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# Introduction

The **IP Address Configuration** module provides you with the instruction and computer hardware to develop your hands on skills in the defined topics. This module includes the following exercises:

- 1) Examining the IP Configuration
- 2) Performing a Connectivity Test
- 3) Reconfiguring IP in Linux

#### Lab Diagram

During your session you will have access to the following lab configuration.



192.168.0.2/24

**Connecting to your lab** 



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In this module you will be working on the following equipment to carry out the steps defined in each exercise.

- SERVER (Domain Controller)
- **CLIENT** (Workstation)



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- GATEWAY (Server)
- LAMP (Web Server)
- ROUTER

Each exercise will detail which console you are required to work on to carry out the steps.

To start simply click on the named Server or Workstation from the device list (located on the left hand side of the screen) and click the **Power on** from the in tools bar. In some cases the devices may power on automatically.

During the boot up process an activity indicator will be displayed in the name tab:

- Black Powered Off
- Orange Working on your request
- Green Ready to access

If the remote console is not displayed automatically in the main window (or popup) click the **Connect** icon located in the tools bar to start your session.

If the remote console does not appear please try the following option:

• Switch between the HTML 5 and Java client versions in the tools bar.

In the event this does not resolve your connectivity problems please visit our Help / Support pages for additional resolution options.

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# Exercise 1 - Examining the IP Configuration

In these exercises, you will configure the IP settings for an adapter in Linux and learn the use of the status and troubleshooting tools **ipconfig / ifconfig** and **ping**. To better understand this technology, refer to your course material or read the information available at the following links http://windows.microsoft.com/en-gb/windows7/networking-home-computers-running-different-versions-of-windowrs or https://docs.fedoraproject.org/en-US/Fedora/15/html/Deployment\_Guide/ch-Network\_Interfaces.html

#### **Reviewing IP Details From the Command Line**

#### Step 1

Ensure you have powered on the required devices defined in the introduction **Connect** to **GATEWAY**.

#### Open a command prompt





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Type the following command:

Ipconfig /all

Press Enter. Review the IP address details for each network card installed on the server.

🧉 Gateway Server - Windows Internet Explorer	
() https://labs1.practice-labs.com/+CSCO+d0756767633A2F2F7261747661722E63656E70677670722D76672E70622E6878++/-CSCO-3phost.htm	<b>≙</b> ≅
🖾 Administrator: Command Prompt	
WINS Proxy Enabled : No	
Ethernet adapter Internal:	
Connection=specific DNS Suffix       :         Description       .       .         Physical Address       .       :         Intel(R) PR0/1000 MT Network Connection         Physical Address       :       :         MCD Enabled       :       :         Intel(R) PR0/1000 MT Network Connection         Physical Address       :       :         Autoconfiguration Enabled       :       :         Link-local IPV6 Address       :       :         Link-local IPV6 Address       :       :         Subnet Mask       :       :         Subnet Mask       :       :         Pefault Gateway       :       :         PHCEV6 IAID       :       :         DHCPV6 Client DUID.       :       :         DHCPV6 Client DUID. <td:< td="">       :         OH-00-01-17-B2-D4-99-08-00-27-B3-12-1C       :</td:<>	
DNS Servers : 192.168.0.1 NetBIOS over Tcpip : Enabled	
Ethernet adapter Internet:	
Connection-specific DNS Suffix .: Description	
Physical Address       :       :00-50-56-A3-46-05         DHCP Enabled       :       :No         Autoconfiguration Enabled       :       Yes         Link-local IPv6 Address       :       :Fe80::fc28:38a8:58ee:6c5ax13(Preferred)         IPv4 Address       :       :Fe80::fc28:38a8:58ee:6c5ax13(Preferred)         Subnet Mask       :       :25:25:255.09         Default Gateway       :       :318787670         DHCPv6 Client DUID       :       :90-91-90-91-17-B2-D4-99-08-00-27-B3-12-1C	
DNS Servers : fec0:0:0:ffff::1z1 fec0:0:0:ffff::2z1 fec0:0:0:ffff::3z1 NetBIOS over Tcpip : Enabled	
Tunnel adapter isatap.(B8A831CE-01DB-4302-96CA-B76E91122E16):	
Media State : Media disconnected Connection-specific DNS Suffix . : Description : Microsoft ISATAP Adapter Physical Address : 00-00-00-00-00-00-00-E0 DHCP Enabled : No Autoconfiguration Enabled : Yes	
Tunnel adapter isatap.(0F717AE4-662B-4D89-B38E-CC54BE6F79E8):	
Media State : Media disconnected Connection-specific DNS Suffix .: Microsoft ISATAP Adapter #2 Physical Address : 08-08-08-08-08-08-08 DHCF Enabled : No Autoconfiguration Enabled : Yes	
Start 3 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	N 💀 🕼 🖫 📼
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More detailed information about the IP configuration (and the Windows network configuration) is displayed. Note that the MAC address ("physical address") is listed.

