T228 Day Schools
Day 1
Practical Resource Pack

Cisco Systems
Networking Academy

Barnfield College

T228 Day 1 Practical Resource Pack

Command Crib

Command	Mode	Result
Enable	**U**	Enter Privilege Mode
Configure Terminal	**P**	Does what it says on the label
Copy Running-config Startup-Config	**P**	Copies ram to flash for a restart
Erase startup-config	**P**	Erases flash
Reload	**P**	Restarts router (warm)
Show interfaces	**U/P**	Lists all interfaces
Show ip route	**U/P**	Displays RIP and IGRP discovered routers
Show CDP neighbors (detail)	**U/P**	Displays discovered and associated Cisco devices not necessarily using RIP or IGRP
Ping	**U/P**	Can send echoes to routers and hosts (can vary packet size and number of hits)
Telnet	**U/P**	Connects to another router
Interface ?	**C**	Selects the interface to configure
Ip address x.x.x.x s.s.s.s	**C**	Issues and interface with ip address x and subnet mask s
Shutdown	**C**	Terminates the operation of an interface
No <command>	**C**	No reverses the operation of a command
Ip host X y.y.y.y z.z.z.z	**C**	Creates a host table entry X with associated addresses y and z etc
Router <RIP/IGRP(network number)>	**C**	Sets the routing protocol
Network x.x.x.x	**C**	Declares the adjacent networks
Clock rate 56000	**C**	Must be applied to the DCE on a serial link
Enable secret class	**C**	Sets priv mode password
Hostname X	**C**	Sets the hostname to x
Line con 0	**C**	Sets the console exec mode
Password x	**C**	Have a guess
Line vty 0 4	**C**	Sets the telnet password
Login	**C**	Enables remote access
?	**U/P/C**	Help!
Show interface e0/s0/s1	**U/P**	Can show specifics for a given interface
Show ip interface e0/s0/s1	**U/P**	Can show ip specifics for a given interface
Show sessions/users	**U/P**	Shows who is connected to your router via console or telnet
End/Exit	**U/P/C**	Terminates session or configuration
Show Version	**U/P**	Displays IOS version and memory details
Show Arp	**U/P**	Lists Ethernet mac addresses learnt from an adjoined network
Show Clock	**U/P**	Time as always
Show flash	**U/P**	Shows non-volatile memory size
Show protocol	**U/P**	IP settings along with other protocols
Show ip protocol	**U/P**	IP and routing settings
Show history	**U/P**	Lists commands
Traceroute x.x.x.x	**U/P**	Shows hops from router to address x
Clear counters	**U/P**	Resets the interface counters for packets
Banner motd	**C**	Enables a message to be displayed at login
Description	**C**	Like a remark to be placed on an interface
Ip http server	**C**	Enables web based interface on router
Config-register	**C**	Selects the boot source
Clear ARP	**U/P**	Clears the current ARP table

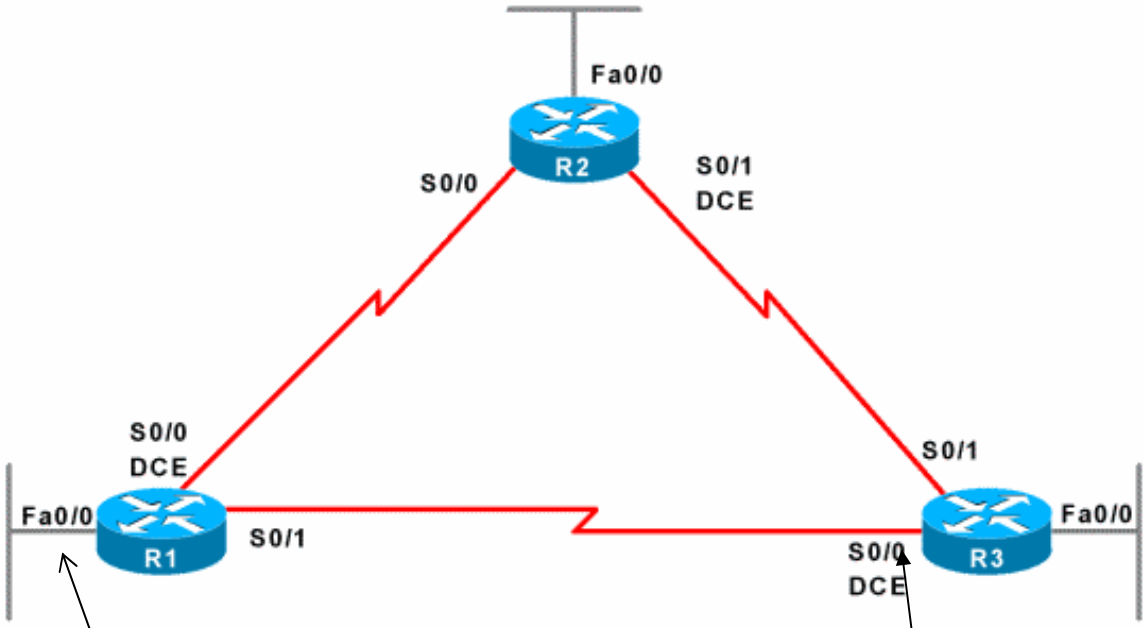
Many commands can be abbreviated, be careful.
The commands are not in any particular order.

