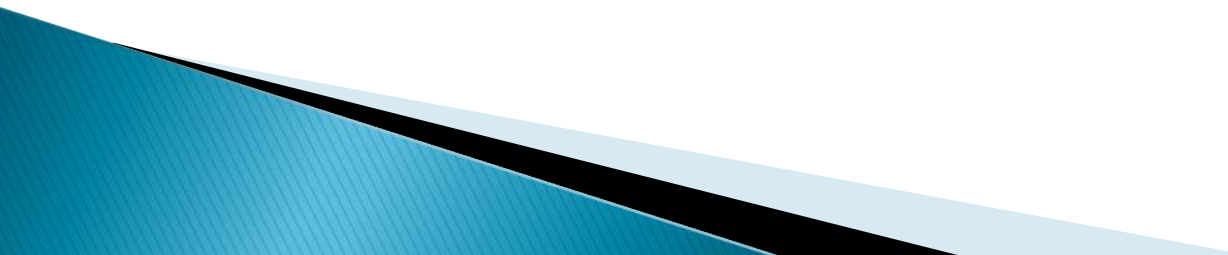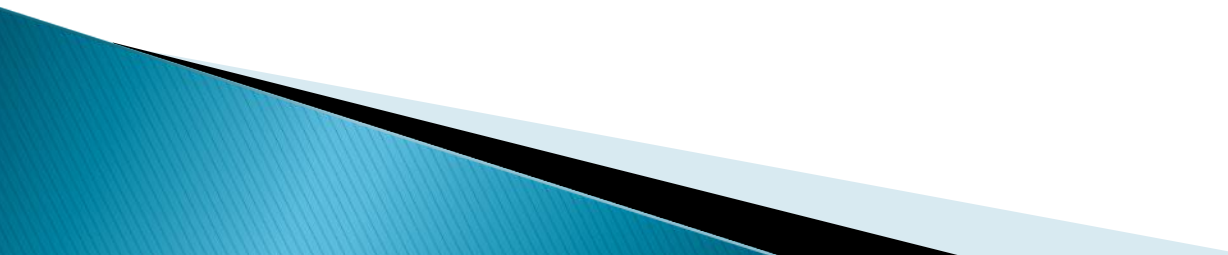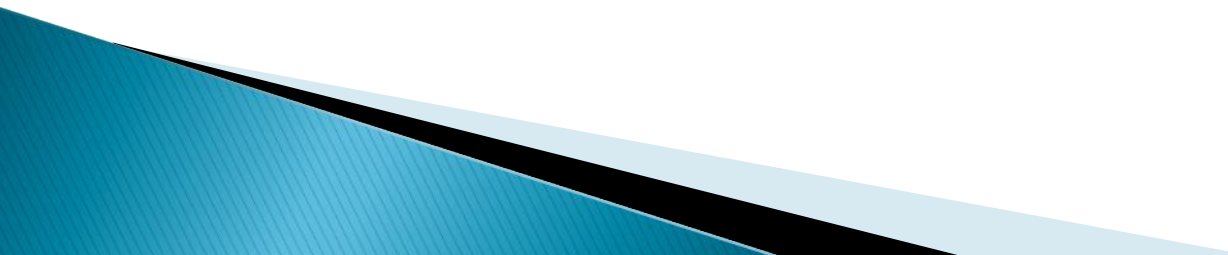# SWITCH MGT

By,
Subrahmanya Bhat
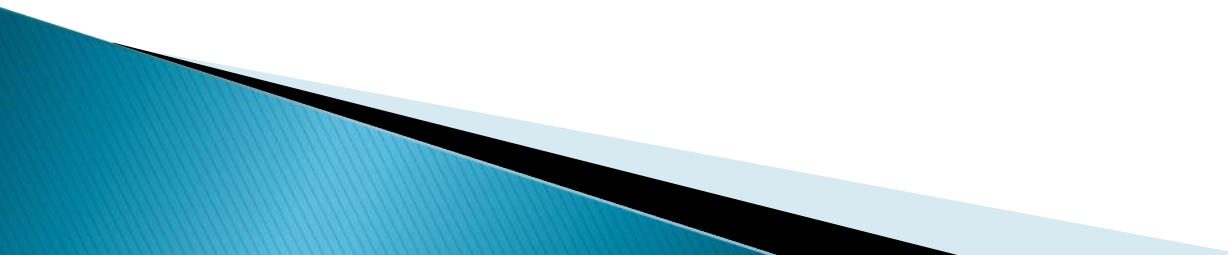Dept. MCA
Srinivas University

Sw.Mgt by

- Setting the passwords
- Setting the hostname
- Configuring the IP & Subnet mask
- Identifying the interfaces
- Setting a description on the interface
- Defining the port duplex of a port

Sw.Mgt by..

- Verifying the configuration
- Managing the MAC address table
- Setting permanent and static MAC addresses
- Configuring port security
- Describing the show version command
- Changing the LAN switch type

Sw.Mgt by…

- Configuring VLANs
- Adding VLAN memberships to switch ports
- Creating a VTP domain
- Configuring trunking
- Configuring pruning

Configuration Options

- CLI method
- Web-based method
- Menu-based option

CLI Method

Configuring the switch using IOS based CLI
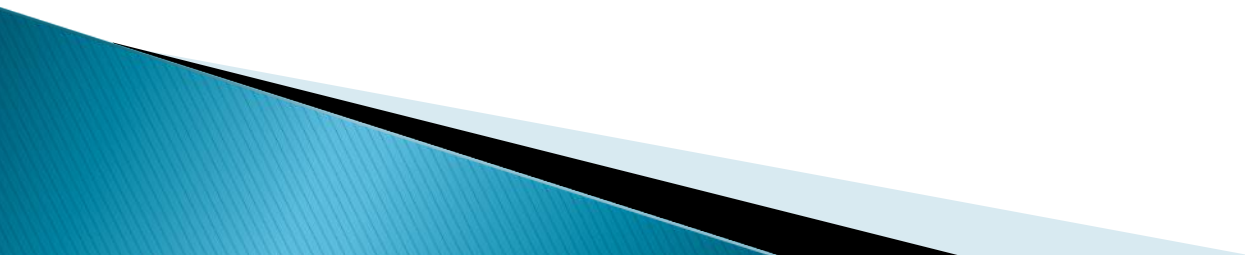
Web-based Method

- Configuring the switch with a Web-based method using the Visual Switch Manager (VSM)
- To use VSM, you have to type in the IP address of the switch at a Web browser.

Menu-based Option
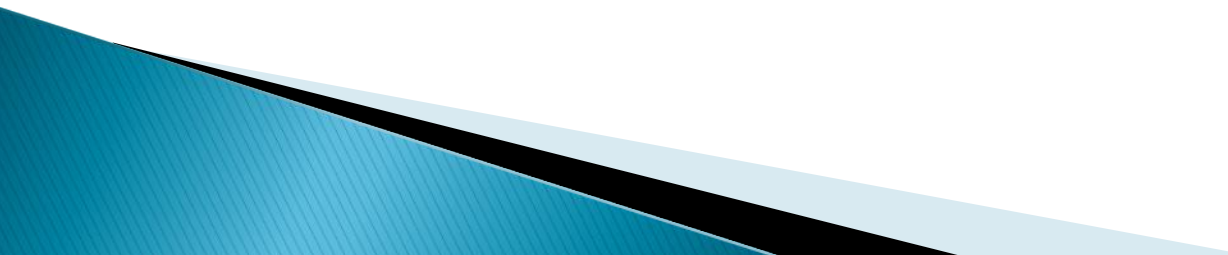
Switches also have the original menu system that allows you to configure through a series of menu-based options
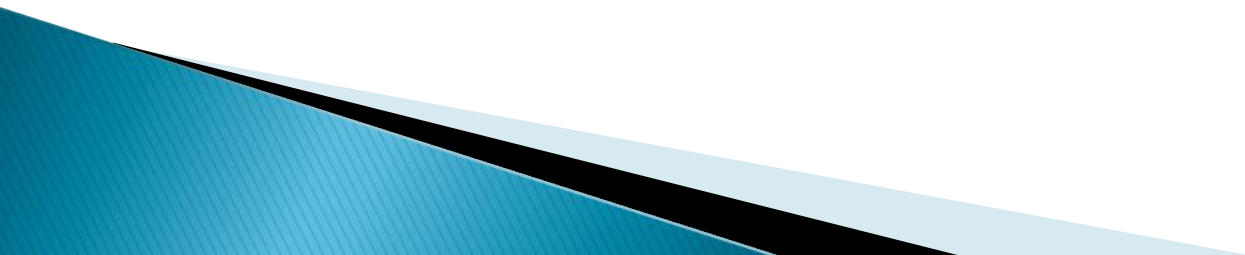
Switch Panel

