

# Home Network

This is a simple Home Network which connects to the Internet using a Wireless Router.

## Devices:

- 1 Cisco 2911 Router
- 1 Cisco ISR4331 Router
- 1 Cisco C3650 Layer 3 Switch
- 3 Servers
- 1 Home Router
- 4 Smartphones
- 2 TVs
- 2 Laptops
- 1 Gaming Console
- 1 PC
- 1 Printer

## Topology:

Bedroom 1: Room\_1\_PC, Room\_1\_TV, Smartphone\_1

Bedroom 2: Room\_2\_Laptop, Smartphone\_2, Smartphone\_3

Bedroom 3: Room\_3\_Laptop, Smartphone\_4, Gaming\_Console, Printer

Living Room: Home\_Router, Living\_Room\_TV

## Connections:

- Home\_Router Internet <> Router “\_” G0/1

**NOTE:** Normally only a Home Router would be used. The Home Router in Packet Tracer doesn't support NAT configuration. So a Cisco 2911 router has been used simulate NAT. It is name “\_” and hidden behind the Home Router.

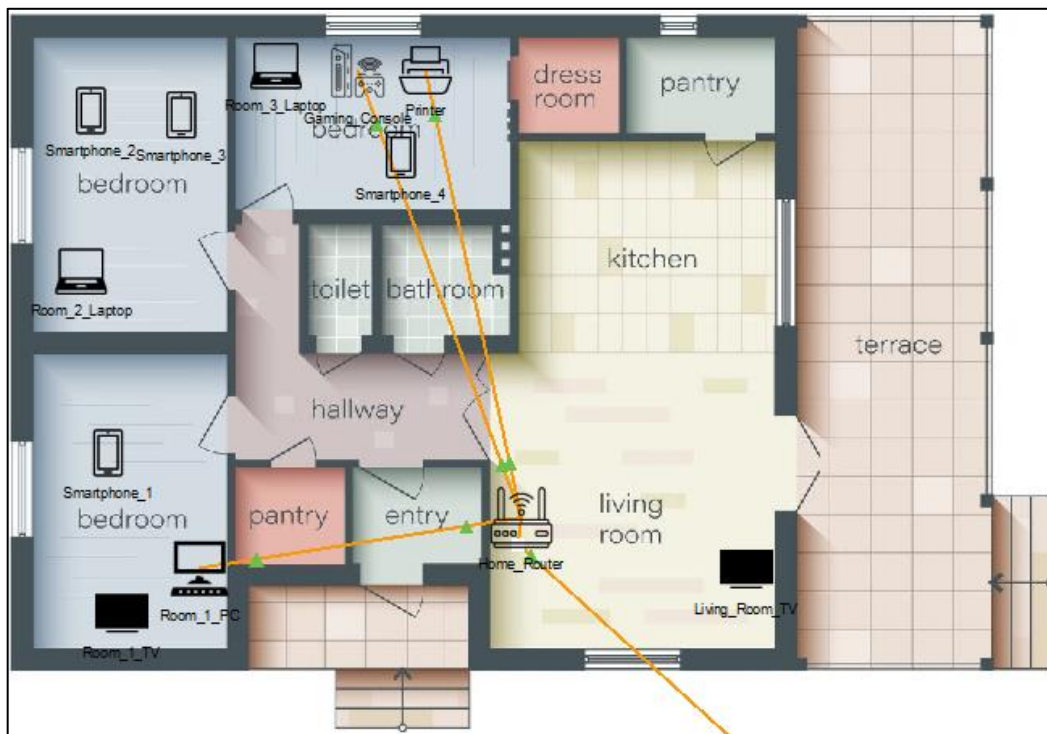
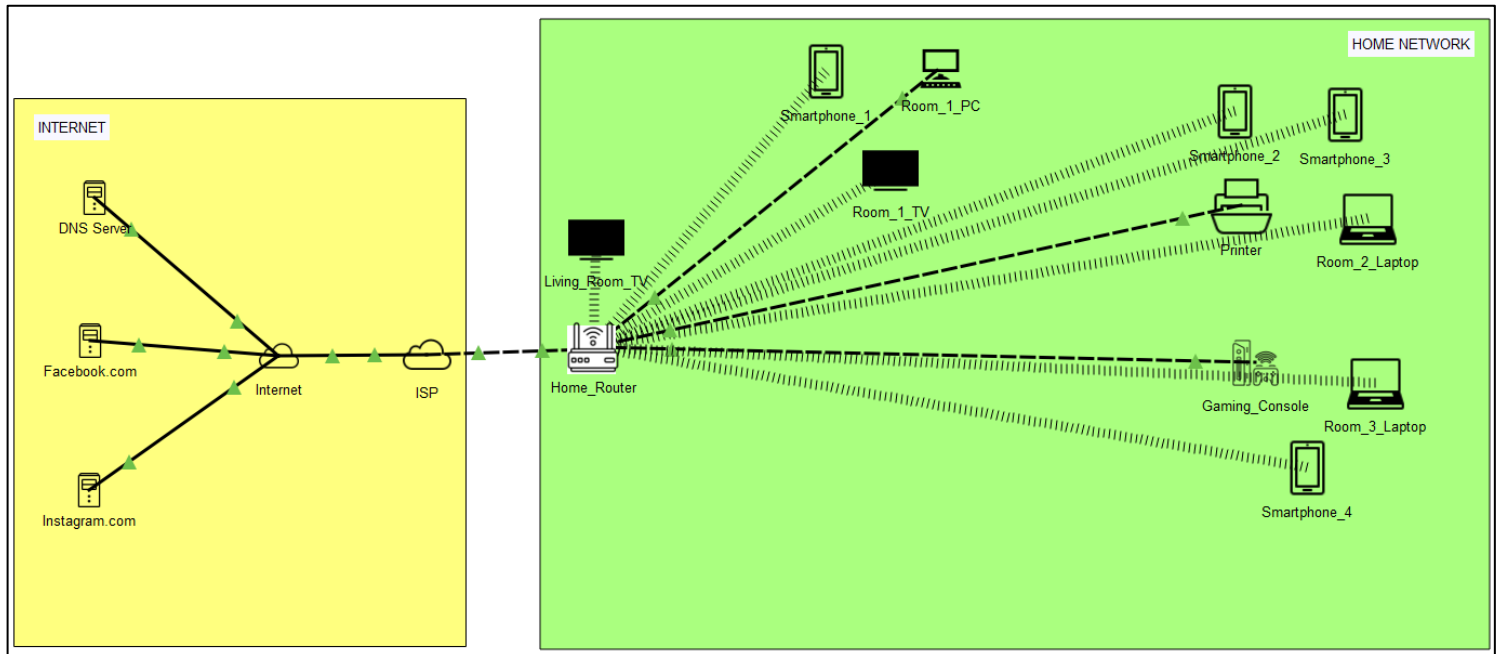
- Home\_Router Gigabit 1 <> Room\_1\_PC
- Home\_Router Gigabit 1 <> Gaming\_Console
- Home\_Router Gigabit 1 <> Printer
- Router “\_” G0/0 <> ISP G0/0/0
- ISP G0/0/1 <> Internet

