**ABSTRACT**

This project is totally dedicated to the Network Engineer for new and smart learning of the Network Structure. In this concept it is possible for the networker to check the Network Structure of a company spread in the big campus area. The incoming & the outgoing traffic can be maintained along with some security concepts as well. In this logic we use the multiple Routing Protocols in different areas of the company. The practical shows us the proper movement of the packet from one part of the company to the other part of the company. The project comprises of the different Departments of Network Bulls office spread in different buildings of the company. Multiple Routing protocols have been used in different branches of Network Bulls and all the departments can communicate with other different departments through the Redistribution among different Routing Protocols. The East Building of Network Bulls has a DHCP server for assigning the IP Addresses to the Hosts in the building as well as a DHCP server has been used in the West Building of Network Bulls as well. The Internet Service Provider has been used for Communication of the East & West Building of Network Bulls with the Data Centre & Internet through ISP, using the Frame Relay Switching Technology available for Wide Area Network. Routing Protocols EIGRP along with the Synchronous Number, Static Routing & its concepts including the Default Routing as well has been applied. The different Routing Protocols are running and which has been synchronized to work with Frame Relay Switching Technology.

**A Seminar Report**

on

**CAMPUS Area Network**

***Submitted by***

***\_\_\_\_\_\_\_***

***In partial fulfillment for the award of the completion***

***Of***

**Cisco Certified Network Associate**

**At**

**On**

**---**

UNDER THE GUIDANCE OF

**\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_**

SUBMITTED BY: \_\_\_\_\_\_\_\_

**ACKNOWLEDGEMENT**

# Before we get into the actual report, we would like to express our gratitude to all those who helped us in shaping up this project. In numerous ways, people who gave unending support right from the start.

We would like to thank Mr. \_\_\_\_\_\_\_ whose guidance and stimulating suggestions helped me conceive the idea of the project.

We would also like to thank our project coordinator Mr. (\_\_\_\_\_\_\_) and our guide Mr. (\_\_\_\_\_\_\_), for their encouragement, support and perseverance shown during the course of my project.

We would also like to take this opportunity to thank our teachers for their continued understanding, active involvement, inspiration and patience.

Submitted By:

\_\_\_\_\_\_\_\_

NAME OF THE COLLEGE

**CERTIFICATE FROM SUPERVISOR**

This is to certify that the project entitled **“CAMPUS Area Network”** which is being submitted by \_\_\_\_\_\_\_ to the Department Of Computer Science Engineering, (COLLEGE NAME) College Of Engineering, Gurgaon, in partial fulfillment of requirement of the certificate of Summer Training Program/Internship in (Cisco Certified Network Engineer) is a record of bona fide work carried out by him under my guidance and supervision.

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**CERTIFICATE FROM STUDENT**

This is to certify that the work embodied in this project entitled “**Campus Area Network”** submitted to the Department of Computer Science & Engineering, \_\_\_\_ College of Engineering, Gurgaon for the fulfillment of the requirement for the award of Degree of “Summer Training in Cisco Certified Network Engineer” is my authentic record of my work carried out and written by me under the direct supervision and guidance of Mr. \_\_\_\_ (Department of Computer Science Engineering) and also to Mr. \_\_\_\_ (Department of Computer Science Engineering).

Submitted By:

\_\_\_\_\_\_\_

NAME OF THE COLLEGE

**Chapter 1**

**INTRODUCTION**

Here are some ideas of projects in the Networking area. Some of these are new, and

some are ideas that have run before but could be run again. Note that, unlike the

normal project ideas, these ideas do not have a contact listed against them. They are

there to give you ideas of the sort of things that could be done. If a project idea

seems interesting, and you would like to pursue it further, then you should discuss it

with one of the lecturers who are experienced in the Networking area: Bill Buchanan,

Gordon Russell, Ahmed Al-Dubai, Imed Romdhani, Jim Jackson, Robert Ludwiniak

or Neil Urquhart. They may not be able to help you directly, but will at least be able to

point you to somebody better placed, perhaps because their specialist knowledge is

in the area of the project.

This introduces the underlying concepts behind networking using the

Internet and its protocols as examples. There are two goals:

(1) to give you an understanding of how networks, especially the Internet, work,

(2) to teach you network programming.

We will cover the first five chapters of Kurose in detail, working our way down

the network stack from the application layer to the data-link layer. Concurrent

with the lectures, you (in groups of two) will be building a functional TCP/IP

stack and a small web server that will run on it. What you build will be “real” –

your code will interoperate with other TCP/IP stacks and you’ll be able to talk to

your web server using any browser on any TCP/IP stack.

This is a learn-by-doing kind of class. You will get your hands dirty by

examining parts of our Internet infrastructure and building other parts. It will be

a lot of work, but it will also be a lot of fun, provided you enjoy this sort of thing.

We will assume that you do and that you will make a good faith effort. We don’t

want to have to spend too much time measuring your performance. If you care

about what we’re teaching, you’ll do a better job of that yourself, and if you don’t

care, then you should take some course that you do care about.

