

Version 1.1

Room T102 Documentation

Network, Computer and Physical Layout

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Introduction

This is a comprehensive documentation of the layout for Room T102 at South Metro TAFE (Murdoch Campus). It can serve as a reference if parts of the room need replacement or a similar room needs to be constructed.

In this document, the layout of the room is explained. This includes physical and network layouts, as well as network settings. The computer and peripheral specifications are described. Finally, the room's peripherals specifications are described.

The room is intended to be an education environment that has a capacity of 24 students and one lecturer.

Room T102 Layout

Physical Layout

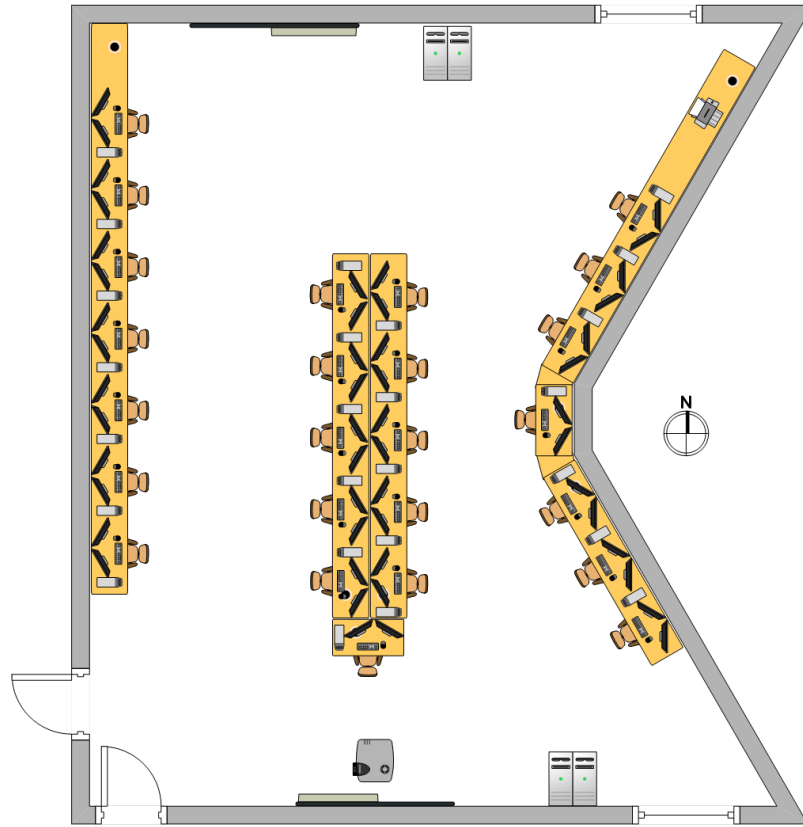


Figure 1 - Room T102 Physical Layout

On the west wall, there are seven computers, evenly spaced out along the table.

In the middle of the room are two rows of table, with five computers on each. At the south end of those is another table with another computer on it.

At the east side of the room, the wall has three sides. The south-west facing side has three computers, the west facing side has one, and the north-west facing side has three computers and a printer. They are all on one long singular table.

The north wall has a whiteboard on its west side, and two half-filled network racks in the middle.

The south wall has a whiteboard at its middle, with a wall-mounted projector directed at it. There are two speakers to the sides of the projector. The east side of the wall has two full network racks. There is a patch panel attached to it.

There are ports along the west and east walls as well as in the middle of the two middle tables for power and network cables. There are two network ports, one to connect to the school network and another to connect to the patch panel.

