University of Minnesota

Self-Help Guide

WiFi: Register a Personal Device for the Internet of Things (IoT) WiFi Service

Students, staff, and faculty at the University of Minnesota can register personal gaming or streaming devices such as Xbox, Roku, Apple TV, and more for WiFi access even if they don't support WPA2 authentication (username and password).

This registration should be performed using the University Internet ID and password of the person who owns the device.

Register a Personal Gaming or Streaming Device for the Internet of Things (IoT) Wi-Fi Service

Understand the Internet of Things (IoT) Services

Internet of Things (IoT) Service Options

Body

At the University of Minnesota, personal and departmental Internet of Things (IoT) devices can be registered for the Wi-Fi service. The current IoT service option is the Encrypted Service.

Encrypted Service

- Uses UofM-IoT SSID
- Better security with encrypted Wi-Fi traffic
- Easier setup process
- Supports more device types
- Requires device registration and a password (also known as a pre-shared key or PSK)

Best Practices for IoT Devices

The IoT service is designed for devices that are unable to log in to Wi-Fi with your Internet ID and password. These are some best practices when registering and using IoT devices on the University Wi-Fi network:

- Any device that is capable of using eduroam should use eduroam. Eduroam is more secure because it has a higher level of encryption.

- Personal device registration expires after one year and **registration must be renewed to continue service**. Devices are automatically removed from the registration database unless they are renewed.
- Regular software updates on IoT devices are recommended.
- If the IoT device asks you to choose a channel when connecting to Wi-Fi, select 5GHz if able.
- If a device uses MAC address randomization that feature should be disabled otherwise the device may not be able to connect to Wi-Fi.

Which devices can be registered for Internet of Things (IoT) Service?

Body

Registering personal and departmental Wi-Fi devices allows users affiliated with the UMN to connect devices such as Xbox, Roku, Apple TV, Google Chromecast, door locks, freezer monitors, and more to the University Wi-Fi network. Unregistered devices can disrupt or slow down the University Wi-Fi network, making it difficult for neighboring devices to connect.

The types of devices that should be registered using the Register a Personal Device for IoT guide or Register a Departmental Device for IoT guide are listed below.

Xbox, Roku, Apple TV, and other streaming devices

Xbox, Roku, Apple TV, and similar devices can be registered for Internet of Things (IoT) service. Follow the directions on this guide to connect these devices.

Google Chromecast and Google Home

Do not register Google Chromecast, Google Home, and similar device configurations using this process. These devices are limited to residence halls and require a Student Internet ID and password. They have additional steps for setup on the UofM-IoT Network. Please follow Register your Chromecast Device for these devices.

Laptops, Smart Phones, Printers

Do not register laptops, smart phones, or printers using this process unless otherwise specified.

Phones and laptops should connect to eduroam using your full University email address (InternetID@umn.edu) and password authentication. For more information on eduroam, follow Connect to eduroam.

Smart Light Bulb and Similar Home Devices

Please note that some Internet of Things (IoT) devices designed to work on home networks may not be supported by the UMN network. The scale, design, and security controls of the UMN network makes it challenging for some devices to function properly on the network.

Some examples include:

- Devices that require a direct connection or special addressing from a Wi-Fi router (e.g. a Phillips Hue light bulb).

- Some devices that connect to a local hub that is then connected to the University network.

Departmental Devices (i.e., Door Locks, Cameras, Sensors)

Departmental-owned on-campus door locks, cameras, sensors, and similar devices can be registered for Internet of Things (IoT) service. Follow the directions on this guide to connect these devices.

Register and Connect to the Encrypted Service

Step 1: Find the wireless MAC address

Body

A device's wireless (Wi-Fi) MAC address, also known as hardware or physical address, is used for connecting to the network.

- For any IoT device that needs a companion device (smart phone, computer) to be on the same network for the setup, please follow the steps to Register your Chromecast Device.
- Attempting to use an Ethernet Adapter? Ensure that you have registered your device on the wired network.
- **Note**: This is not an exhaustive list. If your device is not listed, refer to the device manufacturer for instructions on finding the device's MAC.