**The goal of the networking project is to enable you to do the following**:

Build implementations of the Internet protocols

Generalize this knowledge to other networking protocols.

Be a competent network and systems programmer.

Think like a networking practitioner

Read and judge articles on networking in trade magazines

Begin to read and judge research and technical articles on networking

Create simplicity and reliability out of complexity and unreliability

Structure and design software systems to achieve that simplicity and

Reliability

**Chapter 2**

**Project Specification**

**2.1 Hardware Specification**

CPU Speed :2GHz recommended or higher

Processor :Pentium Processor or above

Memory/RAM: 1GB minimum,2GB recommended or higher

Display Properties: Greater than 256 color depth

Size of Hard Disk:60 GB minimum

NIC Card

**2.2 Software Specification**

Software Used: Packet Tracer 5.3.2

Operating System: Microsoft Windows XP,Vista,7

**2.2.1Packet Tracer**

Packet Tracer is a Cisco router simulator that can be utilized in training and education, but also in research for simple computer network simulations. The tool is created by Cisco Systems and provided for free distribution to faculty, students, and alumni who are or have participated in the Cisco Networking Academy. The purpose of Packet Tracer is to offer students and teachers a tool to learn the principles of networking as well as develop Cisco technology specific skills.

**Features**

The current version of Packet Tracer supports an array of simulated Application Layer protocols, as well as basic routing with RIP,OSPF, and EIGRP, to the extent required by the current CCNA curriculum. While Packet Tracer aims to provide a realistic simulation of functional networks, the application itself utilizes only a small number of features found within the actual hardware running a current CiscoIOS version. Thus, Packet Tracer is unsuitable for modeling production networks. With the introduction of version 5.3, several new features were added, including BGP. BGP is not part of the CCNA curriculum, but part of the CCNP curriculum.

**2.3PROJECT DETAIL**

**2.3.1Description:**

Here we have different buildings of a company in same city as well as few Line of Business in the WAN, they are accessing internet through ISP.

**2.3.2** **DEVICES USED**

1. 5 SERIAL CABLES
2. 4 MULTI LAYER SWITCH
3. 12 COPPER CROSS OVER
4. 33 COPPER STRAIGHT THROUGH
5. 6 ROUTERS
6. 4 SWITCHES(LAYER 2)
7. 26 PCs
8. 6 SERVERs
9. 4 SERIAL CABLES

**2.3.3 PROTOCOLS USED**

1. EIGRP
2. STATIC ROUTING
3. DEFAULT ROUTING
4. VTP(VLAN TRUNKING PROTOCOL) at all SWITCHES
5. INTER VLAN ROUTING
6. SUBNET MASKING
7. WILD CARD MASKING
8. STP(SPANNING TREE PROTOCOL)
9. NAT(NETWORK ADDRESS TRANSLATION)

**Chapter 3**

**SYSTEM DESIGN**

**(TECHNOLOGY AND TOOLS USED)**

**3.1Networking Technologies**

Networks using a Star topology require a central point for the devices to connect. Originally this device was called a concentrator since it consolidated the cable runs from all network devices. The basic form of concentrator is the hub.



As shown in Figure; the hub is a hardware device that contains multiple, independent ports that match the cable type of the network. Most common hubs interconnect Category 3 or 5 twisted-pair cable with RJ-45 ends, although Coax BNC and Fiber Optic BNC hubs also exist. The hub is considered the least common denominator in device concentrators. Hubs offer an inexpensive option for transporting data between devices, but hubs don't offer any form of intelligence. Hubs can be active or passive.

**3.2SWITCHES**

****

Switches are a special type of hub that offers an additional layer of intelligence to basic, physical-layer repeater hubs. A switch must be able to read the MAC address of each frame it receives. This information allows switches to repeat incoming data frames only to the computer or computers to which a frame is addressed. This speeds up the network and reduces congestion.



**Switches operate at both the physical layer and the data link layer of the OSI Model.**

**3.3BRIDGES**

A **bridge** is used to join two network segments together, it allows computers on either segment to access resources on the other. They can also be used to divide large networks into smaller segments. Bridges have all the features of repeaters, but can have more nodes, and since the network is divided, there is fewer computers competing for resources on each segment thus improving network performance.



**3.4ROUTERS**

Routers Are networking devices used to extend or segment networks by forwarding packets from one logical network to another. Routers are most often used in large internetworks that use the TCP/IP protocol suite and for connecting TCP/IP hosts and local area networks (LANs) to the Internet using dedicated leased lines.



Routers work at the network layer (layer 3) of the Open Systems Interconnection (OSI) reference model for networking to move packets between networks using their logical addresses (which, in the case of TCP/IP, are the IP addresses of destination hosts on the network). Because routers operate at a higher OSI level than bridges do, they have better packet-routing and filtering capabilities and greater processing power, which results in routers costing more than bridges.



**3.4.1Routing tables**

Routers contain internal tables of information called routing tables that keep track of all known network addresses and possible paths throughout the internetwork, along with cost of reaching each network. Routers route packets based on the available paths and their costs, thus taking advantage of redundant paths that can exist in a mesh topology network.