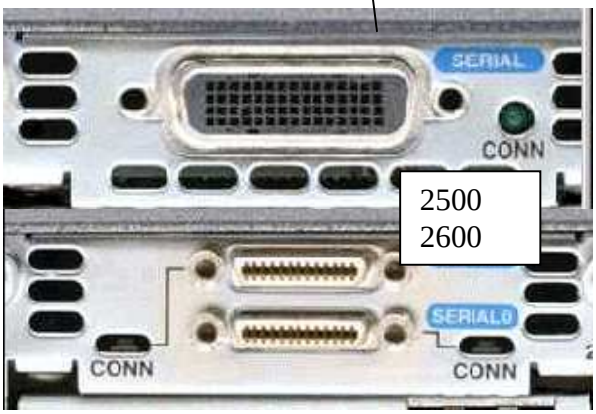
U=User Mode
P=Privilege Mode
C=Configuration mode

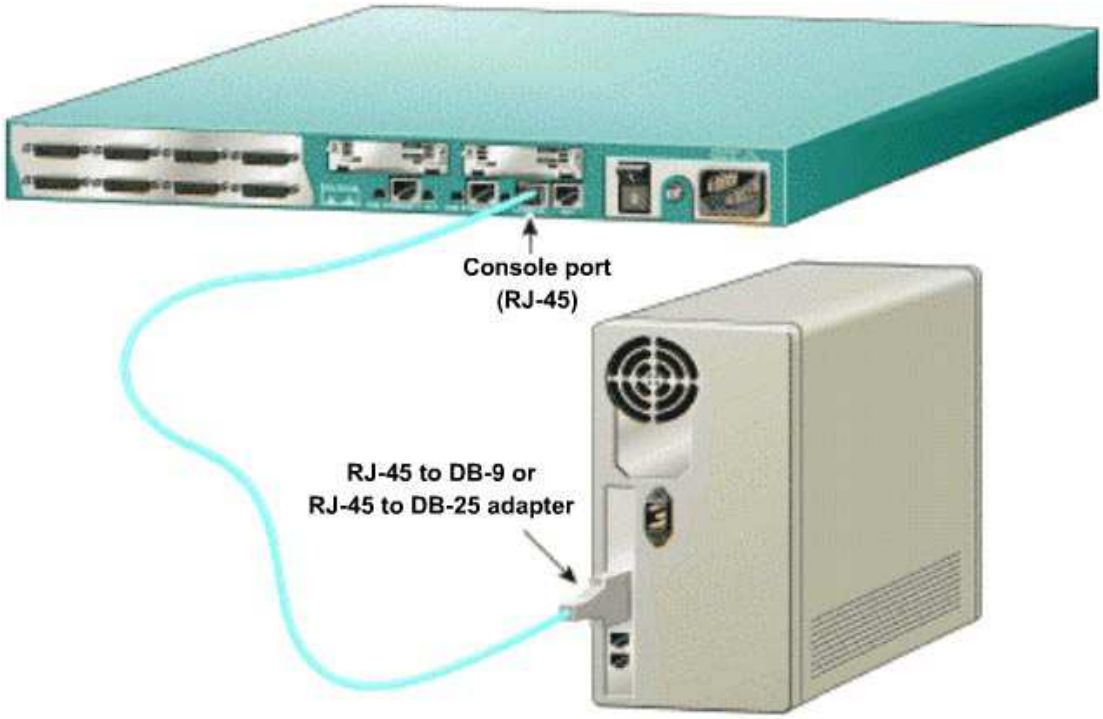
There are more commands in the IOS, and provided in the lab packs this sheet is designed as a 'handy' reference