You can use the **ipconfig** option for summary detail.



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#### Step 2

On **GATEWAY** click on the **putty application** located on the desktop.

Double click the entry for **ROUTER.** 

Gateway Server - Windows In	rnet Explorer	
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Ιρατογ	Bell 22	
	G Raw C Telnet C Rlogin G SSH C Serial	
	Bohrviour     Load, save or delete a stored session	
	Transletion     Seved Sessions     Selection	
	Colours Default Satings Load	
	- Data Save	
	- Proxy - Teknet Delete	
	- Riogin R+SSH	
	Serial Close window on exit	
	C Always C Never C Dnly on clean exit	
	About I Down I Crowd I	

This will launch a **SSH** session to the remote device in order for you to configure settings.

When the console appears enter the following credentials:

login as: administrator

password: Pa\$\$w0rd

**Note:** Unlike Windows the username is case-sensitive on Linux systems. Also the password field does not show any characters, so input the password above and press enter.



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# https://laust_practice-labs.com/+CSCO+d075676763342F2F7261747661722E63656E10677670722D76672E70622E5678++/-CSCO-3phost.htm	/5 E3
	<b>1</b>
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I dain as: administrator administrator810.0.0.1's password:	

Once you have been successfully authenticated you will be presented with a console where you will be able to enter commands.



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#### Step 3

From the command line type

ifconfig

Press Enter.



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Do you notice any difference compared to the Windows ipconfig command?

#### The output doesn't include the default gateway but there is information about the MTU and packet stats.

**Note:** No default gateway (router) address is configured. Without this the machine is restricted to the local subnet (though there isn't a router available for it to use yet anyway). The address config is from APIPA as the DHCP server is not available.

Leave the devices you have powered on in their current state and proceed to the next exercise.



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# Exercise 2 - Performing a Connectivity Test

In this exercise, you will use ping to test TCP/IP functionality and links. To better understand this technology, please refer to your course material or use your preferred search engine to gain an understanding of these tasks.

#### **Reviewing Network Configuration**

On **GATEWAY** using the console you opened in the last exercise which is connected to **ROUTER**, enter the command:

ping 127.0.0.1

🧉 Gateway Server - Windows Internet Explorer	
(#https://labs1.practice-labs.com/+CSCO+d0756767633A2F2F7261747661722E63656E70677670722D76672E70622E6878++/-CSCO-3phost.htm	A 2
<b>録</b> administrator@router:~	_ 8 ×
g <sup>4</sup> administrator@router:~ administrator@router:~% ping 127.0.0.1 FING 127.0.0.1 [27.0.0.1] 56(34) bytes of data. 64 bytes from 127.0.0.1: icmp_seq=1 ttl=64 time=0.025 ms 64 bytes from 127.0.0.1: icmp_seq=2 ttl=64 time=0.030 ms 64 bytes from 127.0.0.1: icmp_seq=4 ttl=64 time=0.033 ms 64 bytes from 127.0.0.1: icmp_seq=5 ttl=64 time=0.053 ms 64 bytes from 127.0.0.1: icmp_seq=5 ttl=64 time=0.053 ms	× 61
Start B	🗞 🌜 🔁 🏱 💻 R 100% 🗸



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What does this tell you?

That TCP/IP is installed with a functional configuration.

Press **Ctrl+C** to stop pinging.



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#### Enter ping 192.168.1.1



What does this tell you?

That a host with that ip address is available.

Press **Ctrl+C** to stop pinging.

Enter ping 192.168.0.1



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What does this tell you?

**SERVER** is on a different network as well as being a different subnet and **ROUTER** is not configured either with a "physical" path to that network nor with the address of a router that could reach that subnet.

Minimise all open windows.