Because routers use destination network addresses of packets, they work only if the configured network protocol is a routable protocol such as TCP/IP or IPX/SPX. This is different from bridges, which are protocol independent. The routing tables are the heart of a router; without them, there's no way for the router to know where to send the packets it receives.

Unlike bridges and switches, routers cannot compile routing tables from the information in the data packets they process. This is because the routing table contains more detailed information than is found in a data packet, and also because the router needs the information in the table to process the first packets it receives after being activated. A router can't forward a packet to all possible destinations in the way that a bridge can.

**Static routers:** These must have their routing tables configured manually with all network addresses and paths in the internetwork.

**Dynamic routers:** These automatically create their routing tables by listening to network traffic.

**Routing tables**are the means by which a router selects the fastest or nearest path to the next "hop" on the way to a data packet's final destination. This process is done through the use of routing metrics.

**Routing metrics**which are the means of determining how much distance or time a packet will require to reach the final destination. Routing metrics are provided in different forms.

**hop**is simply a router that the packet must travel through.

**Ticks**measure the time it takes to traverse a link. Each tick is 1/18 of a second. When the router selects a route based on tick and hop metrics, it chooses the one with the lowest number of ticks first.

You can use routers, to segment a large network, and to connect local area segments to a single network backbone that uses a different physical layer and data link layer standard. They can also be used to connect LAN's to a WAN's.

**3.5GATEWAYS**

A gateway is a device used to connect networks using different protocols. Gateways operate at the network layer of the OSI model. In order to communicate with a host on another network, an IP host must be configured with a route to the destination network. If a configuration route is not found, the host uses the gateway (default IP router) to transmit the traffic to the destination host. The default t gateway is where the IP sends packets that are destined for remote networks. If no default gateway is specified, communication is limited to the local network. Gateways receive data from a network using one type of protocol stack, removes that protocol stack and repackages it with the protocol stack that the other network can use.

**Examples**

* E-mail gateways-for example, a gateway that receives Simple Mail Transfer Protocol (SMTP) e-mail, translates it into a standard X.400 format, and forwards it to its destination
* Gateway Service for NetWare (GSNW), which enables a machine running Microsoft Windows NT Server or Windows Server to be a gateway for Windows clients so that they can access file and print resources on a NetWare server
* Gateways between a Systems Network Architecture (SNA) host and computers on a TCP/IP network, such as the one provided by Microsoft SNA Server
* A packet assembler/disassembler (PAD) that provides connectivity between a local area network (LAN) and an X.25 packet-switching network

**3.6NICs (Network Interface Card)**

Network Interface Card, or NIC is a hardware card installed in a computer so it can communicate on a network. The network adapter provides one or more ports for the network cable to connect to, and it transmits and receives data onto the network cable.

Wireless Lan card



Every networked computer must also have a network adapter driver, which controls the network adapter. Each network adapter driver is configured to run with a certain type of network adapter.

**3.6.1Network card**

**3.6.2Adapter Functions Network Interface**

Network interface adapters perform a variety of functions that are crucial to getting data to and from the computer over the network.

These functions are as follows:

**3.6.2.1Data encapsulation**

The network interface adapter and its driver are responsible for building the frame around the data generated by the network layer protocol, in preparation for transmission. The network interface adapter also reads the contents of incoming frames and passes the data to the appropriate network layer protocol.

**3.6.2.2Signal encoding and decoding**

The network interface adapter implements the physical layer encoding scheme that converts the binary data generated by the network layer-now encapsulated in the frame-into electrical voltages, light pulses, or whatever other signal type the network medium uses, and converts received signals to binary data for use by the network layer.

**3.6.2.3Transmission and reception**

The primary function of the network interface adapter is to generate and transmit signals of the appropriate type over the network and to receive incoming signals. The nature of the signals depends on the network medium and the data-link layer protocol. On a typical LAN, every computer receives all of the packets transmitted over the network, and the network interface adapter examines the destination address in each packet, to see if it is intended for that computer.

**3.6.2.4Data buffering**   
Network interface adapters transmit and receive data one frame at a time, so they have built-in buffers that enable them to store data arriving either from the computer or from the network until a frame is complete and ready for processing.

**3.6.2.5Serial/parallel conversion**   
The communication between the computer and the network interface adapter runs in parallel, that is, either 16 or 32 bits at a time, depending on the bus the adapter uses. Network communications, however, are serial (running one bit at a time), so the network interface adapter is responsible for performing the conversion between the two types of transmissions.

**3.6.2.6Media access control**

The network interface adapter also implements the MAC mechanism that the data-link layer protocol uses to regulate access to the network medium. The nature of the MAC mechanism depends on the protocol used.

**3.7MODEMS**

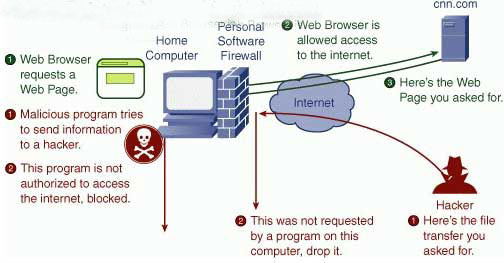
A modem is a device that makes it possible for computers to communicate over telephone lines. The word modem comes from Modulate and Demodulate. Because standard telephone lines use analog signals, and computers digital signals, a sending modem must modulate its digital signals into analog signals. The computers modem on the receiving end must then demodulate the analog signals into digital signals.