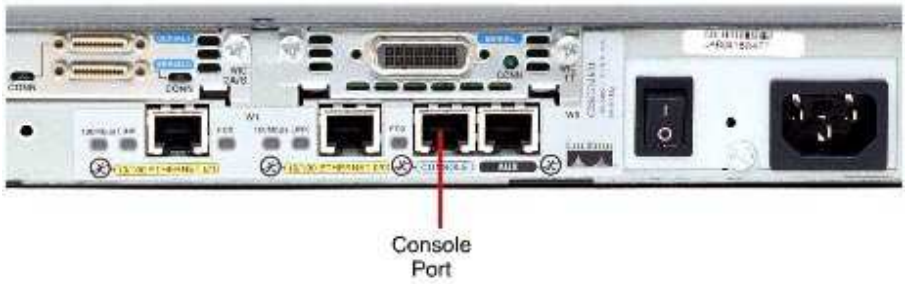
Session 1

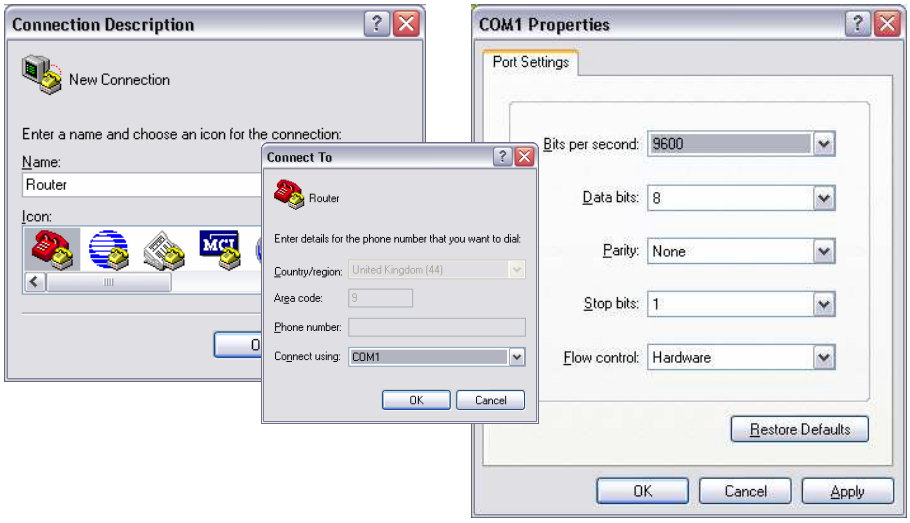
If you have a 2500, the interfaces read e0, s0 and s1
If you have a 2600 the interface identities are correct