#### **Configure DHCP Server**

Step 1 On GATEWAY server, open up Server Manager and select roles.



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Click add roles and then next, when prompted select DHCP server.



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Click next, and then check the box next to 10.0.0.2



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🧉 Gateway Server - W	vindows Internet Explorer			
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	Before You Begin Server Roles	One or more network connection be used to service DHCP clients	ns having a static IP address were detected. Each network connection can on a separate subnet.	di.
	DHCP Server	Select the network connections	that this DHCP server will use for servicing clients.	
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Click next and enter CLASSROOM it to the parent domain.



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🥝 Gateway Server - W	/indows Internet Explorer	and the second se	X
Mttps://labs.practic	ce-labs.com/+CSCO+d0/56/6/633A2F	2F/261/4/661/22E63656E/06/76/0/22D/66/2E/0622E68/8++/-CSEO-3phost.htm	<b>a</b> 22
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Server Manager (GA	Add Roles Wigned	X	
Koles     Koles     Feoburas     Teoburas     Tolegnostics     Configuration     Storage	Before You Begin Server Roles	IS Server Settings When clents obtain an IP address from the DHCP server, they can be given DHCP options such as the IP addresses of UNS servers and the parent domain name. The settings you provide here will be applied to clents using IPv4.	4p
	DHCP Server Network Connection Bindings IPV+XTIS Settings DHCP Scopes DHCPV-Stateless Mode IPV6 DNIS Settings Confirmation Praynoss Results	Using IPV4.         Specify the name of the parent domain that clents will use for name resolution. This domain will be used for all scopes you create on this DHCP server.         Parent domain:         CLASSROOM         Specify the IP addresses of the DNS servers that clents will use for name resolution. These DNS servers will be used for all scopes you create on this DHCP server.         Preferred DNS server IPV4 address:         IP32.168.0.1       Validate	
	Refresh disebled wh	ile wizerd in use	
astart   I	2		EN 🔉 🌾 💻

Click **next** again until you are asked to add a **scope**.

#### Click add.

#### Enter in the following details.

Scope Name: Router Server Scope Starting IP address: 10.0.0.1 Ending IP address: 10.0.0.1 Subnet Mask: 255.255.255.0



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E Server Manager		
File Action View Help		
Server Manager (GA Add Roles Wizard	×	
************************************	CP Scopes	
Before You Begin	A scope is the range of possible IP addresses for a network. The DHCP server cannot distribute IP ANH Scope X	P
Server Roles DHCP Server Network Connection Bindings JHV4 UNIS Settings UHCPVo Stateless Mode JHV5 UNIS Settings Confirmation Progress Results	A scope is a range of possible IP addresses for a network. The DHCP server cannot distribute IP addresses to clents until a scope is created. Configuration settings for DHCP Server Scope name: Rocker server scope Scatting IP address: [10.0.0.1 Ending IP address: [10.0.0.1 Subject type: Withed (lease duration will be 8 days) Configuration settings Unit, propagate to DHCP clent Sydnet mask: [255.233.205.0 Default gateway (optional): OK Cancel	
	mure about about scopes	
	< Provinus Next > Testal Cover	
Refresh disabled i	white wizzerd in use	
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Click next, and disable DHCPv6 Stateless mode.



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Then click next and install.



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🦪 Gateway Server - W	ndows Internet Explorer	a set and a	
https://labs.practic	e-labs.com/+CSCO+d0756767633A2F.	2F7261747661722E63656E70677670722D76672E70622E6878++/-CSCO-3phost.htm	A 2
🔓 Server Manager			_ 8 ×
File Action View I	Help		
🗢 🌳 🖄 🖬 🛽			
Server Manager (GA	Add Roles Wizard		
Hereit     Sectores       Hereit     Magnostics       Hereit     Configuration       Hereit     Scorage	Installation Prog	<b>J.</b>	
	Before You Begin	The following roles, role services, or features are being installed:	\$ <b>0</b>
	Server Aples	OHCP Server	
	DHCP Server		
	Network Cosmection Bindings		
	IPV4 DND Settings		
	DHCP Scopes		
	DHCPv6 Stateless Mode		
	3Pv6 DNS Settings		
	Confirmation		
	Progress		
	Results	Verifying Installation	
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The server is now configured to distribute IP addresses, close all the open windows and proceed to the following exercise.

