Sheridan College		
Course	**Data Network Design and Configuration – Routers**	
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Table number		**Partner:**
Lab 2: Basic Router (or Router) Configuration		
Performed Date	**27/5/2019**	
Instructor's Sign		(marks)

IMPORTANT: Fill up all the fields above, except the last row. (10% marks reduction for any empty field)

OBJECTIVES:

- Logon to Cisco router
- Understand modes of operation
- Investigate available major commands
- Make basic configuration of the router/router, learn some basic commands
- Connect PCs to the router for data communication and verify connectivity
- We will use Cisco Packet Tracer to simulate the situation

Note: Students should work individually

Part A: Logging in and Navigating Basic Modes of Operation

Task 1: Choose two different types of routers

(a) Choose router 2901 model and router 2911 model

(b) Go to the CLI mode of the devices

```
router>
```

May ask if you want to enter the initial configuration dialog. Enter yes and do some basic setup.

Setup the hostname to <initial_of_your_name_router1> & (initial_of_your_name *router2> example il*_router_1

Setup the secret and enable password. Write it down as you will need them for further configuration.

You can exit the initial configuration.

(c) Type 'enable' and hit Enter to enter into the **privileged EXEC** mode of the router.

```
Router#
```

The '#' sign in the prompt indicate that you are in **privileged EXEC**. In this mode you have full access to the configuration of the router (router).

Task 2: View Default Configuration of the router

(a) Type '**show running-config**' to see the current configuration of the router. The output should something similar to below. Investigate the output. (**Note**: The bold face items are what you should type. The rest is what appears (output) in the on the console. The bold and italic is my comment.)

```
Router#show running-config
Building configuration...

Current configuration : 1009 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
interface FastEthernet0/1
!
interface FastEthernet0/2
!
!
interface GigabitEthernet1/1
!
```

```
interface GigabitEthernet1/2
!
interface Vlan1
 no ip address
 shutdown
!
line con 0
!
line vty 0 4
 login
line vty 5 15
 login
!
!
end

il_router_1#
```

Note: Depending on the particular router you are using, you may get different output.

(b) Use the '?' command to view all the available command at this user Exec mode. The following listing is a sample output. You will gradually learn to use some of the commands in this course.

```
Il_router_1#?
Exec commands:
  <1-99>      Session number to resume
  clear       Reset functions
  clock       Manage the system clock
  configure   Enter configuration mode
  connect     Open a terminal connection
  copy        Copy from one file to another
  debug       Debugging functions (see also 'undebug')
  delete      Delete a file

!Output omitted- KM

  ping        Send echo messages
  reload      Halt and perform a cold restart
  resume      Resume an active network connection
  setup       Run the SETUP command facility
  show        Show running system information
  telnet      Open a telnet connection
  terminal    Set terminal line parameters
  traceroute  Trace route to destination
  undebug     Disable debugging functions (see also 'debug')
  vlan        Configure VLAN parameters
  write       Write running configuration to memory, network, or terminal
Router#
```

Note: Again your actual output may vary.

(c) Use the '**`show version`**' command to see the detailed version information of the router. The output should be similar to the following. Specific details may vary.

```
Il_router_1#show version
Cisco IOS Software, C2960 Software (C2960-LANBASE-M), Version 12.2(25)FX,
RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2005 by Cisco Systems, Inc.
Compiled Wed 12-Oct-05 22:05 by pt_team

ROM: C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(25r)FX, RELEASE SOFTWARE
(fc4)

System returned to ROM by power-on

Cisco WS-C2960-24TT (RC32300) processor (revision C0) with 21039K bytes of
memory.

!Output omitted -KM

Configuration register is 0xF

Il_router_01#
```

(d) Copy and paste (not screenshot) your actual output (text) in the box below.

Output#1: Router 2901 version information

Cisco IOS Software, C2900 Software (C2900-UNIVERSALK9-M), Version 15.1(4)M4, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2012 by Cisco Systems, Inc.
Compiled Thurs 5-Jan-12 15:41 by pt_team

ROM: System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)
cisco2901 uptime is 4 minutes, 39 seconds
System returned to ROM by power-on
System image file is "flash0:c2900-universalk9-mz.SPA.151-1.M4.bin"
Last reload type: Normal Reload

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.

```
Cisco CISCO2901/K9 (revision 1.0) with 491520K/32768K bytes of memory.
Processor board ID FTX152400KS
2 Gigabit Ethernet interfaces
DRAM configuration is 64 bits wide with parity disabled.
255K bytes of non-volatile configuration memory.
249856K bytes of ATA System CompactFlash 0 (Read/Write)

License Info:

License UDI:

-------------------------------------------------
Device# PID SN
-------------------------------------------------
*0 CISCO2901/K9 FTX152447Z8-


Technology Package License Information for Module:'c2900'

-----------------------------------------------------------------
Technology Technology-package Technology-package
Current Type Next reboot
-----------------------------------------------------------------
ipbase ipbasek9 Permanent ipbasek9
security None None None
uc None None None
data None None None

Configuration register is 0x2102
```

(e) Answer the following question using the output from the version info of your router.

