User EXEC	S1>	
Privileged EXEC	S1#	**Enable**
Global Configuration	S1(config)#	**Config T**
Interface Configuration	S1(config-if)#	**Int *interface id***
Config-vlan	S1(config-vlan)#	**vlan *vlan-id***
VLAN configuration	S1 (vlan)#	From privileged EXEC mode, enter **vlan database**
Line configuration	S1 (config-line)#	From global configuration mode, enter **line *line id (console 0, vty 0 4)***

S1(config-line)# Logging synchronous	Router information will not interrupt your commands
S1(config)# no ip domain-lookup	Turns off DNS so spelling mistakes do not slow you down

S1# show version	Shows information about the software and hardware
S1# show flash:	Shows information about the flash memory
S1# show mac-address-table	Shows the current MAC address forwarding table
S1# show running-config	Shows the current configuration in RAM
S1# show startup-config	Shows the current configuration in NVRAM
S1# show vlan *brief*	Shows the current vlan configuration with *brief* as an option
S1# show interfaces	Shows the interface configuration and status of the lines
S1# show interface vlan1	Shows the setting of virtual interface VLAN 1, the switch default VLAN

S1# delete flash:vlan.dat	Removes the vlan database from flash memory
S1# erase start-up config	Erases the startup configuration from NVRAM
S1# reload	Restarts the switch

S1(config)# hostname *name*	Sets the switch name
S1(config)# enable password class	Sets the enable password to “class”
S1(config)# enable secret class	Sets the enable password to “class” and encrypts the password
S1(config)# service password-encryption	Encrypts all passwords on the device

S1# clock set 08:55:00 05 NOV 2013	hh.mm.ss day month year (month alpha, not numeric)
S1# show clock	8:55:12.488 UTC Tue Nov 5 2013

S1(config)#banner motd # banner text #	Sets the connection banner where # is a delimiting character not in the banner string
S1(config)#banner login # banner text #	Before login but after the motd message
S1(config)#banner exec # banner text #	After login when entering EXEC mode

S1 (config)# line console 0 or vty 0 – 4	Enters line configuration mode
S1 (config-line)# password cisco	Set the line password to “cisco”
S1 (config-line)# login	Enables/requires password checking

S1(config)# interface vlan1	Enters the virtual interface for VLAN 1, the default VLAN
S1(config)# interface vlan 99	Creates the VLAN 99 interface and enters interface configuration mode
S1(config-vlan)# name FINANCE	Names the VLAN “FINANCE”
S1(config-if)# no shutdown	Enables the VLAN
S1(config-if)# ip address a.b.c.d s.s.s.s	Sets the IP address and SN mask for remote access to the switch
S1 (config)# ip default-gateway a.b.c.d	Sets the default gateway which allows information to pass the local network
S1(config-if)# description FINANCE	Adds the description “FINANCE” to the interface

S1(config-if)#duplex *(full, half, auto)*	Forces the interface duplex operation
S1(config-if)# Speed (10, 100, auto)	Forces the interface speed operation

S1# show mac address-table	Displays the MAC address table
S1# clear mac address-table	Deletes all entries from the MAC address table
S1# clear mac address-table dynamic	Deletes ONLY DYNAMIC entries from the MAC address table

S1# show flash:	Shows information about the flash memory including boot files
S1# dir flash:	Shows the files stored in flash
S1(config)# boot system flash:*filename*	Configure to boot using a different IOS image

S1#copy startup-config tftp:	Backs up the startup-configuration to the TFTP server

