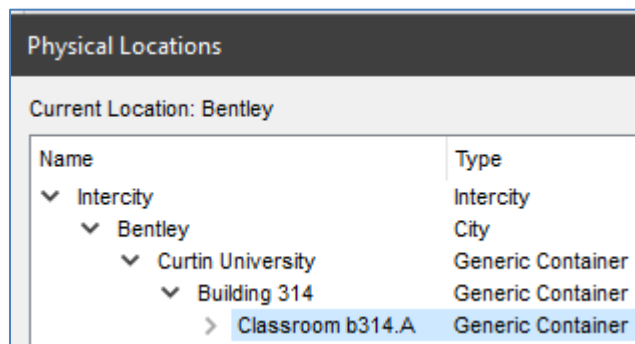


P01: Working with Physical Workspace

Q1: Design the physical workspace in PT

1. Open a new file in packet tracer and switch to physical view
2. Create containers according to the following table.

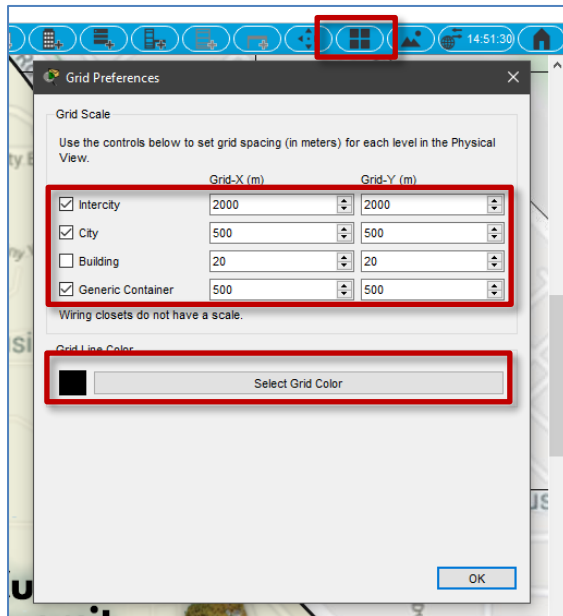
Container Name	Container Type	Width (m)	Length (m)	Notes
Intercity	Intercity	12410	5500	-
Bentley	City	4500	2500	City must be inside intercity container
Curtin University	Generic Container	1350	1800	Generic Container for Curtin University must be inside Bentley
Building 314	Generic Container	109	59	Generic Container for Building 314 must be inside Curtin University
Classroom b314.A	Generic Container	40	21	Generic Container for Classroom b314.A must be inside Building 314



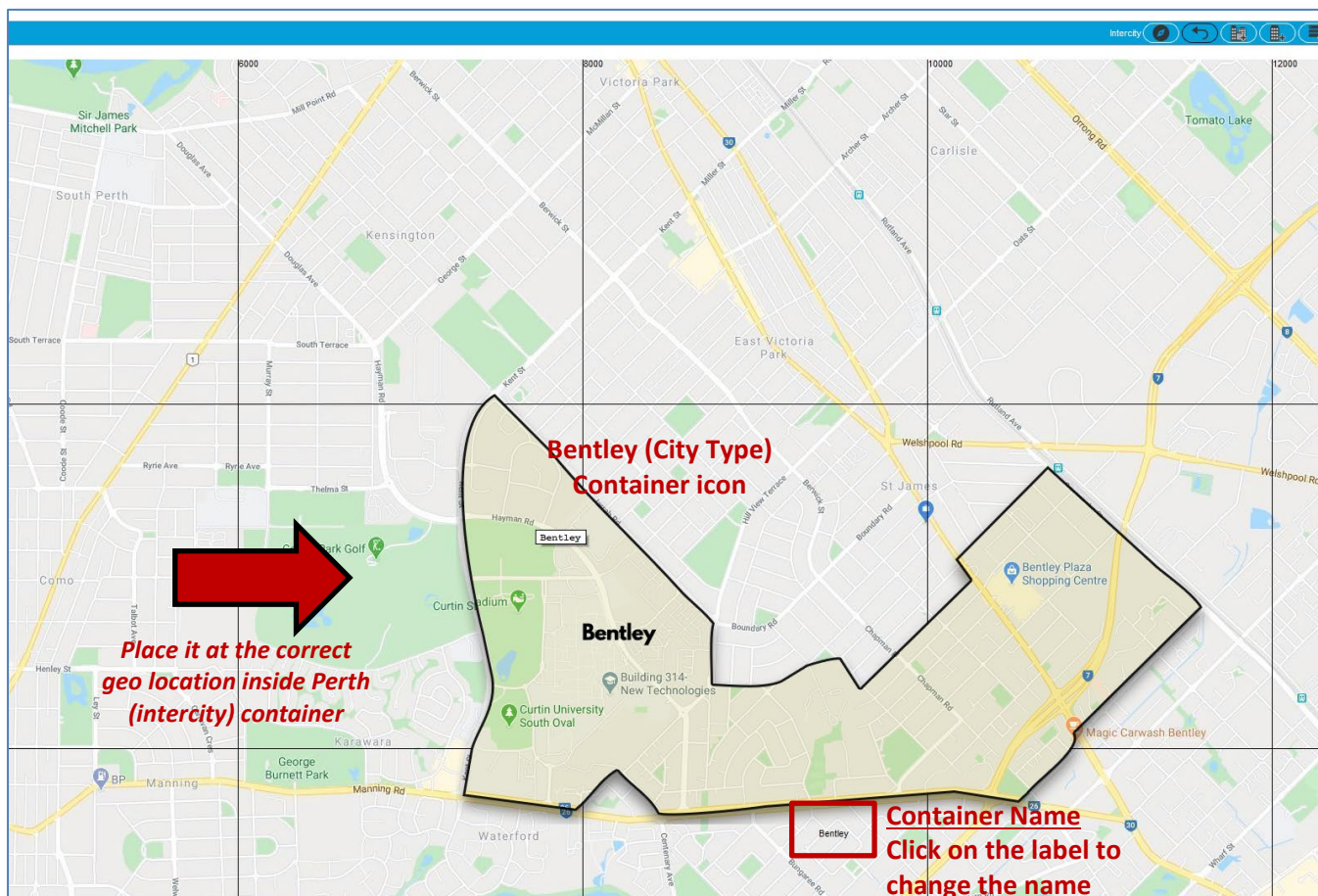
3. Change the container background and icon using the images provided in **Resources/Map Tiles**