Output#2:

Item	**Value**
What is the model of your router?	C2900
What is the IOS version of the router?	15.1(4)M4
How many Fast Ethernet ports are the in the router?	ZERO
How many Giga bit ports are there (if there are any)?	TWO
How many 10Giga bit ports are there (if there are any)?	ZERO
What is the base MAC address?	000d.bd81.420X

Task 3a: Build the Connectivity between two routers

(f) Use fibre connect router1 to router 2 GigabitEthernet interfaces

(g) Use the cli to build a basic configuration. Enable "Ipv6 unicast routing" under global configuration mode. Enter the global configuration mode as below :

il_router_1>enable
il_router_1#config terminal <- enter "global configuration mode"

To enter the interface specific configuration, enter "interface <interface_name>" to configure the interface address. Build the connectivity based on the following information:

Use the following for IPv4 subnet: 24.114.114.128/30 (1st IP for router 1 and 2nd IP for router 2)
Use the following for IPv6 subnet: 2607:f798:1000:f::/127 (1st IP for router 1 and 2nd IP for router 2)
Enable cdp for both end interfaces.

Task 3b : Verify Connectivity between the routers

(a) Use the **`ping`** command under the command prompt to test the connectivity between the routers for both IPv4 and Ipv6. Was the ping successful? If not, troubleshoot.
(b) If yes, take a screenshot and place in the output box below.

Output#7:

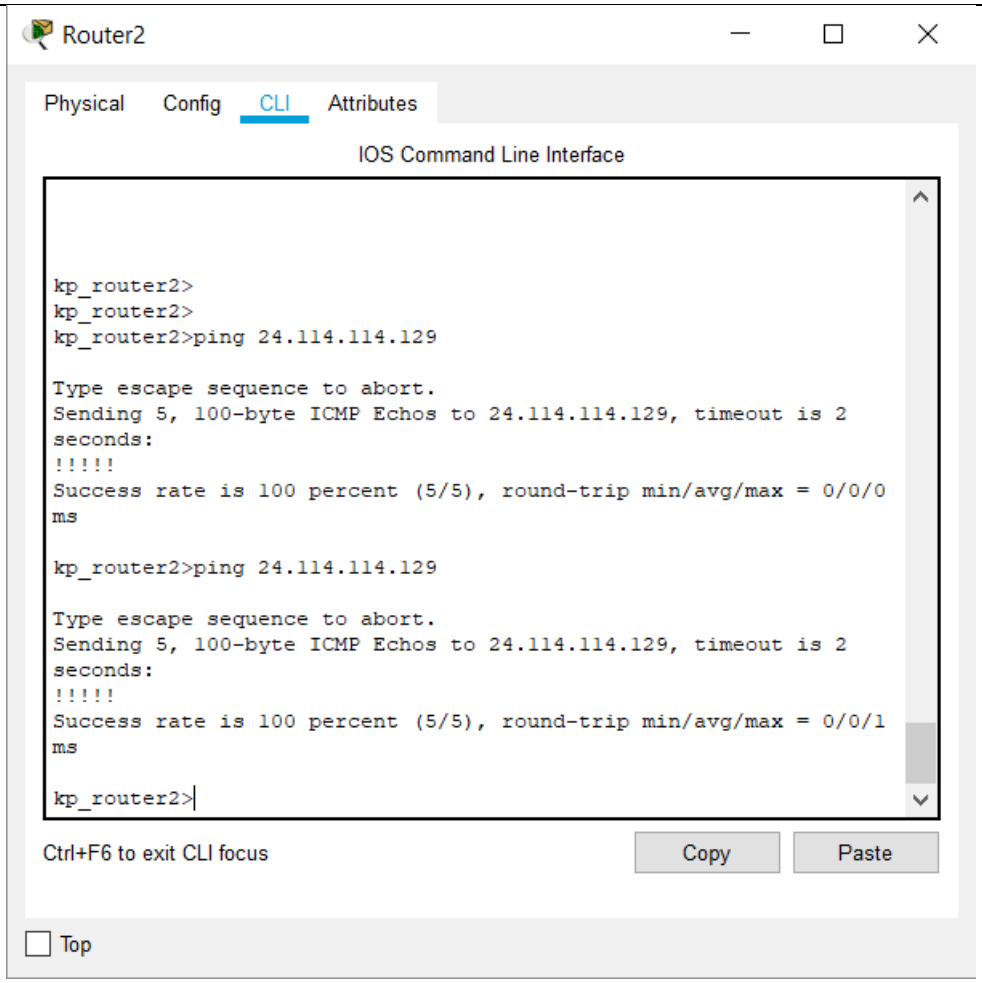

Fig 1.1 Router 1 ping

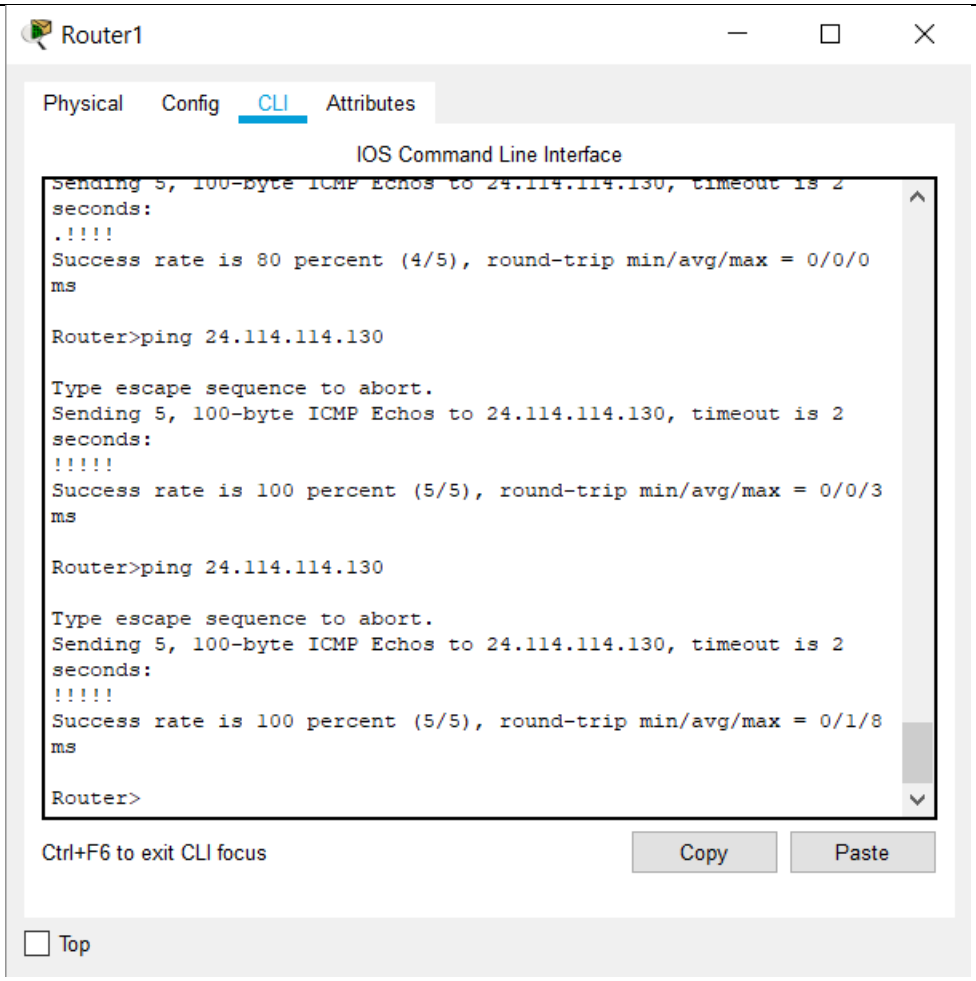

Fig 1.2 router 2 ping

At the end of the activity, enter the command " copy runn start" to save the current configuration. Submit your pkt file as well.

Part C: Commands Learned

In the table below note the functions of each command that you used/learned in this lab.

Command	Function
Enable	Allow to enter in configuration mode
Show version	Display manufacture information of device
?	List all available options and arguments
Show interfaces	Display information of available interfaces in device

Config terminal	Allow to enter configuration mode of device network settings
exit	Close out current mode
end	End of current configuration setup
hostname	Display device hostname
Show cdp neighbor	Display nearby connected devices
Show running-config	Display current device settings before saving it
Show startup-config	Display saved configurations of device
Show ip interface brief	Gives you overall detail of available interfaces
Show mac-address-table	Display mac address entry related to device based on packet request

References

[1] http://www.cisco.com/en/US/tech/tk801/tk36/technologies_tech_note09186a0080094465.shtml