34
C(config)#ip route 205.68.30.128 255.255.255.128 205.68.31.1
C(config)#ip route 205.68.30.0 255.255.255.128 205.68.31.5
C(config)#ip route 205.68.29.0 255.255.255.0 205.68.31.21
C(config)#exit
C#
%SYS-5-CONFIG_I: Configured from console by console
```

Primary route:

```
C>en
C#conf t
Enter configuration commands, one per line. End with CNTL/Z.
C(config)#ip route 205.68.26.0 255.255.255.0 se0/0/1
C(config)#exit
C#
%SYS-5-CONFIG_I: Configured from console by console
```

C#

Floating route:

```
C>en
C#conf t
```


Enter configuration commands, one per line. End with CNTL/Z.

C(config)#ip route 205.68.26.0 255.255.255.0 se0/1/0 23

C(config)#exit

C#

%SYS-5-CONFIG_I: Configured from console by console

DHCP:

C>en

C#conf t

Enter configuration commands, one per line. End with CNTL/Z.

C(config)#int f0/0

C(config-if)#ip helper-address 205.68.30.136

C(config-if)#exit

C(config)#exit

C#

D:

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#hostname D

D(config)#

D(config)#interface FastEthernet0/0

D(config-if)#ip address 205.68.29.1 255.255.255.0

D(config-if)#ip address 205.68.29.1 255.255.255.0

D(config-if)#no shutdown

D(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

D(config-if)#exit

D(config)#interface Serial0/0/0

D(config-if)#ip address 205.68.31.10 255.255.255.0

D(config-if)#ip address 205.68.31.10 255.255.255.252

D(config-if)#no shutdown

D(config-if)#

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

D(config-if)#exit

```
D(config)#interface Serial0/0/1
D(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up
ip address 205.68.31.14 255.255.255.252
D(config-if)#ip address 205.68.31.14 255.255.255.252
D(config-if)#no shutdown
D(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up
```

Static routing:

```
D>en
D#conf t
Enter configuration commands, one per line. End with CNTL/Z.
D(config)#ip route 205.68.25.0 255.255.255.0 205.68.31.18
D(config)#ip route 205.68.28.0 255.255.255.0 205.68.31.22
D(config)#ip route 205.68.26.0 255.255.255.0 205.68.31.30
D(config)#ip route 205.68.27.0 255.255.255.0 205.68.31.34
D(config)#ip route 205.68.30.128 255.255.255.128 205.68.31.13
D(config)#ip route 205.68.30.0 255.255.255.128 205.68.31.5
D(config)#ip route 205.68.24.0 255.255.255.0 205.68.31.9
D(config)#exit
D#
```

DHCP:

```
D>en
D#conf t
Enter configuration commands, one per line. End with CNTL/Z.
D(config)#int f0/0
D(config-if)#ip helper-address 205.68.30.136
D(config-if)#exit
D(config)#exit
D#
%SYS-5-CONFIG_I: Configured from console by console
```

E:

```
Router>enable
Router#
Router#configure terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

```
Router(config)#interface FastEthernet0/0
```

```
Router(config-if)#ip address 205.68.25.1 255.255.255.0
```

```
Router(config-if)#ip address 205.68.25.1 255.255.255.0
```

```
Router(config-if)#no shutdown
```

```
Router(config-if)#
```

```
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
```

```
Router(config-if)#exit
```

```
Router(config)#interface Serial0/0/0
```

```
Router(config-if)#ip address 205.68.31.21 255.255.255.0
```

```
Router(config-if)#ip address 205.68.31.21 255.255.255.252
```

```
Router(config-if)#no shutdown
```

```
Router(config-if)#
```

```
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
```

```
Router(config-if)#exit
```

```
Router(config)#interface Serial0/0/1
```

```
Router(config-if)#
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up
```

```
ip address 205.68.31.18 255.255.255.252
```

```
Router(config-if)#ip address 205.68.31.18 255.255.255.252
```

```
Router(config-if)#no shutdown
```

```
Router(config-if)#
```

```
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up
```

```
Router(config-if)#exit
```

```
Router(config)#interface Serial0/0/1
```

```
Router(config-if)#
```

```
Router(config-if)#exit
```

```
Router(config)#interface Serial0/0/1
```

```
Router(config-if)#
```

```
Router(config-if)#end
```

```
Router#configure terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

Static routing:

```
E>en
```

```
E#conf t
```

Enter configuration commands, one per line. End with CNTL/Z.