Container Name	Container Type	Background Image	Container Icon
Intercity	Intercity	L00 Perth.png	
Bentley	City	L01 Bentley.png	L01 Bentley Thumb.png
Curtin University	Generic Container	L02 Curtin.png	L02 Curtin Thumb.png
Building 314	Generic Container	L03 b314.png	L03 b314 Thumb.png
Classroom b314.A	Generic Container	L04 b314.A.png	L04 b314.A Thumb.png

4. Change the grid preferences and grid line color for Intercity, City, Generic Container as shown below



5. Start from Perth (intercity) container and place the child container (Bentley) icon at the correct location as shown below:

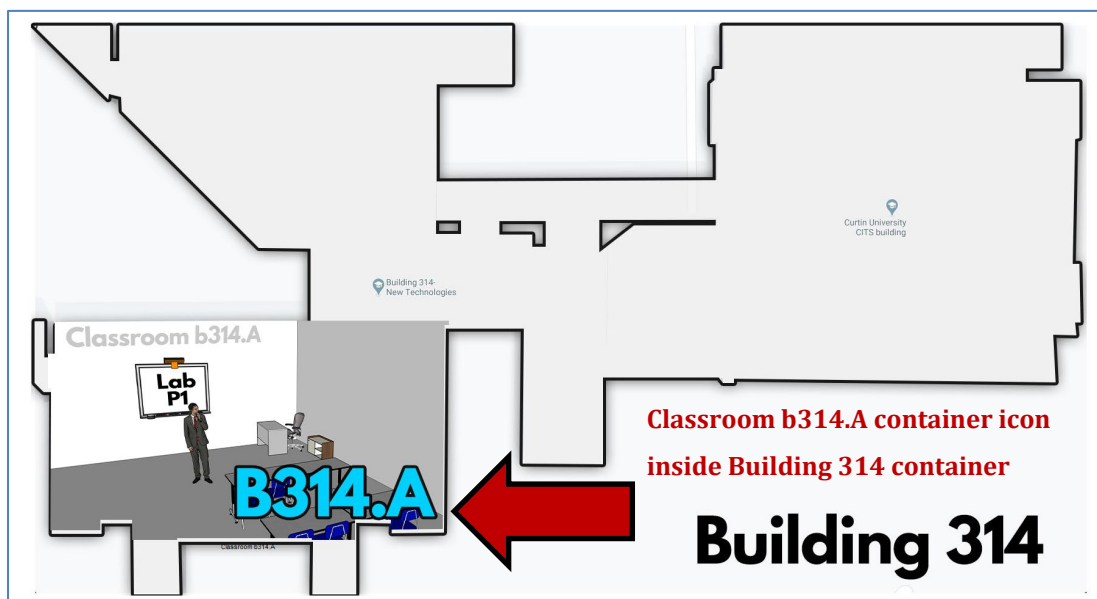
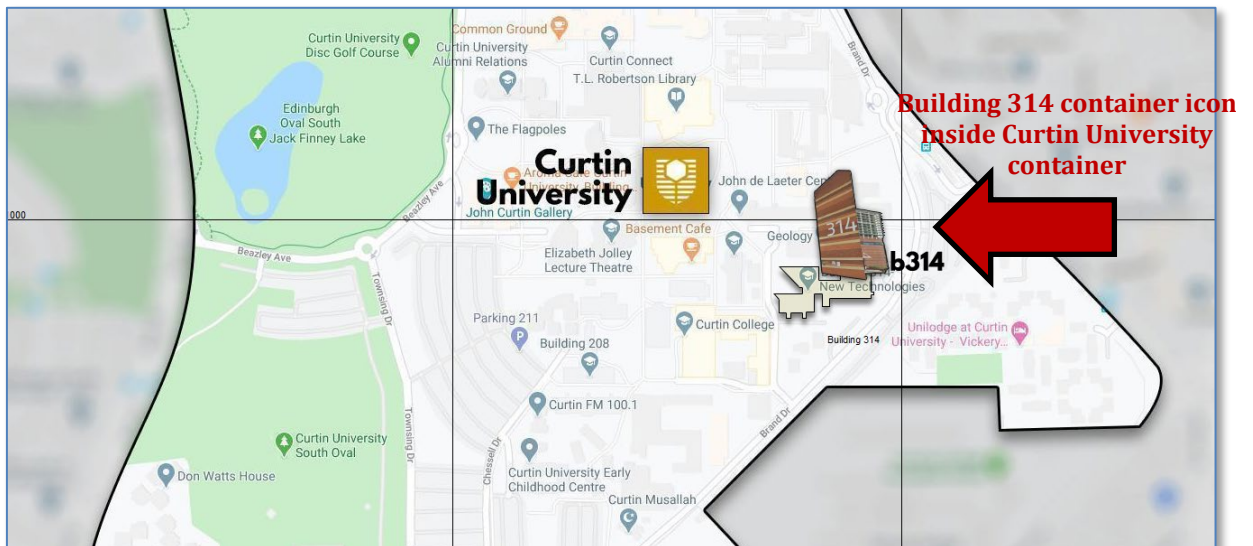
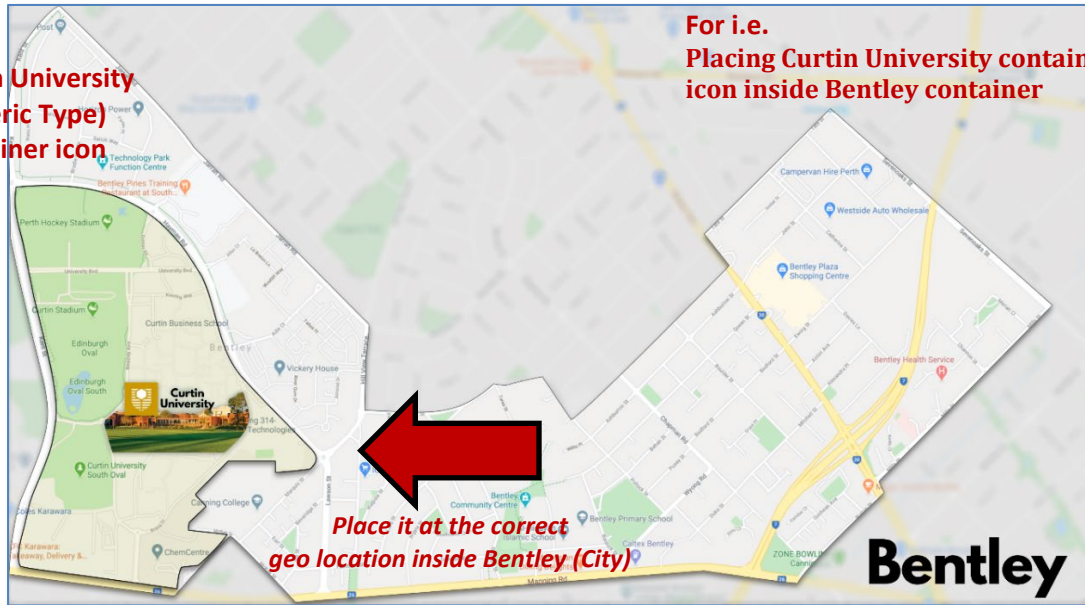