Leave the devices you have powered on in their current state and proceed to the next exercise.



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# Exercise 3 - Reconfiguring IP in Linux

To configure an adapter in Linux, you must enter the configuration into a text file.

#### **Configure DHCP on Linux**

#### Step 1

Still on GATEWAY server open the SSH console to ROUTER.

From command line type the following:

sudo nano /etc/network/interfaces

**Note:** The **sudo** command starts the text editor (nano) with the privileges required to edit this configuration file. Type **Pa\$\$w0rd** and press Enter to confirm the use of root privileges.





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The current configuration defines a static IP address and subnet mask for the adapter "eth0".

Use the **Arrow** keys to move the cursor around the file and edit the ip address of interface "**eth0**" to be the following details:



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Address 192.168.1.205

Leave the netmask details as they are defined.



Press Ctrl+O then Enter to save the file then press Ctrl+X to close the text editor.

To apply the new ip address configuration, enter the following command:

sudo /etc/init.d/networking restart



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#### Step 2

On the **ROUTER** try to ping the new address to ensure the settings are correct.

Ping 192.168.1.205



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Open the interfaces configuration file again.

sudo nano /etc/network/interfaces

Delete the hash (#) symbol from the "dhcp" line in the "eth1" details and add hash symbols to comment out the lines below it.



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Gateway Server - Windows Internet Explorer				
https://isbs1.practice-labs.com/+CSCO+c0758767633	A2F2F7261747661722E63656E70	67767072207667257062265878+-	+/-CSCO-3phost.htm	â 2
💑 administrator@enuter: ~				
GNU nano 2.2.2	File: /etc/network	/interfaces		Modified
# This file describes the network inter # and how to activate them. For more in	faces available on y formation, see inter	our system faces(5).		
# The loopback network interface auto lo iface lo inet loopback				
# The primary network interface auto cth0				
#iface eth0 inet dhcp				
iface eth0 inet static				
address 192.168.1.205 netmask 255.255.255.0				
# The secondary network interface auto eth1				
iface eth1 inet dhcp				
#iface eth1 inet static				
#address 10.0.0.1 #motwook 255 255 255 0				
<pre>^G Get Help ^G WriteOut ^X Exit ^J Justify</pre>	*R Read File *W Where Is	<mark>^V</mark> Prev Page <mark>^V</mark> Next Page	<sup>A</sup> K Cut Text <sup>A</sup> U UnCut Text	^C Cur Pos ^T To Spell →
🖉 Start 🛛 🍇 🕢 🚞 🧖				EN 🐌 🎨 🎦 🏱 💻
				R 100% 💌

Press **Ctrl+O** then **Enter** to save the file then press **Ctrl+X** to close the text editor.

To apply the new ip address configuration, enter the following command:

sudo /etc/init.d/networking restart



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**Note:** You will notice the console window looks like it has stopped working. This is because the **SSH** session has be disconnected from **ROUTER** you can re-launch access by double clicking the ROUTER entry in putty. This happens because the interface has been restarted to apply the new configuration.



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This will launch a **SSH** session to the remote device in order for you to configure settings.

When the console appears enter the following credentials:

login as: administrator

password: Pa\$\$w0rd



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Once you login use the **ifconfig** command to see the IP address details.



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Minimise the SSH console and open DHCP Manager from Administrative Tool on GATEWAY server.



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Expand the menu until you see IPV4 Address Leases.



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🧉 Gateway Server - Windows Internet Explorer						
https://isbal.practice-labs.com/+CSCO+c07587	57633A2F2F726L74766L7	226836566706776707220	176672E70622E5878++/-CSCO-3	ohost.htm		62
DHCF						_ @ X
<u>Eile Action View Help</u>						
	Client IP Address 🗠	Name	Lease Expiration	Type Uni	Actions	
B Dyt	10.0.0.1	700181.CLASOROCAI	6)Z(ZUI 3 3:Z7:03 AM	DITCH US	Address Letses	-
E 📑 Scope [10.0.0.0] Router Server Scope					More Actions	<b>*</b>
Address Leases					10.0.8.1	4
Reservations					Plore Actions	, E
Server Options						
E 22 Fibers						
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					3 ( 10	0% =

You will see that the DHCP server has assigned the 10.0.0.1 ip address to the **ROUTER.** 

Close all the open windows.

Leave the devices you have powered on in their current state and proceed to the next exercise.