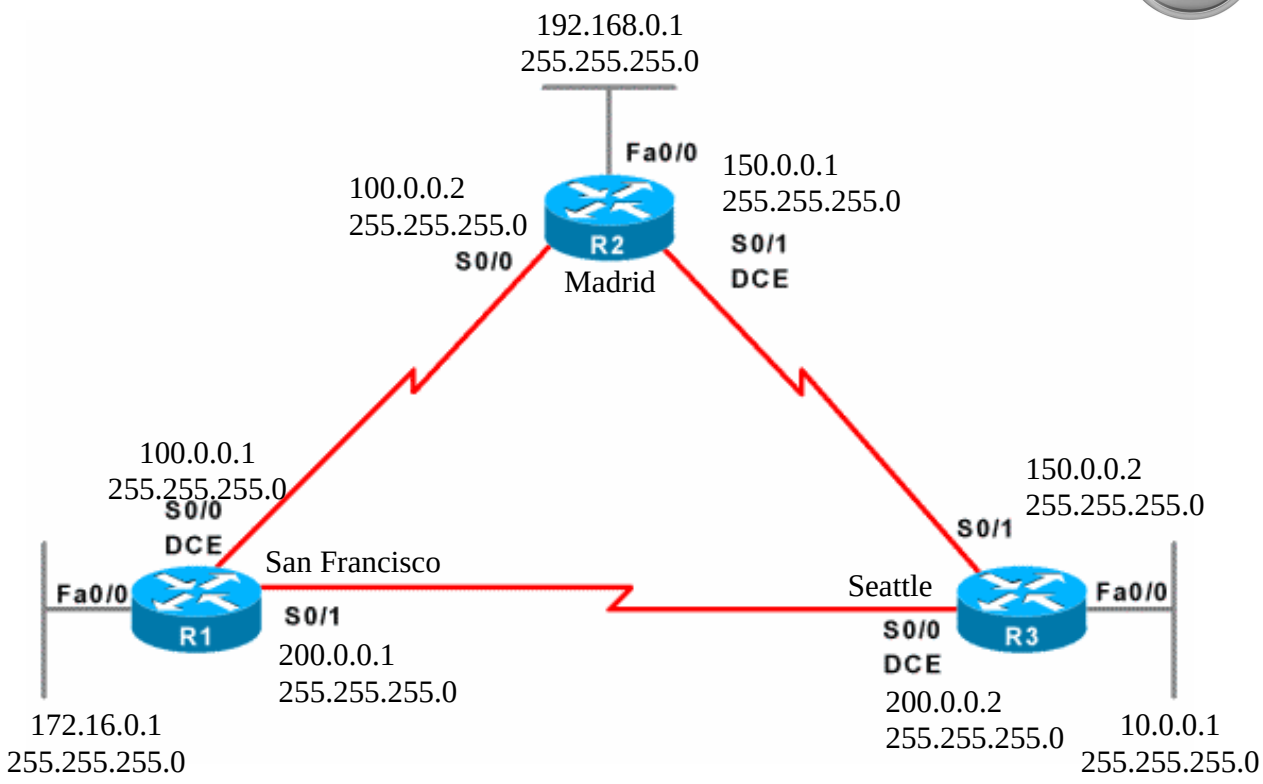





Console port
(RJ-45)
RJ-45 to DB-9 or
RJ-45 to DB-25 adapter


Console
Port


Connection Description
New Connection
Enter a name and choose an icon for the connection:
Name:
Router
Icon:
Connect To
Router
Enter details for the phone number that you want to dial:
Country/region:
United Kingdom (44)
Area code:
Phone number:
Connect using:
COM1
OK
Cancel
COM1 Properties
Port Settings
Bits per second:
9600
Data bits:
8
Parity:
None
Stop bits:
1
Flow control:
Hardware
Restore Defaults
OK
Cancel
Apply



3550 additional information
ip routing **interface range fa0/1 – 24** **no switchport** 1. **For fa0/0 or E0 read fa0/1** 2. **For s0/0 or S0 read fa0/10** 3. **For s0/1 or s1 read fa0/24** 4. **Clock rate 56000 is not applicable as clocking is automatic** 5. **Connections are made using cross over cables**

