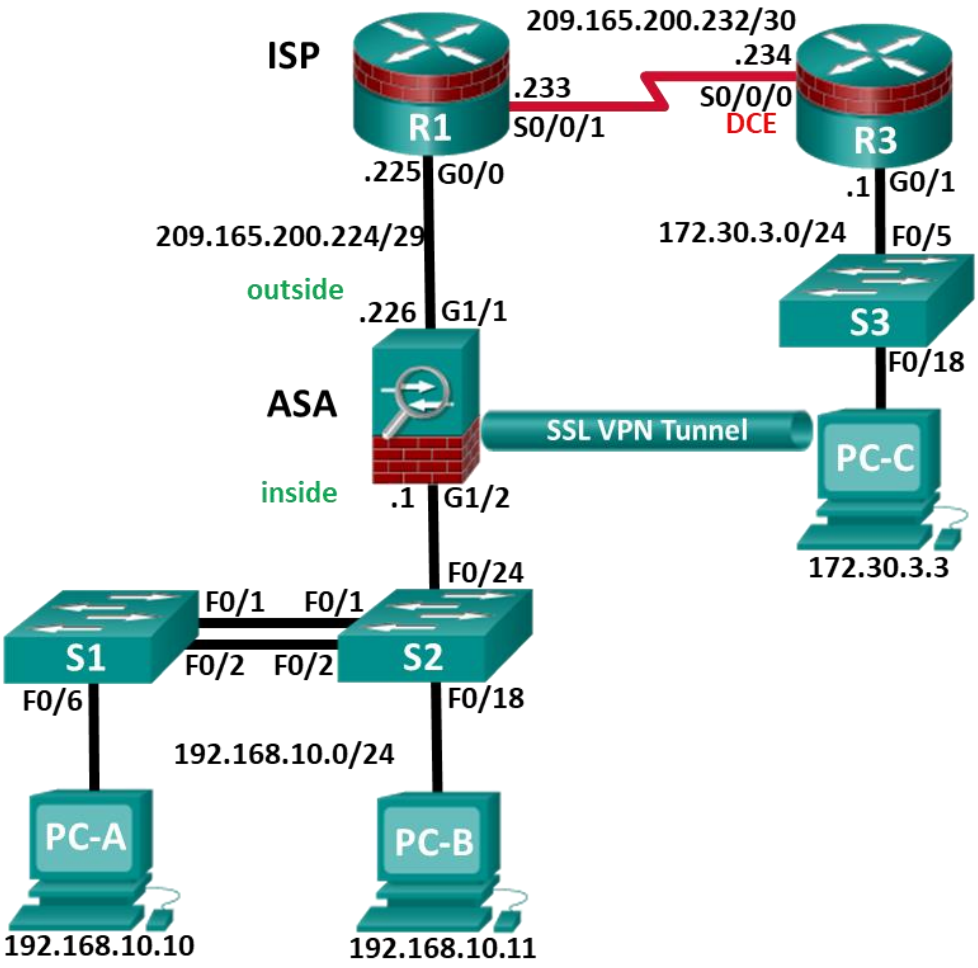
Skills Assessment Using ASA-5506-X – Form A (Answer Key)

Instructor Note: Red font color or gray highlights indicate text that appears in the instructor copy only.

Topology



Assessment Objectives

Part 1: Verify Network Connectivity (1 points, 5 minutes**)**

Note: Basic configuration is completed by the instructor in preparation for the exam.

Part 2: Configure Secure Router Administrative Access (17 points, 15 minutes)

Part 3: Configure a Zone-Based Policy Firewall (14 points, 10 minutes)

Part 4: Configure an Intrusion Prevention System (15 points, 10 minutes)

Part 5: Secure Layer 2 Switches (22 points, 20 minutes)

Part 6: Configure ASA Basic Management and Firewall Settings (17 points, 15 minutes)

Part 7: Configure the ASA for SSL VPN Remote Access Using ASDM (14 points, 15 minutes)

Scenario

This Skills Assessment (SA) is the final practical exam of student training for the CCNA Security course. The exam is divided into seven parts. The parts should be completed sequentially, and signed off by your instructor before moving on to the next part. In Part 1, you will verify that the basic device settings have been preconfigured by the instructor. In Part 2, you will secure a network router using the command line interface (CLI) to configure various IOS features including AAA and SSH. In Part 3 and 4, you will configure a zone-based policy firewall (ZPF) and intrusion prevention using the Cisco IOS intrusion prevention system (IPS) on an integrated service router (ISR) using the CLI. In Part 5, you will configure and secure layer 2 switches using the CLI. In Parts 6 and 7, you will configure the ASA management and firewall settings using the CLI and implement an SSL Remote Access VPN using ASDM.