Modems can be external, connected to the computers serial port by an RS-232 cable or internal in one of the computers expansion slots. Modems connect to the phone line using standard telephone RJ-11 connectors.

**3.8FIREWALLS**

In computing, a firewall is a piece of hardware and/or software which functions in a networked environment to prevent some communications forbidden by the security policy, analogous to the function of firewalls in building construction.



A firewall has the basic task of controlling traffic between different zones of trust. Typical zones of trust include the Internet (a zone with no trust) and an internal network (a zone with high trust). The ultimate goal is to provide controlled connectivity between zones of differing trust levels through the enforcement of a security policy and connectivity model based on the least privilege principle.

**There are three basic types of firewalls depending on:**

* whether the communication is being done between a single node and the network, or between two or more networks
* whether the communication is intercepted at the network layer, or at the application layer
* whether the communication state is being tracked at the firewall or not

**3.9Network protocols**

A networked computer must also have one or more protocol drivers (sometimes called a transport protocol or just a protocol). The protocol driver works between the upper-level network software and the network adapter to package data to be sent on the network.

In most cases, for two computers to communicate on a network, they must use identical protocols. Sometimes, a computer is configured to use multiple protocols. In this case, two computers need only one protocol in common to communicate. For example, a computer running File and Printer Sharing for Microsoft Networks that uses both NetBEUI and TCP/IP can communicate with computers using only NetBEUI or TCP/IP.

In this project we are using three protocols:-

* RIPV2
* OSPF
* EIGRP

**3.9.1 RIPV2**

The **Routing Information Protocol** (**RIP**) is a distance-vector routing protocol, which employs the hop count as a routing metric. RIP prevents routing loops by implementing a limit on the number of hops allowed in a path from the source to a destination. The maximum number of hops allowed for RIP is 15. This hop limit, however, also limits the size of networks that RIP can support. A hop count of 16 is considered an infinite distance and used to deprecate inaccessible, inoperable, or otherwise undesirable routes in the selection process.

RIP version 2 (RIPv2) was developed in 1993 and last standardized in 1998. It included the ability to carry subnet information, thus supporting Classless Inter-Domain Routing (CIDR). To maintain backward compatibility, the hop count limit of 15 remained. RIPv2 has facilities to fully interoperate with the earlier specification if all Must Be Zero protocol fields in the RIPv1 messages are properly specified. In addition, a compatibility switch feature allows fine-grained interoperability adjustments.

In an effort to avoid unnecessary load on hosts that do not participate in routing, RIPv2 multicasts the entire routing table to all adjacent routers at the address 224.0.0.9, as opposed to RIPv1 which uses broadcast. Unicast addressing is still allowed for special applications.

**3.9.2 OSPF**

**Open Shortest Path First** (**OSPF**) is a link-state routing protocol for Internet Protocol (IP) networks. It uses a link state routing algorithm and falls into the group of interior routing protocols, operating within a single autonomous system (AS). It is defined as OSPF Version 2 in (1998) for IPv4 The updates for IPv6 are specified as OSPF Version 3

OSPF is perhaps the most0 widely used interior gateway protocol (IGP) in large enterprise networks. IS-IS, another link-state dynamic routing protocol, is more common in large service provider networks. The most widely used exterior gateway protocol is the Border Gateway Protocol (BGP), the principal routing protocol between autonomous systems on the Internet

. OSPF is an interior gateway protocol that routes Internet Protocol (IP) packets solely within a single routing domain (autonomous system). It gathers link state information from available routers and constructs a topology map of the network. The topology determines the routing table presented to the Internet Layer which makes routing decisions based solely on the destination IP address found in IP packets. OSPF was designed to support variable-length subnet masking (VLSM) or Classless Inter-Domain Routing (CIDR) addressing models.

OSPF detects changes in the topology, such as link failures, and converges on a new loop-free routing structure within seconds. It computes the shortest path tree for each route using a method based on Dijkstra's algorithm, a shortest path first algorithm.

The OSPF routing policies to construct a route table are governed by link cost factors (external metrics) associated with each routing interface. Cost factors may be the distance of a router (round-trip time), network throughput of a link, or link availability and reliability, expressed as simple unitless numbers. This provides a dynamic process of traffic load balancing between routes of equal cost.

An OSPF network may be structured, or subdivided, into routing areas to simplify administration and optimize traffic and resource utilization. Areas are identified by 32-bit numbers, expressed either simply in decimal, or often in octet-based dot-decimal notation, familiar from IPv4 address notation.