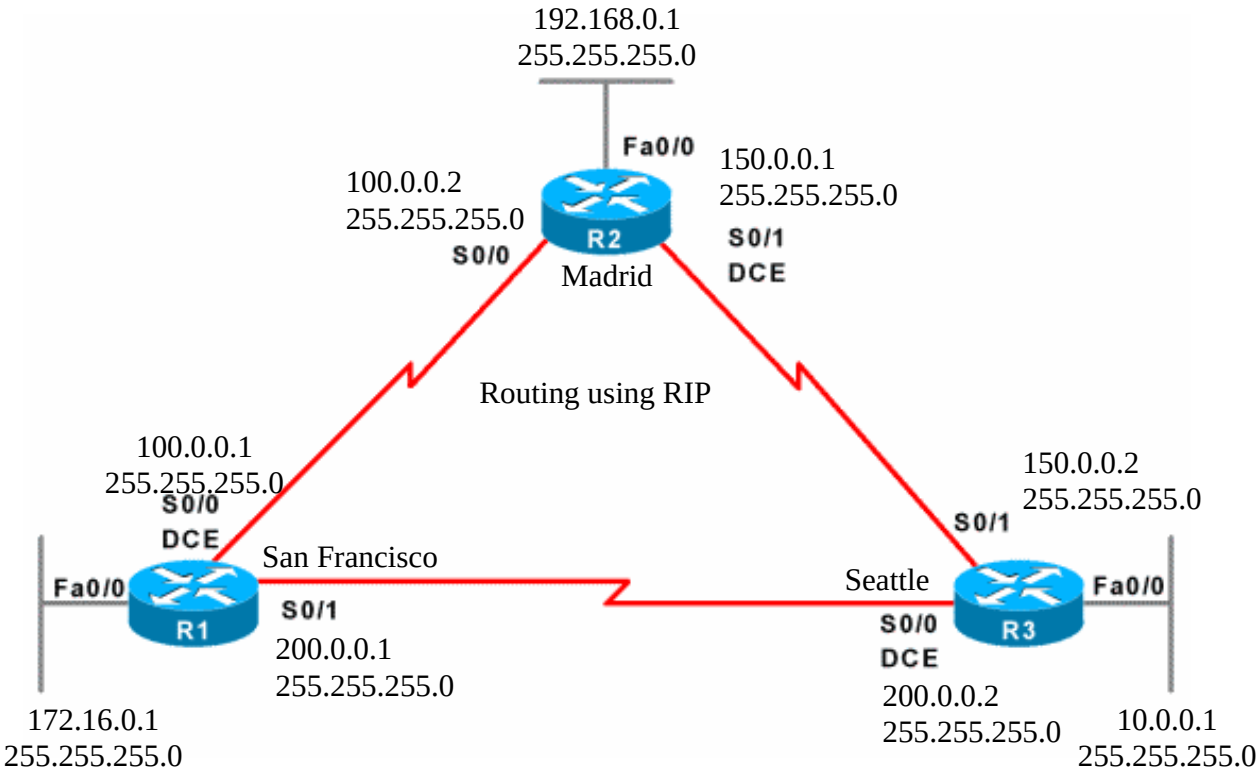
Command sequence

Router	Command	Purpose (student to complete
All	Enable	
All	Configure terminal	
R1	Hostname SanFrancisco	
R2	Hostname Madrid	
R3	Hostname Seattle	
All	Interface s0 (or s0/0)	
Only DCE!	Clock rate 56000	
All read plan	ip address x.x.x.x s.s.s.s	
All	No shutdown	
All	Interface s1 (or s0/1)	
Only DCE!	Clock rate 56000	
All read plan	ip address x.x.x.x s.s.s.s	
All	No shutdown	
All	Interface e0(or fa0/0)	
All	Ip address x.x.x.x s.s.s.s	
All	No keepalive	
All	No shutdown	
All	end	
All	Copy run start	
All	Show ip interface brief	
All (must be adjacent router ip address)	Ping x.x.x.x	

Router	Command	Purpose (student to complete
All	Show run	
All	Configure terminal	
All	Enable secret class	
All	Line con 0	
All	Login	
All	Password cisco	
All	Line vty 0 4	
All	Login	
All	Password cisco	
All	End	
All	Copy run start	
All (must be adjacent router ip address)	telnet x.x.x.x	
all	exit	

Additional Notes

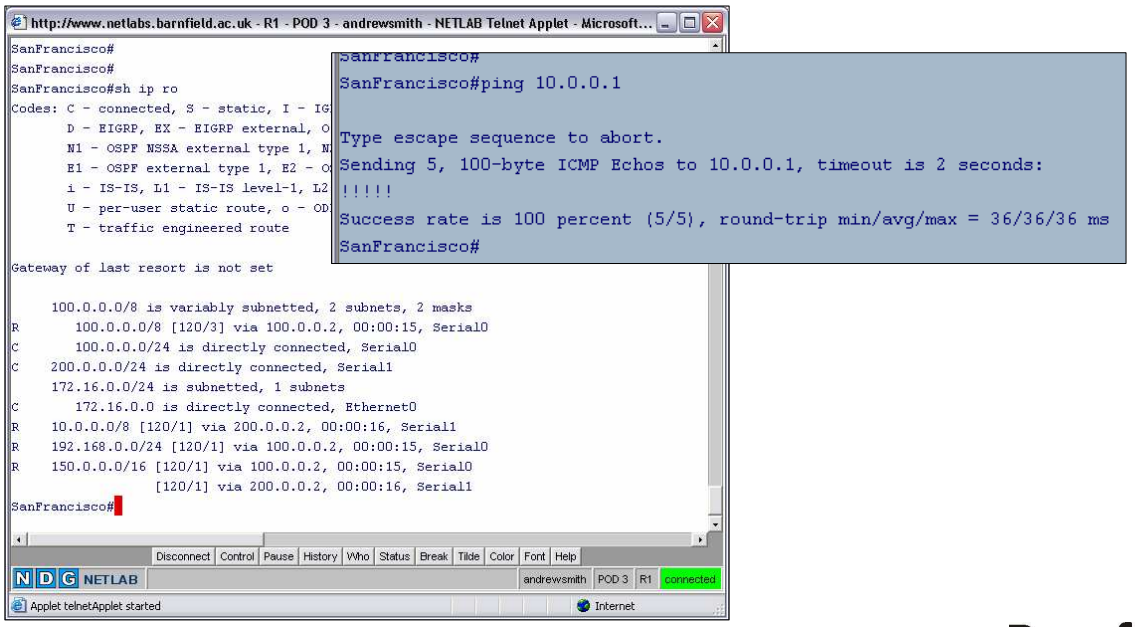
Session 2


192.168.0.1
255.255.255.0
Fa0/0
100.0.0.2
255.255.255.0
S0/0
R2
Madrid
150.0.0.1
255.255.255.0
S0/1
DCE
Routing using RIP
100.0.0.1
255.255.255.0
S0/0
DCE
150.0.0.2
255.255.255.0
S0/1
Fa0/0
R1
San Francisco
S0/1
200.0.0.1
255.255.255.0
Seattle
S0/0
DCE
R3
Fa0/0
200.0.0.2
255.255.255.0
172.16.0.1
255.255.255.0
10.0.0.1
255.255.255.0

