Ubiquiti: UniFi

Ubquiti setup guides and tutorials

- UniFi Express Setup Guide
- UniFi Dream Router Setup Guide
- UniFi OS Server Installation on Ubuntu Server

UniFi Express Setup Guide

This guide will walk you through setting up a UniFi Express system for a home network with the following features:

- **Two SSIDs:** Home and Guest
- **Three VLANs:** Home, Guest, and IoT
- **PPSK (Private Pre-Shared Key):** Different keys for Home and IoT networks

Prerequisites

1. **UniFi Express Device**: Make sure your UniFi Express device is plugged in and powered on.
2. **UniFi Controller Software**: Install the UniFi Network Controller on a computer or server. You can download it from the Ubiquiti website.
3. **Basic Network Setup**: Ensure you have an internet connection and basic network setup ready.

Step-by-Step Setup

Step 1: Access UniFi Controller

1. Open a web browser and navigate to the UniFi Controller URL (e.g., `https://<controller-ip>:8443`).
2. Log in with your UniFi account credentials.

Step 2: Adopt UniFi Device

1. Go to the **Devices** section.
2. Find your UniFi Express device in the list and click **Adopt**.
3. Wait for the device to show as "Connected."

Step 3: Create VLANs

1. Navigate to **Settings** > **Networks**.
2. Click **Create New Network**.

Home VLAN

- **Name**: Home
- **Purpose**: Corporate
- **VLAN ID**: 10 (Example)
- **Gateway/Subnet**: 192.168.10.1/24 (Example)

Guest VLAN

- **Name**: Guest
- **Purpose**: Guest
- **VLAN ID**: 20 (Example)
- **Gateway/Subnet**: 192.168.20.1/24 (Example)

IoT VLAN

- **Name**: IoT
- **Purpose**: Corporate
- **VLAN ID**: 30 (Example)
- **Gateway/Subnet**: 192.168.30.1/24 (Example)

Step 4: Create Wireless Networks (SSIDs)

1. Navigate to **Settings** > **Wireless Networks**.
2. Click **Create New Wireless Network**.

Home SSID

- **SSID Name**: Home
- **Security**: WPA Personal
- **VLAN**: Use VLAN 10
- **PPSK**: Enable PPSK and configure keys for Home and IoT VLANs.

Guest SSID

- **SSID Name**: Guest
- **Security**: WPA Personal
- **VLAN**: Use VLAN 20

Step 5: Configure PPSK for Home SSID

1. Go to **Settings** > **Wireless Networks** > **Home SSID**.
2. Under the **Security** settings, enable **PPSK**.
3. Create multiple PPSKs:
   - **Home Access Key**: Associate with VLAN 10.
   - **IoT Access Key**: Associate with VLAN 30.

Step 6: Guest Network Configuration

1. Ensure that the **Guest SSID** is configured to isolate traffic and restrict access to internal resources.
2. Under **Settings** > **Guest Control**, enable **Guest Portal** if you want to use a captive portal.

Step 7: Apply Settings and Test

1. Review your settings and apply changes.
2. Connect devices to each SSID and verify connectivity.
   - Home devices should connect to the Home SSID and be assigned to VLAN 10.
   - IoT devices should use the designated PPSK for the IoT VLAN.
   - Guest devices should connect to the Guest SSID and be isolated.

Additional Tips

- **Monitoring**: Use the UniFi Controller to monitor network traffic and performance.
- **Security**: Regularly update firmware and review security settings to protect your network.
- **Support**: For any issues, consult the UniFi support forums or documentation.

https://ui.com/uk/en/cloud-gateways/wifi-integrated/express

UniFi Dream Router Setup Guide

This guide will help you set up your UniFi Dream Router (UDR) with the following features:

- **Two SSIDs**: Home and Guest
- **Three VLANs**: Home, Guest, and IoT
- **PPSK (Private Pre-Shared Key)**: Different keys for Home and IoT networks
- **Firewall Rules**: Optimized for streaming and gaming

Prerequisites

1. **UniFi Dream Router**: Ensure your UDR is plugged in and powered on.
2. **UniFi Controller Software**: Accessible through the UniFi Network App on your smartphone or through the web interface.
3. **Basic Network Setup**: An existing internet connection and basic network configuration.

Step-by-Step Setup

Step 1: Access UniFi Controller

1. Connect to the UDR using the UniFi Network App or through a web browser at `https://<UDR-IP>:8443`.
2. Log in with your UniFi account credentials.