```
E(config)#ip route 205.68.28.0 255.255.255.0 205.68.31.22
E(config)#ip route 205.68.30.128 255.255.255.128 205.68.31.17 - A
E(config)#ip route 205.68.26.0 255.255.255.0 205.68.31.26 - G
E(config)#ip route 205.68.27.0 255.255.255.0 205.68.31.34 - H
E(config)#ip route 205.68.30.0 255.255.255.128 205.68.31.2 - B
E(config)#ip route 205.68.24.0 255.255.255.0 205.68.31.6 - C
E(config)#ip route 205.68.29.0 255.255.255.0 205.68.31.14 - D
E(config)#exit
E#
```

F:

F>enable

F#

F#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

```
F(config)#interface FastEthernet0/0
F(config-if)#ip address 205.68.28.1 255.255.255.0
F(config-if)#ip address 205.68.28.1 255.255.255.0
F(config-if)#no shutdown
F(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

```
F(config-if)#exit
F(config)#interface Serial0/0/0
F(config-if)#ip address 205.68.31.22 255.255.255.0
F(config-if)#ip address 205.68.31.22 255.255.255.252
F(config-if)#no shutdown
F(config-if)#
F(config-if)#exit
```

```
F(config)#interface Serial0/0/1
F(config-if)#ip address 205.68.31.25 255.255.255.252
F(config-if)#ip address 205.68.31.25 255.255.255.252
F(config-if)#no shutdown
F(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
```

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up

Static routing:

F#

%SYS-5-CONFIG_I: Configured from console by console

F>en

F#conf t

Enter configuration commands, one per line. End with CNTL/Z.

F(config)#ip route 205.68.25.0 255.255.255.0 205.68.31.21

F(config)#ip route 205.68.26.0 255.255.255.0 205.68.31.26

F(config)#ip route 205.68.30.128 255.255.255.128 205.68.31.29

F(config)#ip route 205.68.27.0 255.255.255.0 205.68.31.34

F(config)#ip route 205.68.30.0 255.255.255.128 205.68.31.2

F(config)#ip route 205.68.24.0 255.255.255.0 205.68.31.6

F(config)#ip route 205.68.29.0 255.255.255.0 205.68.31.14

F(config)#exit

F#

G:

G>enable

G#

G#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

G(config)#interface FastEthernet0/0

G(config-if)#ip address 205.68.26.1 255.255.255.0

G(config-if)#ip address 205.68.26.1 255.255.255.0

G(config-if)#no shutdown

G(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

G(config-if)#exit

G(config)#interface Serial0/0/0

G(config-if)#ip address 205.68.31.33 255.255.255.0

G(config-if)#ip address 205.68.31.33 255.255.255.252

G(config-if)#no shutdown

G(config-if)#

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

G(config-if)#exit

G(config)#interface Serial0/0/1

G(config-if)#

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

```
ip address 205.68.31.30 255.255.255.252
G(config-if)#ip address 205.68.31.30 255.255.255.252
G(config-if)#no shutdown
G(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
```

```
G(config-if)#exit
G(config)#interface Serial0/1/0
G(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up
ip address 205.68.31.26 255.255.255.252
G(config-if)#ip address 205.68.31.26 255.255.255.252
G(config-if)#no shutdown
G(config-if)#
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up
```

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to up

Static routing:

```
G>en
G#conf t
Enter configuration commands, one per line. End with CNTL/Z.
G(config)#ip route 205.68.30.128 255.255.255.128 205.68.31.17
G(config)#ip route 205.68.27.0 255.255.255.0 205.68.31.34
G(config)#ip route 205.68.30.0 255.255.255.128 205.68.31.2
G(config)#ip route 205.68.24.0 255.255.255.0 205.68.31.6
G(config)#ip route 205.68.29.0 255.255.255.0 205.68.31.14
G(config)#ip route 205.68.25.0 255.255.255.0 205.68.31.21
G(config)#ip route 205.68.28.0 255.255.255.0 205.68.31.25
G(config)#exit
G#
%SYS-5-CONFIG_I: Configured from console by console
```

H:
Static routing:

```
H>en
H#conf t
Enter configuration commands, one per line. End with CNTL/Z.
H(config)#ip route 205.68.30.128 255.255.255.128 205.68.31.17
H(config)#ip route 205.68.26.0 255.255.255.0 205.68.31.26
H(config)#ip route 205.68.30.0 255.255.255.128 205.68.31.2
H(config)#ip route 205.68.24.0 255.255.255.0 205.68.31.6
```

```
H(config)#ip route 205.68.29.0 255.255.255.0 205.68.31.14
H(config)#ip route 205.68.25.0 255.255.255.0 205.68.31.21
H(config)##ip route 205.68.28.0 255.255.255.0 205.68.31.25
^
```

% Invalid input detected at '^' marker.

```
H(config)#ip route 205.68.28.0 255.255.255.0 205.68.31.25
H(config)#ip route 205.68.26.0 255.255.255.0 205.68.31.20
H(config)#exit
H#
```