Packet Tracer - Troubleshooting Challenge - Document the Network

# Addressing Table

| LINE# | Device | Interface | Device Type  (router, switch, host) | IP Address | Subnet Mask | Default Gateway |
| --- | --- | --- | --- | --- | --- | --- |
|  | PC1 | F0/1 | Host | 192.168.1.153 | 255.255.255.0 | 192.168.1.1 |
|  | PC2 | NIC | Host | 192.168.3.50 | 255.255.255.0 | 192.168.3.1 |
|  | PC3 | NIC | Host | 192.168.4.115 | 255.255.255.0 | 192.168.4.1 |
|  | PC4 | NIC | Host | 192.168.5.83 | 255.255.255.128 | 192.168.5.1 |
|  | PC5 | NIC | Host | 192.168.5.227 | 255.255.255.128 | 192.168.5.129 |
|  | PC6 | NIC | Host | 192.168.2.48 | 255.255.255.224 | 192.168.2.33 |
|  | PC7 | NIC | Host | 192.168.2.67 | 255.255.255.224 | 192.168.2.65 |
|  | Branch 1 | G 0/0/0 | Router | 192.168.1.1 | 255.255.255.0 | 192.168.0.1 |
|  |  | S 0/1/0 | Router | 192.168.0.2 | 255.255.255.252 | 192.168.0.1 |
|  | SW-B1 | G 0/1 | Switch | 192.168.1.252 | 255.255.255.0 | 192.168.1.1 |
|  | Hub | S 0/1/0 | Router | 192.168.0.1 | 255.255.255.252 | 192.0.2.2 |
|  |  | S 0/1/1 | Router | 192.168.0.5 | 255.255.255.252 | 192.0.2.2 |
|  |  | S 0/2/0 | Router | 192.168.0.9 | 255.255.255.252 | 192.0.2.2 |
|  |  | S 0/2/1 | Router | 192.168.0.13 | 255.255.255.252 | 192.0.2.2 |
|  |  | G 0/0/0 | Router | 192.0.2.1 | 255.255.255.252 | 192.0.2.2 |
|  | Branch 2 | G 0/0/0.1 | Router | 192.168.2.1 | 255.255.255.224 | 192.168.0.5 |
|  |  | G 0/0/0.32 | Router | 192.168.2.3 | 255.255.255.224 | 192.168.0.5 |
|  |  | G 0/0/0.64 | Router | 192.168.2.65 | 255.255.255.224 | 192.168.0.5 |
|  |  | S 0/1/0 | Router | 192.168.0.6 | 25.255.255.252 | 192.168.0.5 |
|  | SW-B2 | G 0/1 | Switch | 192.168.2.17 | 255.255.255.0 | 192.168.2.1 |
|  |  | F 0/1 | Switch | 192.168.2.248 | 255.255.255.224 | 192.168.2.1 |
|  |  | F 0/12 | Switch | 192.168.2.67 | 255.255.255.224 | 192.168.2.1 |
|  | Factory | S 0/1/0 | Router | 192.168.0.14 | 255.255.255.252 | 192.168.0.13 |
|  |  | G 0/0/1 | Router | 192.168.4.1 | 255.255.255.0 | 192.168.0.13 |
|  |  | G 0/0/0 | Router | 192.168.3.1 | 255.255.255.0 | 192.168.0.13 |
|  | SW-F1 | G 0/1 | Switch | 192.168.3.252 | 255.255.255.0 | 192.168.3.1 |
|  |  | F 0/1 | Switch | 192.168.3.50 | 255.255.255.0 | 192.168.3.1 |
|  | SW-F2 | G 0/1 | Switch | 192.168.4.252 | 255.255.255.0 | 192.168.4.1 |
|  |  | F 0/1 | Switch | 192.168.4.115 | 255.255.255.0 | 192.168.4.1 |
|  | HQ | G 0/0/0.1 | Router | 192.168.6.1 | 255.255.255.0 | 192.168.6.1 |
|  |  | G 0/0/0.5 | Router | 192.168.5.1 | 255.255.255.128 | 192.168.6.1 |
|  |  | G 0/0/0.10 | Router | 192.168.5.129 | 255.255.255.128 | 192.168.6.1 |
|  | SW-HQ 1 | G 0/1 | Switch | 192.168.6.252 | 255.255.255.0 | 192.168.6.1 |
|  | SW-HQ 2 | Port channel 1, 2 | Switch | 192.168.6.253 | 255.255.255.128 | 192.168.6.1 |
|  |  | F 0/1 | Switch | 192.168.5.83 | 255.255.255.128 | 192.168.6.1 |
|  | SW-HQ 3 | Port channel 2, 3 | Switch | 192.168.6.254 | 255.255.255.128 | 192.168.6.1 |
|  |  | F 0/1 | Switch | 192.168.5.227 | 255.255.255.128 | 192.168.6.1 |

