Core Switch Subnet Configuration Scheme



Overview

To learn how to configure this feature, click here for instructions. PVID — VLAN is recognized from the port default VLAN ID.

Key Takeaways

Core switch subnet configuration involves creating VLANs, assigning IP addresses, enabling DHCP relay, and configuring Layer 3 routing for inter-VLAN and upstream connectivity.

VLAN and Subnet Setup

Create VLA

Ns: Define VLANs for each subnet on the core switch. For example, VLAN 10 for R&D wired users and VLAN 20 for management. Assign a descriptive name to each VLAN for easier management.

Assign I

P Addresses: Configure a VLAN interface (SVI) for each VLAN with a static IP address. Example: VLAN 10: 10. 1.

10. 1/24VLAN 20: 10. 1.

20. 1/24 This IP serves as the default gateway for devices in that VLAN.

© 2026 BAGYOU FIBRE NETWORKS · All rights reserved

Enable DHC

P Relay: If DHCP servers are centralized, enable DHCP relay on the VLAN interfaces and specify the DHCP server IP. This allows clients in each VLAN to obtain IP addresses automatically. Layer 3 Routing Between Core and Distribution SwitchesRouted Ports or SVIs: Configure the uplink between the core and distribution switches as a routed port or use a /30 subnet for point-to-point connectivity.

Both ends must be in the same subnet. Example: Core: 10. 10.

10. 2/30Distribution: 10. 10.

10. 1/30. Routing Protocols: Advertise VLAN subnets to the core switch using static routes or a dynamic routing protocol like OSPF.

For multiple VLANs, configure OSPF on both core and distribution switches and mark VLANs as passive if needed. Inter-VLAN Routing: Enable routing on the core switch to allow communication between VLANs.

Each VLAN SV

I acts as a Layer 3 interface for routing traffic.

Connectivity to Firewalls and External Networks

Create Interconnection VLA

Ns: Configure VLANs for links to firewalls or BRAS devices.

Assign VLANI

F interfaces and bind them to a VPN instance if route isolation is required. Static or Default Routes: Configure static routes or default routes pointing to the firewall or upstream router to ensure traffic from user VLANs reaches external networks.

OSP

F Configuration: If using OSPF, include VLAN interfaces and interconnection links in the OSPF process to propagate routes dynamically.

Best Practices

Use descriptive VLAN and interface names for easier management. Keep point-to-point links between core and distribution switches in /30 subnets to conserve IP addresses.

Enable DHC

P relay only on VLANs that require centralized DHCP. Verify routing with commands like show ip route and OSPF neighbor status.

© 2026 BAGYOU FIBRE NETWORKS - All rights reserved

Consider VP

N instances or VRFs to isolate traffic between public and private networks. By following these steps, the core switch will provide Layer 3 connectivity, DHCP services, and inter-VLAN routing, ensuring efficient communication across the campus network.

Article Content

Configure Subnet-Based Virtual Local Area Network (VLAN) Groups

To learn how to configure this feature, click here for instructions. PVID — VLAN is recognized from the port default VLAN ID. The subnet-based group VLAN classification enable packets to be classified

Configuring the Core Switch

In this scenario, IP addresses of the interfaces connecting the core switch to the BRASs and firewalls and OSPF need to be configured on the core switch, so as to implement connectivity

Core Switch & VLANNING

Configure VTP on all of your edge switches and plan where you will have VLAN access ports. The edge switches will know what VLANs are available through VTP. They will know what

Configuring Core Switches

Log in to iMaster NCE-Campus as a tenant administrator and choose Network Configuration > Network Programming > Hierarchical Configuration from the main menu. Create a VLANIF subnet.

IP Network Addressing Scheme | Class A B C Subnets

This article explains the IP network addressing scheme. Which describes classful and classless operations, including the use of subnets.

Ahmed-abdelbasset/enterprise-network-design

Four geographically dispersed locations are interconnected through a hierarchical three-tier architecture (core, distribution, access).

PfSense firewall + L3 Core switch configuration with VLANs

In this lab, we will create 3 vlans and connect our core switch to pfSense firewall with a transit network. Then we will configure our firewall with these vlan subnets.

© 2026 BAGYOU FIBRE NETWORKS - All rights reserved

8.1.4.8 Lab – Designing and Implementing a Subnetted

In this lab, starting from a single network address and network mask, you will subnet the network into multiple subnets. The subnet scheme should be based on the number of host

Network Design – Designing Advanced IP Addressing

One of the major concerns in the network design phase is ensuring that the IP addressing scheme is properly designed. This aspect should be carefully planned and an implementation strategy should

Cisco Programmable Fabric with VXLAN BGP EVPN

Introduction to VXLAN/EVPN Introducing IP Fabric Overlays (VXLAN) Motivation for an overlay An overlay is a dynamic tunnel that transports frames

SME Network Solution Typical Configuration Examples

Support Documentation Enterprise Network Solution Horizontal Solutions CloudCampus SME Configuration & Commissioning Configuration Examples

Configure IP Addresses and Unique Subnets for New Users

This document describes basic information needed to configure your router, such as how addresses are broken down and how subnetting works.

How to Configure a Cisco Switch (step by step)

If you''re looking to configure a switch for the first time, this post is for you. Learn step-by-step configuration commands for Cisco IOS Switches.

Introduction to Core Switch Configuration

A switch that functions as part of a router and operates at the third layer of the OSI network standard model, the network layer. The most important purpose of the layer 3 switch is to speed up the data

Define boundaries

This discovery method automatically finds and creates boundaries for IP subnets and Active Directory sites. When Active Directory forest discovery identifies a supernet for an Active

VLAN and Subnet Setup: A Step-by-Step Guide | NSC

Implement and Test Once your subnets are designed and IP addresses allocated, configure the network devices such as routers and switches to recognize and respect these

© 2026 BAGYOU FIBRE NETWORKS - All rights reserved

CRRI-IIa/enterprise-network-design-packet-tracer

This project simulates the design and implementation of a scalable wired enterprise network using Cisco Packet Tracer. The objective was to design a structured IP addressing scheme

Catalyst 2948G-L3 Sample Configurations

This document provides three sample configurations for the Catalyst 2948G-L3. The configurations are a single-VLAN network, a multi-VLAN

Contact Us

Continue your research online:

Website: https://bagyou.es
Technical inquiry: https://bagyou.es/project-enquiry.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 BAGYOU FIBRE NETWORKS - All rights reserved