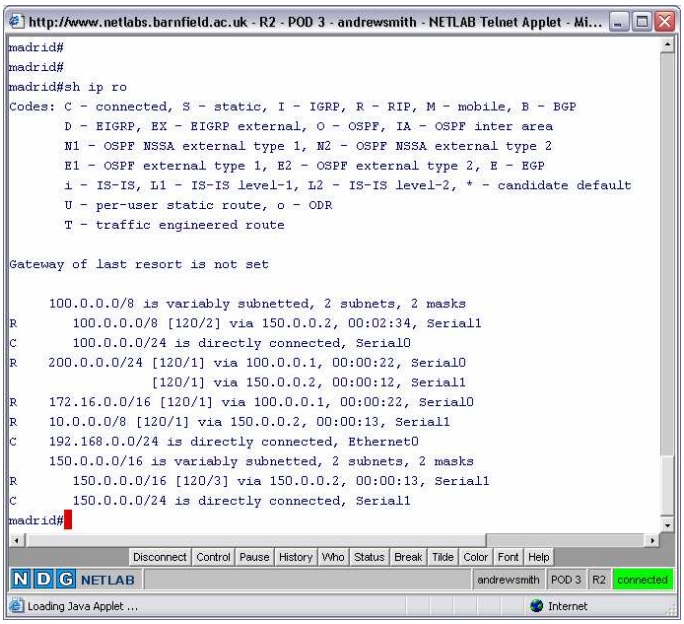
Command sequence
RIP

Router	Command	Purpose (student to complete)
Ensure you use configuration from previous session		
All	Show run	Check your running configuration
All	Show ip interfaces brief	Check your interfaces are up
All	Configure terminal	
San Francisco	Router rip	
	Version 2	
	Network 200.0.0.0	
	Network 100.0.0.0	
	Network 172.16.0.0	
Madrid	Router rip	
	Version 2	
	Network 192.168.0.0	
	Network 100.0.0.0	
	Network 150.0.0.0	
Seattle	Router rip	
	Version 2	
	Network 10.0.0.0	
	Network 200.0.0.0	
	Network 150.0.0.0	
All	Copy run start	
All	Show ip route	
All	Ping a distant Ethernet interface	

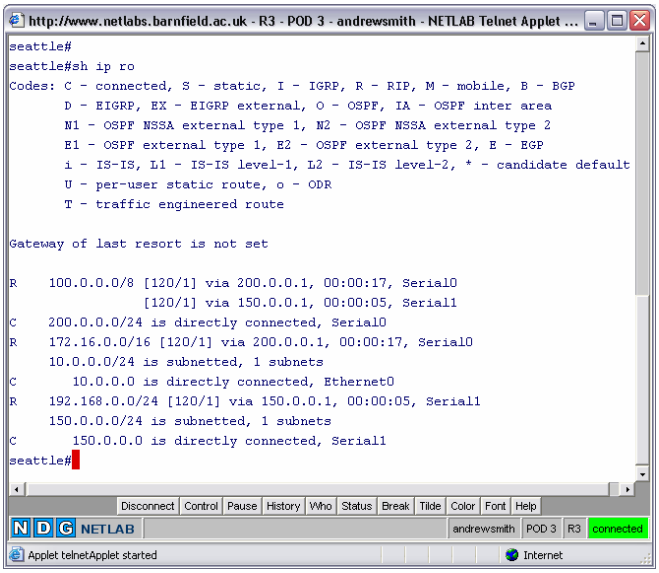
San Francisco Routing Table and sample ping



