

### MAC Address Table Commands:

- `mac address-table aging-time 240` (config command that changes the default MAC address table ageout time to 240 seconds, or 4 minutes)
- `mac address-table static xxxx.xxxx.xxxx vlan 10 interface Gi1/0/1` (creates a manual MAC address table entry with the specified parameters)
- `clear mac address-table address xxxx.xxxx.xxxx` (clears the specified MAC address from the switch's MAC table)
- `show mac address-table` (displays the contents of the switch's Layer 2 MAC address table)
- `show mac address-table dynamic` (only displays non-static entries in the switch's MAC address table)
- `show mac address-table count` (displays the current CAM table size and count)

### TCAM/SDM Commands:

- `sdm prefer template-name` (changes the current SDM template to the one specified; takes effect after a reboot)
- `show platform tcam utilization` (shows the current TCAM utilization within the boundaries of the current SDM template)
- `show sdm prefer` (displays the details on the currently-defined SDM template)

### Transceiver Type Matrix

Name	Wiring Type	Pairs	Cable Max Length
100Base-TX	Category 5 UTP	2	100m
100Base-T2	Category 3,4,5 UTP	2	100m
100Base-T4	Category 3,4,5 UTP	4	100m
100Base-FX	Multimode Fiber (MMF), 62.5-micron core, 125-micron outer cladding	1	400m half duplex, 2000m full duplex
1000Base-CX	Shielded Twisted Pair (STP)	1	25m
1000Base-T	Category 5,5e,6, UTP	4	100m
1000Base-SX	MMF, 62.5-micron core & 850nm laser, or 50-micron core & 850nm laser	1	275m or 550m
1000Base-LX	MMF, 62.5-micron core & 1300nm laser, or 80-micron core & 1300nm laser	1	550m
1000Base-LH	Single-mode Fiber (SMF), 9-micron core & 1300nm laser	1	10km
1000Base-ZX	SMF, 9-micron core & 1550nm laser, or 8-micron core & 1550nm laser	1	70km or 100km
10GBase-SR	MMF, 50-micron & 850nm laser, or 62.5-micron & 850nm laser	1	66m or 33m
10GBase-LR	SMF, 9-micron & 1310nm laser	1	10km
10GBase-LRM	MMF, 62.5-micron & 850nm laser, or 50-micron and 1300nm laser	1	220m
10GBase-ER	SMF, 9-micron & 1550nm laser	1	40km
10GBase-LX4	MMF, 50-micron & 1310nm laser, or 62.5-micron & 1310nm laser	1	300m
10GBase-CX4	Copper with Infiniband connectors	4	15m

### Interface Commands:

- `define interface-range macro-name interface-range` (used to define a macro name for a large-scale interface range; can be referenced in commands)
- `interface range macro macro-name` (an example of an interface range command using a macro instead of a range specification)
- `speed 1000` (interface command that manually sets the Mb speed on an interface to 1000)
- `duplex half` (interface command that manually sets the interface to half duplex mode)
- `errdisable detect cause all` (config command that causes all possible error-disable statuses for an interface to actually cause an error disable)
- `errdisable recovery interval 3600` (config command that causes all error-disabled interfaces to automatically attempt to recover after 3600 seconds)
- `power inline auto` (interface command that turns on PoE at the default level for the port)
- `power inline auto max 6000` (interface command that statically sets automatic PoE power for the port to cap out at 6W)
- `show power inline interface-name detail` (displays detailed information about PoE usage for the specified interface)
- `show power inline` (displays all PoE power draws in use, and available overall power)

### General Switch Commands:

- `show dtp` (displays general DTP usage parameters on the switch)
- `show dtp interface interface-name` (shows detailed DTP information for the specified port)
- `show interface switchport` (displays the Layer 2 or 3 status of all ports on the switch)
- `show user all` (displays all lines that pertain to administrative access of a switch)
- `switchport` (interface command that converts the interface to being Layer 2 nonrouted)
- `udld enable` (global or interface command that enables the UDLD protocol)
- `udld aggressive` (global or interface command that enables UDLD and allows it to try and recover a degraded link)
- `udld reset` (used to reset an interface that has been error-disabled by UDLD aggressive mode)
- `service password-encryption` (global command that turns on password encryption of all passwords by default)
- `no ip http server` (disables any built-in stock HTTP web server administration of the switch that may have been there through the IOS version)
- `no ip http secure server` (same as the previous command, just for HTTPS and not HTTP)