**3.9.3 EIGRP**

**Enhanced Interior Gateway Routing Protocol** - (**EIGRP**) is an open routing protocol loosely based on their original IGRP created by Cisco. EIGRP is an advanced distance-vector routing protocol, with optimizations to minimize both the routing instability incurred after topology changes, as well as the use of bandwidth and processing power in the router. Routers that support EIGRP will automatically redistribute route information to IGRP neighbors by converting the 32 bit EIGRP metric Update Algorithm (DUAL) work from SRI, which guarantees loop-free operation and provides a mechanism for fast convergence

**PROJECT DESCRIPTION**

It consists of a **West Building** (WB), an **East Building** (EB), and a **Data Center** (DC), all connected through a frame relay switch. The Data Center is connected to the ISP to get to the simulated **Internet** (it's just a 4.2.2.0/24 network). All the IP subnets are indicated in a little legend key. Of course, you may wish to use whatever IP scheme you want.

**The Steps:**

**West Building**

**1 Switches: IP addresses**

Configure IP addresses for the switches (which will be in VLAN 1, subnet 172.16.1.0/24). Their default gateway will be 172.16.1.254 (I used 3560 switches for the IP phones, they don't have the default gateway command; you may swap them for the 2960 switch). Verify by ping.

**2 Switches: VTP and VLANS**

Configure the ports connected between the switches to trunk ports. Create VLANs 30 and 40 on one switch, name them DATA1 and DATA2 respectively. Configure the VTP domain "WB" on the switch (and optionally VTP password "1234"; you'll have to configure the password on the other switches). Assign the ports that will have PCs attached to the VLANs (check topology image). Verify that all VLANs have replicated by show vlan on the other switches.

**3 Switches: STP**

The top switch will be the root switch. As practice, try to figure out which port (on the other switches of course) will become blocked. Configure the top switch to be the root switch for all VLANs (1, 30 and 40). Optional: Configure ports that are/will be connected to PCs/routers to portfast. Verify by show spanning-tree on all switches that the top switch is the root.

**4 Routers: Router-on-a-stick**

Configure the (CME labeled) router's Fast-Ethernet port on VLAN 1, and two subinterfaces for each of VLANs 30 (subnet 172.16.30.0/24) and 40 (subnet 172.16.40.0/24); don't forget to tell them they'll be getting VLAN information from the specific VLANs.

**5 Routers: Gateway Router/DHCP**

Configure it's Fast-Ethernet port on the VLAN 40 subnet; don't forget to configure the port on the switch on VLAN 40. Configure DHCP pools for VLANs 30 and 40 (I'm not sure if this was in the CCNA syllabus, but it's pretty cool and easy. Otherwise, forget about this and just statically assign IPs to the PCs in their respective VLAN subnets. If you do however go with the DHCP, you'll have to configure one extra command on the router-on-a-stick router for the VLAN 30 PCs to obtain IPs. As a challenge, I'll leave you to find out that command on your own if you don't know it).

**6 Routers: Routing protocol**

I used EIGRP. You may use anything else. After configuring routing protocols on both routers, verify by show ip route on the Gateway router. You can verify by ping (for example, ping from Gateway router [VLAN 40] to one of the switches [VLAN 1]) to verify inter VLAN routing. Also, ping from a PC on one VLAN to another PC on the other VLAN.

**East Building**

Same thing as West Building. I chose the VTP domain "EB", VLANs 35 and 45 instead, different IP subnets; refer to the topology image. Use the same routing protocol.

**Data Center**

This is pretty straight forward. There is no VTP here, no STP, and you don't even have to have DHCP (I did). Configure static IPs. Refer to the image. Use the same routing protocol. Configure the serial interface that will connect to the ISP with the IP address in the image (as you may have noticed, I got tired of typing the IPs haha).

**ISP**

Configure both serial ports with IPs. Do NOT configure a routing protocol. Instead, configure a static route to network 4.2.2.0/24 pointing to the next router (which will be our network on the Internet). This is because we don't want this ISP router to know of ANY of the IPs in the buildings/data center. This will simulate the "internet" experience; so that if it receives a ping from any device, it will not be able to reply back because it doesn't have a route path to the device's IP...this is where NAT will come into play later. At this point, go back to the Data Center router and configure a default static route to point to the ISP router. Then redistribute that route to the other routers. Don't do NAT yet.

**Internet**

Also, straight forward; configure static IPs to the servers and all that. But again, do NOT configure a routing protocol on the router. Instead, just configure a static route to the 68.110.171.132/30 network going through the ISP router (you could also use NAT, but I didn't).

**Frame Relay**

Use point-to-point; I had difficulties with the routing protocol when I used multipoint. Subnets are indicated in the image. For the frame relay switch/cloud itself, just check out the configuration from the finished configuration, it's straight forward.

At this point, most of the configuration is done. Verify connectivity between both buildings and Data Center by ping (and Web Browser on the PCs if you still have that HTTP server in the Data Center).