Connecting to Console Port

- Switch has a console port on the back of the switch
- It is an RJ-45 port, and it uses a rolled cable to connect to a terminal
- Start a terminal emulation program like Hyper-Term in Windows
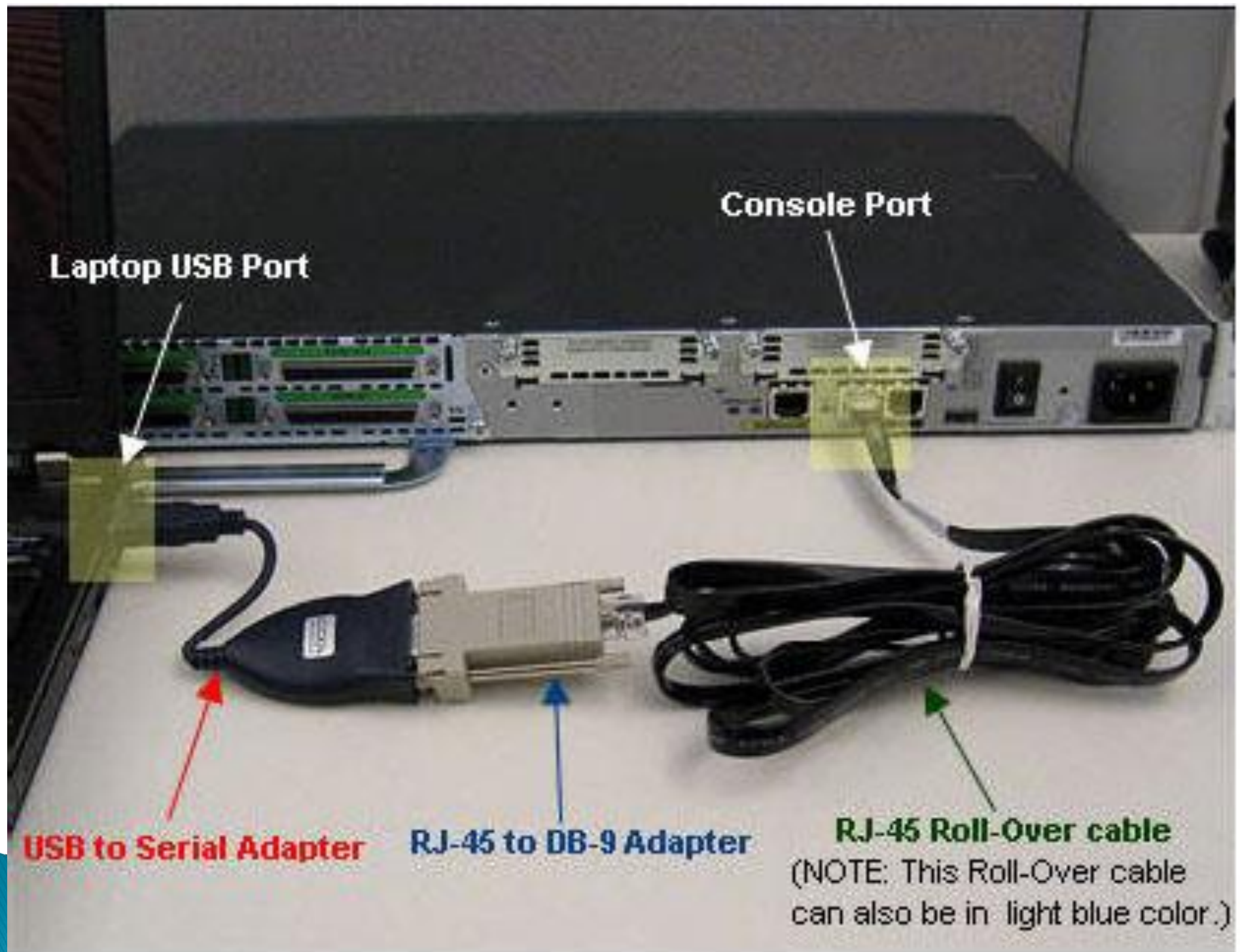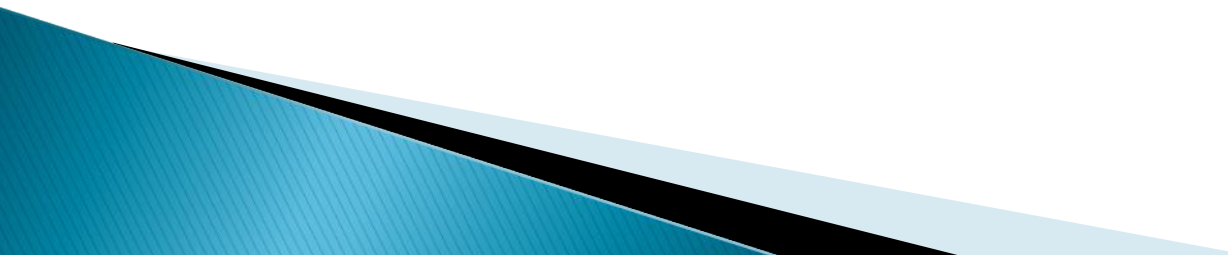
Laptop USB Port

Console Port

USB to Serial Adapter

RJ-45 to DB-9 Adapter

RJ-45 Roll-Over cable
(NOTE: This Roll-Over cable can also be in light blue color.)

Terminal Prog. Setting

- Data Bits - 8
- Parity - None
- Stop Bits 1
- Speed 9600Bps
- Flow Control - None

WS-C2960S-24TD-L

Cisco Catalyst 2960-S
Series Switch
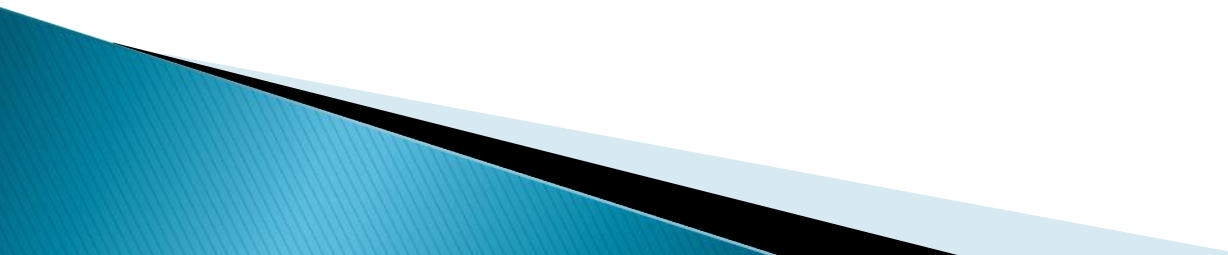
- ✓ 24 Ethernet 10/100/1000 ports
- ✓ Two 10 Gigabit Ethernet or 2 1 Gigabit Ethernet SFP+ uplink ports
- ✓ Optional Cisco FlexStack stacking support
- ✓ LAN Base image