Continue to place the child container icons at correct geo locations in the same way for

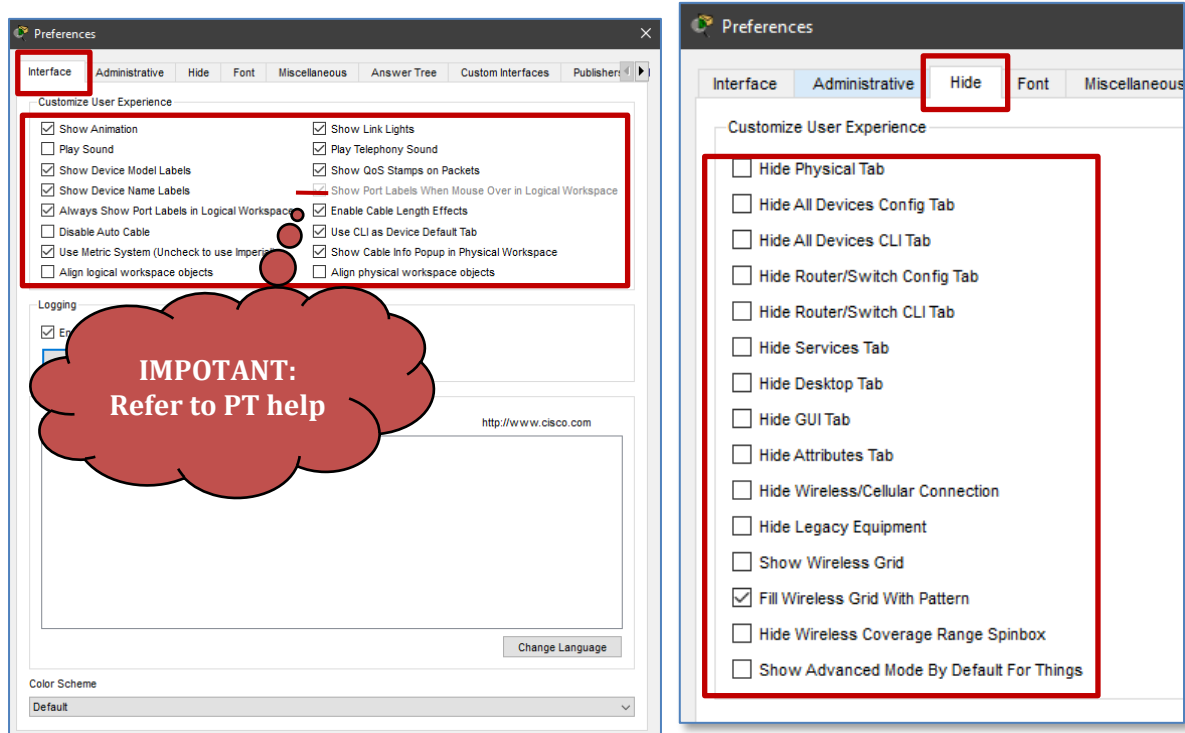
- Curtin University container icon inside Bentley container
- Building 314 container icon inside Curtin University container
- Classroom b314.A container icon inside Building 314