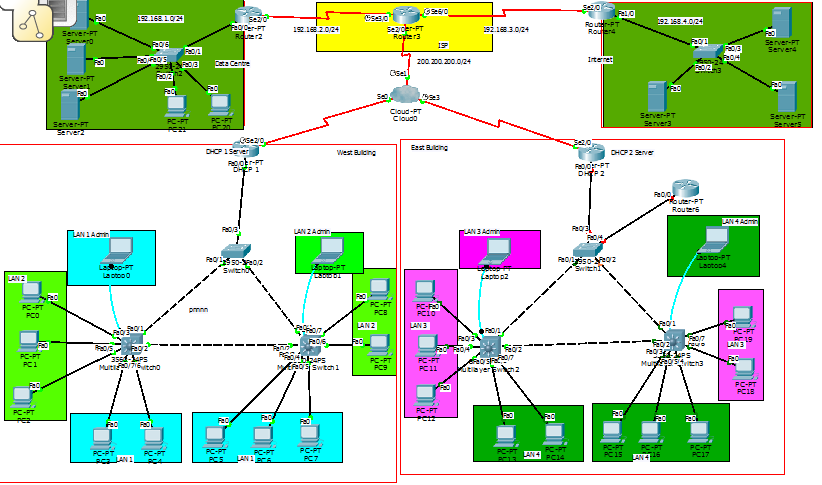
**NAT and ACLs**

Verify that any device will NOT be able to reach the internet (4.2.2.0/24), because we don't have NAT configured. Now, configure NAT on the Data Center router. My ACL was configured as follows: deny VLAN 40 subnet in WB (except routers/admin laptop), deny VLAN 35 subnet in EB (except routers/admin laptop), and permit all the other subnets (I did not permit any, I permit the specific subnets for practice). Unfortunately, I did not do any other ACL practice; I was going to create an ACL in each building to only allow admin laptops to telnet to the routers/switches.