Mode button and switch LEDs

10/100/1000 ports

RJ-45 console port

USB mini-Type B (console) port

USB Type A port

Ethernet management port

SFP module slots

CISCO
SYST
RPS
STAT
DUPLX
SPEED
PoE

MODE

Catalyst 2960-S Series PoE+ 10G

CONSOLE

SFP+
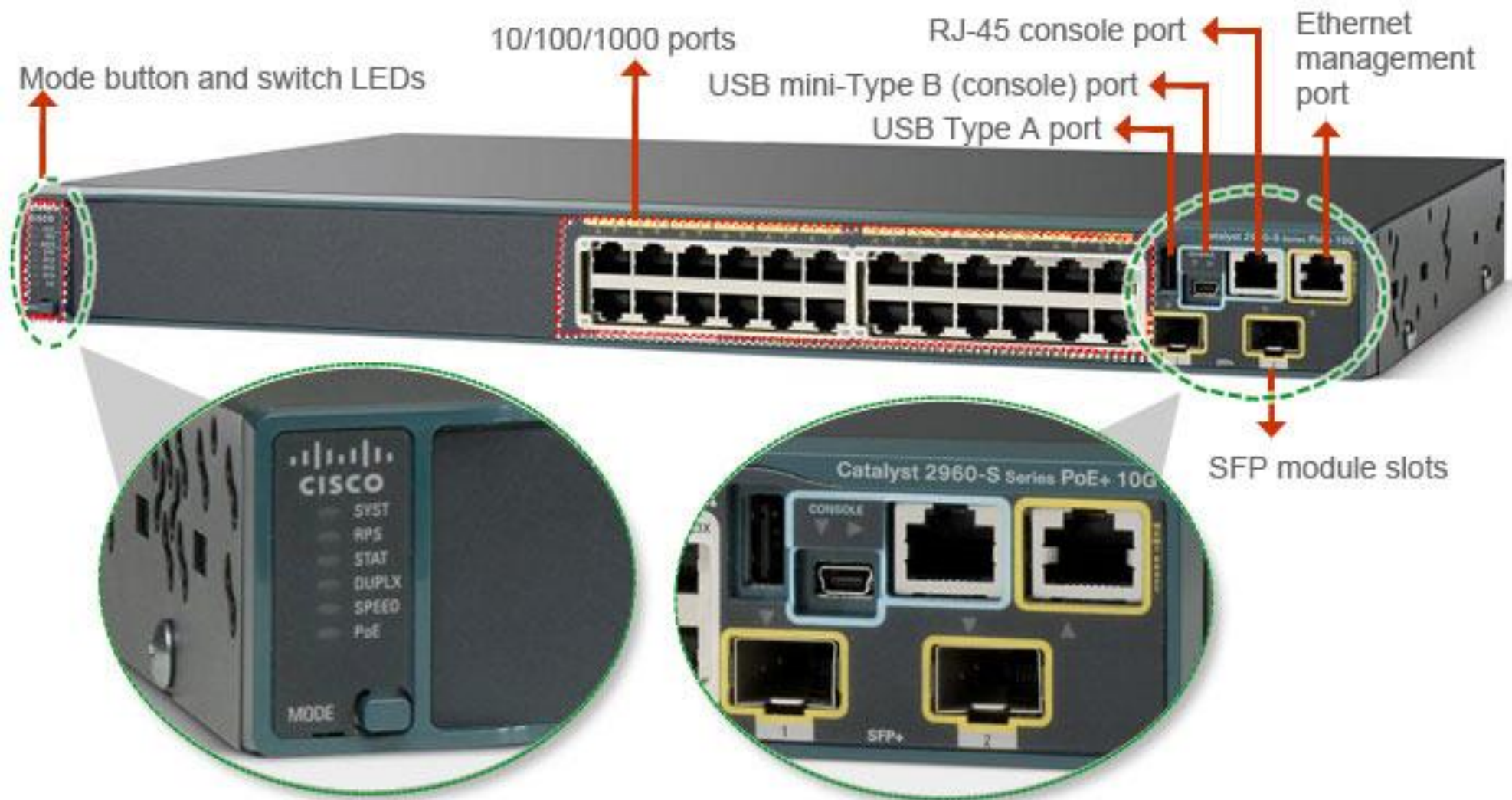
Modes/Indicators

- STAT – Staus of Ports Connectivity
- UTL – Bandwidth Utilisation
- FDUP- Full Duplex Mode set

STAT

- Green Steady – Device is connected and Fine
- Green Blink – Activity
- Amber – Something is wrong

UTL

- LEDs of ports 1- 4 on -- Between 0.1 and1.5Mbps
- LEDs of ports 5- 8 on -- Between 1.5 and 20Mbps
- LEDs of ports 9- 12 on -- Between 20 and 120Mbps

FDUP

Show you which ports are configured at full duplex
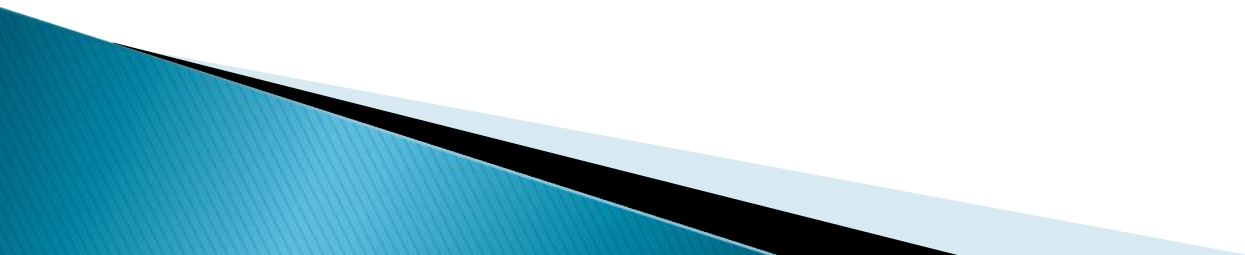
Connecting to Ethernet Port

- Use cat 5 Straight Through Cable for connecting the Nodes
- Lan Ports are 10/100 Mbps

Connecting to Uplink Port

- Use cat 5 Cross Over Cable for connecting the Switches
- Uplink ports are 100Mbps or more

Indications

When a device is connected to a port, the port-status LED light comes on and stays on

If the light does not come on, the other end might be off, or there might be a cable problem

Indications..

If a light goes on and off, there is a possible auto-speed and duplex problem

If you do not have a device connected to the switch, the port light will come on when booted, and then it will turn off.
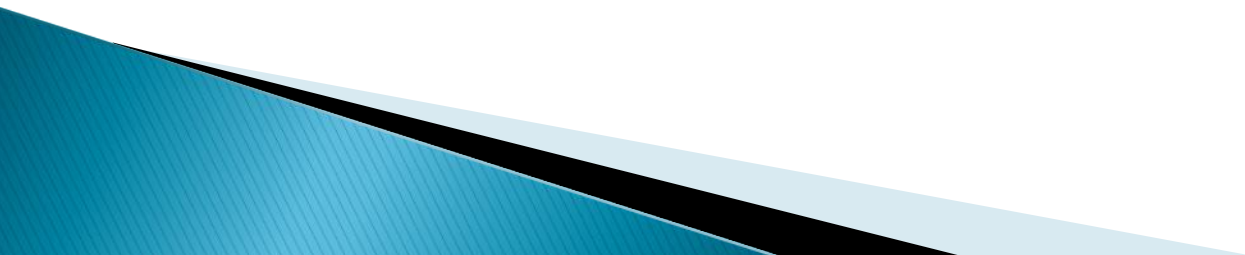
IOS Configuration Commands

1 user(s) now active on Management Console.

User Interface Menu

[M] Menus

[K] Command Line

[I] IP Configuration

Enter Selection:K

CLI session with the switch is open.

To end the CLI session, enter [Exit].

>

CLI Modes

- User Mode
- Privileged Mode
- Global Configuration Mode

Modes

\>

\>**enable**

\#

\#**config t**

Enter configuration commands, one per line. End with CNTL/Z

(config)#

Setting the Passwords

You can set

- The user mode passwords (Login pwd)
- The privileged mode passwords

used to verify authorization of the switch, including accessing any line and the console.

privileged mode passwords

used to allow access to the switch so that configuration can be viewed as well as changed

pwd

Passwords cannot be less than four characters or more than eight.

They are not case sensitive.

Setting User Mode pwd

\>

\>**enable**

\#**config t**

(config)#**enable password ?**

level Set exec level password

(config)#**enable password level ?**

<1-15> Level number

(config)#**enable password level 1 srinivas**

Setting User Mode pwd

(config)#**enable password level 1 srinivas**

Setting Privilege Mode pwd

\>

\>**enable**

\#**config t**

(config)#**enable password ?**

level Set exec level password

(config)#**enable password level ?**

<1-15> Level number

(config)#**enable password level 15 mcasu**

config)#

Setting Privilege Mode pwd

(config)#**enable password level 15 mcasu**

1 user(s) now active on Management Console.

User Interface Menu

[M] Menus

[K] Command Line

[I] IP Configuration

Enter Selection:K

Enter password:*****

CLI session with the switch is open. To end the CLI session, enter [Exit].

>**enable**

Enter password:****

#

Enable Secret Password

enable secret password is a more secure password and supersedes the enable password

Setting Enable Secret Password

(config)#**enable secret bhatsir**

use the command **show running-config** (**show run**) to see the current configuration on the switch

#sh run

Building configuration...

Current configuration:

Enable secret 5$1$FMFQ$wFVYVLYn2aXscfB3J95.w.

enable password level 1 "SRINIVAS"

Enable password level 15 "MCASU"

Setting Hostname

set a hostname on a switch so that you can identify the switch

User Interface Menu

[M] Menus

[K] Command Line

[I] IP Configuration

Enter Selection: **K**

Enter password: ********

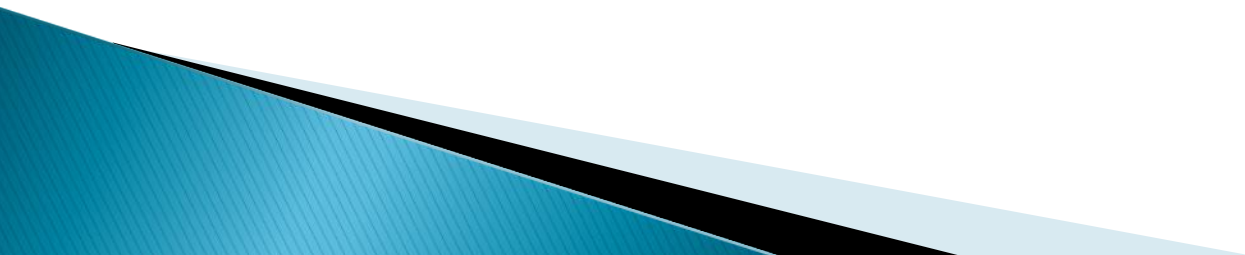CLI session with the switch is open. To end the CLI session, enter [Exit].

>**en**

Enter password:***

#config t

(config)#**hostname Todd1900EN**

Todd1900EN(config)#

Setting IP Information

You do not have to set any IP configuration on the switch to make it work.

two reasons to set IP address for switch

- To manage the switch via Telnet
- To configure the switch with different VLANs and other network functions

default settings on switch

IP address and default gateway: 0.0.0.0

CDP: Enabled

Switching Mode: Fragment Free

100BaseT ports: Auto-negotiate duplex mode

10BaseT ports: Half duplex

Spanning Tree: Enabled

Console password: Not set

By default, no IP address or default-gateway information is set

By typing the command **show ip** (or **sh ip**), you can see the default IP configuration of the switch.

Todd1900EN#**sh ip**

IP Address: 0.0.0.0 Subnet Mask: 0.0.0.0

Default   Gateway: 0.0.0.0   Management   VLAN: 1
   Domain name:

Name server 1: 0.0.0.0

Name server 2: 0.0.0.0

HTTP server : Enabled   HTTP port : 80

RIP : Enabled

To set IP configuration

Todd1900EN(config)#**ip address 172.16.10.16 255.255.255.0**

To set IP default-gateway

Todd1900EN(config)#**ip default-gateway 172.16.10.1**

Todd1900EN#**config t**

Enter configuration commands, one per line.

