# Tech Training: T.U.C.A.N. Device Registration

Taylor's DHCP server assigns IP addresses to all devices connected to Taylor's network. However, DHCP is incapable of distinguishing client role, so it is unable to segregate guest-owned devices from student-owned devices or university-owned devices.

In order to assign guest devices to the Guest VLAN and student devices to the Student VLAN, DHCP needs help from a Network Access Control (NAC) device, branded as the TUCAN Device Registration System. At this writing, Taylor uses a device called PacketFence to handle device registration.

When a new device connects to Taylor's network, PacketFence directs DHCP to assign a 10.10 address (Registration). When the device attempts to access the internet, PacketFence redirects the device to TUCAN registration. Once registration is completed, PacketFence directs DHCP to assign an IP address from the proper VLAN (Guest, Student, University, etc.)
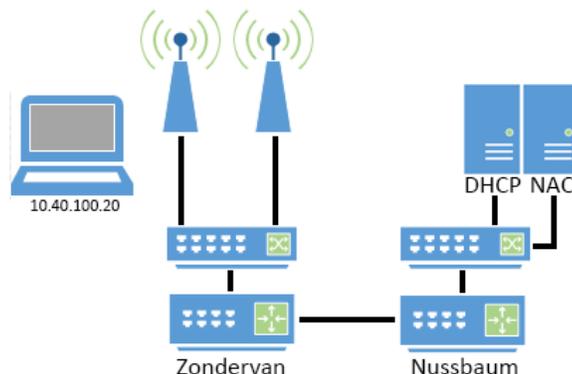
Below is a link to our client tutorial for registering a device on TUCAN. The tutorial walks the client through the entire process. Note that there are different registration processes depending on who owns the device (university, student, guest, etc.)

- When assisting a guest, have them choose the Guest option. The system will send them a verification email that will allow them to register.
- When assisting a student, have them register using their Taylor username and password.
- University-owned devices must be registered by I.T.

Some devices (e.g. computers, phones, tablets) are web enabled (they include an internet browser) and can be registered normally. Launch a browser, and the client should be automatically routed to our registration system. Other devices (e.g. TVs, printers, video game consoles) do not include a browser and require manual registration. The client is able to manually register their non-web enabled devices, but this will require knowing the device's MAC Address.

IP Address is critical when diagnosing registration problems. The IP will tell you where you are in the process.
Registration Tutorial: http://4040.taylor.edu/Tutorials/TUCANRegistration/TUCANRegistration.pdf

Current registration expiration settings (FAQ)
- Guests
    - School year = 3 days
    - Summer = 12 days
- Employee-Owned
    - 180 days of inactivity or 750 days (based on the average smartphone contract)
- Student-Owned
    - 180 days of inactivity or June 1 of each year
- University-Owned
    - 180 days of inactivity

DHCP

DHCP (Dynamic Host Configuration Protocol) allows a computer to easily connect to a network and is enabled by default on most operating systems. Taylor's network (T.U.C.A.N.) uses DHCP, so most computers connect to T.U.C.A.N. automatically. Computers which have been manually configured to work with another network will need to have those settings removed and DHCP enabled. If a device has a non-Taylor IP address (doesn't start with 10.), check for DHCP.

DHCP Tutorial: http://4040.taylor.edu/Tutorials/TechTraining/tt_NetworkDHCP.pdf

DNS

DNS (Domain Name System) is a cross-reference of domain names (gmail.com, facebook.com, taylor.edu) and their IP Addresses. DNS is what allows computers to browse the internet and/or network using friendly names.

DNS Tutorial: http://4040.taylor.edu/Tutorials/TechTraining/tt_NetworkDNS.pdf

VLANS

VLAN stands for Virtual Local Area Network and refers to a virtual segment of Taylor's network in which a device currently resides. Each device plugged into Taylor's network is assigned a unique IP (Internet Protocol) Address and resides in one of several VLANs on campus. Every device connecting to Taylor's network starts in the Registration VLAN (10.10.xxx.xxx). Once successfully registered, it is assigned an IP based on the client role of the owner.

Computers that have been identified as being infected with viruses or spyware are moved to Isolation and assigned a 10.9 address. Here is information on how to find which VLAN a device is in, and the proper VLANS for different areas on campus.

VLAN Tutorial: http://4040.taylor.edu/Tutorials/TechTraining/tt_NetworkVLANs.pdf

MAC Address

A media access control address (MAC address) is a unique identifier assigned to network interfaces for communications on a network. The MAC address contains 12 characters between A-F and 0-9 (hexi-decimal). For manual registration, the MAC address is a necessary component. Here are the ways to find the MAC address on various devices:

MAC Address Tutorial: http://4040.taylor.edu/Tutorials/MACAddress/MACAddress.pdf