**CHAPTER 4**

**SNAPSHOTS**

**4.1PROJECT SCENARIO**

**

**4.2RUNNING COFGURATION SNAPSHOTS**

**RUNNING CONFIG (ISP ROUTER)**

**hostname ISP**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**interface FastEthernet0/0**

**no ip address**

**duplex auto**

**speed auto**

**shutdown**

**!**

**interface FastEthernet1/0**

**ip address 192.168.4.1 255.255.255.0**

**duplex auto**

**speed auto**

**!**

**interface Serial2/0**

**ip address 192.168.3.2 255.255.255.0**

**!**

**interface Serial3/0**

**no ip address**

**shutdown**

**!**

**interface FastEthernet4/0**

**no ip address**

**shutdown**

**!**

**interface FastEthernet5/0**

**no ip address**

**shutdown**

**!**

**!**

**!**

**!**

**ip classless**

**!**

**!**

**!**

**no cdp run**

**!**

**!**

**!**

**!**

**!**

**line con 0**

**!**

**line aux 0**

**!**

**line vty 0 4**

**login**

**IP ROUTING(DATA CENTRE)**

**hostname DATACENTER**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**interface FastEthernet0/0**

**ip address 192.168.1.1 255.255.255.0**

**duplex auto**

**speed auto**

**!**

**interface FastEthernet1/0**

**no ip address**

**duplex auto**

**speed auto**

**shutdown**

**!**

**interface Serial2/0**

**ip address 192.168.2.1 255.255.255.0**

**!**

**interface Serial3/0**

**no ip address**

**shutdown**

**!**

**interface FastEthernet4/0**

**no ip address**

**shutdown**

**!**

**interface FastEthernet5/0**

**no ip address**

**shutdown**

**!**

**ip classless**

**ip route 0.0.0.0 0.0.0.0 192.168.2.2**

**!**

**!**

**!**

**no cdp run**

**!**

**!**

**!**

**!**

**!**

**line con 0**

**!**

**line aux 0**

**!**

**line vty 0 4**

**login**

**RUNNING CONFIGUATION(ISP)**

**hostname HUB**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**interface FastEthernet0/0**

**no ip address**

**duplex auto**

**speed auto**

**shutdown**

**!**

**interface FastEthernet1/0**

**no ip address**

**duplex auto**

**speed auto**

**shutdown**

**!**

**interface Serial2/0**

**ip address 200.200.200.1 255.255.255.0**

**encapsulation frame-relay ietf**

**!**

**interface Serial3/0**

**ip address 192.168.2.2 255.255.255.0**

**clock rate 64000**

**!**

**interface FastEthernet4/0**

**no ip address**

**shutdown**

**!**

**interface FastEthernet5/0**

**no ip address**

**shutdown**

**!**

**interface Serial6/0**

**ip address 192.168.3.1 255.255.255.0**

**clock rate 64000**

**!**

**interface Serial7/0**

**no ip address**

**shutdown**

**!**

**router eigrp 100**

**network 192.168.2.0 0.0.0.255**

**network 192.168.3.0 0.0.0.255**

**network 200.200.200.0 0.0.0.255**

**no auto-summary**

**!**

**ip classless**

**ip route 192.168.1.0 255.255.255.0 192.168.2.1**

**!**

**!**

**!**

**no cdp run**

**!**

**!**

**!**

**!**

**!**

**line con 0**

**!**

**line aux 0**

**!**

**line vty 0 4**

**login**

**IP ROUTING (DHCP SERVER 1)**

**hostname "DHCP 1"**

**!**

**!**

**!**

**!**

**!**

**ip dhcp pool DHCP\_1**

**network 192.168.5.0 255.255.255.0**

**default-router 192.168.5.1**

**dns-server 10.10.10.10**

**ip dhcp pool LAN\_2**

**network 192.168.6.0 255.255.255.0**

**default-router 192.168.6.1**

**dns-server 10.10.10.10**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**interface FastEthernet0/0**

**no ip address**

**no shut**

**duplex auto**

**speed auto**

**!**

**interface FastEthernet0/0.1**

**encapsulation dot1Q 1 native**

**ip address 192.168.5.1 255.255.255.0**

**!**

**interface FastEthernet0/0.2**

**encapsulation dot1Q 2**

**ip address 192.168.6.1 255.255.255.0**

**!**

**interface FastEthernet1/0**

**no ip address**

**duplex auto**

**speed auto**

**shutdown**

**!**

**interface Serial2/0**

**ip address 200.200.200.2 255.255.255.0**

**encapsulation frame-relay ietf**

**clock rate 64000**

**!**

**interface Serial3/0**

**no ip address**

**shutdown**

**!**

**interface FastEthernet4/0**

**no ip address**

**shutdown**

**!**

**interface FastEthernet5/0**

**no ip address**

**shutdown**

**!**

**ip classless**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**line con 0**

**!**

**line aux 0**

**!**

**line vty 0 4**

**login**

**RUNNING CONFIG (DHCP SERVER 2)**

**hostname "DHCP 2"**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**interface Loopback100**

**ip address 100.100.100.1 255.255.255.0**

**!**

**interface FastEthernet0/0**

**no ip address**

**duplex auto**

**speed auto**

**shutdown**

**!**

**interface FastEthernet1/0**

**no ip address**

**duplex auto**

**speed auto**

**shutdown**

**!**

**interface Serial2/0**

**ip address 200.200.200.3 255.255.255.0**

**encapsulation frame-relay ietf**

**!**

**interface Serial3/0**

**no ip address**

**shutdown**

**!**

**interface FastEthernet4/0**

**no ip address**

**shutdown**

**!**

**interface FastEthernet5/0**

**no ip address**

**shutdown**

**!**

**router eigrp 100**

**network 100.100.100.0 0.0.0.255**

**auto-summary**

**!**

**ip classless**

**!**

**!**

**!**

**!**

**!**

**!**

**!**

**line con 0**

**!**

**line aux 0**

**!**

**line vty 0 4**

**login**

**MULTI LAYER SWITCH 0**

**Switch#show interfaces swi**

**Switch#show interfaces switchport**

**Name: Fa0/1**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: trunk**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: dot1q**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/2**

**Switchport: Enabled**

**Administrative Mode: dynamic desirable**

**Operational Mode: trunk**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: dot1q**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/3**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 2 (VLAN0002)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/4**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 2 (VLAN0002)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/5**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 2 (VLAN0002)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/6**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/7**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/8**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/9**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/10**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/11**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/12**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/13**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/14**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/15**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/16**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/17**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/18**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/19**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/20**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/21**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/22**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/23**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/24**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Gig0/1**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Gig0/2**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**MULTI LAYER SWITCH 1**

**Switch#show interfaces switchport**

**Name: Fa0/1**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: trunk**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: dot1q**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/2**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: trunk**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: dot1q**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/3**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/4**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/5**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/6**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 2 (VLAN0002)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/7**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 2 (VLAN0002)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/8**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/9**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/10**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/11**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/12**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/13**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/14**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/15**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/16**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/17**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/18**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/19**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/20**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/21**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/22**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/23**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/24**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Gig0/1**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Gig0/2**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**MULTI LAYER SWITCH 2**

**Switch# show interfaces switchport**

**Name: Fa0/1**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/2**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/3**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/4**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/5**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/6**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/7**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/8**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/9**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/10**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/11**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/12**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/13**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/14**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/15**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/16**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/17**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/18**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/19**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/20**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/21**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/22**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/23**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/24**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Gig0/1**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Gig0/2**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**MULTI LAYER SWITCH 3**

**Switch# show interfaces switchport**

**Name: Fa0/1**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/2**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/3**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/4**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/5**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/6**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/7**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: static access**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/8**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/9**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/10**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/11**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/12**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/13**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/14**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/15**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/16**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/17**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/18**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/19**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/20**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/21**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/22**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/23**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Fa0/24**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Gig0/1**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**Name: Gig0/2**