Madrid Routing Table



Seattle Routing Table



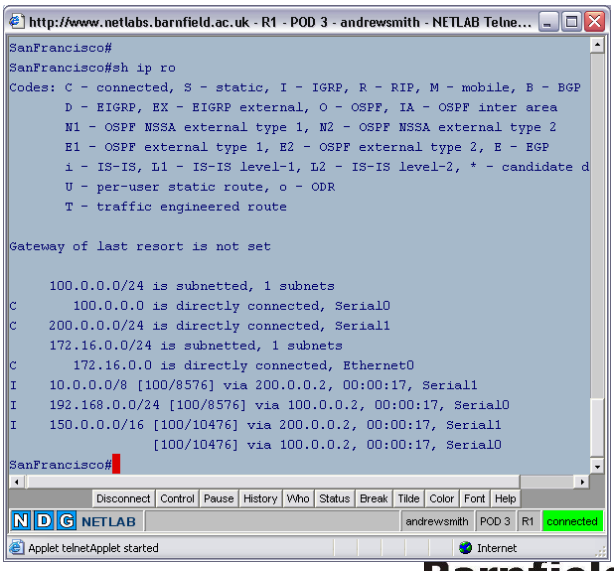
Additional Notes

If time allows or on netlab @ home
IGRP

Router	Command	Purpose (student to complete
All	Configure terminal	
All	No router rip	Removes routing protocol
All	Show ip route	Should show only directly connected networks
San Francisco	Router igrp 123	
	Network 200.0.0.0	
	Network 100.0.0.0	
	Network 172.16.0.0	
Madrid	Router igrp 123	
	Network 192.168.0.0	
	Network 100.0.0.0	
	Network 150.0.0.0	
Seattle	Router igrp 123	
	Network 10.0.0.0	
	Network 200.0.0.0	
	Network 150.0.0.0	
All	Copy run start	
All	Show ip route	
All	Ping a distant Ethernet interface	

Why are the metrics different?

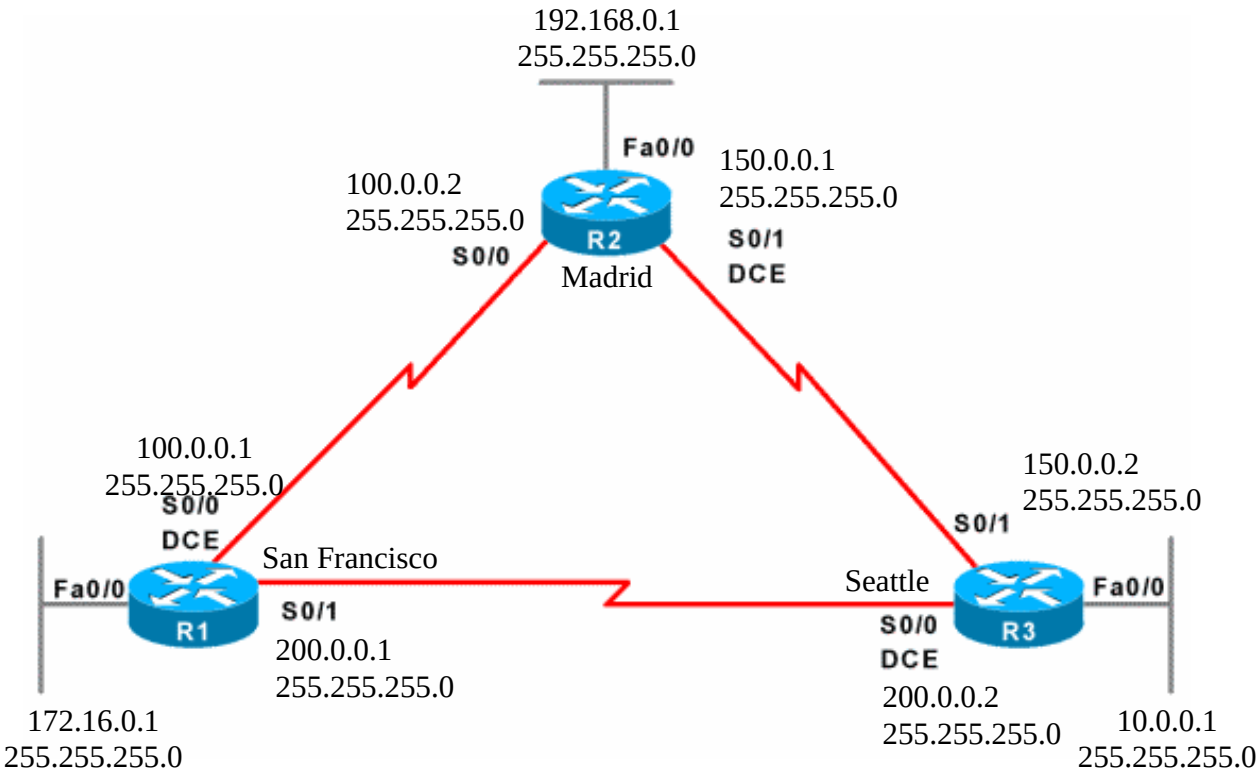
What would happen if one router was on IGRP 1234?