Network Layout

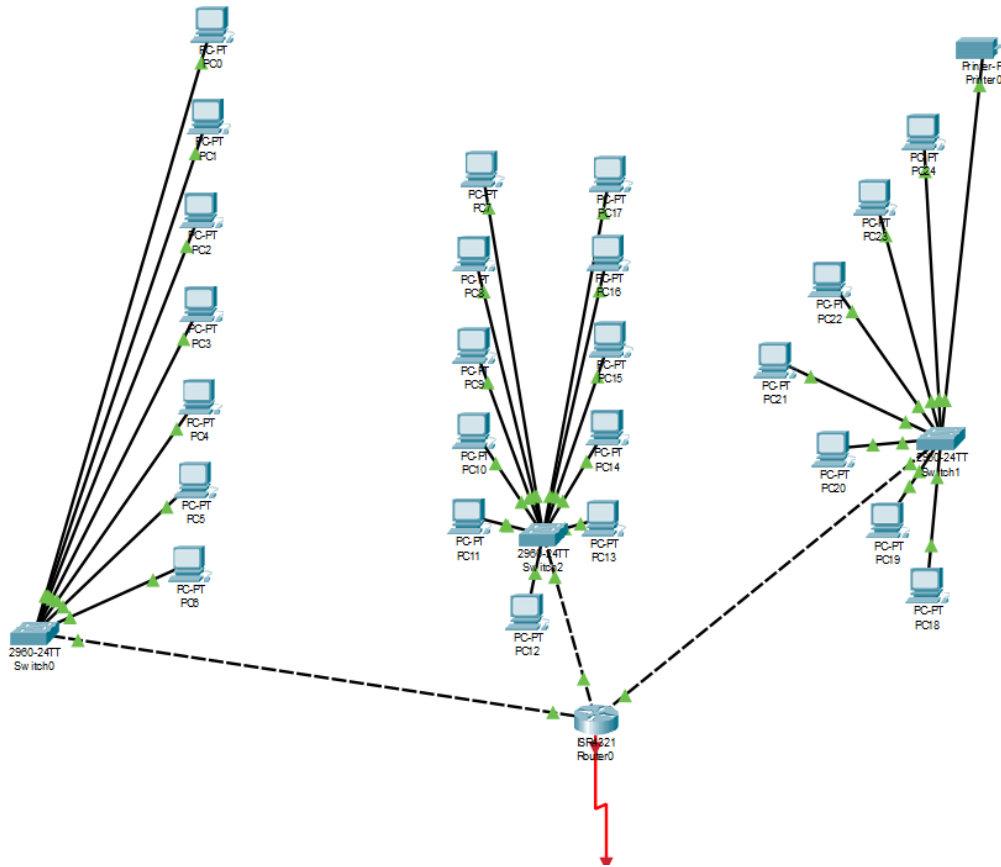


Figure 2 - Room T102 Network Layout

The computers are connected to three separate switches, one for the west wall, one for the middle, and one for the east wall. The printer is also connected to the east wall switch.

All three switches are connected to the same router. That router is connected to the IT department network. That is then connected to the wider school network.

Network Settings

The room has network settings specific to the room, as seen in Table 1. This is all summarised in a poster in the room (refer to Appendix 1).

Domain Name	Mdoc.CITE.Local
Network	192.168.56.0/24
Subnet Mask	255.255.255.0
Default Gateway	192.168.56.1
Preferred DNS Server	192.168.59.130
Alternative DNS Server	10.161.52.10
DHCP Scope	192.168.56.11 - 127
Available Static IP Range	192.168.56.128 - 250
Proxy FQDN	proxy.cite.wa.edu.au:8080
File Share	\\file.mdoc.cite.local

Table 1 - IP addressing and Domains

Computers and Peripherals

Computer/Peripheral Specifications

Part	Name
CPU	Intel Core i5-6500
RAM	Kingston DDR4 KVR24N17S8K2/16
Motherboard	ASUSTeK COMPUTER INC. Q170M2/CDM/SI Rev X.0x
Hard Drive	WD Blue 3D NAND SATA SSD
Network Adaptor	Intel(R) Ethernet Connection (2) I219-LM
Display	Intel(R) HD Graphics 530
Monitor	LG 22MB37 (23.1" vis, s/n 708NTJJGF948, February 2017)
Speaker	Speakers (Realtek High Definition Audio)
Microphone	Microphone (Realtek High Definition Audio)
Keyboard	Microsoft Wired Keyboard 600
Mouse	Microsoft USB Basic Optical Mouse v2.0

Table 2 - Computer/Peripheral Specifications

There are 25 computers. They all have the specifications listed above (Table 2). Each has two monitors, one mouse, and one keyboard.

They have a Cat5 Ethernet cable connecting it to the network and a console cable that uses the patch panel to console into the switches and routers there.

Operating System Image Deployment

The network uses PXE Boot to deploy OS images using WDS¹.