Instructor Note: The routers used in this SA are Cisco 1941 ISRs with Cisco IOS Release 15.4(3)M2 (universalk9 image). Other routers and Cisco IOS versions can be used. Depending on the model and Cisco IOS version, the commands available and the output produced might vary from what is shown in this SA. Refer to the Router Interface Summary table at the end of this SA for the correct interface identifiers.

Instructor Note: Sample scoring and estimated times for each exam are provided. These can be adjusted by the instructor as necessary to suit the testing environment. Total points for the exam are 100 and the total time is estimated at 90 minutes. The instructor may choose to deduct points if excessive time is taken for a part of the assessment.

Required Resources

- 2 Routers (Cisco 1941 with Cisco IOS Release 15.4(3)M2 image with a Security Technology Package license)
- 3 Switches (Cisco 2960 with cryptography IOS image for SSH support – Release 15.0(2)SE7 or comparable)
- 1 ASA 5506-X (OS version 9.10(1) and ASDM version 7.10(1) and Base license or comparable)
- 3 PCs (Windows, SSH Client and Java version compatible with installed ASDM version)
- Console cable to configure the Cisco IOS devices via the console ports
- Ethernet and Serial cables as shown in the topology

Instructor Notes:

Router Resource Requirements:

Note: The following requirements are critical to successful completion of this SA.

- The router that runs IPS (R3) requires a minimum of 192 MB of DRAM and at least 2 MB of free flash memory. It must also be running T-Train Cisco IOS Release 12.4(11)T1 or later (preferably 12.4(24)T8 or later) to support the version 5.x format signature package.
- This SA uses the newer Version 5.x signature files, which are independent of the Cisco IOS software. Prior to Cisco IOS release 12.4(11)T, Cisco IOS IPS had 132 built-in signatures available in the Cisco IOS software image. The built-in signatures are hard-coded into the Cisco IOS software image for backward compatibility. Starting with Cisco IOS release 12.4(11)T, there are no built-in (hard-coded) signatures within Cisco IOS software. Support for signatures and signature definition files (SDFs) in Cisco IPS version 4.x is discontinued in 12.4(11)T1 and subsequent Cisco IOS T-Train software releases.
- To configure IOS IPS for 12.4(11)T and later, a signature package in Cisco IPS version 5.x format is required to load signatures on an ISR. Cisco provides a version 5.x format signature package for CLI users.
- To download the latest IPS signature package and public crypto key files, you need a valid CCO (Cisco.com) account.

- Download the signature package (IOS-Sxxx-CLI.pkg) from: http://www.cisco.com/cisco/software/type.html?mdfid=281442967&catid=268438162

Note: It is recommended that you use the latest signature file available. However, if the amount of router flash memory is an issue, consider downloading an older version 5.x signature file, which requires less memory. The S854 file is used with this SA, although newer versions are available. Consult CCO to determine the latest version for use in a production environment.

- Create the following public crypto key text file and name it **realm-cisco.pub.key.txt**, for use with IOS IPS:

```
crypto key pubkey-chain rsa
 named-key realm-cisco.pub
  key-string
   30820122 300D0609 2A864886 F70D0101 01050003 82010F00 3082010A 02820101
   00C19E93 A8AF124A D6CC7A24 5097A975 206BE3A2 06FBA13F 6F12CB5B 4E441F16
   17E630D5 C02AC252 912BE27F 37FDD9C8 11FC7AF7 DCDD81D9 43CDABC3 6007D128
   B199ABCB D34ED0F9 085FADC1 359C189E F30AF10A C0EFB624 7E0764BF 3E53053E
   5B2146A9 D7A5EDE3 0298AF03 DED7A5B8 9479039D 20F30663 9AC64B93 C0112A35
   FE3F0C87 89BCB7BB 994AE74C FA9E481D F65875D6 85EAF974 6D9CC8E3 F0B08B85
   50437722 FFBE85B9 5E4189FF CC189CB9 69C46F9C A84DFBA5 7A0AF99E AD768C36
   006CF498 079F88F8 A3B3FB1F 9FB7B3CB 5539E1D1 9693CCBB 551F78D2 892356AE
   2F56D826 8918EF3C 80CA4F4D 87BFCA3B BFF668E9 689782A5 CF31CB6E B4B094D3
   F3020301 0001
  quit
```

Note: The signature package file should be in the TFTP default directory for PC-C. The public key file should be available on the desktop or other known location.