### VTP Commands:

- `vtp version 3` (config command to change the current VTP version to version 3)
- `vtp domain domain-name` (changes the VTP domain name to the one specified)
- `vtp mode client` (changes the VTP operational mode from the default of 'server' to 'client')
- `vtp password password` (changes the VTP security password to the one specified)
- `vtp pruning` (global command that enables the VTP pruning capability)
- `show vtp status` (shows most of the related information to the current VTP usage, but does NOT show the VTP password)
- `show vtp password` (displays the current VTP password)

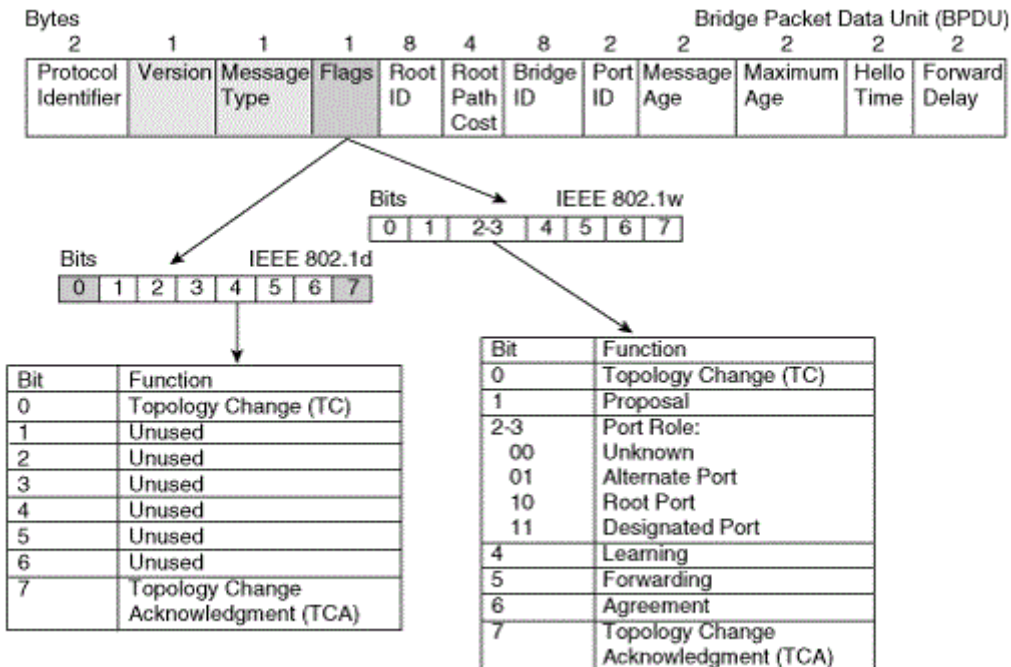
## VLAN Commands:

- switchport voice vlan dot1p *(interface command that forces the voice VLAN on a switch port to conform to 802.1Q trunking)*
- switchport voice vlan untagged *(interface command that forces the voice VLAN to be untagged; will still tag the data VLAN, if applicable)*
- switchport voice vlan none *(interface command that removes the option for a voice VLAN completely)*