**Curtin University
(Generic Type)
Container icon**

**For i.e.
Placing Curtin University container
icon inside Bentley container**



6. Create a wiring closet inside the container B314.A and add a new table and a rack
7. Go to **Options -> Preferences** and check **all** the following options as shown below:



8. Finally, switch to the **logical view**
9. Change the background to **Resources/Map Tiles/L00 Title_logical_workspace.png**

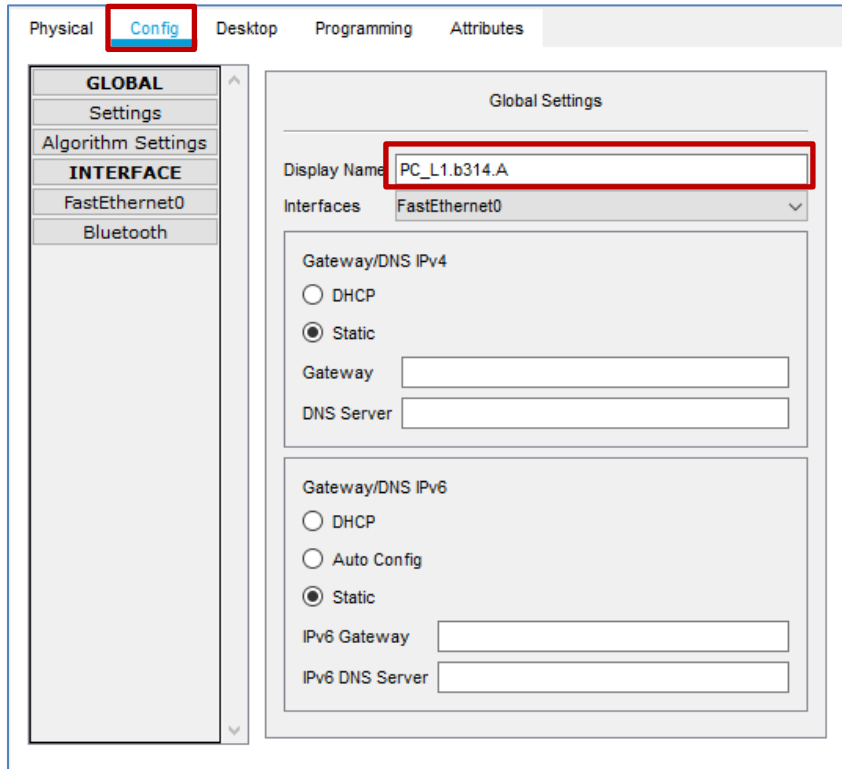
Note: Since we have designed the physical workspace in PT with geo locations of Bentley, Curtin, Building 314, Classroom B314.A to reflect the real world distances in a matching scale, the networks we design during this course will be **affected by these distances**. (for i.e. Range of a WiFi signal is limited by the distance).

Q2: Design a basic wired & wireless network

It's very important to plan the physical and logical design of the network before implementing a network.

Hence in this task a first look is taken at the detailed design of the physical view of the network. Later, we will look at the logical design of the network.

1. Switch to **logical view**
2. Insert a laptop (Laptop-PT) device to the logical workspace and change its **display name** as shown below

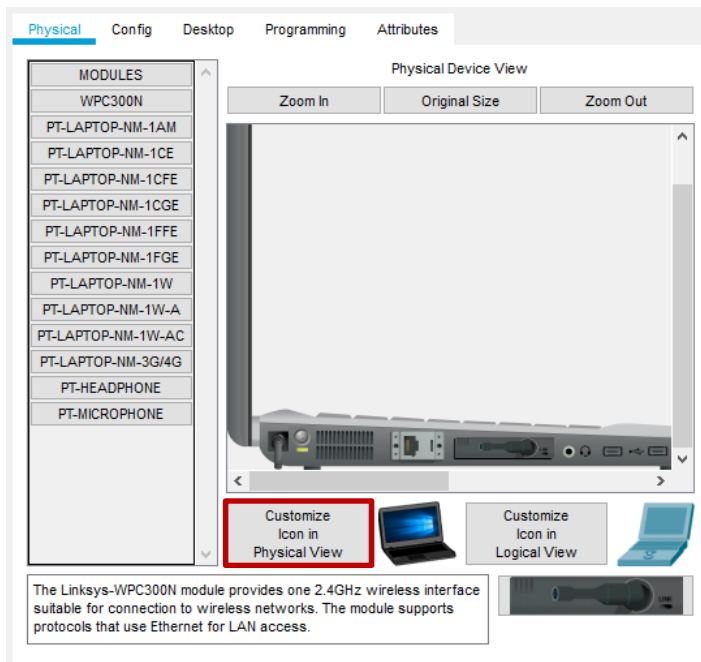


- 3.
4. Since laptops are **by default** coming with a network port (via Ethernet Interface Card) in PT, we need to remove the Ethernet Interface Card and insert a Wireless module instead, to support wireless connectivity

