Initial Setup Commands		
Prompt / Mode	**Command**	**Description**
R(config)#	hostname <hostname>	Set hostname for the device.
R(config)#	no ip domain-lookup	Disable ip domain-lookup; no timeout when incorrect cmd typed.
R(config)#	banner motd $ <motd msg> $	Set MOTD. Use $ to end the MOTD when multiple lines typed.
R(config)#	line console 0	Prevents logging output from immediately interupting console session.
R(config-line)#	logging synchronous	
R(config-line)#	password <pwd>	Sets an unsecure password for the console port.
R(config-line)#	login	Enable required console port login password.
R(config-line)#	no login	Disables login.
R(config)#	line vty 0 4	Enter telnet/ssh config mode.
R(config-line)#	password <pwd>	Sets a password for telnet/ssh.
R(config-line)#	login	Enable required console port login password.
R(config)#	interface vlan1	Enter VLAN1 interface config mode.
R(config-if)#	ip address <ip ad> <subnet mask>	Configure VLAN ip address and subnet. (used for telnet)
R(config-if)#	no shtudown	Manually enable the interface.
R(config)#	enable secret <pwd>	Enable a secure password for priveleged mode.
R(config)#	service password-encryption	Manually encrypt passwords.
R#	copy running-config startup-config	Copies running config to startup config. Saves all changes.

Secure Shell SSH Setup		
Prompt / Mode	**Command**	**Description**
R(config)#	ip domain-name <any.com>	Set the domain name and hostname.
R(config)#	username <login> password <pwd>	Must set both username and pwd for SSH login.
R(config)#	crypto key generate RSA	The name for the keys will be: <login><any.com>; Choose the size of the key range in between 360, 4096. An average size is 1024.
R(config)#	ip ssh version 2	Enable SSH v2 on device.
R(config)#	line console 0	Enter Line Console 0 configuration.
R(config-line)#	password <pwd>	Set password for Line Console.
R(config)#	line vty 0 4	Enter telnet/ssh config mode.
R(config-line)#	login local	Tell the lines to use the local database for login/password.
R(config-line)#	password <pwd>	Set password.
R(config-line)#	transport input ssh telnet	Configure access protocols. Allowing telnet is optional.
R#	show ip ssh	See SSH version and options.

DHCP - Router Server Configuration / DHCP Snooping / DAI		
Prompt / Mode	**Command**	**Description**
R(config-if)#	ip helper-address <ip>	Sets the address of the DHCP server, if there is one.
R(config)#	ip dhcp pool <pool-name>	Enables DHCP config mode; or creates an IP address pool.
R(dhcp-config)#	network <network> <subnet mask>	Enables a DHCP server for a particular network segment.
R(dhcp-config)#	default-router <ip ad>	Set IP address for the default router.
R(dhcp-config)#	domain-name <domain>	Specifies the domain name for a DHCP client.
R(config)#	ip dhcp excluded-address <1st ip> <last ip>	Configues a range of excluded addresses.
R#	show ip dhcp binding	Displays active DHCP-assigned IP addresses.
R#	show ip dhcp pool	Displays a basic summary of a configured DHCP pool.
S(config)#	ip dhcp snooping	Enable DHCP snooping.
S(config)#	ip dhcp snooping vlan <#>	Enable DHCP snooping on a VLAN interface.
S(config-if)#	ip dhcp snooping trust	Make interface a DHCP trusted interface. (server side port)
S(config-if)#	ip dhcp snooping limit rate <#>	Limit amount of DHCP msg's that can be sent per second. If exceeds interface goes into errdisable state.
S(config)#	errdisable recovery cause dhcp-rate-limit	Turns on error recovery for DHCP Rate Limit.
S(config)#	errdisable recovery interval <seconds>	Sets how many seconds until interface is recovered.
S(config)#	no ip dhcp snooping information option	This must be set if switch is not the DHCP Relay Agent.
S#	show ip dhcp snooping	Show cmd for DHCP snooping configuration.
S(config)#	ip arp inspection vlan <vlan>	Turns DAI on switch for a specific VLAN.

S(config-if)#	ip arp inspection trust	Makes interface a trusted port for DAI. Usually same as DHCP Snooping.
S(config)#	ip arp inspection limit rate <#>	Limit ARP messages allowed to be sent per second.
S(config)#	errdisable recovery cause arp-inspection	Turns on error recovery for DAI.
S(config)#	errdisable recovery interval <seconds>	Sets how many seconds until interface is recovered.
S(config)#	ip arp inspection validate [dst-mac/src-mac/ip]	Adds DAI validation steps.
S#	show ip arp inspection	Show DAI configuration settings.
S#	show ip dhcp snooping binding	Show DHCP Binding table.
S#	show ip arp inspection statistics	Show DAI stats, dropped packets, total packets, etc.