**Switchport: Enabled**

**Administrative Mode: dynamic auto**

**Operational Mode: down**

**Administrative Trunking Encapsulation: dot1q**

**Operational Trunking Encapsulation: native**

**Negotiation of Trunking: On**

**Access Mode VLAN: 1 (default)**

**Trunking Native Mode VLAN: 1 (default)**

**Voice VLAN: none**

**Administrative private-vlan host-association: none**

**Administrative private-vlan mapping: none**

**Administrative private-vlan trunk native VLAN: none**

**Administrative private-vlan trunk encapsulation: dot1q**

**Administrative private-vlan trunk normal VLANs: none**

**Administrative private-vlan trunk private VLANs: none**

**Operational private-vlan: none**

**Trunking VLANs Enabled: All**

**Pruning VLANs Enabled: 2-1001**

**Capture Mode Disabled**

**Capture VLANs Allowed: ALL**

**Protected: false**

**Unknown unicast blocked: disabled**

**Unknown multicast blocked: disabled**

**Appliance trust: none**

**CHAPTER 5**

**COMMANDS USED**

**BASIC COMMANDS**

* ENABLE : To go in priviledge mode
* CONFIGURE TERMINAL : To go in global configuration mode
* ENABLE PASSWORD <VALUE> : To give password
* ENABLE SECRET <VALUE> : To give secret password
* LINE CONSOLE 0 : To go in line console mode
* EXECUTION TIMEOUT 0 : To make console never go to sleep in line console mode
* LOGGING SYNCHRONOUS : To avoid the messages it also run in line console mode
* SHOW RUNNING CONFIGURATION:
* SHOW IP INTERFACE BRIEF : To show the IP configuration
* INTERFACE FASTETHERNET0/0 : To give the IP configuration of fast ethernet
* INTERFACE SERIAL0/0 : To give the IP configuration of serial interface
* NO SHUTDOWN : To make interface up
* CLOCKRATE 64000 : To provide clock rate to DCE end of serial cable

**ROUTING COMMANDS**

**STATIC ROUTING COMMANDS:**

* IN global config mode)# ip route <destination network ip> <subnet mask> <exit interface> <permanent>

For ex.) # ip route 10.1.1.0 255.255.255.0 20.1.1.2

**DEFAULT ROUTING COMMANDS:**

* In global config mode)# ip route <destination network ip> <subnet mask> <exit interface> <permanent>

For ex.) # ip route 0.0.0.0 0.0.0.0 20.1.1.2

**DYNAMIC ROUTING COMMANDS**

* **RIP COMMANDS:**

In global config mode) # router rip

Router) # network <directly connected n/w ip>

For ex.) # network 10.0.0.0

) # network 20.0.0.0

**TO CHANGE RIP VERSION:**

In global config mode) # router rip

Router) # version 2

Router) # do show ip route(to check version)

Router) # debug ip rip(shows all updates of multicasting & broadcasting)

**EIGRP COMMANDS:**

In global config mode) # router eigrp <AD value>

-config) # router eigrp 100

-router) # network < n/w id of directly connected> <wild card mask>

-router) # network 10.1.1.0 0.0.0.255

**OSPF COMMANDS:**

IN global config mode) # router ospf <process id>

-config) # router ospf 100

-router) # network <network id of directly connected> <subnet mask> <area 0>

-router) # network 192.168.1.0 0.0.0.255 area 0

-router) # do show ip ospf neigbour(to check the neighbourship)

-router) # do show ip ospf database(to check the database of the events)

**TO APPLY ACCESS LISTS:**

STANDARD AND EXTENDED

**1. Standard**

-config) # access-list 10 deny host 10.1.1.2

-config) # access-list 10 permit any

-config) # int fa0/0

-int) # ip access-group 10 in

**2. Extended**

-config) # access-list 10 deny ip host 10.1.1.2 host 20.1.1.2

-config) # access-list 10 permit ip any any

-config) # int fa0/0

-Int) # ip access group 10 in

) # no access list

**TO CREATE VLANs**

**1. To give name to vlan:**

-config) # vlan 2

-config) # name xyz

**2. To add interfaces to VLAN**

-config) # int fa0/0

-int) # switchport mode access

-int) # switchport access vlan2

**3. To do trunking**

-config) # int fa0/0

-int) # switchport mode trunk

-int) # switchport mode dynamic desirable

**4. TO APPLY VTP:**

-config) # vtp mode server

-config) # vtp domain cisco.com

-config) # vtp cisco123

-config) # do show vtp status

-config) # debug sw-vlan vtp events

-config) # do show cdp neighbours

**5. To make VLAN native:**

-config) # switchport trunk native vlan 2

**Chapter 6**

**RESULT AND FUTURE SCORE**

**6.1RESULT**

All the branches are communicating with each other and access the internet via ISP using internet and network protocols.

**6.2FUTURE SCOPE**

Perhaps the greatest concern companies have in doing business over the Internet is the security risk. Hackers, denial-of-service (DoS) attacks, identity theft, and even

cyber-terrorism are very real dangers. In addition, you may wonder how to guarantee the performance and reliability of your Internet-based services. Or, you may not be certain that you have the resources and support needed to deploy and manage e-commerce services and processes.

The good news is that a sound network infrastructure can address all these issues. At the foundation of a robust e-commerce infrastructure are the routers and switches.

An integrated approach to routing and switching lets all workers—even those at different sites—have the same access to business applications, unified communications, and videoconferencing as their colleagues at headquarters.

Cisco lets you grow your network over time, adding features and functionality as you need them while ensuring complete investment protection. An added benefit of this integrated approach is that your IT personnel can centrally

manage the network from headquarters, which keeps staffing counts low.

**REFERENCES**

1. www.google.com
2. [www.cbtnuggets.com](http://www.cbtnuggets.com)