Refer to the Chapter 5 Lab titled “Configuring an IPS Using the CLI” for additional details on IPS requirements.

Router and Switch Preparation

Erase the router and switch startup configurations. Before interconnecting the switches, delete the **vlan.dat** file from each switch. If the file is not deleted, VLAN information from one switch may be transferred to the other via VTP.

The IPS signature (.xml) file for R3 is in the **flash:/ipsdir/** directory. If the file is in the flash directory, delete the file and the directory before starting the SA. Use the following procedure.

```
R3# show flash
-#- --length-- -----date/time------ path
1            0 Jan 30 2015 00:24:58 +00:00 IPSDIR
2      1628152 Jan 30 2015 00:42:10 +00:00 IPSDIR/iosips-sig-default.xmz
3          835 Jan 30 2015 00:39:42 +00:00 IPSDIR/iosips-seap-typedef.xmz
4          304 Jan 30 2015 00:39:40 +00:00 IPSDIR/iosips-seap-delta.xmz
5       143447 Jan 30 2015 00:40:56 +00:00 IPSDIR/iosips-sig-category.xmz
6        16625 Jan 30 2015 00:40:52 +00:00 IPSDIR/iosips-sig-typedef.xmz
7          255 Jan 30 2015 00:39:40 +00:00 IPSDIR/iosips-sig-delta.xmz
11        1038 Aug 9 2012 16:07:50 +00:00 home.shtml
12      122880 Aug 9 2012 16:07:58 +00:00 home.tar
13     1697952 Aug 9 2012 16:08:12 +00:00 securedesktop-ios-3.1.1.45-k9.pkg
14      415956 Aug 9 2012 16:08:26 +00:00 sslclient-win-1.1.4.176.pkg
15    75551300 Feb 17 2015 00:52:42 +00:00 c1900-universalk9-mz.SPA.154-3.M2.bin
173850624 bytes available (82636800 bytes used)
```

```
R3# delete /force /recursive flash:IPSDIR
Remove directory filename [IPSDIR]?
Delete flash:IPSDIR? [confirm]
```

Instructor Note: In the interest of time, the instructor should pre-configure the basic device settings. Basic configurations are provided below for R1 and R3. Static IP address settings have also been provided for the PC hosts.

R1 Startup Configuration

```
hostname R1
no ip domain lookup
interface GigabitEthernet0/0
 ip address 209.165.200.225 255.255.255.248
 no shutdown
interface Serial0/0/1
 ip address 209.165.200.233 255.255.255.252
 no shutdown
ip route 192.168.10.0 255.255.255.0 209.165.200.226
ip route 172.30.3.0 255.255.255.0 209.165.200.234
ntp authentication-key 1 md5 NTPpassword
ntp trusted-key 1
ntp authenticate
ntp master 3
end
```

R3 Startup Configuration

```
hostname R3
no ip domain lookup
interface G0/1
 ip address 172.30.3.1 255.255.255.0
 no shut
int S0/0/0
 ip address 209.165.200.234 255.255.255.252
 no shutdown
ip route 0.0.0.0 0.0.0.0 209.165.200.233
end
```

S1 Startup Configuration

```
hostname S1
no ip domain lookup
spanning-tree vlan 1 root primary
interface range f0/3-5, f0/7-24, g0/1-2
 shutdown
end
```

S2 Startup Configuration

```
hostname S2
```

```
no ip domain lookup
spanning-tree vlan 1 root secondary
end
```

PC-A

IP Address: **192.168.10.10**
Subnet Mask: **255.255.255.0**
Default Gateway: **192.168.10.1**

PC-B

IP Address: **192.168.10.11**
Subnet Mask: **255.255.255.0**
Default Gateway: **192.168.10.1**

PC-C

IP Address: **172.30.3.3**
Subnet Mask: **255.255.255.0**
Default Gateway: **172.30.3.1**

Part 1: Verify Network Connectivity

Total points: 17

Time: 15 minutes

In the interest of time, your instructor has pre-configured basic settings on R1 and R3 and configured the static IP address information for the PC hosts in the topology. In Part 1, you will verify that PC-C can ping the G0/1 interface on R3.