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# **Exercise 4 - IP Addressing Settings**

In these exercises, you will discover the effect on connectivity when you adjust the subnet mask applied to an IP configuration.

#### Subnet Masks

#### Step 1

Ensure you have powered on the required devices defined in the introduction Connect to CLIENT.

Once logged in open the **Run** box then type **ncpa.cpl**, and press Enter.



Right-click Local Area Connection called Internal and select Properties.



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Double-click Internet Protocol (TCP/IP).



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Client - Windows Internet Explorer	
CSCU+400756/014001207470617203002100700720000172203002100722078072200022608/8++/-CSCU-3p-host.htm	£ @
Network Connections	
File Edit: View Favorites Tools Advanced Help	
😮 Back - 🕥 - 🎓 💭 Search 💦 Folders 🔝 🚱 🗶 🧐	
Anhres C 1. Triternal Properties	💌 🎒 Gn
LANor H General Advanced	
Connoct using:	
Soft State Configure	
This connection uses the following items	
Witzard	
🖉 🧱 File and Printer Sharing for Microsoft Networks	
Install Universital Properties	
Description -	
ritaminisario etimori roccioni terreti ritoccor rite desou vide ana network, protoco fina provide communication	
Show icon in notification area when connected	
<ul> <li>Notify Te when this connection us initial or no connectivity.</li> </ul>	
OK. Cancel	
Start Network Connections	
	R 100% -

Review the IP address details, these should be the following:

IP address: 192.168.0.2
Subnet mask: 255.255.255.0
Default gateway: 192.168.0.250
Preferred DNS server: 192.168.0.1



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Click OK to close.

Click on the Advanced tab and Settings option.



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Client - Windows Internet Explorer	
https://isbs1.practice-labs.com/+CSCO+d0758767633A2F2F7261747661722E	83656E70677670722D76672E70622E6878++/-CSCO-3phost.htm
Network Connections	
File Edit View Favorites Tools Advanced Help	
🔇 Rark 🗸 🔿 🦂 🎝 🔎 Search 🎼 Folders 🖾 🗞 🗙 😫	
Address 💽 🔔 Internal Properties 🔹 😨 🗙	
IAN or HB General Advanced	
Protect my computer and network by limiting up percenting access to this computer from the Internet	
Wizard Internet Connection Sharing	
Allow other network users to connect through this computer's Internet connection	
Aliger offinal network vasies is ponitive or disable the shared internet connection     Learn more about <u>Internet Connection</u> Septimge	
QKCancel	
Start Network Connections	🔝 🕅 🕉 12:23 PM
	22,100% =

Turn the Firewall off for this test. Click OK to close all open dialog boxes.



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#### Step 2

**Connect** to **SERVER** and start Wireshark (desktop shortcut) and display the Capture Options dialog. Enter **icmp** in the **Capture Filter** box and click **Start**.



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Server - Windows Internet Explorer				
https://labs.practice-labs.com/+CSCO+d0756767633A2F2F72617	47661722E63656E70677670722D76672	E70622E6878++	-/-CSCO-3phost.htm	<b>a</b> 2
I he Wireshark Network Analyzer				
E Wireshark: Capture Options				
Capture		2 2 2		
Interface: Local 💽 Intel(R) PRO/1000 MT Network Cor	nnection: \Device\WPF_{142582 -			
File         IP address: fe80::3cc8:56f0:be30:1d4a, 192.168.0.1		Apply		
Link-layer header type:	Woeloss Settings		-	
Capture packets in promiscuous mode	Renicle Settings	alyzer		
Capture packets in pcap-ng format (experimental) Buffer	r size: 1 megabyte(s)			
I Limit each packet to Ibytes				
Capture Filter: Imp				
Caphine File(s)	Display Options		💫 Website	
File: Browse	👿 Update list of packets in real time		- Visit the proje	
T Use multiple files	_		🙀 User's 🤇	
Maxt file every 1	Automatic scrolling in live capture		🏁 The User's Gu	
Rext file every 1	🐺 Hide capture info dialog	the wild	Security	
Ring buffer with 2 1 files	Narrae Dun sakakin s		Work with Wi	
Stop capture after 1				
Stop Capture	Enable MAC name resolution			
T after T packet(s)	Enable network name resolution			
T after 1 megabyto(s) *				
I after I	Enable transport name resolution			
			-	
	Start Cancel		<u> </u>	
O[neau) whoar or capture [norativets	Logonoonton.	it: Default	4	
	Machine Domain:	CLASSRO	OM	
	Subnet wask:	(RODE) 255 255 25	55.0	
System Type:		Domain C	ontroller, Primary, Er	iterprise, Terminal Server
User Name: Ac			ator	
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=1				

Recall that **SERVER** is configured with an IP address of **192.168.0.1** and a subnet mask of **255.255.255.0** you can confirm this by using the ipconfig command.