## STP/RSTP Commands:

- spanning-tree vlan 5 *(interface or global command that manually enables Spanning Tree for VLAN 5)*
- spanning-tree extend system-id *(enables the extended VLAN range to allow 4096 VLANs to be used)*
- spanning-tree vlan 10 priority 4096 *(changes the default priority for VLAN 10 to '4096' in terms of root bridge election)*
- spanning-tree vlan 10 root primary *(will attempt to change the priority for VLAN 10 low enough to make it the root, if possible)*
- spanning-tree vlan 10 cost 100 *(interface command that manually sets the STP interface cost for VLAN 10 to '100')*
- spanning-tree vlan 10 port-priority 30 *(interface command that manually sets the port numerical priority for VLAN 10 to '30')*
- spanning-tree vlan 10 hello-time 5 *(interface or global command that manually sets the hello interval for VLAN 10 to 5 seconds)*
- spanning-tree vlan 10 forward-time 10 *(interface or global command that manually sets the forward interval for VLAN 10 to 10 seconds)*
- spanning-tree vlan 10 max-age 30 *(interface or global command that manually sets the maximum age for VLAN 10 STP to 30 seconds)*
- spanning-tree portfast *(interface command that turns on the PortFast capability)*
- spanning-tree portfast default *(global command that turns on PortFast for access interfaces by default)*
- spanning-tree uplinkfast *(global command that enables the STP UplinkFast feature)*
- spanning-tree backbonefast *(global command that enables the STP BackboneFast feature)*
- spanning-tree guard root *(interface command that enables RootGuard on the trunk)*
- spanning-tree bpduguard enable *(interface command that enables the BPDU Guard feature)*
- spanning-tree bpduguard default *(global command that enables the BPDU Guard features on all access interfaces by default)*
- spanning-tree guard loop *(interface command that enables the LoopGuard feature of Spanning Tree)*
- spanning-tree loopguard default *(global command that enables the Loop Guard feature on all compatible interfaces by default)*
- spanning-tree bpdupfilter default *(global command that enables BPDU Filtering by default; not recommended in most environments)*
- spanning-tree bpdupfilter enable *(interface command that enables the BPDU Filter feature)*
- spanning-tree mode rapid-pvst *(global command that changes the default STP protocol to Cisco's RPVST+ implementation)*
- show spanning-tree *(displays general status and port summary information regarding the current Spanning Tree implementation)*
- show spanning-tree interface interface-name *(similar to the previous command, but more port-specific)*
- show spanning-tree vlan vlan-id *(displays more specific information about VLAN operation for the Spanning Tree VLAN specified)*
- show spanning-tree uplinkfast *(displays status on all access ports currently running UplinkFast)*
- show spanning-tree backbonefast *(displays whether or not the BackboneFast feature is turned on)*
- show spanning-tree detail *(shows VERY detailed information about Spanning Tree and port status)*
- show spanning-tree inconsistentports *(displays any ports that are currently in the STP inconsistent state)*

## Spanning-Tree BPDUs Layout:



## Multiple Spanning Tree (MST) Commands:

- `spanning-tree mode mst` (config command that enables MST on the switch as the default STP instance type)
- `spanning-tree mst configuration` (config command that enters MST configuration mode)
- `name name` (MST mode command that declares a region configuration name)
- `revision 100` (MST mode command that manually sets the revisional number to '100')
- `instance 1 vlan 100-150` (MST mode command that ties VLANs 100 - 150 to instance '1' of MST; instances can be numbered 0 – 15)
- `show pending` (MST mode command that shows any pending changes; changes you make aren't applied until you exit MST config mode)
- `exit` (exits MST mode configuration and commits any outstanding changes)
- `spanning-tree mst 1 root primary` (config command that attempts to make this switch primary for MST instance '1')
- `spanning-tree mst 1 priority 4096` (config command that sets the STP priority for MST instance '1' to '4096')
- `spanning-tree mst 1 cost 100` (config command that manually sets the default port cost for MST instance '1' to '100')
- `spanning-tree mst 1 port-priority 10` (config command that manually sets the default MST instance '1' port priority to '10')
- `spanning-tree mst hello-time 10` (config command that sets the MST hello BPDU interval time to '10' seconds)
- `spanning-tree mst forward-time 40` (config command that sets the MST forwarding timer to '40' seconds)
- `spanning-tree mst max-age 60` (config command that sets the MST maximum age before timeout to '60' seconds)