S1(config)# mac address-table static aaaa.aaaa.aaaa vlan 99 int fa0/1	Sets a static MAC address for port fa0/1 in VLAN 99
S1(config)# **no** mac address-table static aaaa.aaaa.aaaa vlan 99 int fa0/1	Removes the static MAC address table entry
S1(config-if)# switchport mode access	Forces the port to be an access only, non-trunk port
S1(config-if)# switchport access vlan 99	Sets the interface to be a member of VLAN 99
S1(config-if)# switchport port-security	Enables port security on the interface
S1(config-if)# switchport port-security maximum *2*	Sets a max of 2 MAC addresses allowed on this port
S1(config-if)# switchport port-security mac-address aaaa.aaaa.aaaa	Sets a specific secure MAC address for the interface
S1(config-if)# switchport port-security violation _____	Modes are *(shutdown, restrict, protect)*
S1(config-if)# no shutdown	Reactivates a port that was shut down for security
S1(config-if)# switchport port-security mac-address sticky	Converts dynamic port security learned MAC addresses to sticky secure MAC addresses
S1# show port-security	Shows security information for ALL interfaces
S1# show port-security fa0/4	Shows security information for interface fa0/4
S1# show port-security address	Shows MAC address table security information
S1# show mac address-table	Shows the MAC address table
S1# clear mac address-table dynamic	Deletes all DYNAMIC MAC addresses
S1# clear mac address-table dynamic address aaaa.aaaa.aaaa	Deletes the specified dynamic MAC address
S1# clear mac address-table dynamic int fa0/4	Deletes all dynamic MAC address on fa0/4
S1# clear mac address-table dynamic vlan 22	Deletes all dynamic MAC address on VLAN 22
S1(config)# interface range fa0/1 – 24	Grabs a range of interfaces
S1(config-if-range)# switchport access vlan 99	Assigns the range to VLAN 99
S1# terminal history ##	Sets the command line buffer size—default is 10; CTL-P, CTL-N
S1# show history	Lists the last several commands you entered
S1(config-line)#history ##	Sets the command line buffer size—default is 10; CTL-P, CTL-N
S1(config)# ip domain-name *name of domain.*com	Creates a domain name
S1(config)# username admin privilege 15 secret sshadmin	Creates a local user database entry for connection via SSH
S1(config)# line vty 0 15	
S1(config-line)# transport input ssh	
S1(config-line)# login local	
S1(config)# crypto key generate rsa 1024	Generates a RSA crypto key using 1024 bits
S1# show ip ssh	Shows the SSH configuration
S1(config)# ip ssh time-out *75*	Sets the timeout setting to 75 seconds
S1(config)# ip ssh authentication-retries *2*	Sets the authentication attempts to 2

VLAN Configuration

S1(config)#**vlan 3**	Creates VLAN 3 and enters VLAN configuration mode
S1(config-vlan)#**name *Finance***	Assigns a 1 – 32 character name to the VLAN
S1(config)#**int fa0/1**	Moves to interface configuration mode
S1(config-if)#**switchport mode access**	Sets the port to access mode
S1(config-if)#**switchport access vlan 3**	Assigns this port to VLAN 3
S1(config)#**int range fa 0/1 – 9**	Let's you set parameters on multiple ports at the same time
S1(config-if-range)#**switchport mode access**	Sets the range of ports to access mode
S1(config-if-range)#**switchport access vlan 3**	Assigns the range of ports to VLAN 3
S1#**show vlan**	Displays VLAN information

S1#**show vlan brief**	Displays VLAN information in brief mode
S1#**show vlan id 3**	Displays VLAN 3 information only
S1#**show vlan name Finance**	Displays VLAN named Finance information only
S1#**show interfaces vlan *X***	Displays interface characteristics for the specified VLAN
S1#**show interfaces switchport**	Displays VLAN information for all interfaces

S1#**delete flash:vlan.dat**	Removes the entire VLAN database from flash
S1(config)#**int fa0/1**	Moves to interface configuration mode
S1(config-if)#**no switchport access vlan 3**	Removes the port from VLAN 3 and reassigns it to VLAN 1
S1(config)#**no vlan 3**	Removes VLAN 3 from the VLAN database

Trunking:	By default, a trunk port belongs to all VLANs
S1(config)#**int fa0/1**	Moves to interface configuration mode
S1(config-if)#**switchport mode dynamic desirable**	Interface actively attempts to convert the link to a trunk link which will happen if the neighbor interface is set to trunk, desirable or auto
S1(config-if)#**switchport mode dynamic auto**	Makes the interface able to convert into a trunk link
S1(config-if)#**switchport nonnegotiate**	Prevents generation of DTP frames
S1(config-if)#**switchport mode trunk**	Puts the interface into permanent trunking mode
S1(config-if)#**switchport trunk native vlan 99**	Specifies VLAN 99 as the native VLAN for untagged frames
S1(config-if)#**switchport trunk allowed vlan 10,20,30**	Sets the VLANS allowed on the trunk
S1(config-if)**switchport trunk allowed vlan remove 5-10,12**	Removes the VLANS from the trunk
S1(config-if)**no switchport trunk allowed vlan**	Resets all VLANS configured on the trunk interface
S1(config-if)**no switchport trunk native vlan**	Resets the native VLAN back to VLAN1
S1#**show interfaces trunk**	Displays information about the trunk interfaces