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Server - Windows Internet Explorer	
Shttps://labs.practice-labs.com/+CSCO+d0756767633A2F2F7261747661722E63656E70677670722D76672E70622E6878++/-C	SCO-3phost.htm 🔒 🗟
Administrator: Command Prompt	
Microsoft Windows [Version 6.1.7601] Copyright <c> 2009 Microsoft Corporation. All rights reserved.</c>	
C:\Users\Administrator>ipconfig	
Windows IP Configuration	
Ethernet adapter Local Area Connection 2:	
Connection-specific DNS Suffix : Link-local lPv6 Address : fe80::3cc8:56f0:be30:1d4ax13 lPv4 Address : 172.160.0.1 Submet Mask : 255.255.0 Default Gateway : 192.160.8.250	
Iunnel adapter isatap.(1425B233-F3E9-4FF4-B595-0434EA37EDCD):	
Media State : Media disconnected Connection specific DNS Suffix . :	
C=\Users\Administrator>_	
	<u> </u>
	roller, Primary, Enterprise, Terminal Server
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	€ 100% <del>-</del>

From the open a command prompt enter ping **192.168.0.2** to verify the link.



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Server - Windows Internet Explorer	
🦉 https://labsl.practice-labs.com/+CSCO+d0756767633A2F2F7261747661722E63656E7067767671722D70672E70622E5878++/-	CSCO-3phost.htm 🔒 🕯
🚾 Administrator: Command Prempi	_ B )
C:\Users\Administrator>ping 192.168.0.2	
Pinging 192.168.0.2 with 32 bytes of data: Reply from 192.168.0.2: bytes=32 time(1ms TTL=128 Reply from 192.168.0.2: bytes=32 time(1ms TTL=128 Reply from 192.168.0.2: bytes=32 time(1ms TTL=128 Reply from 192.168.0.2: bytes=32 time(1ms TTL=128	👹 🖾 🥦 🔆   🖾
Ping statistics for 192.168.0.2: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = Ums, Maximum = Ums, Average = Ums	able (Host unreachable) (id=0x0001, seq(be/le)=21/5376, ttl=128) able (Host unreachable)
G:\Users\Administrator>	<pre>ble Clast Unicestitute; (id=0x0001, seq(be/le)=22/5632, ttl=128) (id=0x0001, seq(be/le)=23/5883, ttl=128) (id=0x0001, seq(be/le)=24/6144, ttl=128) (id=0x0001, seq(be/le)=24/6144, ttl=128) (id=0x0001, seq(be/le)=25/6400, ttl=128) (id=0x0001, seq(be/le)=26/6656, ttl=128)</pre>
▼   Start	Profile: Default

Observe the Wireshark packet capture you will see that the communication is successful between source address of 192.168.0.1 (SERVER) and 192.168.0.2 (CLIENT).