Switchport - Port Security

Prompt / Mode	Command	Description
S(config-if)#	switchport mode <access / trunk>	Change switchport to access or trunk.
S(config-if)#	switchport port-security maximum 1	Only allows 1 MAC Address on switchport.
S(config-if)#	switchport port-security mac-address <MAC>	Sets a specific Mac Address that can access the switchport.
S(config-if)#	switchport port-security mac-address sticky	Learns the Mac Address once it connects, first come first serve.
S(config-if)#	switchport port-security violation <protect, restrict, shutdown>	Sets the violation to take place when switchport security is compromised.
S(config-if)#	switchport port-security	Turns on switchport security.
S(config)#	errdisable recovery cause psecure-violation	Turns on error recovery for Port Security.
S(config)#	errdisable recovery interval <seconds>	Set how many seconds until interface is recovered.
S#	show errdisable recovery	View all errdisable recovery configuration.
S#	show port-security	Have a overview of all port-security enabled on the switch.
S#	show port-security int gi 0/0	Show port security configuration for int gi0/0.

ACLs Standard and Extended

Prompt / Mode	Command	Description
R(config)#	access-list <access list #> <permit | deny> <source> <source wildcard>	Add an access list entry to specified access list.
R(config)#	access-list <access list#> permit any any	Allow any command that did not match an ACL entry to permit.
R(config)#	access-list 101 <permit | deny> <protocol> <source i	Extended access list entry filtering by protocol (ip, tcp, udp, icmp, etc). Source/Dest IP both include wildcard masks.
R(config)#	access-list 101 <permit | deny> <protocol> <source ip> <operator> <source-port> <dest ip> <operator> <dest-port>	Extended access list entry with TCP and UDP Port Numbers enabled. Source/Dest IP both include wildcard masks. <operator> = eq, ne, lt, gt, range.
R(config-if)#	ip access-group <access list # | name> in	Set Access List active for traffic into port.
R(config-if)#	ip access-group <access list # | name> out	Set Access List active for traffic out of port.
R#	show ip access-lists	Shows all ACLs.
R(config)#	ip access-list <access list # | name>	Places user inside ACL config mode.
R(config-ext-nacl)#	25 <permit | deny> <ACL entry>	Adds an entry to the ACL by numbered order.
R(config-ext-nacl)#	no 25 <permit | deny> <ACL entry>	Removes an entry from the ACL.

OSPF Base Configuration

Prompt / Mode	Command	Description
R(config)#	router ospf <pid>	Turns on OSPF / Enter router config mode. *R(config-router)#*
R(config-router)#	router-id <rid>	Sets router ID. EX: 4.4.4.4
R(config-router)#	network <ip ad> <wild card> area <area#>	Tells router to advertise a network in LSAs to other routers.
R(config-inf)#	ip ospf <pid> area <area#>	Same as the Network command but works by Interface.

More OSPF Commands

Prompt / Mode	Command	Description
R(config-router)#	passive-interface <interface>	Makes an interface passive. Not sending/receiving Hellos.
R(config-router)#	passive-interface default	Makes all interfaces passive by default.
R(config-if)#	ip ospf cost <custom cost>	Sets a custom cost for an interface.
R(config-router)#	auto-cost reference bandwidth <speed>	Change the reference-bandwidth calculation. Sets in Mbps.
R(config-router)#	maximum-paths <#>	Sets a max # of paths in routing table for equal cost routes.
R#	clear ip ospf process	Restarts OSPF process.
R#	show ip protocols	Shows protocols currently running.

OSPF Troubleshooting Commands...

R#	show run | sec ospf	Shows ospf config in running-config file.
R#	show ip ospf	Shows OSPF configurations.
R#	show ip ospf neighbor / <#>	Shows all connected OSPF neighbors on router.
R#	show ip ospf interface / brief / <int>	See interface details, brief details, or particular interface details.
R#	debug ip ospf adj	Shows details of routers becoming neighbors when neighbor relationship becomes established.
R#	show ip ospf database	Shows database of all OSPF routers

NAT: Network Address Translation		
Prompt / Mode	**Command**	**Description**
R(config-if)#	ip nat <inside | outside>	Config port as 'Inside or Outside NAT' port.
R(config)#	ip nat inside source static <inside-local ip> <outside-local ip>	Set a static rule for NAT.
R(config)#	ip nat pool <pool name> <1st ip> <last ip> netmask <subnet-mask>	Defines a pool of inside global addresses for use by Dynamic NAT and names the pool to be access by interfaces requiring NAT.
R(config)#	ip nat inside source list <ACL> pool <pool name>	Configs Dynamic NAT with an ACL of IP addresses allowed to use NAT for inside global addresses.
R(config)#	ip nat inside source list <ACL> interface <int #> overload	Sets up Dynamic Overload NAT. Creates socket from inside local address and TCP/IP port #.
R#	show ip nat translations	Displays the NAT table.
R#	show ip nat statistics	List counters for packets and NAT tables entries, as well as basic configu

NTP : Network Time Protocol		
Prompt / Mode	**Command**	**Description**
R(config)#	clock timezone <time zone> <-+number>	Set the internal clock for the device.
R(config)#	clock summertime <name> recurring	Names a daylight savings time for timezone and tells IOS clock to adjus
R(config)#	ntp server <address>	Set NTP server for device.
R(config)#	ntp master <stratum-level>	Set the device as the Master NTP Server and set stratum level of the de
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