In this article:

- Finding Your Device's MAC Address
  - Gaming Consoles
  - Streaming Devices
  - Smart TVs
- Additional Resources

Finding Your Device's MAC Address

For help finding the MAC address of your device, select the link for your device below:

Note: If a device uses MAC address randomization that feature should be disabled otherwise it may not be able to connect to Wi-Fi.

Gaming Consoles

- Xbox One
  - Go to the Xbox dashboard, then **My Xbox**, then **Settings**
  - Select **Network**
  - Select **Advanced Settings**
  - Your MAC address will be listed next to **MAC** on the right side of the screen.
- Xbox 360
  - Go to **Settings**
  - Select **System**
  - Select **Network Settings** then **Configure Network** or **Edit Settings**.
  - Select the **Additional Settings** tab, then choose **Advanced Settings**.
  - Your MAC address will be listed next to MAC on the bottom of the screen.
    - You may need to select, **Edit Settings** to see your MAC
- PlayStation 4 (PS4), PlayStation 5 (PS5)
  - Note: Wii and Playstation 3 may not be able to connect to Wi-Fi. Several students have reported difficulty connecting these devices, and thus far we have found no resolution. If there are any changes, this article will be updated with how to connect these devices.
- Nintendo Wii U, Nintendo Switch

Streaming Devices

- Alexa
- Roku
- Amazon Fire Stick, Amazon Echo
- Chromecast, Google Home
  - Chromecast configuration is limited to the residence halls, requires a Student Internet ID, and extra steps to work on our network. Please follow the steps to Register your Chromecast Device.

Smart TVs

- Apple TV
  - Go to **Settings**, then **About** (or **Network**), your MAC address is next to **Wi-Fi Address** if you're on wi-fi or next to **Ethernet Address** if you're on wired ethernet
- Sony TV (Android TV or Google TV)
- Panasonic

Additional Resources

- Wi-Fi: Find a MAC Address on Your Computer - Mac, Windows, Chromebook, Linux
- Wi-Fi: Find a MAC Address on Mobile Devices - iOS (iPhone, iPad) and Android (Google, Samsung)

If you need assistance, please contact Technology Help.

Step 2: Register the device for the Encrypted IoT Service

Body

At the University of Minnesota, personal Internet of Things (IoT) devices such as Xbox, PlayStation, Roku, Apple TV, etc can be registered for Wi-Fi service.

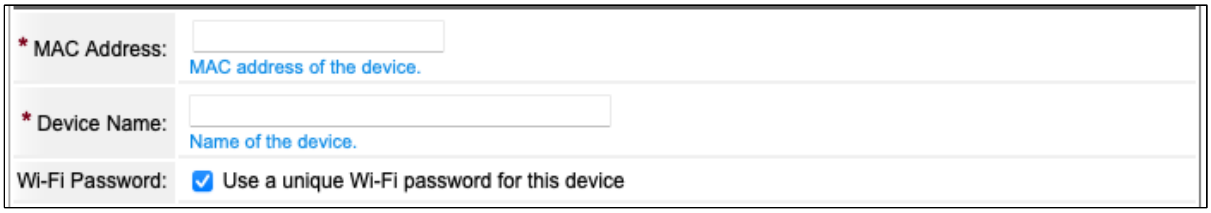
Follow these steps to register your device for the Encrypted IoT Service.