Router on a Stick:	Inter VLAN communication with a single router port
R1(config)#**int fa0/1.10**	Creates router sub interface fa0/1.10
R1(config-subif)#**encapsulation dot1q 10**	Assigns VLAN 10 to this router sub-interface
R1(config-subif)#**ip address 192.168.1.1 255.255.255.0**	Assigns router interface IP address and SN mask
R1(config-subif)#**interface fa0/1**	Returns to the main router interface
R1(config-if)#**no shut**	Enables (Brings it up) the router interface

For VTP, connecting switch ports must be configured as trunks

S1(Config)# **vtp** mode *server/client/transparent*	Changes the switch to VTP server or client or transparent mode
S1(Config)# no vtp mode	Returns the switch to default VTP server mode
S1(Config)# **vtp** domain *domain-name*	Sets the VTP domain name 1 – 32 characters long, case sensitive
S1(Config)# **vtp** password *password*	Sets the domain password, 1 – 32 characters long, case sensitive
S1(Config)# **vtp** v2-mode	Sets the VTP domain to version 2 (older IOS releases use **vtp version 2**)
S1(Config)# **vtp** pruning	Enables VTP pruning which is disabled by default
S1# show **vtp** status	Displays general VTP configuration information
S1# show **vtp** password	Displays the VTP password
S1# show **vtp** counters	Displays the VTP counters for the switch

S1(config-if)# spanning-tree cost *##*	Sets a spanning-tree port cost other than the default (no spanning-tree cost)
S1(config-if)# show spanning-tree [detail][vlan ##]	Shows spanning-tree info including port and path costs [detail] optional
S1(Config)# spanning-tree vlan *vlan-id* root [primary|secondary]	Forces switch to become the root bridge by making priority < others
S1(Config)# spanning tree vlan *vlan-id* priority #####	Forces a bridge priority value; lowest becomes root bridge
S1(config-if)# spanning-tree port-priority ##	Forces a port priority to ensure port is preferred port
S1(config-if)# spanning-tree portfast	Bypasses STP for an access port connected to an end-device

EtherChannel **(Three switch example with Core in the middle S1 ----- Core ----- S2)**

Core(config)# **int range fa0/1 – 4**	Moves to interface range configuration mode
Core(config-if-range)# **switchport trunk encapsulation dot1q**	Specifies dot1q on the trunk [**does not work in packet tracer**]
Core(config-if-range)# **switchport mode trunk**	Puts interface into permanent trunking mode
Core(config)# **int range fa0/1 - 2**	Moves to interface range configuration mode for ports 1 & 2
Core(config-if-range)# c**hannel-group 1 mode desirable**	Creates channel group 1 and assigns fa0/1 & fa0/2 for S1 to it
Core(config)# **int range fa0/3 – 4**	Moves to interface range configuration mode for ports 3 & 4
Core(config-if-range)# c**hannel-group 2 mode desirable**	Creates channel group 2 and assigns fa0/3 & fa0/4 for S2 to it

S1(config)# **int range fa0/1 – 2**	Moves to interface range configuration mode for S1
S1(config-if-range)# **switchport mode trunk**	Puts interface into permanent trunking mode
S1(config-if-range)# **channel-group 1 mode desirable**	Creates channel group 1 and assigns fa0/1 & fa0/2 to it

S2(config)# REPEAT THE STEPS FOR S1 EXCEPT USE **channel-group 2 mode desirable (note channel-group 2)**

S1(config-if-range)# **channel-protocol pagp**	Uses the Cisco PAgP proprietary protocol
S1(config-if-range)# **channel-group <*1*> mode <*auto/on/desirable*>**	Sets the PAgP port mode

S1(config-if-range)# **channel-protocol lacp**	Uses the Link Aggregation Control Protocol
S1(config-if-range)# **channel-group <2> mode <active/on/passive>**	Sets the LACP port mode

LACP Modes: Active – attempts to form a link; Passive – listens for LACP and will link but does not initiate; On – forces link without LACP or PAgP
Active-Active Recommended Yes; Active – Passive Yes; Passive-Passive No; On – On Works but not recommended

PAgP Modes: Desirable - active negotiation; Auto - listens for PAgP and will link but does not initiate; On – forces link without LACP or PAgP
Desirable – Desirable Yes; Desirable – Auto Yes; Auto – Desirable Yes; Auto – Auto No; On – On Works but not recommended