Additional Notes

Session 3
Extended ACL

Reuse Full RIP or IGRP configuration



Command crib continued

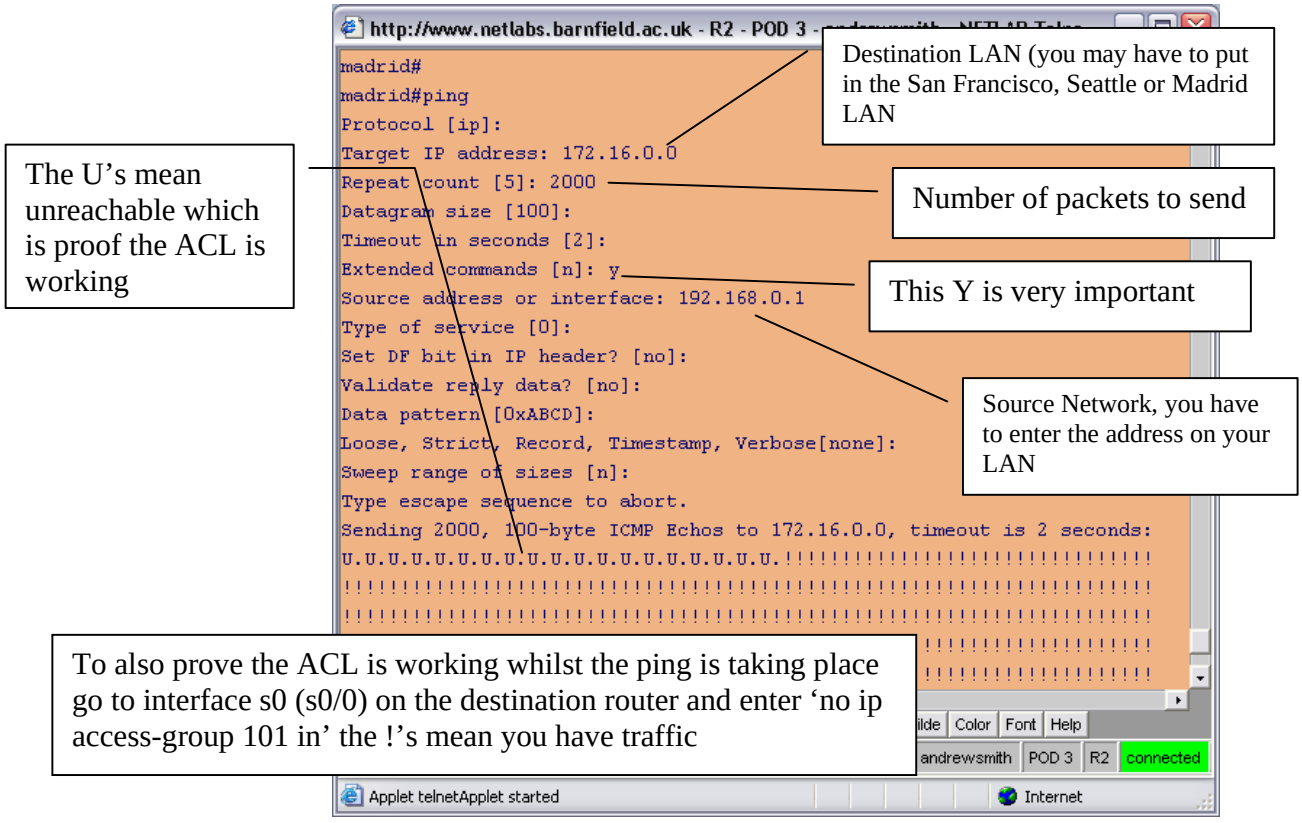
Command	Mode	Result
Access-list 101 deny TCP/UDP/ICMP x.x.x.x w.w.w.w y.y.y.y w.w.w.w eq port (or echo)	C	Blocks specific class of traffic
Access-list 101 permit IP any any	C	Allows any other traffic
Ip access-group 101 in/out	C	Applies access list to in/out bound traffic

The rules will be

1. Stop the LAN on Madrid from reaching(pinging) the LAN on San Francisco
2. Stop the LAN on San Francisco from reaching(pinging) the LAN on Seattle
3. Stop the LAN on Seattle from reaching(pinging) the LAN on Madrid
4. allow all other traffic

Command Sequence Extended ACLs

Router	Command	Purpose (student to complete
All	Configure terminal	
San Francisco	Access-list 101 deny icmp 192.168.0.0 0.0.0.255 172.16.0.0 0.0.0.255 echo	
Seattle	Access-list 101 deny icmp 172.16.0.0 0.0.0.255 10.0.0.0 0.0.0.255 echo	
Madrid	Access-list 101 deny icmp 10.0.0.0 0.0.0.255 192.168.0.0 0.0.0.255 echo	
All	Access-list 101 permit ip any any	
All	Interface s0 (or s0/0)	
	Ip access-group 101 in	
	Interface s1 (or s0/1)	
	Ip access-group 101 in	
All	Complete an extended ping from your router to the banned LAN	
	See Madrid to San Francisco example below	



Additional Notes

Why did you apply the ACL to two in bound interfaces?
Why must you test with an extended ping?

Additional Notes