

Lab 6.2 - Build a Network

Building the Network

Using the following list of network components, build and connect a network as illustrated in figure 1.

NB: To connect the serial cables (RED) – You must power down the router and install a WIC-T2 in an expansion slot.

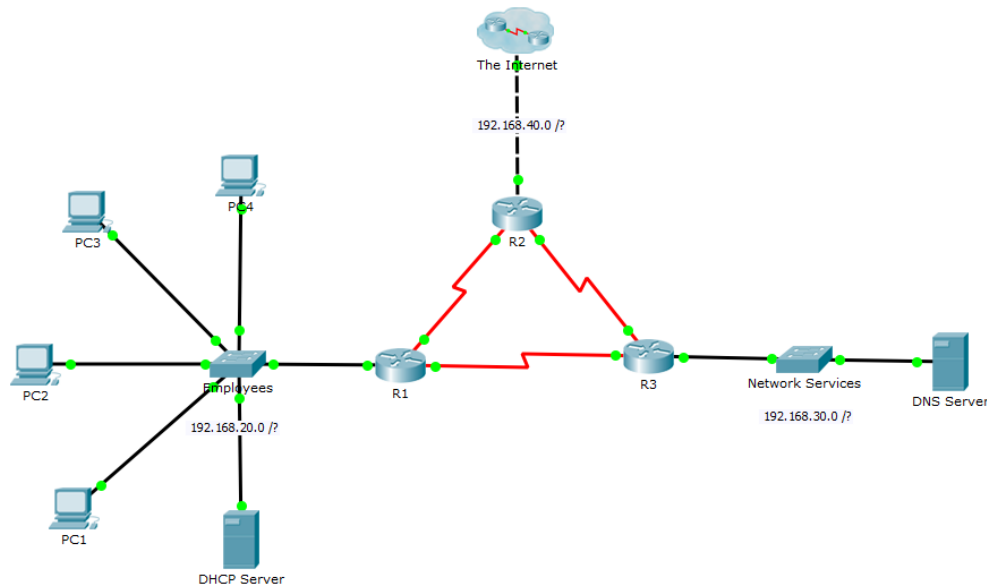


Figure 1: Network Topology

The network configuration consists of:

- 3 x Cisco 1841 Router
- 2 x Cisco 2960 Switch
- 4 x PC's
- 2 x Servers

Configure the Network

Complete the following steps:

- Configure the administrative passwords as outlined in Table 1 on each router.
- Set the MOTD as follows: **"WARNING – NO UNAUTHORIZED ACCESS ALLOWED"**

Table 1: Password Configuration

Devices	Access	Password
R1	Console	consolePwD
R2 R3	Privileged Mode (Encrypted)	enablePwD

Configure the Interfaces

You've been provided a network address and the minimum number of hosts required for network topology outlined above. Calculate the subnets. For each router, use the following consecutive subnet. (i.e. all within 192.168.1.X)

- For the Routers, calculate the subnets using the 192.168.1.0 network.

Device	Network	Hosts Required
R1 - R2 R2 - R3 R3 - R1	192.168.1.0	2
R1 - Employees	192.168.20.0	50
R2 - The Internet	192.168.40.0	2
R3 - Network Services	192.168.30.0	2

Document the IP Addressing scheme in the table below:

Device	Interface	IP	Subnet	Default Gateway
R1	F 0/0	192.168.20.1	255.255.255.192	
	S 0/1/0	192.168.1.1	255.255.255.252	
	S 0/1/1	192.168.1.9	255.255.255.252	
R2	F 0/0	192.168.40.1	255.255.255.252	
	S 0/1/0	192.168.1.2	255.255.255.252	
	S 0/1/1	192.168.1.5	255.255.255.252	
R3	F 0/0	192.168.30.1	255.255.255.252	
	S 0/1/0	192.168.1.10	255.255.255.252	
	S 0/1/1	192.168.1.6	255.255.255.252	
PC 1		192.168.20.2	255.255.255.192	192.20.1
PC 2		192.168.20.3	255.255.255.192	192.20.1
PC 3		192.168.20.4	255.255.255.192	192.20.1
PC 4		192.168.20.5	255.255.255.192	192.20.1
DHCP Server		192.168.20.6	255.255.255.192	192.20.1
DNS Server		192.168.30.2	255.255.255.252	192.30.1

Setting up Router RIP

Using lab 6.1 as a reference, configure **RIP V2** on the following devices:

- R1
- R2
- R3

Ensure that all routes are advertised correctly.

Setting Up a DNS service

What is a domain name? – Provide an example

What is the purpose of a DNS Server?

Configure the DNS service as follows:

- Click on the services tab on the DNS Server
- Select DNS and switch the service to “On”
- Insert the following information
- Name: www.ait.ie
- Address: 192.168.40.2
- Click Add

Enable DNS on the PC:

- Click on a PC
- Desktop Tab
- IP Configuration
- Enable DHCP
- Repeat for Each PC

Setting Up DHCP

What is the purpose of a DHCP Service?

To configure the DHCP service carry out the following on the services tab of the DHCP server:

- Click DHCP and enable the service by turning it on.
- Set the default gateway.
- Set the DNS server to the IP address calculated earlier in the lab.
- Starting IP Address: 192.168.20.20
- Subnet Mask as previously calculated (i.e. enough for 50 hosts minimum).
- Click save.

Why is the DHCP server configured to start from 192.168.20.20?