Step 2: Adopt and Configure the UDR

1. In the **Devices** section, ensure the UDR is listed and click **Adopt** if necessary.
2. Wait for the UDR to show as "Connected."

Step 3: Create VLANs

1. Go to **Settings** > **Networks**.
2. Click **Create New Network**.

Home VLAN

- **Name**: Home
- **Purpose**: Corporate
- **VLAN ID**: 10
- **Gateway/Subnet**: 192.168.10.1/24

Guest VLAN

- **Name**: Guest
- **Purpose**: Guest
- **VLAN ID**: 20
- **Gateway/Subnet**: 192.168.20.1/24

IoT VLAN

- **Name**: IoT
- **Purpose**: Corporate
- **VLAN ID**: 30
- **Gateway/Subnet**: 192.168.30.1/24

Step 4: Create Wireless Networks (SSIDs)

1. Go to **Settings** > **WiFi** > **Add New WiFi Network**.

Home SSID

- **SSID Name**: Home
- **Security**: WPA Personal
- **VLAN**: Use VLAN 10
- **PPSK**: Enable PPSK and configure keys for Home and IoT VLANs.

Guest SSID

- **SSID Name**: Guest
- **Security**: WPA Personal
- **VLAN**: Use VLAN 20

Step 5: Configure PPSK for Home SSID

1. Under the **WiFi** settings, select **Home SSID**.
2. In the **Security** section, enable **PPSK**.
3. Create multiple PPSKs:
   - **Home Access Key**: Associate with VLAN 10.
   - **IoT Access Key**: Associate with VLAN 30.

Step 6: Configure Firewall Rules for Streaming and Gaming

1. Navigate to **Settings** > **Firewall & Security** > **Firewall Rules**.
2. Click **Create New Rule** and configure the following rules:

Streaming Optimization

- **Name**: Allow Streaming Services
- **Rule Type**: LAN IN
- **Action**: Accept
- **Source**: Any (or specify devices/networks)
- **Destination**: IP ranges for popular streaming services (e.g., Netflix, Hulu, etc.)
- **Description**: Optimize streaming by prioritizing traffic.

Gaming Optimization

- **Name**: Allow Gaming Services
- **Rule Type**: LAN IN
- **Action**: Accept
- **Source**: Any (or specify gaming devices)
- **Destination**: IP ranges for popular gaming servers (e.g., Xbox Live, PlayStation Network, etc.)
- **Description**: Optimize gaming by reducing latency.

3. Ensure these rules are above any default deny rules to take effect.

Step 7: Apply Settings and Test

1. Review all your settings and apply the changes.
2. Test each SSID:
   - Connect home devices to the Home SSID.
   - Connect IoT devices using the designated PPSK for the IoT VLAN.
   - Connect guest devices to the Guest SSID to ensure isolation.
3. Test streaming and gaming devices to confirm optimized performance.

Additional Tips

- **Regular Updates**: Keep your UDR firmware up-to-date for security and performance improvements.
- **Monitoring**: Use the UniFi Controller to monitor network traffic and performance metrics.
- **Support**: For assistance, visit the UniFi support forums or consult official documentation.

https://ui.com/uk/en/cloud-gateways/wifi-integrated/dream-router

UniFi OS Server Installation on Ubuntu Server

```
# Switch to root
sudo -i

# Update and upgrade the system
apt update && apt upgrade -y

# Install required packages
apt install -y podman curl wget ca-certificates gnupg lsb-release

# Optional: Verify Podman version
podman --version

# Create a working directory
cd /opt
mkdir -p unifi-os/4.2.23 && cd unifi-os/4.2.23

# Download UniFi OS Server binary (update version here if needed)
wget https://fw-download.ubnt.com/data/unifi-os-server/8b93-linux-x64-4.2.23-158fa00b-6b2c-4cd8-94ea-e92bc4a81369.23-x64 -O unifi-os-installer

# Make it executable
chmod +x unifi-os-installer

# Run the installer
./unifi-os-installer install
```

Notes & Tips:

- **Ubuntu Version**: Ubuntu 22.04 LTS is recommended. UniFi OS might not behave as expected on older versions due to dependency mismatches or outdated container runtimes.
- **Podman vs Docker**: Ubiquiti officially supports Podman for UniFi OS Server as it does not require a daemon and better supports rootless containers. This script installs it system-wide for root.
- **Firewall**: Make sure required ports are open (`8443`, `443`, `8080`, `3478/UDP`, etc.).
- **Persistence**: Depending on the deployment type, you may need to manage container data volumes and systemd integration yourself if not handled automatically by the script.