

## Tech Training: Network Troubleshooting

Networkable devices have a network adapter (wired and/or wireless chip, usually located on the motherboard) which Windows uses, with the help of drivers, to communicate on the network. A network connection can be obtained via network cable (often referred to as Ethernet, CAT5, or CAT6 depending on the speed rating) or by connecting to the T.U.C.A.N. wireless network. Once connected to Taylor's network, the device is assigned a temporary IP Address by Taylor's DHCP server. It is DHCP that assigns IP addresses.

The device uses its temporary IP Address to complete the TUCAN Registration process. Once properly registered, DHCP assigns (with the help of Taylor's NAC server and Active Directory) a more permanent IP Address with appropriate network access (Guest, Student, Fac/Staff, etc.). Both wired and wireless adapters may need to be registered.

Devices also use DNS, a cross-reference of sorts, to convert friendly names (4040.taylor.edu) to IP Addresses (192.195.234.7). To work properly, devices on Taylor's network must be configured to accept commands from Taylor's DHCP and DNS servers.

### *Troubleshooting*

1. Check the IP address: Taylor IP Addresses ALL start with 10.xxx.xxx.xxx. If the device does not have a 10. address, it is not communicating with Taylor's DHCP server.
  - a. 10.10 means the device is in registration and needs to be registered.
  - b. 10.9 means the device is in Isolation and will not be allowed internet access until the reason for the isolation has been resolved.
  - c. 10.8 means the device is in Exile and will not be allowed internet access until the reason for the isolation has been resolved.
  - d. Any other 10. IP Address should allow the device internet access. See the [VLANs tutorial](#) for a complete list of IP Addresses and their client roles.
2. Check Connectivity: Make sure the device in question is actually connected to the network, whether wired or wireless (it is best not to have both connections enabled at the same time):
  - a. Is the port active? Test it with another computer.
  - b. Is the network cable good? Look for a flashing light on the wired network adapter (Link Light).
  - c. Is the wireless adapter switched on? Most laptops have either a hardware or software switch.
3. Non-Taylor IP Address: More than likely, the device is not configured to accept DHCP instructions. See the [DHCP tutorial](#).
  - a. Successfully registered, but can't browse internet: More than likely, the device is not configured to work with Taylor's DNS server. See the [DNS tutorial](#).

Isolation Tutorial: [http://4040.taylor.edu/tutorials/techtraining/tt\\_isolation.pdf](http://4040.taylor.edu/tutorials/techtraining/tt_isolation.pdf)