End with CNTL/Z

Todd1900EN(config)#**ip   address   172.16.10.16 255.255.255.0**

Todd1900EN(config)#**ip default-gateway 172.16.10.1**

Todd1900EN(config)#

Todd1900EN#**sh ip**

IP Address: 172.16.10.16 Subnet Mask: 255.255.255.0
   Default Gateway: 172.16.10.1 Management VLAN: 1

Domain name:

Name server 1: 0.0.0.0 Name server 2: 0.0.0.0

HTTP server: Enabled HTTP port : 80

RIP: Enabled

Todd1900EN#

Configuring Switch Interfaces

The **interface** command Allows you to set interface-specific configurations.

Configuring Switch Interfaces

switch uses the **type slot/port** command.

For example,

- **Ethernet 0/3** is 10BaseT port 3
- **Fast Ethernet 0/26** is 100BaseT port 26

Configuring 10BaseT Interfaces

Todd1900EN#**config t**

Todd1900EN(config)#**int ethernet ?**

<0-0> IEEE 802.3

Todd1900EN(config)#**int ethernet 0?**

/

Todd1900EN(config)#**int ethernet 0/?**
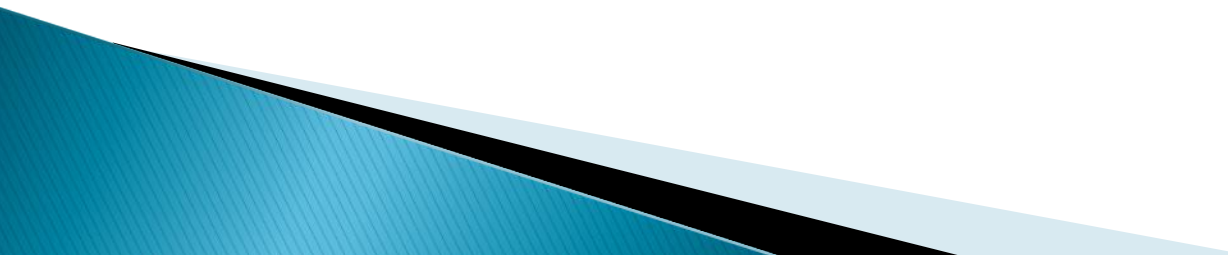
 <1-25> IEEE 802.3
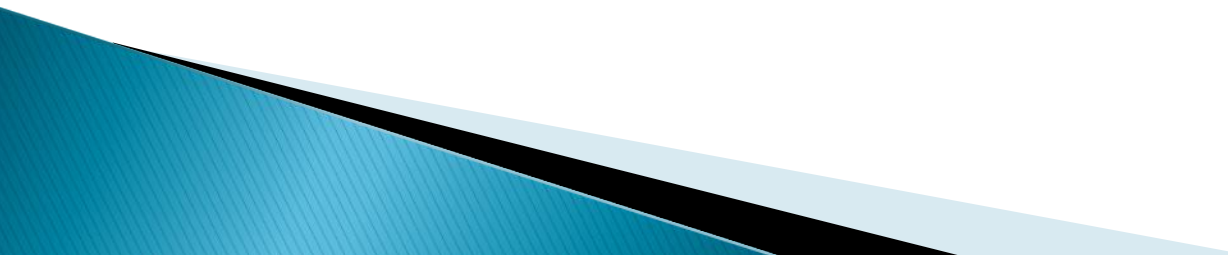
Todd1900EN(config)#**int ethernet 0/1**

Todd1900EN(config-if)#

Interface configuration commands

- cdp
- description
- duplex
- exit
- help

Interface configuration commands..

- no
- port
- shutdown
- span tree
- Vlan-membership

Interface Descriptions

Administratively set a name for each interface

You cannot use spaces with the description command
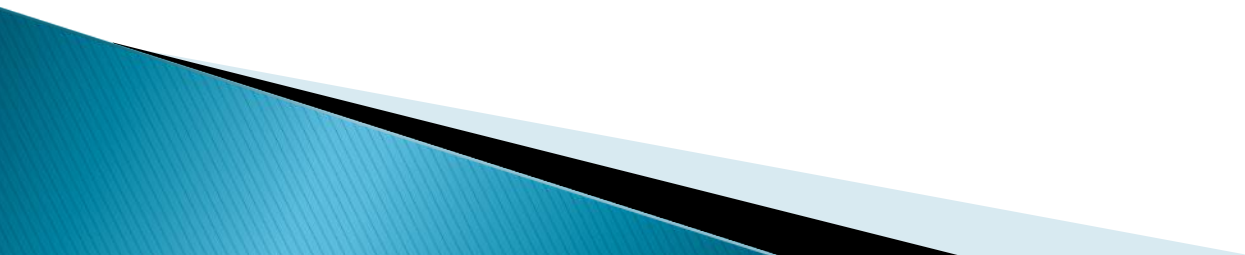
Configuring Interface Descriptions

Todd1900EN(config)#**int e0/1**

Todd1900EN(config-if)#**description Finance_VLAN**

Todd1900EN(config-if)#**int f0/26**
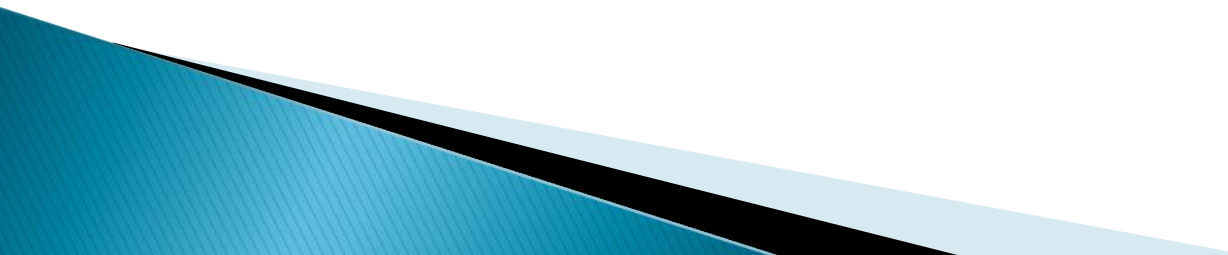
Todd1900EN(config-if)#**description trunk_to_Building_4**

Todd1900EN(config-if)#

Viewing Descriptions

View the different interfaces with the **show interface** or **show running-config** command.

Viewing Descriptions

Todd1900EN#**sh int e0/1**

Hardware
is Built-in 10Base-T

Address is 0030.80CC.7D01

MTU 1500
bytes, BW
10000 Kbits

802.1d STP State:
Forwarding

Todd 1900EN#**sh run**

Building configuration...

Current configuration: hostname "Todd1900EN"!

ip address 172.16.10.16 255.255.255.0 ip default-gateway 172.16.10.1!

interface Ethernet 0/1

description "Finance_VLAN"!

Configuring Port Duplex

Todd1900EN(config)#**int f0/26**

Todd1900EN(config-if)#**duplex ?**

Auto

Full

full-flow-control

Half

Duplex Options

Auto : Set the port into auto-negotiation mode. Default for all 100BaseTX ports.

Full : Forces the ports into full-duplex mode.

Full-flow-control : Works only with 100BaseTX ports, uses flow control

Half : Forces the ports to work only in half-duplex mode, Default for 10BaseT ports.

Once you have the duplex set, you can use the show interface command to view the duplex configuration.

Todd1900EN(config-if)#**duplex full**

Todd1900EN#**sh int f0/26**

Hardware is Built-in 100Base-TX

Address is 0030.80CC.7D1A

MTU 1500bytes, BW 100000 Kbits

802.1d STP State: Blocking

Forward Transitions: 0

Port monitoring: Disabled

Unknown unicast flooding: Enabled

Unregistered multicast flooding: Enabled

Description: trunk_to_Building_4

Duplex setting: Full duplex

Back pressure: Disabled

Verifying IP Connectivity

You can use the **Ping** pro-gram, and you can **telnet** into switch.

Verifying IP Connectivity..

Todd1900EN#**ping 172.16.10.10**

Sending 5, 100-byte ICMP Echos to 172.16.10.10, time out is 2 seconds:!!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max 0/2/10/ ms

Erasing the Switch Configuration

switch configuration is stored in NVRAM

To delete the contents of NVRAM on a 1900 switch, use the **delete nvram** command.

Erasing the Switch Configuration..

Todd1900EN#**delete nvram**

Reset system with factory defaults, [Y]es or [N]o?Yes

Todd1900EN#

Delete Command resets the switch with factory defaults

Managing MAC Address Table

Switches create a MAC table that includes dynamic, permanent, and static addresses

As hosts are added or removed, the switch dynamically updates the MAC filter table

View MAC Address Table

You can see the switch's filter table by using the command **show mac-address-table**

Todd1900EN#**sh mac-address-table**

Number of permanent addresses : 0
Number of restricted static addresses : 0
Number of dynamic addresses : 4

Address	Dest Int	Type	Source Int
00A0.246E.0FA8	Ethernet 0/2	Dynamic	All
0000.8147.4E11	Ethernet 0/5	Dynamic	All
0000.8610.C16F	Ethernet 0/1	Dynamic	All
00A0.2448.60A5	Ethernet 0/4	Dynamic	All

You can also clear the MAC filter table by using the **clear mac-address-table** command.