a. Important: Turn off the device to remove/insert modules

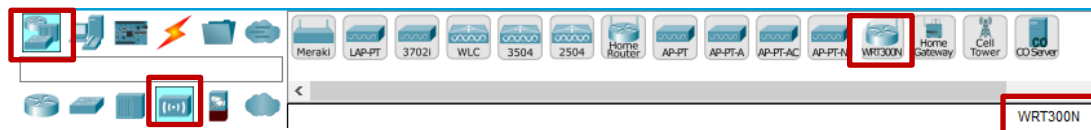


5. Use the icon **Resources/PC/Laptop_WIN10_large.png** as the icon in physical view as shown below:



6. Now insert rest of the devices to logical workspace as shown in the table below:

Device Type	Device Name	Modules to Install	Physical View Icon	Note
PC-PT	PC1.b314.A	-	Desktop_WIN10_large.png	
PC-PT	PC2.b314.A	-	Desktop_WIN10_large.png	
PC-PT	PC3.b314.A	-	Desktop_WIN10_large.png	
PC-PT	PC4.b314.A	-	Desktop_WIN10_large.png	
PC-PT	PC5.b314.A	-	Desktop_WIN10_large.png	
PC-PT	PC6.b314.A	-	Desktop_WIN10_large.png	
Laptop-PT	PC_L1.b314.A	WPC300N	Laptop_WIN10_large.png	Remove Ethernet Module
Laptop-PT	PC_L2.b314.A	WPC300N	Laptop_MAC_large.png	Remove Ethernet Module
Laptop-PT	Bob	WPC300N	Laptop_Man_small.png	Remove Ethernet Module
TabletPC-PT	Matt	-	Tablet_Man_small.png	Default Wireless support
WRT300N	R1.b314.A	-	WRT300N_large_sqr.png	Wireless Router

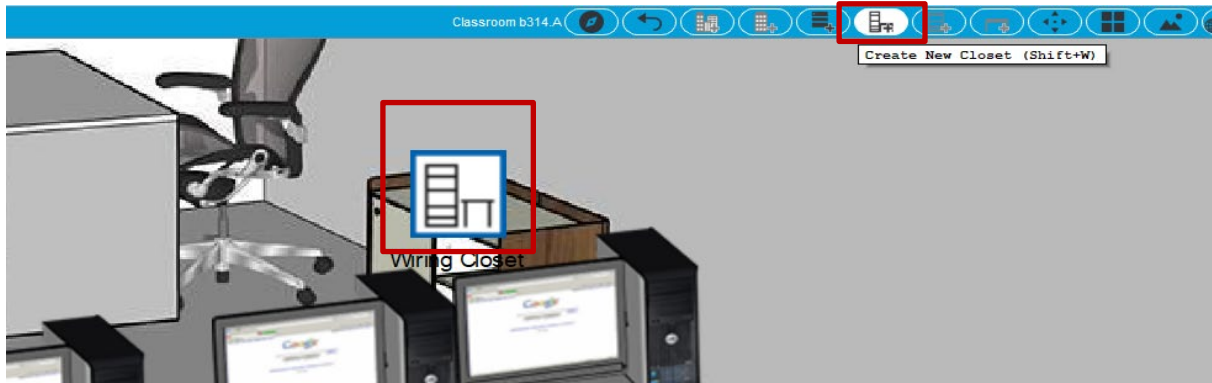


7. To connect the devices (both wire and wireless), we will use the home wireless router **Linksys-WRT300N**
8. To place the router (connecting device) in the Classroom b314.A, you can place the existing default wiring closet **“Main Wiring Closet”** (which is not removable) inside Classroom b314.A and rename it to “Wiring Closet”

Note: You can also create a new wiring closet as shown below. But **do note that the existing default main wiring closet is not removable**. Therefore, it is recommended to use the existing default wiring closet if you need only one wiring closet container to build your network.

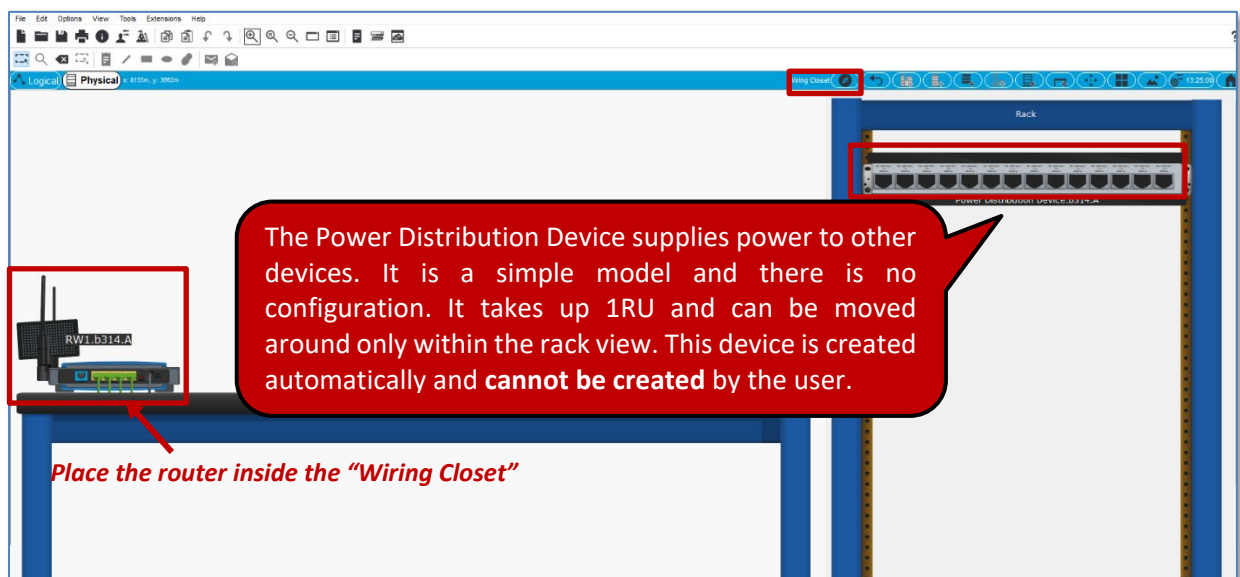
Creating a new closet

(To make the container icon smaller, change the Width: 0m, Length: 0m of the newly create wiring closer)



Note: A "Wiring Closet" is used to houses all the devices that are created in the Logical Workspace except for End Devices and Components. It neatly arranges those devices onto racks and tables so you can see where your devices physically are. The wiring closet view also shows the **connected ports** and the **link light status** of the devices in the wiring closet.