### Port Channel Commands:

- `port-channel load-balance src-ip` (config command that globally forces the load balancing method for all Layer 3 channels to be source IP address)
- `port-channel load-balance src-mac` (config command that globally forces the load balancing method for all channels to be source MAC address)
- `channel-protocol pagp` (interface command that manually sets the channel bonding protocol to PAgP)
- `channel-protocol lacp` (interface command that manually sets the channel bonding protocol to LACP)
- `channel-group 1 mode on` (interface command that forces the port into EtherChannel 1 mode regardless of negotiation status)
- `channel-group 1 mode auto` (interface command that sets the interface into passive negotiation mode for PAgP channel '1')
- `channel-group 1 mode desirable` (interface command that sets the interface into active negotiation mode for PAgP channel '1')
- `channel-group 1 mode active` (interface command that sets the interface into active negotiation mode for LACP channel '1')
- `channel-group 1 mode passive` (interface command that sets the interface into passive negotiation mode for LACP channel '1')
- `lacp system-priority 110` (config command that sets the LACP election priority to '110' from the default of '100')
- `spanning-tree etherchannel guard misconfig` (interface command that enables automatic detection of bad configs on EtherChannels)
- `show etherchannel load-balance` (displays the current type of channel load balancing used)
- `show etherchannel summary` (shows a summary status of all configured EtherChannels on the switch)
- `show etherchannel port` (shows a detailed status screen of port-based connection information for EtherChannel)
- `show etherchannel detail` (as you can guess, shows a much more detailed overview of EtherChannel status information)

### CEF Commands:

- `show ip cef` (displays general information regarding CEF operation)
- `show ip cef vlan 100` (displays CEF information more specifically-related to the entries for VLAN 100)
- `show ip cef 10.0.0.0 255.0.0.0 longer-prefixes` (displays CEF entries for the entire 10.0.0.0/8 subnets' worth of IP addresses)
- `show ip cef 10.0.0.1 255.0.0.0 detail` (shows a much more detailed output of the CEF entry for '10.0.0.1')
- `show adjacency summary` (displays a brief summary of the adjacency table on the switch)
- `show adjacency vlan 100 detail` (displays a much more detailed overview of the adjacency table for VLAN 100)

### DHCPv4 Commands:

- `ip dhcp excluded-address 192.168.1.10 192.168.1.15` (config command that excludes 192.168.1.10-.15 from DHCP distribution)
- `ip dhcp pool IT` (config command that creates a DHCP pool called 'IT', and enters its configuration)
- `network 192.168.0.0 255.255.255.0` (DHCP config command that specifies the network to do DHCP for)
- `default-router 192.168.0.1` (DHCP config command that declares the default gateway for the scope as '192.168.0.1')
- `lease 8 0 0` (DHCP config command that sets the lease timer to 8 days, 0 hours, and 0 minutes)
- `clear ip dhcp binding 192.168.0.50` (clears the DHCP lease status for the '192.168.0.50' IP address)
- `host 192.168.0.51 255.255.255.0` (DHCP config command that is the first command necessary for creating a reservation)
- `client-identifier 0100.1122.3344.55` (DHCP config command that is the second command necessary to create a reservation; the '01' that opens the MAC address declaration is the header byte that declares the type as 'Ethernet', with the other bits as the MAC address)
- `option 66 192.168.0.1` (DHCP config command that enables DHCP option '66', which specifies a value of '192.168.0.1' for it)

- ip helper-address 192.168.0.1 (interface command that sets DHCP relay to point to '192.168.0.1' for forwarded requests)
- show ip dhcp binding (shows the current status for all DHCP leases)