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🥝 Server - Windows Interne	et Explorer							×
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Capturing from Intel(R)	PRO/10E0 MT Network E	onnection (icme) - Wiresha	rk					
File Edit View Go Can	ture Analyze Statistics	Telephony Tools Help						
						TH 157 .	ang 1 😋	
				=। ध्य		🏽 🖾 🐻	₩   <mark>8</mark>	
Filter:			Expression	Clear Apply				
No Time Isc	ource.	Dectination	Protocol Jos					
1 0.000000 1	.92.168.0.250	192.168.0.1	ICMP De	stination u	unneachab	ole (Host un	reachable)	
2 3.750997 1	92.168.0.1	192.168.0.2	ICMP EC	:ho (ping) r	request	(id=0×0001,	seq(be/le)-21/5376,	tt7-128)
3 3.976640 1	92.168.0.250	192.168.0.1	ICMP De	stination u	unneachai	ole (Host un	reachable)	
4 8.032589 1	.92.168.0.250	192.168.0.1	ICMP De	stination u	unneachai	ole (Host un	reachable)	++1 172)
5 13 569804 1	92,100,0,1	192.100.0.2	TCMP EC	ho (ping) r	request	(id=0x0001,	seq(be/le)=22/J032, seq(be/le)=23/5888	tt]=128)
7 13, 570095 1	92,168,0,2	192,168,0,1	ICMP EC	he (pina) r	aply	(jd=0x0001,	seg(be/le)=23/5888.	tt]=128)
8 19.966887 1	92.168.0.1	192.168.0.2	ICMP EC	ho (ping) r	equest	(id=0x0001,	seq(be/le)=24/6144,	tt]=128)
9 19.967106 1	.92.168.0.2	192.168.0.1	ICMP EC	ho (ping) r	-eply	(id=0x0001,	seq(be/le)=24/6144,	tt]=128)
10 20.979851 1	.92.168.0.1	192.168.0.2	ICMP EC	ho (ping) r	equest	(id=0x0001,	seq(be/le)=25/6400.	tt]=128)
11 20.980137 1	92.168.0.2	192.168.0.1	ICMP EC	ho (ping) r	epty	(1d=0x0001,	seq(be/le)=25/6400,	tt (=128)
12 21.995/1/ 1	92.108.U.1 02.168.0.2	192.108.0.2	ICMP EC	nu (ping) r be (ping) r	request	(10=0X0001,	seq(be/le)=20/0000,	++1_128)
14 23 007747 1	07 168 0 1	102.168.0.2		ho (ping) r	ep iy ionuost	(id=0x0001,	seq(be/le)=20/0000, seq(be/le)=27/6012	tt1-178)
15 23.007949 1	92.168.0.2	192.168.0.1	ICMP EC	ho (ping) r	reply	(id=0x0001.	seq(be/le)=27/6912.	tt]=128)
16 50.730937 1	92.168.0.250	192.168.0.1	ICMP De	stination u	unneachal	ole (Host un	reachable)	
		- 74	- JERO HA		11.144		11 million (1997)	
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Internet Control	Message Protocol							
	3							
0000 00 F0 F6 53 1	6 02 00 FO FE 83	16 00 00 00 15 00						
0010 00 3c 1f 86 0	0 00 00 00 00 00 00 00	CO a8 00 02 CO a8	. PV. F P	VeFeeeEe				*
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#### Step 3

On **CLIENT** open the **IP Properties** dialog for the **Internal** Lan connection.

Set the subnet mask to 255.255.0.0



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Click **OK** and OK again.

Note: You will be disconnected from the CLIENT device because of the change you have made.

#### Step 4

On Server open a command prompt enter ping **192.168.0.2** to verify the link.



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🦪 Server - Windows Internet Explorer	- 2 🐱
ettps://labs1.practice-tabs.com/+CSCO+d0756767633A25257263747661722663656E70677678722076672E70622B	1878++/-CSCO-3p+-host.htm 🔒 🗟
Administration Command Prompt	
C:\Users\Administrator>ping 192.168.0.2	
Pinging 192.168.0.2 with 32 bytes of data: Reply from 192.168.0.2: bytes 32 time(ins TTL=128 Reply from 192.168.0.2: bytes 32 time(ins TTL=128 Reply from 192.168.0.2: bytes 32 time(ins TTL=128 Reply from 192.168.0.2: bytes 32 time(ins TTL=128	
Ping statistics for 192.168.0.2: Packets: Sent = 4. Received = 4. Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = Gme, Maximum = Gme, Average = Gme	ble (Host unneachable) (Id=0x0300, seq(be/le)=4608/18, ttl=32) (Id=0x0300, seq(be/le)=4608/18, ttl=32)
C:\Users\Administrator)ping 192.160.0.2	(id=0x0300, seq(be/le)=4864/19, ttl=32) (id=0x0300, seq(be/le)=4864/19, ttl=128)
Pinging 192.168.0.2 with 32 bytes of data: Reply from 192.168.0.2: bytes=32 time/ins TLI=128 Keply from 192.168.0.2: bytes=32 time/ins TLI=128 Reply from 192.168.0.2: bytes=32 time/ins TLI=128 Reply from 192.168.0.2: bytes=32 time/ins TLI=128	able (Host unreachable) able (Host unreachable) able (Host unreachable) (Host unreachable) (Host unreachable) (Host unreachable)
Ping statistics for 192.168.0.2: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum - Omo, Maximum - Omo, Average - Omo	(id=0x0001, seq(be/le)=28/7168, ttl=128) (id=0x0001, seq(be/le)=29/7424, ttl=128) (id=0x0001, seq(be/le)=29/7424, ttl=128) (id=0x0001, seq(be/le)=30/7680, ttl=128)
0:\Users\Administratur}_	(id=0x0001, seq(be/le)=30/7680, ttl=128) (id=0x0001, seq(be/le)=31/7936, ttl=128) (id=0x0001, seq(be/le)=31/7936, ttl=128)
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CLIENT can route to SERVER and SERVER can route back to CLIENT as the network ID is the same regardless of the mask. The frames show that each request receives a reply.