You can clear dynamic, permanent, and restricted static addresses

Permanent MAC Address Entries

Administrators can specifically assign permanent addresses to a switch port.

These addresses are never aged out.

You can do this to provide security to a port
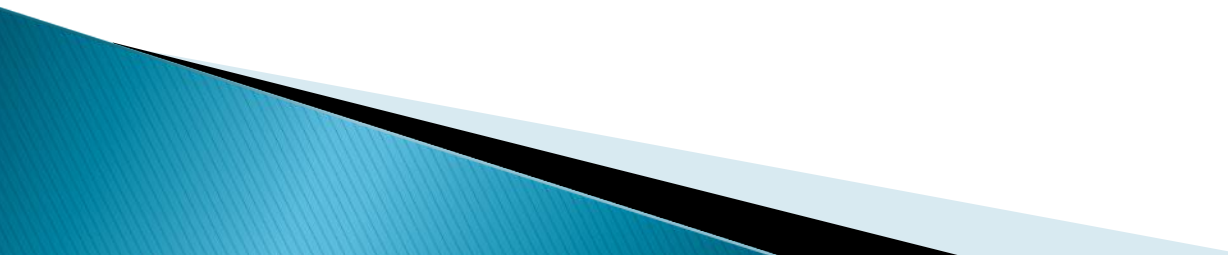
Setting Permanent MAC Address

You can configure a permanent MAC address to a switch port by using command

mac-address-table **permanent** [mac-address] [interface].

After you choose the **mac-address-table permanent** command, add the hardware address and the interface it is associated with.

Setting Permanent MAC Address

Todd1900EN(config)#**mac-address-table permanent ?**

48 bit hardware address

Todd1900EN(config)#**mac-address-table permanent   00A0.2448.60A5   e0/4**

Permanent MAC Address Entries

This will tresrict the interface **e0/4** to only accept frames from **00A0.2448.60A5** source hardware address.

verify the entry

Todd1900EN#**sh mac-address-table**

Number of permanent addresses : 1

Number of restricted static addresses : 0

Number of dynamic addresses : 3

Address	Dest Int	Type	Source Int
00A0.2448.60A5	Ethernet 0/4	Permanent	All
0000.8147.4E11	Ethernet 0/5	Dynamic	All
0000.8610.C16F	Ethernet 0/1	Dynamic	All
00A0.246E.0FA8	Ethernet 0/2	Dynamic	All

Setting Static MAC Address Entries

Use the command
mac-address-table restricted static

This command requires three parameters

The first one is the hardware address of the destination inter-face.

Second is the interface no associated with this hardware add

Third option will be the source interface that is allowed to communicate with this destination interface.

Todd1900EN(config)#**mac-address-table   restricted
static ?**

  48 bit hardware address

Todd1900EN(config)#**mac-address-table   restricted
static 00A0.246E.0FA8 ?**

  Ethernet   IEEE 802.3
  Fast EthernetFast Ethernet IEEE 802.3

Once you add the hardware address of the destination device, add the interface address this destination hardware address is associated with.

Todd1900EN(config)#**mac-address-table   restricted static ?**

  48 bit hardware address

Todd1900EN(config)#**mac-address-table   restricted static 00A0.246E.0FA8 ?**
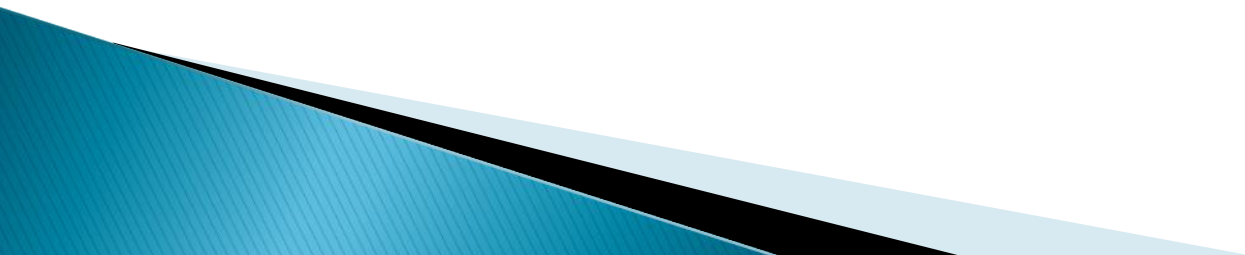
  Ethernet   IEEE 802.3

  Fast Ethernet Fast Ethernet IEEE 802.3

Todd1900EN(config)#**mac-address-table   restricted static 00A0.246E.0FA8   e0/2   ?**
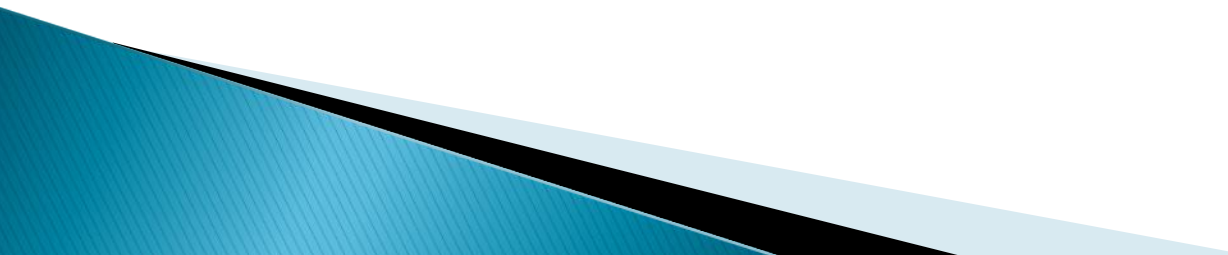
Ethernet   IEEE 802.3

Fast Ethernet   Fast Ethernet IEEE 802.3

Now that you have entered the destination information, enter the source interface that is allowed to communicate with the destination address.

Todd1900EN(config)#**mac-address-table** **restricted static 00A0.246E.0FA8 e0/2 e0/5**

Sh mac

Address	Dest Int	Type	Source Int
00A0.2448.60A5	Ethernet 0/4	Permanent	All
00A0.246E.0FA8	Ethernet 0/2	Static	e0/5
0000.8610.C16F	Ethernet 0/1	Dynamic	All
0000.8147.4E11	Ethernet 0/5	Dynamic	All

This command has restricted interface 0/5 to only send frames to interface 0/2 using the destination hardware address 00A0.246E.0FA8.

Configuring Port Security

a way of stopping users from plugging a hub into their jack in their office and adding a bunch of hosts without your knowl-edge.

By default, 132 hardware addresses can be allowed on a single switch interface.

Configuring Port Security

To change this, use the interface command
 port secure max-mac-count

Configuring Port Security

Todd1900EN(config)#**int e0/2**

Todd1900EN(config-if)#**port secure ?**

max-mac-count Maximum number of addresses allowed
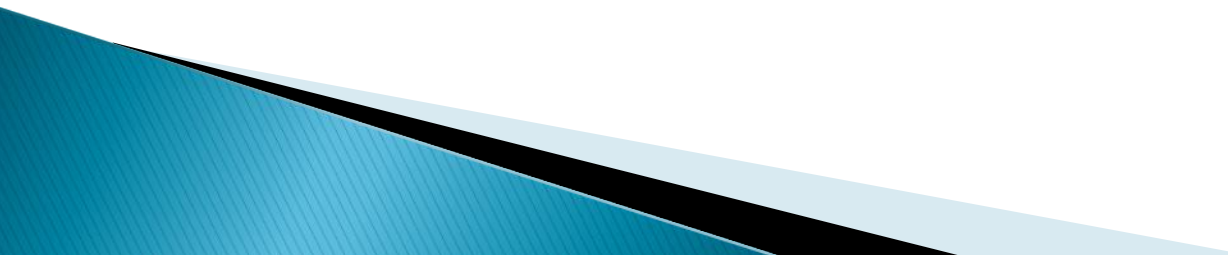on the port

<cr>

Todd1900EN(config-if)#**port secure max-mac-count ?**

<1-132> Maximum mac address count for this secure
port

Todd1900EN(config-if)#**port secure max-mac-count 1**

The secured port or ports you create can use either **static** or **sticky-learned** hardware addresses.

If the hardware addresses on a secured port are not **statically** assigned, the port **sticky-learns** the source address of incoming frames and automatically assigns them as permanent addresses.
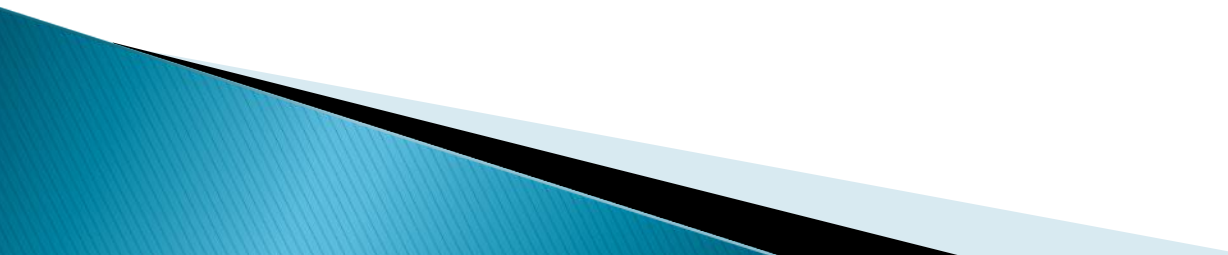
Sticky-learns

Sticky-learns is a term Cisco uses for a port dynamically finding a source hardware address and creating a permanent entry in the MAC filter table.