#### DHCPv6 Commands:

- ipv6 dhcp pool ITv6 (config commands that creates an IPv6 DHCP pool named 'ITv6', and enters its configuration)
- address prefix 2000:0002::/64 (DHCP config command that declares the IPv6 address prefix to distribute addresses within)
- dns-server 2000:0003::1 (DHCP config command that sets '2000:0003::1' to be the DNS server distributed via lease)
- domain-name otaku-central.org (DHCP config command that sets the distributed domain name to be 'otaku-central.org')
- ipv6 dhcp server ITv6 (interface command that binds the 'ITv6' pool we declared previously to the interface)
- ipv6 nd other-config-flag (interface command needed for DHCPv6 Lite and SLAAC operation)
- ipv6 dhcp relay destination 2000:0002::1 (interface command that does the same thing as the 'ip helper-address' command in IPv4)
- clear ipv6 dhcp binding 2000:0003::1 (enable command that removes the IPv6 DHCP binding for '2000:0003::1')
- show ipv6 dhcp pool (shows general information about all of the configured DHCPv6 pools)
- show ipv6 dhcp binding (displays all of the current active DHCPv6 bindings)

#### Logging & NTP Commands:

- logging console severity-level (config command that causes only log messages of the specified level or lower to be printed to the console)
- logging buffered severity-level (config command that turns on the switch's internal logging buffer for the specified severity level)
- logging host ip-address (config command that specifies the IP address of the Syslog server to use)
- logging trap severity-level (config command that defines the severity threshold to log to an external server through)
- service timestamps log datetime localtime show-timezone msec (config command that enables detailed, local timezone-style logging)
- no logging event link-status (interface command that prevents a log entry from being generated every time the interface goes up/down)
- clock timezone timezone-name (config command that sets the native timezone for the switch)
- clock set hh:mm:ss (global command that statically sets the clock)
- ntp server ip-address (config command that sets the specified IP address as an NTP server to poll)
- ntp server ip-address prefer (config command that causes the specified NTP server IP address to be preferred if multiple are declared)
- ntp authentication-key key-number md5 key-string (config command that sets the NTP authentication string)
- ntp authenticate (config command that tells the switch to use authentication for NTP)
- ntp trusted-key key-number (config command that defines which already-configured key to use for NTP auth)
- ntp server ip-address key key-number (config command that adds a previously-created key entry to your NTP server connection)
- ntp access-group serve 50 (config command that applies ACL '50' to all server-oriented NTP connections from this switch)
- show clock (displays the current date and time in UTC format)
- show ntp status (shows the current NTP sync status, as well as common information)
- show ntp associations (displays all NTP servers this switch is sync'd to, and associated details)
- show logging (displays the current Syslog logging history)

### SNMP Commands:

- `snmp-server community string ro access-list-number` (config command that demonstrates how to set up a R/O SNMPv1 string)
- `snmp-server host ip-address string` (config command that declares the host that SNMPv1 traps are to be sent to)
- `snmp-server host ip-address version 2c string` (similar to the previous command, but for SNMPv2c)
- `snmp-server view view-name oid-tree` (config command that specifies an OID view for specific users, and the OIDs for it)
- `snmp-server group group-name v3 priv read read-view access access-list` (full config command for a typical SNMPv3 group declaration)
- `snmp-server user username v3 priv aes 256 priv-password access-list` (same as the previous command, but for a specific user instead of a group)
- `snmp-server host ip-address version 3 priv username` (config command that does a host entry for an SNMPv3 collection server)

### IP SLA Commands:

- `ip sla responder` (command run on the target device to enable responder, which is needed for remote clients to do SLAs such as UDP Jitter)
- `ip sla key-chain chain-name` (config command that ties a key chain to an IP SLA for authentication; used with remote responders for security)
- `ip sla 1` (config command that creates IP SLA operation number '1', and enters the configuration for it)
- `icmp-echo destination-ip` (IP SLA command that defines an ICMP test against a certain destination IP)
- `frequency seconds` (IP SLA command that declares the interval at which tests are to occur)
- `ip sla schedule sla-number life forever start-time now` (config command that begins an SLA to begin now and to run indefinitely)
- `track object-number ip sla op-number reachability` (config command that tracks a given SLA's reachability, allowing you to tie it to services)
- `show ip sla configuration` (shows detailed information about currently-running SLAs)
- `show ip sla statistics` (shows basic summary statistics for all of the current tracked IP SLAs)
- `show ip sla statistics aggregated` (shows an over-time summary for IP SLAs being tracked, as opposed to the prior command)