## IP Addressing Plan:

- Home LAN: 192.168.0.0/24
- Home\_Router Internet <> Router “\_” : 10.0.0.0/30
- Router “\_” <> ISP : 145.63.120.0/30
- DNS Server: 100.10.10.10/32

- Facebook Server: 100.10.10.11/32
- Instagram Server: 100.10.10.12/32

## Network Diagram:



## Configuration:

First, configure Hostnames for all devices.

### A) Home\_Router:

- Router IP Address: 192.168.0.1/24
- DHCP Server Configuration:
  - Start IP Address: 192.168.0.100

- Maximum Number of Users: 50
- Wireless Configuration (2.4GHz and 5GHz):
  - SSIDs: Home\_Network\_2.4G & Home\_Network\_5G
  - Security Mode: WPA2 Personal
  - Encryption: AES
  - Passphrase: Home@1234
- Management Access:
  - Remote Management enabled
  - Username: admin
  - Password: Home@1234
- Interface IP Addresses:
  - Internet: 10.0.0.2/30
  - LAN: 192.168.0.1/24

#### B) Router “\_”:

- Interface IP Addresses:
  - G0/0: IP address obtained from ISP using DHCP.
  - G0/1: 10.0.0.1/30
- Configure a Standard ACL to permit the 192.168.0.0/24 and 10.0.0.0/24 networks.
- Configure PAT (NAT Overload) to translate addresses matched by the ACL to the IP address of interface G0/0.

#### C) ISP:

- Access Credentials;
  - Username: admin & Secret: password
  - Enable Secret: password
- Configure DHCP Pool:
  - Network: 145.63.120.0/30
  - Excluded address: 145.63.120.1/30
  - Default Router: 145.63.120.1
- Interface IP addresses:
  - G0/0/0: 145.63.120.1/30
  - G0/0/1: 100.10.10.1/24
- Configure default route to 100.10.10.10/24
- Configure Standard ACL to simulate the Internet – Since the Internet doesn’t route packets with IP addresses from the private address ranges, we’ll configure an ACL to deny packets with those addresses:

- deny 10.0.0.0 0.0.0.255
- deny 172.16.0.0 0.15.255.255
- deny 192.168.0.0 0.0.255.255
- Configure the ACL for inbound traffic on interface G0/0/0.

#### D) Servers:

- Facebook.com Server:
  - IP Address: 100.10.10.11/24
  - Default Gateway: 100.10.10.1
  - DNS Server: 100.10.10.10
- Instagram.com Server:
  - IP Address: 100.10.10.12/24
  - Default Gateway: 100.10.10.1
  - DNS Server: 100.10.10.10
- DNS Server:
  - IP Address: 100.10.10.10/24
  - Default Gateway: 100.10.10.1
  - DNS A Records:
    - facebook.com – 100.10.10.11
    - instagram.com – 100.10.10.12

Finally, rearrange and design the network in Physical mode.

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