Blank Line - no additional information

# Objectives

In this lab, you will document a network that is unknown to you.

* Test network connectivity.
* Compile host addressing information.
* Remotely access default gateway devices.
* Document default gateway device configurations.
* Discover devices on the network.
* Draw the network topology.

# Background / Scenario

Your employer has been hired to take over the administration of a corporate network because the previous network administrator has left the company. The network documentation is missing and needs to be recreated. You job is to document the hosts and network devices including all the device addressing and logical interconnections. You will remotely access network devices and use network discovery to complete a device table and draw the network topology.

This is Part I of a two-part series of activities. You will use the documentation that you create in this activity to guide you as you troubleshoot the network in Part II, **Packet Tracer - Troubleshooting Challenge - Using Documentation to Solve Issues**.

As you investigate and document the network topology, make note of issues that you discover that do not adhere to the practices taught in the CCNA curriculum.

# Instructions

## Test Connectivity

Ping between the PCs and the internet server to test the network. All PCs should be able to ping one another and the internet server.

## Discover PC Configuration Information

Go to the command prompt of each PC and display the IP settings. Record this information in the documentation table.

## Discover Information about the Default Gateway Devices

Connect to each default gateway device using the Telnet protocol and record information about the interfaces that are in use in the table. The VTY password is **cisco** and privileged EXEC password is **class**.

C:\> **telnet *IP\_address***

## Reconstruct the Network Topology

In this part of the activity, you will continue recording information about the devices in the network in the Addressing Table. In addition, you will start to diagram the network topology based on what you can discover about the device interconnections.

### Access Routing Tables on Each Gateway Device.

Use the routing tables in each router to learn more about the network. Make notes of your findings.

### Discover Non-Gateway Devices.

Use a network discovery protocol to document neighboring devices. Record your findings in the addressing table. At this point you should also be able to begin documenting device interconnections.

## Further Explore Device Configurations and Interconnections

### Access Device Configurations.

Connect to the other devices in the network. Gather information about the device configurations.

### View Neighbor Information.

Use discovery protocols to increase your knowledge of the network devices and topologies.

### Connect to Other Devices.

Display configuration information for the other devices on the network. Record your findings in the device table.

By now you should know about all the devices and interface configurations in the network. All rows of the table should contain device information. Use your information to reconstruct as much of the network topology as you can.

# Reflection

31. You may have noticed that some of the practices used to configure the network devices are out-of-date, inefficient, or not secure. Make a list of as many recommendations that you have regarding how the devices should be reconfigured to follow the practices that you have learned in the CCNA curriculum.

* Type your answer here. The list gives you an opportunity to use some of the best practices that have been covered.
* Enable Log on all the networking devices such as router and switch. This feature provides additional information sources for network monitoring and troubleshooting.
* Implement at least one extended ACL on the Hub router to filter traffic to and from the Internet.
* Add at least a redundancy link with at least one more router to the Hub router if we want to keep the simplicity of the topology but eliminate the single point of failure of Hub router.
* I would recommend setting up multiple area OSPF with one more router and making Hub routers our backbone area. Also, I will consider a different IP address assigning scheme for the separate areas. The Branch and HQ can be 198.x.x.x but we need to change the production network (Factory) to a different address, such as 10.x.x.x
* Consider implementing a VPN tunnel when sending traffic out to the Internet also, implement Dynamic NAT on the router that connects to the ISP

**32. Network Topology Diagram**

Please see attached draw.io file for better visualization

A screenshot of a computer

Description automatically generated