Configuration Task	Specification	Points
Ping the G0/1 interface on R3 from PC-C.	See Topology for specific settings.	1/2
Ping interface S0/0/1 on R1 from R3.	See Topology for specific settings.	1/2

Instructor Sign-Off Part 1: _____

Points: _____ **of 1**

Note: Do not proceed to Part 2 until your instructor has signed off on Part 1.

Part 2: Configure Secure Router Administrative Access

Total points: 17

Time: 15 minutes

In Part 2, you will secure administrative access on R3 using the CLI. Configuration tasks include the following:

Configuration Item or Task	Specification	Points
Set minimum password length.	Minimum Length: **10** characters	1

Configuration Item or Task	Specification	Points
Assign and encrypt a privileged EXEC password.	Password: **cisco12345** Encryption type: 9 (**scrypt**)	1
Add a user in the local database for administrator access.	Username: **Admin01** Privilege level: **15** Encryption type: 9 (**scrypt**) Password: **admin01pass**	1
Configure an MOTD banner.	**Unauthorized Access is Prohibited!**	1/2
Disable HTTP server services.		1/2
Configure SSH.	Domain name: **ccnassecurity.com** RSA keys size: **1024** Version: **2** Timeout: **90** seconds Authentication retries: **2**	4
Configure VTY lines to allow SSH access.	Allow only **SSH** access	1
Configure the AAA authentication and authorization settings.	Enable AAA Use **local database** as default setting.	2
Configure NTP.	Authentication key: **NTPpassword** Encryption: **MD5** Key: **1** NTP server: **209.165.200.233** Configure for periodic calendar updates.	4
Configure syslog.	Enable timestamp service to log the date and time in milliseconds. Send syslog messages to: **172.30.3.3**. Set message logging severity level to: **Warnings**.	2

Configuration Item or Task	Configuration Commands	Verification Commands
Set minimum password length.	security passwords min-length 10	show run | inc passwords
Assign and encrypt a privileged EXEC password.	enable algorithm-type scrypt secret cisco12345	show run | inc enable Verify encryption type 9. Exit global EXEC mode and enable to verify the password is correct.
Add a user in the local database for administrator access.	username Admin01 privilege 15 algorithm-type scrypt secret admin01pass	show run | include username
Configure an MOTD banner.	banner motd $Unauthorized Access is Prohibited!$	show run | inc banner
Disable HTTP server services.	no ip http server	show run | inc http
Configure SSH.	ip domain-name ccnasecurity.com crypto key generate rsa general-keys modulus 1024 ip ssh version 2 ip ssh time-out 90 ip ssh authentication-retries 2	show ip ssh
Configure VTY lines to allow SSH access.	line vty 0 4 transport input ssh exit	show run | sec vty
Configure the AAA authentication and authorization settings.	aaa new-model aaa authentication login default local aaa authorization exec default local	show run | inc aaa
Configure NTP.	ntp authentication-key 1 md5 NTPpassword ntp authenticate ntp server 209.165.200.233 ntp update-calendar	show ntp associations show run | sec ntp

Configuration Item or Task	Configuration Commands	Verification Commands
Configure syslog.	service timestamps log datetime msec logging 172.30.3.3 logging trap warnings	show run | inc timestamps show run | sec logging show logging

Note: Before proceeding to Part 3, ask your instructor to verify R3's configuration and functionality.

