

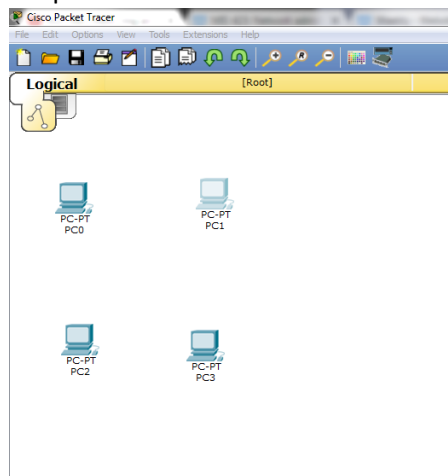
Building Network Models with Cisco Packet Tracer

Below you will use Cisco Packet Tracer to build several network topologies. Specifically, you will build:

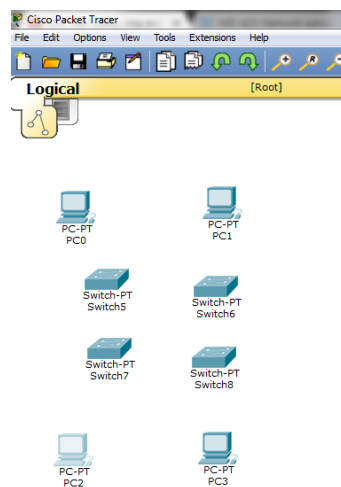
- Ring
- Bus
- Star
- Mesh
- Hybrids

Ring Topology

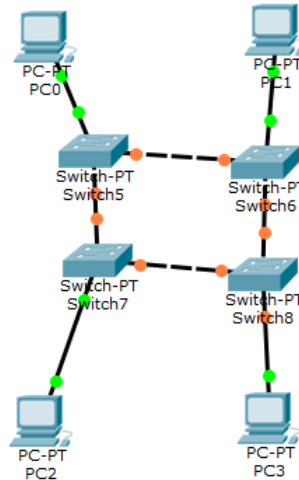
- Drag four Generic PCs into the top left corner of the screen:



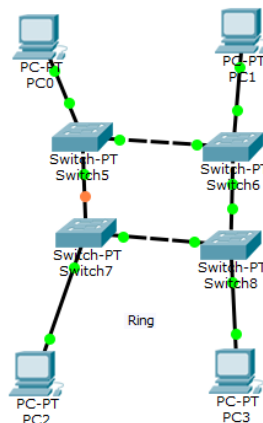
- Next, drag four generic switches next to each of the PCs:



- Then, select the Connections icon (it looks like a lightning bolt) and click the one that says “automatically choose connection type.”
- Connect the PCs to the switches
- Connect the switches together

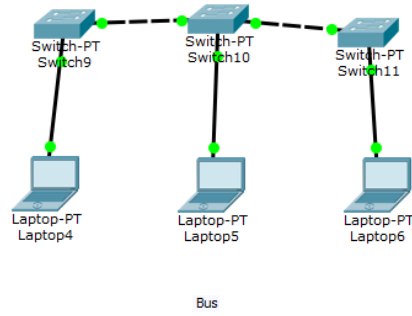


- Now we need to set the IP addresses of the machines. Please do so based on the following:
 - PC0: 192.168.0.1
 - PC1: 192.168.0.2
 - PC2: 192.168.0.3
 - PC3: 192.168.0.4
- Now label this as Ring



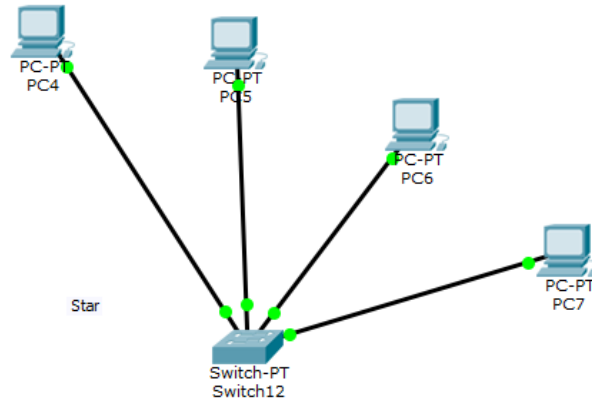
Bus Topology

Using what you’ve just learned, draw a bus topology so it looks like the following. Also, make the Laptops have the IP Addresses 192.168.0.5, 192.168.0.6, and 192.168.0.7.



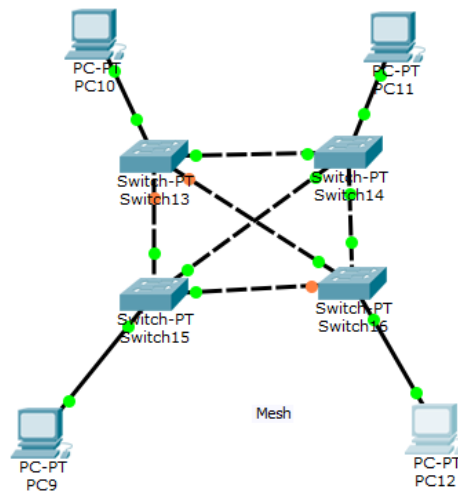
Star Topology

Using what you've just learned, draw a star topology so it looks like the following. Also, make the Laptops have the IP Addresses 192.168.0.8, 192.168.0.9, 192.168.0.10, and 192.168.0.11.



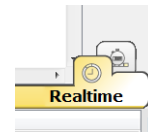
Mesh Topology

Draw a mesh topology so it looks like the following. Also, make the computers have the IP Addresses 192.168.0.12, 192.168.0.13, 192.168.0.14, and 192.168.0.15.

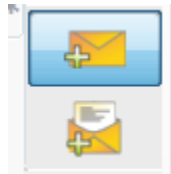


Seeing the Connections in Action

At the bottom right corner, you will notice a button that says “Realtime.” Click the button slightly above this and it will change to Simulation Mode. This will allow us to see how the frames and packets move around the connected networks. Let’s do each individually.



- **Example for Ring: Sending an email from PC0 to PC3.**
 - In simulation mode, click the yellowish envelope in the right hand corner of the screen:



- Click on PC0 then on PC3. There should be an envelope on PC0.
- On the right hand side of the screen, uncheck the “Constant Delay” button.
- Under Play Controls, click Auto Capture/Play.
- Now you can see how the email moves from PC0 to PC3.



Do this for the following connections:

- PC2 to PC1 (Ring)
- Laptop 4 to Laptop6 (Bus)
- PC4 to PC7 (Star)
- PC9 to PC10 (Mesh)

Connecting the Topologies (Hybrid)

Notice now that we have four separate networks. Let's create connect all of the devices together to form a hybrid network. To do so:

- Connect one of the switches in the Ring topology to the Bus topology
- Connect a switch in the Bus topology to the Mesh topology
- Connect a switch in the mesh to the star switch
- And connect a switch on the Ring to the Star

Let's Test the Connections.

- In Simulation Mode, send an email from PC0 to PC12. Notice that because you just setup the network, the switches don't have any information stored in the (IP addresses, MAC addresses, etc). So the send a broadcast to every computer basically saying "hey, is this your MAC address or IP address?" Also notice how the frame is send first to get the IP address and MAC address, and then the email can be returned.

Please save your Packet Tracer File as "Building Network Topologies.pkt"

Overall, your network should look something like this:

