

Article Overview

VLANs allow you to segment your network so that smart lighting or IoT devices operate on isolated networks, improving security and reducing broadcast traffic.

What is a VLAN?

A VLAN (Virtual Local Area Network) is a logical grouping of devices on a switch that creates separate broadcast domains. Devices within the same VLAN can communicate directly, while devices on different VLANs require a router or Layer 3 switch for inter-VLAN communication . VLANs reduce unnecessary broadcast traffic, enhance security, and improve network performance .

Why Use VLANs for Light Switches

Smart lighting systems often connect via Ethernet or Wi-Fi and may be vulnerable to attacks. By placing these devices on a dedicated VLAN:

- o Traffic isolation: Lights and IoT devices are separated from your main network, preventing unauthorized access .
- o Improved performance: Broadcast traffic from other devices does not affect the VLAN containing your lights .
- o Simplified management: You can assign specific ports on a switch to the lighting VLAN for easier monitoring and troubleshooting .

Configuring VLANs on a Switch

- o Assign VLAN IDs: Each VLAN needs a unique ID (e.g., VLAN 10 for lights, VLAN 20 for guest Wi-Fi), .
- o Set port modes:
 - o Access ports: Connect end devices like light controllers; these ports carry traffic for a single VLAN .
 - o Trunk ports: Connect switches or routers; these carry multiple VLANs using IEEE 802.1Q tagging .
- o Configure PVIDs: Ensure each access port's Port VLAN ID matches the VLAN it belongs to .
- o Inter-VLAN routing: If devices on different VLANs need to communicate, configure a router or Layer 3 switch with sub-interfaces for each VLAN .
- o Security measures: Disable unused ports, enable port security, and apply access control lists to restrict traffic between VLANs .

Example Setup

- o VLAN 1: Default network for management and router uplink.



Light switch VLAN

- o VLAN 10: Smart lighting devices connected to ports 2-5.
- o VLAN 20: Guest network or other IoT devices.
- o Trunk port: Port 1 connects to the router, carrying VLAN 1, 10, and 20 with 802.1Q tagging . This setup ensures that your smart lights operate on a secure, isolated network while still allowing internet access if needed.

Best Practices

- o Use managed switches that support VLANs and 802.1Q tagging.
- o Document VLAN IDs, port assignments, and IP subnets for troubleshooting.
- o Periodically audit VLAN configurations to prevent unauthorized changes .
- o Keep IoT VLANs separate from sensitive networks like finance or personal computers. By implementing VLANs for your light switch network, you enhance security, reduce network congestion, and maintain better control over your smart home or office environment.

A VLAN is a virtual LAN, a subgroup within a local network. VLANs make it easy for network administrators to separate a single

Introduction VLAN stands for Virtual Local Area Network one physical cisco switch; you can create multiple VLANs

Introduction Management VLAN provides a safer method to manage the switch. With management VLAN configured,

Master configuring VLANs on Cisco switches. Learn to configure Access and Trunk ports, and Native VLANs and Allowed VLAN

With a VLAN, one device can be connected to one switch, another device can be connected to another switch, and

Learn how to isolate smart home devices on a separate VLAN to protect your personal

This article provides instructions on how to use the Port to VLAN page in the web-based utility to display and

It's easy to control a LED with the VLAN activity, but you want to turn it OFF "when the connection fails";? You need a

A Virtual Local Area Network (VLAN) is a logical grouping that segments a network into smaller broadcast domains.

Light switch VLAN

The only physical requirement is that the end station and the port to which it is connected

Learn how to set up VLAN on a managed network switch with our comprehensive guide. Ensure secure and efficient

Ein Virtual Local Area Network (VLAN) ist ein logisches Teilnetz (Netzsegment) innerhalb eines Switches bzw. eines gesamten

VLAN 1 (Default VLAN): The default VLAN on Cisco switches and all switch ports are assigned to VLAN 1 by default. It

Hello everyone, I just got some smart light bulbs (8, Feit Electric smart wifi bulbs-color

The System details page is displayed Expand the VLAN accordion and specify the following parameters: Customize VLANs of Uplink

VLANs serve two major functions: splitting up one switch into smaller virtual-switches, and extending those virtual-switches to other

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