Instructor Sign-Off Part 2: _____

Points: _____ **of 17**

Part 3: Configure a Zone-Based Policy Firewall

Total points: 14

Time: 10 minutes

In Part 3, you will configure a ZPF on R3 using the CLI. Configuration tasks include the following:

Configuration Item or Task	Specification	Points
Create security zone names.	Inside zone name: **INSIDE** Outside zone name: **INTERNET**	2
Create an inspect class map.	Class map name: **INSIDE_PROTOCOLS** Inspection type: **match-any** Protocols allowed: **tcp, udp, icmp**	3
Create an inspect policy map.	Policy map name: **INSIDE_TO_INTERNET** Bind the class map to the policy map. Matched packets should be inspected.	3
Create a zone pair.	Zone pair name: **IN_TO_OUT_ZONE** Source zone: **INSIDE** Destination zone: **INTERNET**	2
Apply the policy map to the zone pair.	Zone pair name: **IN_TO_OUT_ZONE** Policy map name: **INSIDE_TO_INTERNET**	2
Assign interfaces to the proper security zones.	Interface G0/1: **INSIDE** Interface S0/0/0: **INTERNET**	2

Configuration Item or Task	Configuration Commands	Verification Commands
Create security zone names.	zone security INSIDE zone security INTERNET	show run | section zone security

Configuration Item or Task	Configuration Commands	Verification Commands
Create an inspect class map.	class-map type inspect match-any INSIDE_PROTOCOLS match protocol tcp match protocol udp match protocol icmp	show class-map type inspect
Create an inspect policy map.	policy-map type inspect INSIDE_TO_INTERNET class type inspect INSIDE_PROTOCOLS inspect	show policy-map type inspect
Create a zone pair.	zone-pair security IN_TO_OUT_ZONE source INSIDE destination INTERNET	show zone-pair security
Apply the policy map to the zone pair.	zone-pair security IN_TO_OUT_ZONE service-policy type inspect INSIDE_TO_INTERNET	show zone-pair security
Assign interfaces to the proper security zones.	interface g0/1 zone-member security INSIDE interface s0/0/0 zone-member security INTERNET	show zone security

Troubleshoot as necessary to correct any issues.

Note: Before proceeding to Part 4, ask your instructor to verify your ZPF configuration and functionality.

Instructor Sign-Off Part 2: _____

Points: _____ **of 14**

Part 4: Configure an Intrusion Prevention System

Total points: 15

Time: 10 minutes

In Part 4, you will configure an IPS on R3 using the CLI. Configuration tasks include the following:

Configuration Item or Task	Specification	Points
Create an IPS directory on flash.	Directory name: **IPSDIR** **Note**: If the directory already exists, delete the directory and recreate it.	1

Configuration Item or Task	Specification	Points
Copy and paste the crypto key file into R3's running-configuration.	crypto key pubkey-chain rsa named-key realm-cisco.pub signature key-string 30820122 300D0609 2A864886 F70D0101 01050003 82010F00 3082010A 02820101 00C19E93 A8AF124A D6CC7A24 5097A975 206BE3A2 06FBA13F 6F12CB5B 4E441F16 17E630D5 C02AC252 912BE27F 37FDD9C8 11FC7AF7 DCDD81D9 43CDABC3 6007D128 B199ABCB D34ED0F9 085FADC1 359C189E F30AF10A C0EFB624 7E0764BF 3E53053E 5B2146A9 D7A5EDE3 0298AF03 DED7A5B8 9479039D 20F30663 9AC64B93 C0112A35 FE3F0C87 89BCB7BB 994AE74C FA9E481D F65875D6 85EAF974 6D9CC8E3 F0B08B85 50437722 FFBE85B9 5E4189FF CC189CB9 69C46F9C A84DFBA5 7A0AF99E AD768C36 006CF498 079F88F8 A3B3FB1F 9FB7B3CB 5539E1D1 9693CCBB 551F78D2 892356AE 2F56D826 8918EF3C 80CA4F4D 87BFCA3B BFF668E9 689782A5 CF31CB6E B4B094D3 F3020301 0001 quit	1
Create an IPS rule.	IPS rule name: **IOSIPS**	1
Set the storage location for the IPS signatures.	Location: **IPSDIR on flash**	1
Enable IPS SDEE event notification.	Enable HTTP server services. Enable SDEE notification services.	1
Enable IPS syslog support.		1
Retire all signatures in the all category.	Category: **all**	2
Un-retire the ios_ips basic category signatures.	Category: **ios_ips basic**	2

Configuration Item or Task	Specification	Points
Apply the IPS rule to the interface.	Interface: **S0/0/0** Direction: **in**	2
Copy the S854 signature from PC-C.	Protocol: **TFTP** IP Address of TFTP server: **172.30.3.3** Signature: **IOS-S854-CLI.pkg** Compile signatures after they are loaded: **idconf**	3

Note: Before attempting the TFTP copy, the TFTP server software on PC-C needs to be running with the directory set to the location of the file: **IOS-S854-CLI.pkg**.