- Go to **Wiring Closet** container and check the device placement



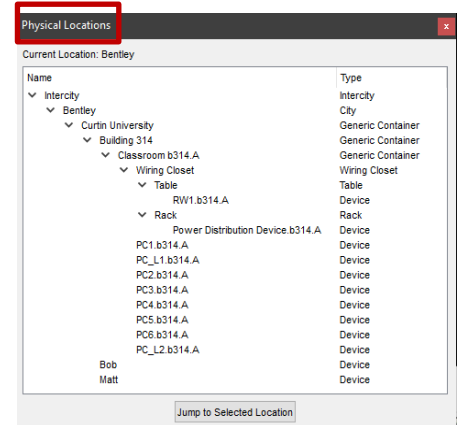
- In Packet Tracer, **Power Distribution Device** is not directly available in the device toolbar. When you add a router, switch, hub, etc. (except wireless equipment) to logical or physical workspace, the Power Distribution Device will be added to the rack. In this activity, since we are using a wireless router (which will be automatically placed on a table but not the rack), the **Power Distribution Device** will not be shown on the rack. You may ignore the **Power Distribution Device** in this activity.

Note:

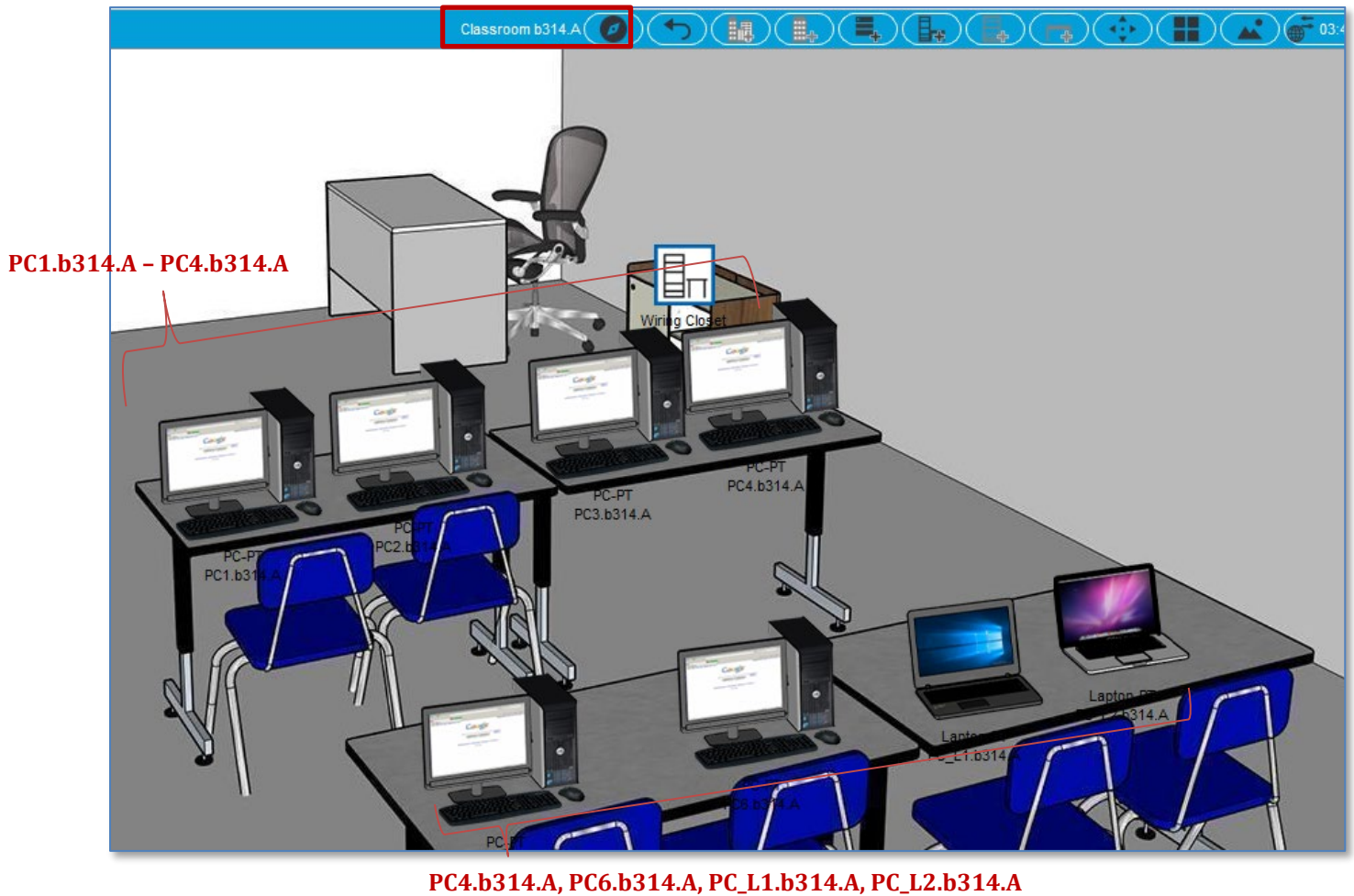
If you would like to see the Power Distribution Device on the rack, simply add a switch to the Wiring Closet and remove it. This will leave the Power Distribution Device on the rack. Rename the **Power Distribution Device** to **Power Distribution Device.b314.A**

