# Configure the lab PC with the correct operating system.

# Cisco Router Configuration

## Set Hostname

1. When you first open a terminal to a router that has no configuration, you are asked whether you want to configure it. You should answer NO. The prompted configuration mode is for basic configuration by untrained individuals. This is not you ! You want the command-line mode which is accessed by answering NO.
2. By default you are in user mode.  
   Use the command **enable** (or **en**) to enter privileged-exec mode. This is similar to “root” or “administrator.
3. The Cisco IOS must be placed in configuration mode before changes can be made. The **configure terminal** or **conf t** command will change the mode.

Router#**conf t**

Router(config)#

Note the change in the prompt reflecting configuration mode.

1. Set the hostname for both routers device with the hostname command. For example name the left router as “Perth”r:  
     
    Router(config)#**hostname Perth** Perth(config)#
2. Repeat this step for the other Router nut name it “Sydney”

## Configuring Router Interface Addresses

1. To configure an IP address on a router interface we need to change the mode to interface configuration mode for a particular interface.

For example for the LAN interface on the Perth Router this would be:

Perth(config)#**interface e0/0**

Perth(config-if)#

1. To configure an IP address and subnet mask you use the following syntax

Perth(config-if)#**ip address 192.10.20.30 255.255.255.0**

1. Configure appropriate IP addresses on each of your router interfaces. See your notes from the subnetting exercise. There are four in total. Note that the WAN interfaces are not Ethernet, they are generic Serial connections and the interface number is S1/0.

**Configuring Host IP parameters**

The host PCs are not running a real operating system such as Windows or Linux. They are Virtual PCs (VPCS) with limited functionality devices that EVE-NG provides for testing purposes such as ping or traceroute. Consequently they use their own simple but unique configuration method.

1. Select the console screen for one of your hosts and configure its IP address and gateway using the following command syntax.  
     
    **ip** [IP address] [/Prefix] [default gateway address]   
     
   Can you determine the appropriate default gateway address for your PC?   
   A simple rule but one that you need to know.
2. Configure your second host.

## 

## Testing point-to-point connectivity.

With appropriate IP addresses on all interfaces you should be able to ping between devices in the same subnet.

1. Test your connectivity by pinging between the routers and the router and the host on its LAN.

These should all be successful and will confirm:

* Appropriate IP addressing.
* Physical Layer connectivity.
* Data-link Layer connectivity - Trivial in Ethernernet.

Don’t move on until you have point-to-point connectivity.  
Troubleshooting only gets more difficult as the configuration progresses.

1. Why can't the two hosts ping each other?

## Adding routing

The routers can only find a path (route) between networks if they are aware of their existence.

On each router examine the routing table with:

Router#**show ip route**

Each router knows of only it’s directly connected network. Sydney does not know of Perth’s LAN and Perth does not know of Sydney’s LAN.

A dynamic routing protocol can be activated on both routers to enable them to exchange routes. In this case we will configure RIP because it is simple.

1. Apply the following commands to each router:  
     
    Router#**config t**  
    Router#(config)#**router ospf 1**  
    Router#(config-router)#**network 200.100.20.0 0.0.0.255 area 0**
2. Test your network by pinging between the hosts.

If your tests do not succeed:

* Is it a layer 3 (IP) routing problem:

Check the routing table - do both routers learn each others subnet?

* + Check your hosts gateway address is it appropriate?

Questions you should be able to answer:

## These are typical of the wording and style you can expect for a written style question in an exam.

* Why do we need multiple subnets in this network?
* What is the significance of a network entry not being present in the routing table?
* What is the relationship between the network portion of your host IP address, and the network portion of your default gateway?
* Why don’t the switches have an IP address or have a separate subnet on each interface?