You can use the show version command to view basic information about the switch.

This includes how long the switch has been running, the IOS ver-sion, and the base MAC address of the switch.

Todd1900EN#**sh ver**

Cisco Catalyst 1900/2820 Enterprise Edition Software Version V9.00.00

Copyright (c) Cisco Systems, Inc. 1993-1999

Todd1900EN uptime is 0day(s) 03hour(s) 37minute(s) 15second(s)

cisco Catalyst 1900 (486sxl) processor with 2048K/1024K bytes of memory

Hardware board revision is 5

Upgrade Status: No upgrade currently in progress.

Config File Status: No configuration upload/download is in progress

Switch Mode/Type

You can see the LAN switch mode/type by using the **show port system** command.

Modes/Types are

- **Store-and-forward**
- **Fragment Free**.

1900EN#**sh port system**

Switching mode: Fragment Free

Use of store and forward for multicast: Disabled
  Network port: None

Half duplex backpressure (10 Mbps ports): Disabled

Enhanced Congestion Control (10 Mbps ports): Disabled

Default port LED display mode: Port Status
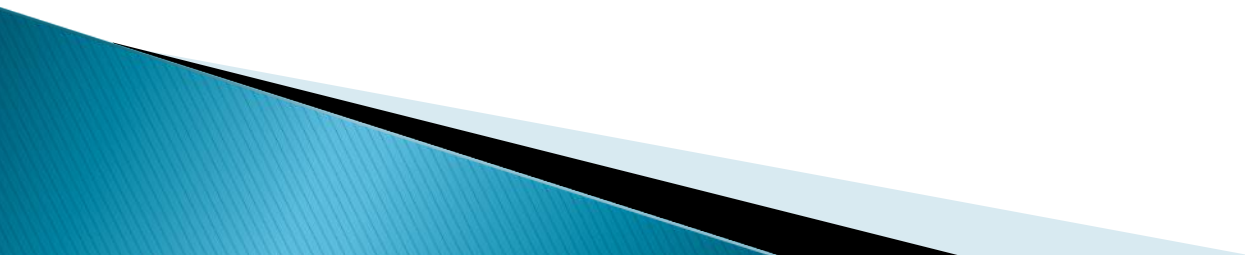
Changing Switch Mode/Type

1900EN(config)#**switching-mode ?**

fragment-free Fragment Free mode
store-and-forward Store-and-Forward mode

1900EN(config)#**switching-mode store-and-forward**
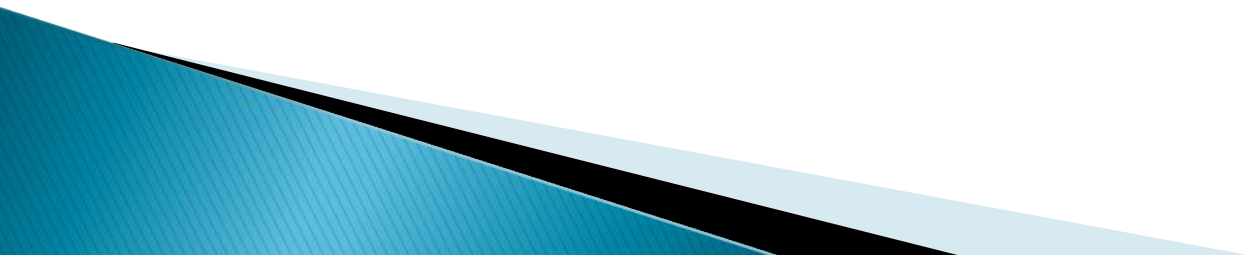
If you change the LAN switch type, you change it for all ports on the switch.

Configuring VLANs

Decide the number of VLANs to create

Decide the users that will be members of VLAN.

Configuring VLANs

(config)#**hostname 1900EN**

1900EN(config)#**vlan 2 name sales**

1900EN(config)#**vlan 3 name marketing**

1900EN(config)#**vlan 4 name mis**

1900EN(config)#**exit**

you can use the show vlan command to see the configured VLANs.

1900EN#**sh vlan**

sh vlan

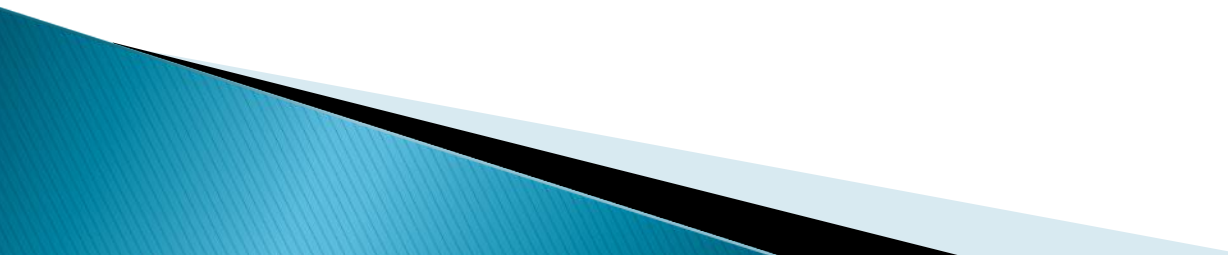| VLAN	Name	Status	Ports
1	Default	Enabled	1-12, AUI, A, B
2	Sales	Enabled	
3	Marketing	Enabled	
4	Mis	Enabled	

Assigning Switch Ports to VLANs

You can configure each port to be in a VLAN by using **vlan-membership** command.

you can configure either static memberships or dynamic memberships on a port

Assigning Switch Ports to VLANs

- 1900EN#**config t**
- 1900EN(config)#**int e0/2**
- 1900EN(config-if)#**vlan-membership ?**

- Dynamic: Set VLAN membership type as Dynamic
- Static: Set VLAN membership type as Static

Assigning Switch Ports to VLANs

- 1900EN(configif)#**vlan-membership static ?**
- <1-1005> ISL VLAN index

- 1900EN(config-if)#**vlan-membership static 2**
- 1900EN(config-if)#**exit**
- 1900EN(config)#**int e0/4**
- 1900EN (config-if)#**vlan-membership static 3**
- 1900EN(config-if)#**exit**
- 1900EN(config) #**int e0/5**
- 1900EN(config-if)#**vlan-membership static 4**

show vlan

- VLAN   Name   Status   Ports
- 1   Default   Enabled 1,3,6-12, AUI, A, B
- 2   Sales   Enabled   2
- 3   Marketing Enabled   4
- 4   Mis   Enabled   5

- 1900EN#**sh vlan 2**

- VLAN Name   Status   Ports VLAN Type   SAID MTU

- 2 Sales   Enabled 2 Ethernet 100002   1500

‣Another command you can use to see the ports assigned to a VLAN is show vlan-membership.

#show vlan-membership

- Port   VLAN   Membership
- 1   1   Static
- 2   2   Static
- 3   1   Static
- 4   3   Static
- 5   4   Static
- 6   1   Static
- 7   1   Static

Configuring Trunk Ports

▶ To configure trunking on a Fast Ethernet port, use the inter-face command **trunk** [parameter]

Configuring Trunk Ports

- 1900EN#**config t**
- 1900EN (config)#**int f0/26**
- 1900EN (config-if)#**trunk ?**
- Auto   Set DISL state to AUTO
- Desirable   Set DISL state to DESIRABLE
- no negotiate   Set DISL state to NONEGOTIATE
- Off   Set DISL state to OFF
- On   Set DISL state to ON

- 1900EN(config-if)#**trunk on**

Clearing VLANs from Trunk Links

▸All VLANs are configured on a trunked link unless cleared by an administrator.

▸Use clear trunk command if you don't want a trunked link to carry VLAN information

- To delete VLANs from a trunk port, use the interface command no trunk-vlan

- 1900EN(config-if)#no trunk-vlan ?
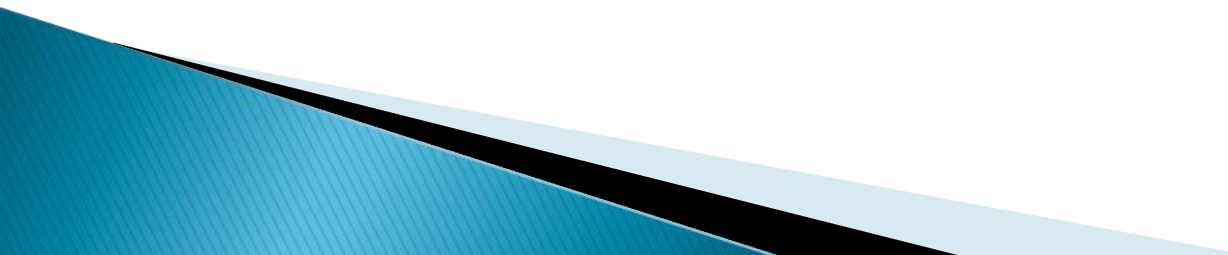- <1-1005> ISL VLAN index

- 1900EN(config-if)#no trunk-vlan 5

Verifying Trunk Links

- To verify your trunk ports, use the **show trunk** command.