However you web session failed because the remote device (CLIENT) is no longer on the same network that you can connect to remotely.

#### Step 5

On SERVER use the Remote Desktop Connection client to Connect to CLIENT.



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Server - Windows Internet Explorer	
https://absl.practice-fabs.com/+CSCO+d0756763623A2F2F7261747663172263556E20677679722D76672E78622E5878++/-CSCO-3ghost.htm	
7 Fapturing from Intel(R) PRO/1000 MT Network Fonnection (irmp) - Wiresback	
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Filter: Cear Apply	
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48 207.056936 192.168.0.1 1 Permote Desktop Formettion [10] x [x0001. seq(De//e)	=31/7936, tt =128) =31/7936, tt =128)
50 244-304436 192-168-0-250 1 Remote Desktop 355 unreachable)	31,7330, 007 120,
51 248.350919 192.168.0.250 1 53 Connection (51 248.35091)	
53 286.103796 192.168.0.250 1 oct unreachable)	
54 249, 525138 199, 158, 51 255 1 re 535 756154 145 1156 7575 1 re 535 756154 145 1157 1575 1 re 535 756154 1451 157 1575 1	
56 331.297099 193.184.0.250 1	6
57 334, 5310559193, 158, 01 335, 31 Use neare. None specified ost "unrischaftel"	
59 J74: 59/209 192: 150: 0.250 1 You will be asked for credentials when you connect. Ost Unreachable 1 So St Unreachable 1	
60 376 I1 5239 192 168 0 250 1	
61 360.171238 192.168.0.250 1	
63 366 283359 192,166.0,250 192,166.0,250 [92,168,0,1 ICMP Destination unreachable (Host unreachable)	*
The Frame 46: 74 bytes on wire (592 bits), 74 bytes captured (592 bits)	
HE Friernet FI, 57C: Vinware_a3:46:03 (00:30:56:a3:46:03), 051: Vinware_a3:46:09 (00:30:56:a3:46:09) ■ Thiernet Product Science 192 168 01 (192 168 01), 051: 192 168 02 (192 168 02)	
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#### Login with the following details:

User name: administrator

Password: Pa\$\$w0rd

Domain: Classroom



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Server - Windows Internet Explorer		
C nnps//laustpractice-/auscom/+USCU+ov/30/6		<b>.</b>
	Lug On & Windows	
	Commente 5 1985-2001     Microsoft       Microsoft     Microsoft       User name:     administrator       Bassword:     eeeeerse       Log on to:     CLASSROOM	
	OX         Stut Down           OX         Stut Down	
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Change the Subnet mask back to 255.255.255.0.



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Server - Windows Internet Explorer	
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Subnet mark: 255.255.256. Default gateway: 192.168.0.250 C Diplan DINS server address euromatically P Use the following DNS server addresse: Preferred DNS server: 192.168.0.1 Atemate DNS server: Adgenced	
OK     Cancel         Internal Properties	<b>王</b> 後 0, 12:35 PM 後 100% -

Click OK to apply the changes.

Now use the **Connect** function located in the **Tool bar** of **CLIENT.** You should now be able to establish a new web session to the workstation.

Shutdown all virtual machines used in this lab, by using the power functions located in the Tools bar before proceeding to the next module. Alternatively you can log out of the lab platform.



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# Summary

In this module you completed the following tasks:

- Identify IP address configuration on a Windows and Linux device.
- Install and configure DHCP.
- Configure IP address configuration on a Windows and Linux device.
- The impact of changing subnet masks.