11. Place all the devices (PCs, Laptops, Tablets) on the respective containers as shown below in the **physical locations** window

Device Name	Physical Container
PC1.b314.A	Classroom b314.A
PC2.b314.A	Classroom b314.A
PC3.b314.A	Classroom b314.A
PC4.b314.A	Classroom b314.A
PC5.b314.A	Classroom b314.A
PC6.b314.A	Classroom b314.A
PC_L1.b314.A	Classroom b314.A
PC_L2.b314.A	Classroom b314.A
RW1.b314.A	Classroom b314.A -> Wiring Closet -> Table
Bob	Curtin University
Matt	Curtin University

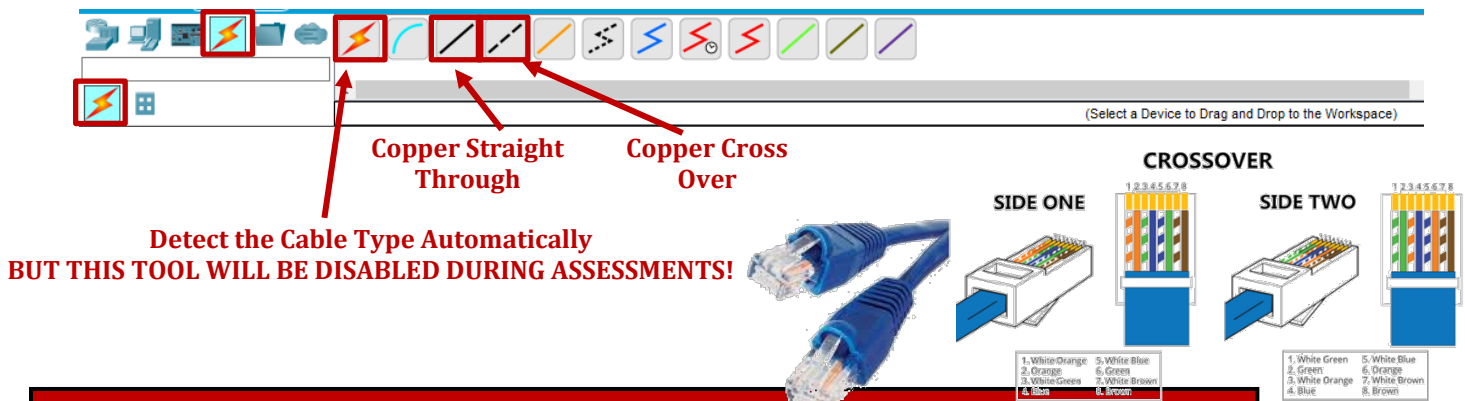


12. Following diagrams shows where to place the devices neatly (in order) in each container



13. We are now going to connect the devices both wired and wirelessly.

14. **Switch to the logical view** of the network and use following cable types to connect the devices accordingly.



Note: Copper Straight Through and Cross over are two different configurations of what is commonly known as Ethernet/Network cable. But there is a clear distinction between these two configurations when connecting devices of same type and different types. More details: <http://www.cables-solutions.com/difference-between-straight-through-and-crossover-cable.html>

***Home Wireless Routers: Internet port acts as a router port while all other ethernet ports act as switch ports (same LAN segment, same default gateway)**

Device1 Name	Interface	Device2 Name	Device2 Interface
PC1.b314.A	Fa0	RW1.b314.A	Ethernet 1
PC2.b314.A	Fa0	RW1.b314.A	Ethernet 2
PC3.b314.A	Fa0	RW1.b314.A	Ethernet 3
PC4.b314.A	Fa0	RW1.b314.A	Ethernet 4
PC5.b314.A	Fa0	PC6.b314.A	Fa0
PC L1.b314.A	Wireless0	RW1.b314.A	SSID: Default
PC L2.b314.A	Wireless0	RW1.b314.A	SSID: Default
Bob	Wireless0	RW1.b314.A	SSID: Default
Matt	Wireless0	RW1.b314.A	SSID: Default