- To see statistics on only one trunk port, you can use the **show trunk** [port_number] command.

- 1900EN#**sh trunk ?**
- A Trunk A
- B Trunk B
-
- 1900EN#**sh trunk a**
- DISL state: Auto, Trunking: On, Encapsulation type: ISL

▸To see which VLANs are allowed on a trunked link, use the **show trunk [A or B] allowed-vlans** command.

- 1900EN#**sh trunk a ?**
- Allowed-vlans Display allowed vlans
- Joined-vlans   Display joined vlans
- Joining-vlans   Display joining vlans
- Prune-eligible Display pruning eligible vlans

- 1900EN#**sh trunk a allowed-vlans**
- 1-4, 6-1004

Routing between Vlans

Two options

- Having a router with as many interface as the number of vlans defined

- Configuring ISL Routing on Routers one interface
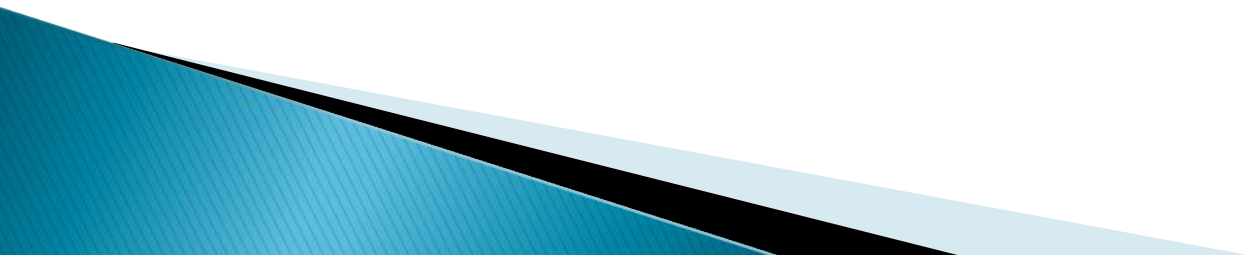
FIGURE 6.3 Switches removing the physical boundary
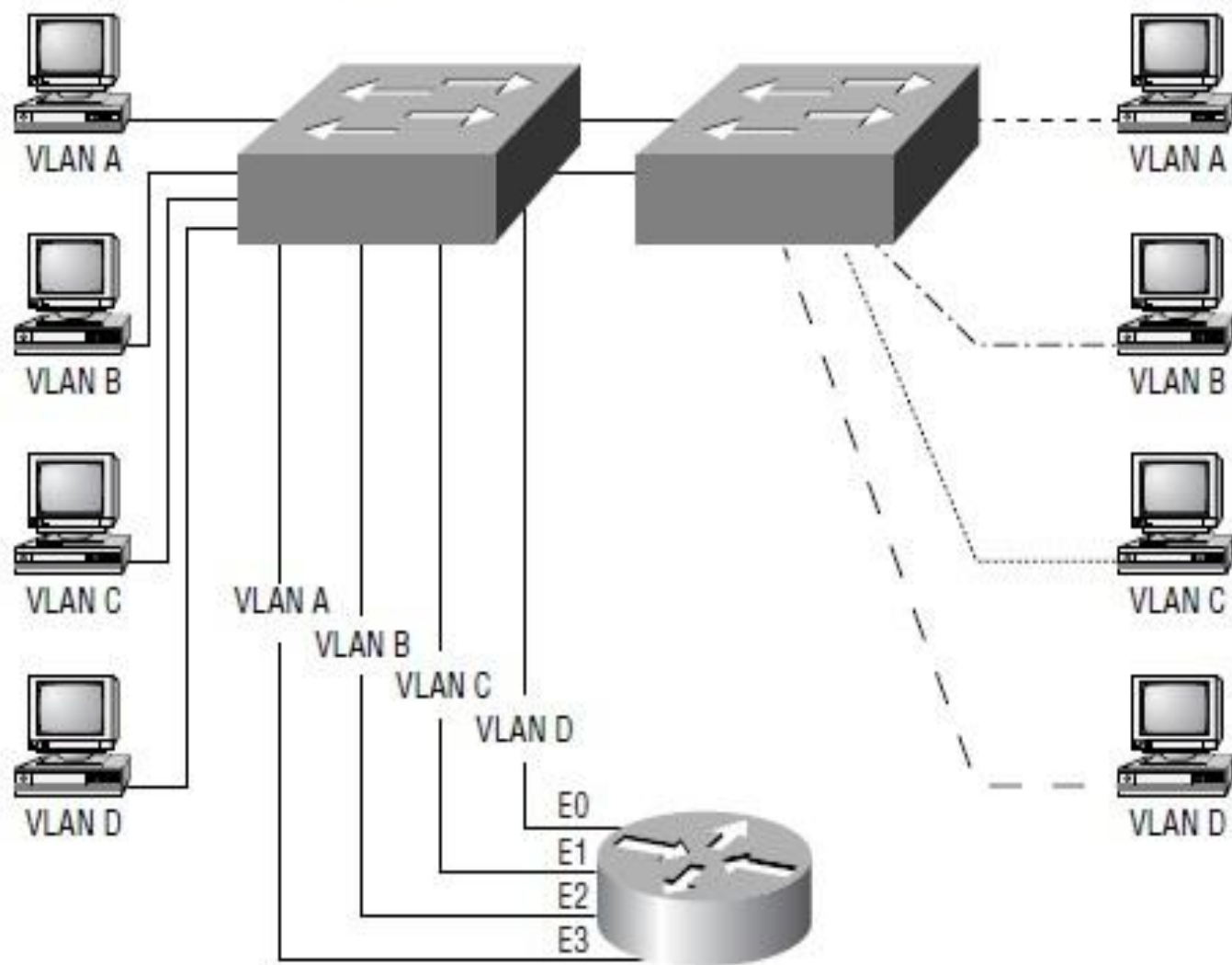
ConfiguringISL Routing

To support ISL routing on one FastEthernet interface, the router's interface is divided into logical interfaces (*sub-interfaces*), one for each VLAN.

Configuring ISL Routing

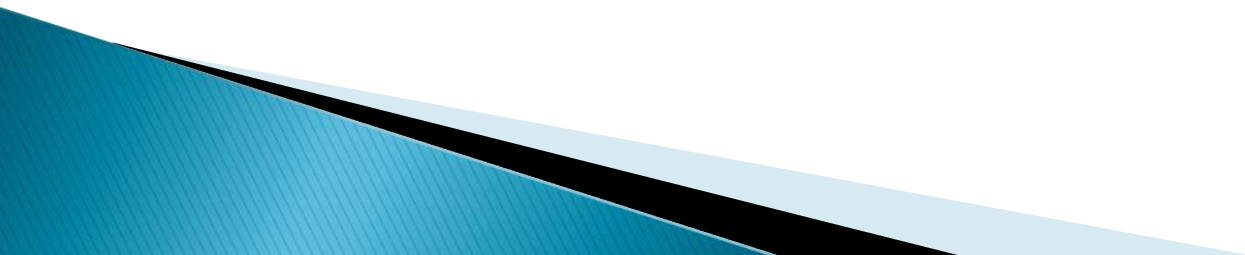Since we have four VLANs, we need four subinterfaces.

Each one of the VLANs is a separate subnet

Following subnet we will use for each vlan

VLAN 1	default	172.16.10.0/24
VLAN 2	sales	172.16.20.0/24
VLAN 3	marketing	172.16.30.0/24
VLAN 4	mis	172.16.40.0/24

Each of the hosts in their VLAN must use the same subnet addressing

To configure the **router-on-a-stick** for inter-VLAN routing, you need to complete three steps

1)Enable ISL trunking on the switch port the router
 connects to

1) Enable ISL encapsulation on the router's sub
 interface.

1) Assign an IP address to the sub interface

Createing a sub-interface

2621#**config t**

2621(config) **int f0/0.1**

2621(config-subif)#

To configure ISL routing on a sub interface, use the command encapsulation isl [vlan-number]

2621(config-subif)# encapsulation isl 1

Assign an IP address to the sub interface.