Registering a Personal Device for Encrypted IoT Service

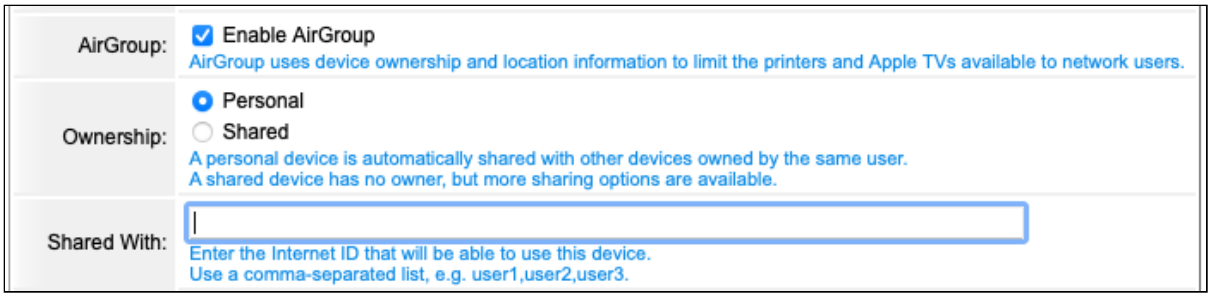
Do not register laptops or smart phones using this process unless otherwise specified for temporary IoT device AirGroup setup. Phones and laptops should connect to eduroam using your full University email address (InternetID@umn.edu) and password. Full access to your University account and systems (i.e., MyU, Canvas, PeopleSoft) may not be fully functional on the IoT network. For more

information on eduroam, follow Connect to eduroam.

1. Go to the Wi-Fi Registration webpage.
    - This link will only work if you are accessing this article on campus through a device connected to eduroam or you are connected to VPN.
    - If you are registering this device for yourself, sign in with your Internet ID and password.
    - If you're working on behalf of a department or another individual, please contact Technology Help.
2. From the side menu under **Devices**, select **Create Device**.
3. In the **MAC address** field, enter the wireless or Wi-Fi MAC address of the device.
    - The device name can be whatever you choose. For example, if you are registering a Roku, you might name it Goldy's Roku.
4. Enter a name for the device in the **Device Name** field. This name is to help you identify the device to yourself in the future.
5. Check the **Wi-Fi Password box**.



6. If you are registering a device that you are casting or communicating to or from another device (such as your smartphone), as part of the registration process:
    a. Check the **AirGroup** box.
    b. Leave the default **Personal** selected in the **Ownership** section.
    c. If you will be sharing the device with your roommate or another person, put their Internet ID in the **Shared With** field, separating multiple IDs by commas.
        - This will allow you to cast from another device to the registered device even if they are connected to different SSIDs (e.g. eduroam, UofM-IoT, etc.).



7. Check the **Terms of Use** checkbox to accept the terms of use.
    - The message reads **I am the owner of this device and accept the terms of use**.
8. Select **Create**.
9. Your device is now registered. You can connect to the IoT Encrypted Service.

Note: Personal device registration will expire automatically in 1 year unless registration is renewed.

Step 3: Connect to the Encrypted IoT WiFi Service

Body

At the University of Minnesota, personal and departmental Wi-Fi devices can be connected to the Internet of Things (IoT) service. Follow these steps to connect your device for the Encrypted IoT Service.

Connecting Your Device to Encrypted IoT Service

1. Open the **Network Settings** on your device and view the list of available Wi-Fi networks.
    - This should be near to where your wireless MAC address was listed.
2. From the list of available networks, select **UofM-IoT** and enter the generated password.
3. Your device is now connected.

Please contact UMN Technology Help if you have problems following the above steps.

Step 4: Check any Known Device Issues

Body

These are some of the known issues and their workarounds for connecting departmental and personal Internet of Things (IoT) devices for University of Minnesota IoT Wi-Fi service.

Wireless Printers

Wireless printers broadcast a signal that conflicts with University of Minnesota networks, and can lead to poor service for everyone in the area near the printer. Instead, please connect to printers using a USB cable.

Apple TV

Attempt the connection with UofM-IoT following the instructions in the Register a Personal Device for the Internet of Things (IoT) Wi-Fi Service Self-Help guide. In case that does not work, you can attempt to connect using our enterprise eduroam connection by using Apple Configurator (link is an archived Apple article).

- Apple Configurator can set up a profile to add to the Apple TV that will connect to our enterprise connection. Some support may be offered from **appletv@umn.edu** and user discussions are taking place on **appletv-users@umn.edu**.

For University Departments hoping to use an Apple TV in a meeting or conference room, send a message to **appletv-users@lists.umn.edu** for assistance.