### SPAN Commands:

- `monitor session session-number source interface interface-name both` (config command that enables port mirroring on the desired interface in both directions of traffic)
- `monitor session session-number destination interface interface-name` (config command that enables port-mirrored traffic going to the desired destination interface)
- `monitor session session-number filter vlan vlan-range` (config command that filters the specified VLAN range inclusively into of a monitoring session)
- `remote-span` (VLAN command used to designate that VLAN as a remote SPAN VLAN)
- `show monitor` (displays status information on all current monitor sessions)

### Redundancy Commands:

- `redundancy` (config command that enters redundancy mode on the switch)
- `mode rpr` (redundancy command that sets the redundancy mode to route processor; this is the worst failover mode)
- `mode rpr-plus` (redundancy command that sets the redundancy mode to route processor plus; this is the mid-grade failover mode)
- `mode sso` (redundancy command that sets the redundancy mode to stateful switchover mode; this is the best failover mode)
- `nsf` (router configuration command that enables Non-Stop Forwarding, which allows RIB replication between route processors)

- show redundancy states *(displays the current failover status of route processor modules and supervisor cards)*

#### HSRP Commands:

- standby group-number priority priority-number *(interface command that assigns an HSRP local subnet group number and priority)*
- standby group-number timers msec-hello msec-hold *(interface command that changes default HSRP timers for the specified group)*
- standby group-number preempt *(interface command that enables preemption for this switch on the defined HSRP group)*
- standby group-number ip ip-address *(interface command that assigns the shared IP address for HSRP; must be on the same subnet as the interface)*
- standby group-number ip ip-address secondary *(same as the previous command, but forcibly sets the local switch to be the HSRP secondary)*
- standby version 2 *(interface command to enable HSRPv2, and IPv6 support)*
- standby ipv6 autoconfig *(interface command to allow the HSRP communications address to be autoconfigured, if desired)*
- standby group-number authentication text-string *(interface command that allows you to tie a text password to your HSRP neighbors)*
- show standby vlan-number *(displays detailed information regarding the HSRP status of the VLAN specified)*
- show standby vlan-number brief *(shows more shortened information regarding the HSRP status of the VLAN specified)*

#### VRRP Commands:

- vrrp group-number priority priority-number *(interface command that assigns a VRRP local subnet group number and priority)*
- vrrp group-number timers advertise msec interval *(interface command that changes default VRRP timers for the specified group)*
- vrrp group-number timers learn *(interface command that directs this VRRP switch to copy the timers from the current group master)*
- no vrrp preempt *(interface command that turns off VRRP preempting; unlike HSRP, preemption is on by default in VRRP)*
- vrrp group-number authentication text-string *(interface command that allows you to tie a text password to your VRRP neighbors)*
- vrrp group-number ip ip-address *(interface command that assigns the shared IP address for VRRP; must be on the same subnet as the interface)*
- vrrp group-number ip ip-address secondary *(same as the previous command, but forcibly sets the local switch to be the VRRP secondary)*
- show vrrp brief *(shows shortened VRRP interface and group status)*
- show vrrp *(displays more complex VRRP interface and group information; useful for troubleshooting)*

#### GLBP Commands:

- glbp group-number priority priority-number *(interface command that assigns a GLBP local subnet group number and priority)*
- glbp group-number preempt *(interface command that allows GLBP preemption to occur; does not occur by default)*
- glbp group-number timers msec hello-time msec hold-time *(interface command that changes the default GLBP timers for advertisements)*
- glbp group-number timers redirect timeout *(interface command that establishes a timeout interval for AVG switchover to occur)*
- glbp group-number weighting lower lower-threshold upper upper-threshold *(interface command that establishes a static parameter for how much load balancing per MAC address can occur on either GLBP group member)*
- glbp group-number weighting track track-number decrement value *(interface command that ties GLBP weighting to a tracked IP SLA, and states that if the SLA fails, adjust weighting by the decrement value to distribute load accordingly)*
- glbp group-number load-balancing round-robin *(interface command done on the GLBP primary master to determine the load-balancing type as 'round-robin')*