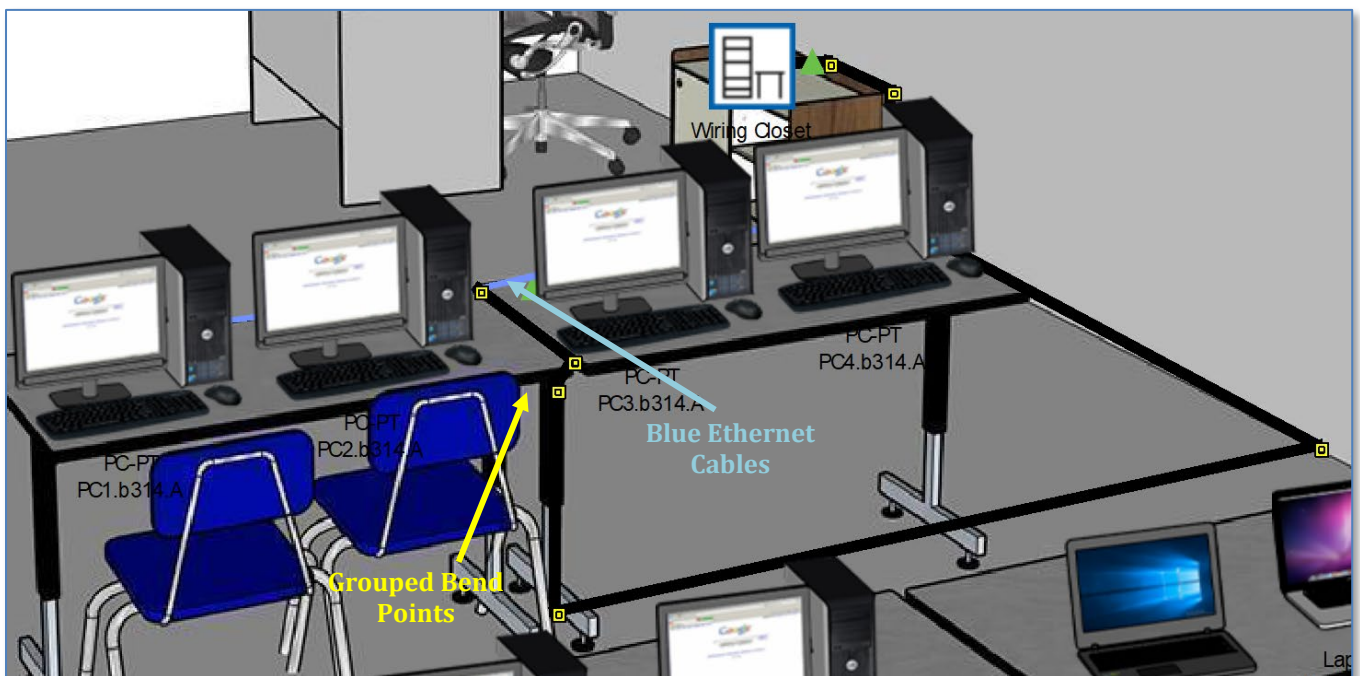
15. Switch to Physical view

16. **Change the color of the ethernet/copper cables** to light blue

17. **Bend the cables at corners** by adding bend points (click on the cable to do so)

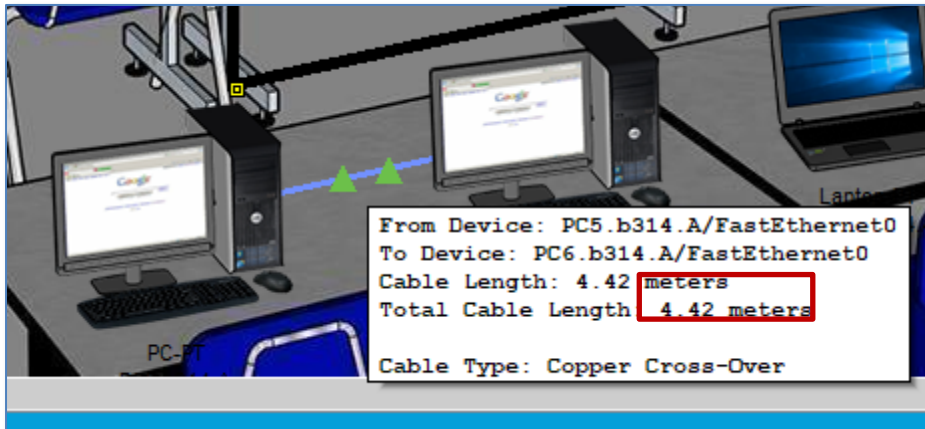
18. **Group multiple cables** together by moving the bend points of each cable on one another

19. Now the physical view of the network should look like below: (with nice and tidy cable arrangements)



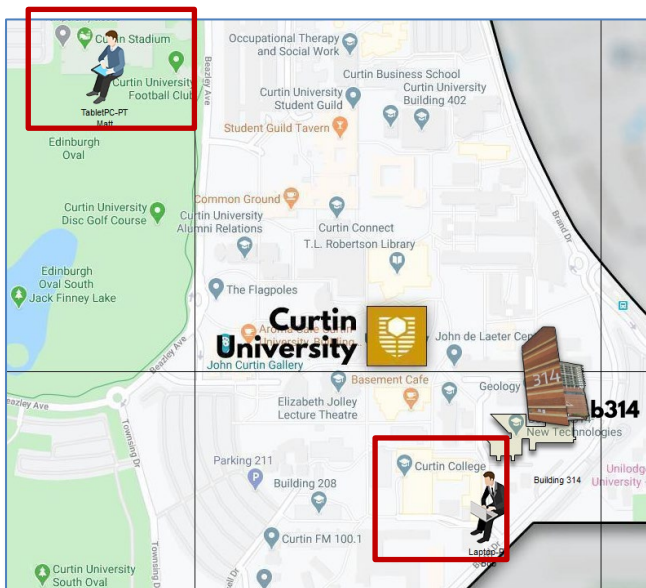
Blue Ethernet Cable

20. Hover the mouse over a cable to see more detail on the connection.



Note: Ethernet connectivity is determined by a cable length of 100 meters. There is no partial connectivity for Ethernet, it is either within (has connectivity) the length of 100 meters or outside (no connectivity) of it. By pointing at a cable in physical mode, a pop-up box will appear showing the device interfaces connected to this cable and the segment and total length.

21. Go to Curtin University Container
22. Place **Matt** near Curtin Stadium
23. Place **Bob** near Curtin College



24. We are done with the physical view of the network!