2621(config-subif)# ip address 172.16.10.1
255.255.255.0

FOR VLAN 1

2621#**config t**

2621(config) **int f0/0.1**

2621(config-subif)# **encapsulation isl 1**

2621(config-subif)# **ip address 172.16.10.1**
255.255.255.0

FOR VLAN 2

2621#**config t**

2621(config) **int f0/0.2**

2621(config-subif)# **encapsulation isl 2**

2621(config-subif)# **ip address 172.16.20.1**

                          255.255.255.0

FOR VLAN 3

2621#**config t**

2621(config) **int f0/0.3**

2621(config-subif)# **encapsulation isl 3**

2621(config-subif)# **ip address 172.16.30.1**
                            255.255.255.0

FOR VLAN 4

2621#**config t**

2621(config) **int f0/0.4**

2621(config-subif)# **encapsulation isl 4**

2621(config-subif)# **ip address 172.16.40.1**
255.255.255.0

2621(config)#**int f0/0**
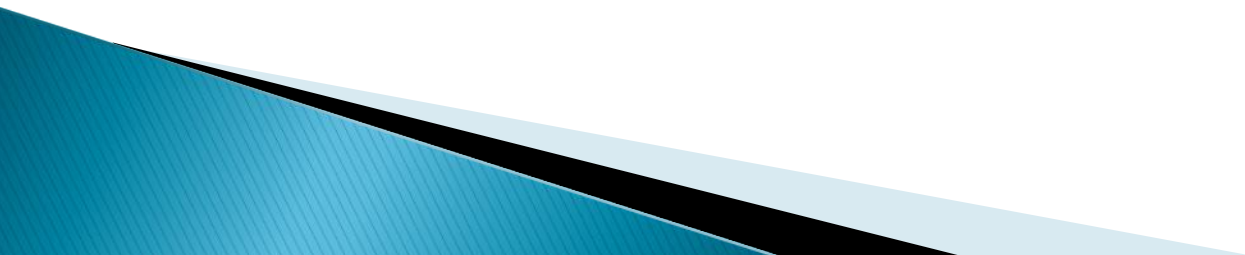2621(config-if) **no shutdown**

Notice, however, that each sub interface is in a separate subnet

Configuring VTP

switch is configured by default to be a VTP server

You have the option to set the domain name, password, operating mode, and pruning capabilities of the switch

Todd1900EN(config)#**vtp ?**
 Client: VTP client
 domain: Set VTP domain name
 password: Set VTP password
 pruning: VTP pruning
 server: VTP server
 transparent: VTP transparent
 trap: VTP trap

Configuring VTP

Todd1900EN(config)#**vtp server**

Todd1900EN(config)#**vtp domain lammle**

Todd1900EN(config)#**vtp password todd**

After you configure the VTP information, you can verify it with the **show vtp** command.

Todd1900EN#**sh vtp**

VTP version: 1

Configuration revision:0

Maximum VLANs supported locally: 1005

Number of existing VLANs:5

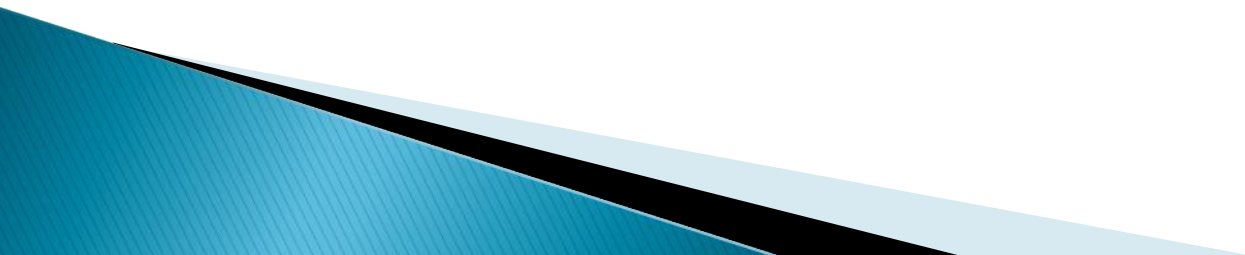VTP domain name:lammle

VTP password:Todd

VTP operating mode:Server

VTP pruning mode:Disabled

VTP traps generation:Enabled

Adding to a VTP Domain

You need to be careful when adding a new switch into an existing domain

Cisco recommends that you delete the VTP database before adding a switch to a VTP domain

VTP information has its own NVRAM

To delete the VTP informa-tion configured on a switch, you must use the delete vtp command.

Todd1900EN#**delete ?**

Nvram: NVRAM configuration
Vtp: Reset VTP configuration to defaults

Todd1900EN#**delete vtp**

VTP Pruning

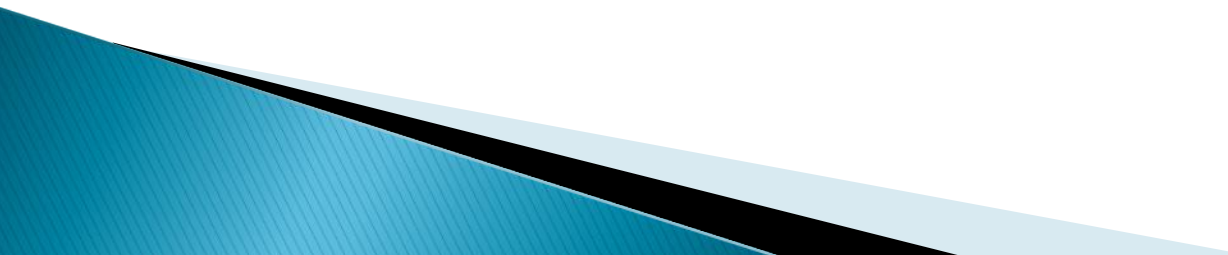Todd1900EN(config)#**vtp pruning ?**

Disable: Disable VTP pruning
Enable: Enable VTP pruning

Todd1900EN(config)#**vtp pruning enable**

Notice that you turn VTP pruning on for the whole switch.

This will not send VTP broadcasts down a trunked link if no VLANs configured on this switch are present down the link.

Restoring/Upgrading IOS

You can upgrade or restore the IOS on Cisco switches

The command to upgrade or restore

copy tftp://tftp_host_address/IOS_filename opcode

copy tftp://tftp_host_address/IOS_filename opcode

copy tftp tells the switch to copy an IOS from a TFTP host.

 //tftp_host_address is the address of the TFTP host

IOS_filename is the IOS file stored in your TFTP default directory

opcode is the command that tells the router to download the file to flash memory

1900B#**copy tftp://192.168.0.120/cat1900EN_9_00.bin opcode**

TFTP operation succeeded

1900B#

Backing up and Restoring

The configuration file for a Cisco switch is just called nvram.

The command to copy the file to a TFTP host is
copy nvram tftp://tftp_host_address/config_name

1900B#**copy nvram tftp://192.168.0.120/1900en**

Configuration upload is successfully completed

You can restore a configuration back to a switch from a TFTP host by using the following command:

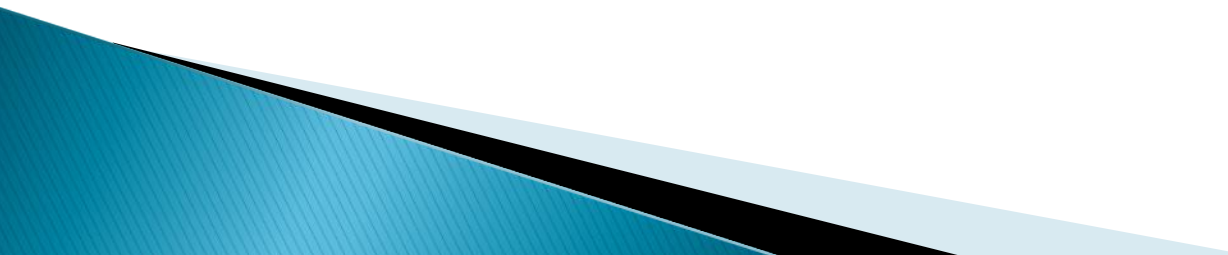**copy tftp://tftp_host_address/config_name nvram**

You need to know the filename as well as the IP address of the TFTP host

1900B#**copy tftp://192.168.0.120/1900en nvram**
TFTP successfully downloaded configuration file

1900B#**delete nvram**

This command resets the switch with factory defaults.

All system parameters will revert to their default factory settings.

CDP with Switch

CDP works with all Cisco device

switch#**sh cdp**

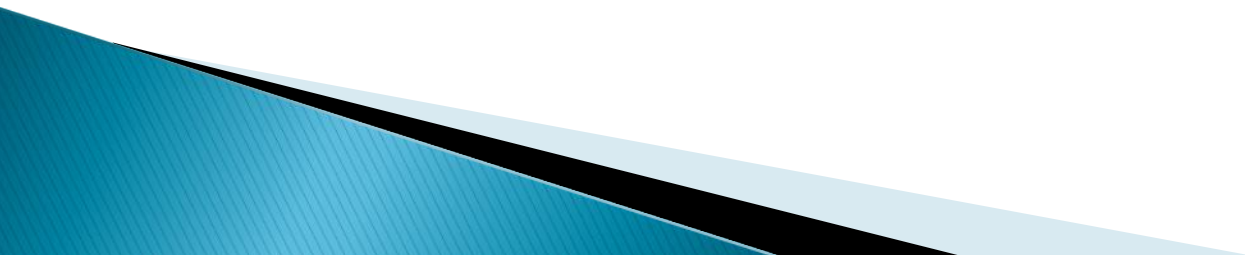Global CDP information: CDP version: 2

Sending CDP packets every 60 seconds

sending a hold time value of 180 seconds

#

Both the router and the switch have a CDP timer of 60 seconds and a hold time of 180 seconds.

This means that CDP information received from neighbour routers will be kept for 180 seconds.

Configuring CDP

You can change the timers on both devices with the **cdp timer** and **cdp hold time** commands

switch(config)#cdp timer 90

switch(config)#cdp hold time 240

switch#sh cdp

Global CDP information: CDP version: 2

Sending CDP packets every 90 seconds

sending a hold time value of 240 seconds

Assignments..