- `glbp group-number load-balancing weighted` (interface command done on the GLBP primary master to determine the load-balancing type as 'weighted')
- `glbp group-number load-balancing host-dependent` (interface command done on the GLBP primary master to determine the load-balancing type as 'host-dependent')
- `glbp group-number ip ip-address` (interface command that establishes the GLBP shared IP address, and opts for master election)
- `glbp group-number ip ip-address secondary` (interface command that specifies the GLBP shared IP address, and sets the switch as a secondary)
- `glbp group-number ipv6 autoconfigure` (interface command that tells IPv6 to use an autoconfigured variant of an IPv6 address)
- `show glbp brief` (displays summarized information about current GLBP groups and IPs, and shows master/secondary status)
- `show glbp` (displays much more verbose information about GLBP groups and IPs; usually overkill unless you're troubleshooting operation)

#### FHRP Protocol Matrix:

HSRP	VRRP	GLBP
Version 1 Multicast Address: 224.0.0.2 Version 2 Multicast Address: 224.0.0.102	Multicast Address: 224.0.0.18	Multicast Address: 224.0.0.102
Protocol: UDP	Protocol: IP 112	Protocol: UDP
Port: 1985	Port: N/A	Port: 3222

#### Security Commands:

- `switchport port-security` (interface command that turns on switchport security with the default filtering settings)
- `switchport port-security maximum count` (interface command that allows only the specified number of MAC addresses per-VLAN at maximum)
- `switchport port-security maximum sticky` (interface command that causes the next MAC address per-VLAN the switch sees to be the allowed one)
- `switchport port-security mac-address mac` (interface command that statically sets the defined MAC address as the only allowed one on this port)
- `switchport port-security violation restrict` (interface command that causes offending MAC addresses to have all their traffic dropped, but keeps the port otherwise up)
- `clear port-security address mac-address` (global command that clears out from record any MAC addresses that caused a port violation)
- `storm-control broadcast level percentage` (interface command that tracks broadcast messages if they consume beyond the specified percentage of bandwidth available on the interface)
- `storm-control action shutdown` (interface command that causes a storm control exception to actually shut down the interface)
- `show port-security interface interface` (displays port security details for the interface in question)
- `show interface status error-disabled` (displays all interfaces that are currently in error-disabled status)
- `show port-security` (displays all current port security violations)
- `show storm-control` (displays storm control information for all interfaces)
- `show storm-control interface-name` (displays storm control information only for the specified interface)

### 802.1X Setup Steps:

1. `aaa new-model` (config command that enables the AAA capability on the switch)
2. `radius-server host ip-address key-string` (config command that specifies a RADIUS server to be used, along with an option key authentication string)
3. `aaa authentication dot1x default group radius` (config command that causes all RADIUS servers configured on the switch to be used for auth)
4. `dot1x system-auth-control` (config command that enables 802.1X on the switch)
5. `dot1x port-control force-authorized` (interface command that forces all connected devices to pass 802.1X authentication)
6. `dot1x host-mode multi-host` (interface command that allows multiple hosts on the port instead of the default of one; useful for VoIP, etc.)
7. `show dot1x` (displays all 802.1X information for all interfaces; used to validate an existing configuration)