To deploy an OS:

1. Turn on/restart the PC.
2. Wait for an IP to be assigned to the computer by the DHCP
3. Press F12 to enter network boot when prompted
4. Choose the OS specified by the course

DHCP/WDS server IP Address: 192.168.59.132

¹ Windows Deployment Service

Room Peripherals

Printer



Figure 3 - Printer in the corner

The printer is a Lexmark T652dn (Fig 3). It sits in the north-east corner of the room, on the eastern wall table. It uses a power outlet in the wall near it.

Printer IP Address: 192.168.56.129

Projector & Speakers



Figure 4 - Wall-mounted Projector

The projector is an Epson EB-695Wi (Fig 4). It is mounted to the wall and pointing towards a whiteboard. So the lecturer can interact with the content through the whiteboard if they so wish. It has a power socket directly beneath it.



Figure 5 - Projector Speakers

The speaker is a 2K Audio Speaker (Fig 5), which is specifically designed for the classroom. There are two speakers, connected to the projector. They are at the sides of the projector, above the whiteboard. The power and audio cables are behind them and go into the wall.

Network Racks

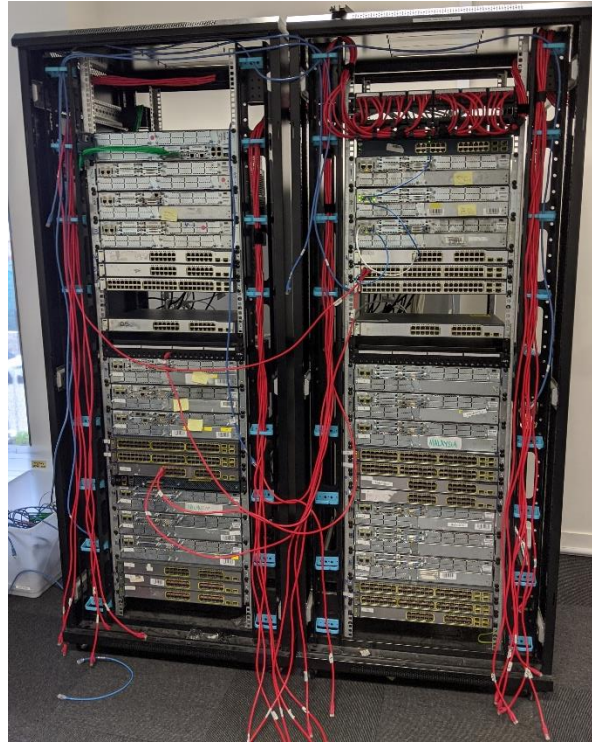


Figure 6 - Network Racks

There are several network racks in the room, two at the middle of the north side and two at the south-east corner. The two at the north side are not in use and only house a few extra switches. The racks in the south-east corner are the ones most students will be using.


Those racks also have a patch panel attached to it. Computers can be connected through the port that is next to the computer. The output of those are from the red Ethernet cables (Fig 6). The racks house Cisco ISR4321/K9 routers and Cisco WS-C2960-24TT switches. There are 19 routers and 21 switches.

Appendix

IPv4 Network Settings—T102

This lab is connected to the CITE network.
The information below is provided to help you connect to the network resources while running your computer or network lab.

Domain Name:	Mdoc.CITE.Local
Network:	192.168.56.0 /24
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.56.1
Preferred DNS Server:	192.168.59.130
Alternative DNS Server:	10.161.52.10
DHCP Scope:	192.168.56.11 - 127
Available Static IP Range:	192.168.56.128 - 250
Proxy FQDN:	proxy.cite.wa.edu.au: 8080 8081
File Share:	\\file.mdoc.cite.local



Appendix 1 - Network Settings Poster

Operating System Image Deployment

To ensure all students have access to the same learning experience, if a PC's default OS is modified or removed, the system image will need to be redeployed at the end of your class

The Mdoc.CITE Local Network uses PXE Boot to deploy OS images using WDS. This can take a while so it should be left until the end of the day.

To redeploy an OS image

1. Turn on or Restart the PC
2. Wait for the DHCP server to respond with an IP Address
3. When prompted "Press F12 to enter network boot", press F12 to begin the process. The system will copy files from WDS and get ready
4. Wait for the selection window and choose the OS image to install as specified by your lecturer.

DHCP and WDS server IP Address: 192.168.59.132



Appendix 2 - Deployment Poster