### VLAN Security Commands:

- `vlan access-map map-name` (config command that creates a VLAN ACL, and enters configuration mode for it)
- `match ip address acl-number` (VLAN ACL command that matches an IP address range to that of an existing ACL)
- `match mac address acl-number` (VLAN ACL command that matches a MAC address range to that of an existing ACL)
- `action drop` (VLAN ACL command that drops matching traffic)
- `vlan filter map-name vlan-list vlans` (config command that binds a VLAN ACL to a list of VLANs or a singular VLAN)
- `private-vlan isolated` (VLAN command that defines the VLAN as private, and prevents communication between member ports)
- `private-vlan community` (VLAN command that defines the VLAN as private, and allows communication between member ports)
- `private-vlan primary` (VLAN command that designates this VLAN as the primary upstream VLAN for connected private VLANs)
- `private-vlan association secondary-vlan-list` (VLAN command that adds in the private VLANs as underlying privates)
- `switchport mode private-vlan host` (interface command that adds this interface as a private VLAN interface for a single host)
- `switchport mode private-vlan promiscuous` (interface command that adds this interface as a private VLAN interface for multiple hosts or as an uplink)
- `switchport mode private-vlan community` (interface command that adds this interface as a peer-available client-side VLAN interface)
- `switchport mode private-vlan isolated` (interface command that adds this interface as an outbound communication-only VLAN interface)
- `switchport private-vlan host-association primary-vlan-id secondary-vlan-id` (interface command that defines the primary and secondary VLAN association for the private connection)
- `switchport private-vlan mapping primary-vlan-id secondary-vlan-id` (similar to the previous command, but necessary on promiscuous-set private VLAN ports)
- `private-vlan mapping vlans` (interface command used on a Layer 3 interface for mapping, as the other commands are just for Layer 2)

### Anti-Spoofing Commands:

- `ip dhcp snooping` (config command that globally enables DHCP snooping on this switch)
- `ip dhcp snooping vlan vlan-list` (config command that defines the list of VLANs to allow DHCP snooping on)
- `ip dhcp snooping trust` (interface command used on a trunk to allow it to not trip DHCP snooping restrictions)
- `ip dhcp snooping limit rate number` (interface command that defines the DHCP packets-per-second rate to limit DHCP traffic to)
- `ip dhcp snooping database tftp://x.x.x.x/file` (config command that stores the DHCP snooping database in an off-chassis location for backup and persistence to survive a reboot of the switch)

- show ip dhcp snooping *(shows general information about DHCP snooping on this switch)*
- show ip dhcp snooping binding *(shows information about all the DHCP bindings that snooping has overheard)*
- ip source binding mac vlan vlan ip-address interface interface *(config command that manually creates an IP source guard binding; used for static IP addresses that DHCP snooping wouldn't have otherwise caught automatically and added to the source guard table)*
- ip verify source *(interface command that turns on IP source guard)*
- ip verify source port-security *(interface command that turns on IP source guard along with MAC address checking)*
- ip arp inspection vlan vlan-range *(config command that turns on dynamic ARP inspection for the specified VLANs; used to prevent ARP poisoning)*
- ip arp inspection trust *(interface command used on trunks to disable dynamic ARP inspection)*
- ip arp inspection validate src-mac *(config command that uses dynamic ARP inspection to check the source MAC address)*
- show ip verify source *(displays current status of IP source guard on the switch, as well as interface information)*
- show ip source binding *(displays the current IP source binding database, both dynamic and static entries)*

#### **RADIUS/TACACS Commands:**

- aaa new model *(config command that enables the AAA new model)*
- username username password password *(config command that creates a local user account on the switch for RADIUS/TACACS)*
- radius-server host ip-address key keystring *(config command that specifies a RADIUS server to be used along with a key)*
- tacacs-server host ip-address key keystring *(config command that specifies a TACACS server to be used along with a key)*
- aaa group server radius/tacacs group-name *(config command that adds an authentication server group, and enters configuration for it)*
- server ip-address *(authentication group command that allows you to specify servers for authentication against)*
- aaa authentication login default list-name radius/tacacs local *(config command that sets the login sequence to try to default to the servers specified in the list to the method specified, then using local login as a last resort)*
- login authentication default *(VTY line command that ties your login methods stated prior to the line)*
- aaa authorization commands *(AAA command that allows command authorization on the server side for any commands entered on the switch)*
- aaa authorization config-commands *(similar to the previous command, but only checks config-level commands)*
- authorization commands default *(VTY line command that ties an authorization list to the line with certain parameters)*