Configuration Item or Task	Configuration Commands	Verification Commands
Create an IPS directory on flash.	mkdir IPSDIR (Note: If the directory already exists: del /force /recursive flash:IPSDIR)	show flash (Look for the IPSDIR directory.)
Copy and paste the crypto key file into R3's running-configuration.	crypto key pubkey-chain rsa named-key realm-cisco.pub signature key-string 30820122 300D0609 2A864886 F70D0101 01050003 82010F00 3082010A 02820101 00C19E93 A8AF124A D6CC7A24 5097A975 206BE3A2 06FBA13F 6F12CB5B 4E441F16 17E630D5 C02AC252 912BE27F 37FDD9C8 11FC7AF7 DCDD81D9 43CDABC3 6007D128 B199ABCB D34ED0F9 085FADC1 359C189E F30AF10A C0EFB624 7E0764BF 3E53053E 5B2146A9 D7A5EDE3 0298AF03 DED7A5B8 9479039D 20F30663 9AC64B93 C0112A35 FE3F0C87 89BCB7BB 994AE74C FA9E481D F65875D6 85EAF974 6D9CC8E3 F0B08B85 50437722 FFBE85B9 5E4189FF CC189CB9 69C46F9C A84DFBA5 7A0AF99E AD768C36 006CF498 079F88F8 A3B3FB1F 9FB7B3CB 5539E1D1 9693CCBB 551F78D2 892356AE 2F56D826 8918EF3C 80CA4F4D 87BFCA3B BFF668E9 689782A5 CF31CB6E B4B094D3 F3020301 0001 quit	show crypto key pubkey-chain rsa name realm-cisco.pub
Create an IPS rule.	ip ips name IOSIPS	show ip ips name IOSIPS

Configuration Item or Task	Configuration Commands	Verification Commands
Set the storage location for the IPS signatures.	ip ips config location flash:IPSDIR	show run | sec ips
Enable IPS SDEE event notification.	ip http server ip ips notify sdee	show run | inc http show run | inc notify sho ip ips all | inc Event
Enable IPS syslog support.	ip ips notify log	show run | sec ips sho ip ips all | inc Event
Retire all signatures in the all category.	ip ips signature-category category all retired true exit	show ip ips signature-category config
Un-retire the ios_ips basic category signatures.	ip ips signature-category category ios_ips basic retired false exit exit Do you want to accept these changes? [confirm]	show ip ips signature-category config
Apply the IPS rule to the interface.	interface s0/0/0 ip ips IOSIPS in exit	show run interface s0/0/0 show ip ips interface
Copy the S854 signature from PC-C.	copy tftp://172.30.3.3/IOS-S854-CLI.pkg idconf	show ip ips signatures

Troubleshoot as necessary to correct any issues.

Note: Before proceeding to Part 5, ask your instructor to verify your IPS configuration and functionality.

Instructor Sign-Off Part 4: _____

Points: _____ **of 15**

Part 5: Secure Layer 2 Switches

Total points: 22

Time: 20 minutes

Note: Not all security features in this part of the exam will be configured on all switches. However, in a production network, all security features will be configured on all switches. In the interest of time, the security features are configured on only S2, except where noted.

In Part 5, you will configure security settings on S2 using the CLI. Configuration tasks include the following:

Configuration Item or Task	Specification	Points
Assign and encrypt a privileged EXEC password.	Switch: **S2** Password: **cisco12345** Encryption type: 9 (**scrypt**)	1/2
Add a user in the local database for administrator access.	Switch: **S2** Username: **Admin01** Privilege level: **15** Encryption type: 9 (**scrypt**) Password: **admin01pass**	1
Configure an MOTD banner.	Switch: **S2** Banner: **Unauthorized Access is Prohibited!**	1/2
Disable HTTP and HTTP secure server.	Switch: **S2**	1
Configure SSH.	Switch: **S2** Domain name: **ccnassecurity.com** RSA keys size: **1024** Version: **2** Timeout: **90** seconds Authentication retries: **2**	2
Configure the VTY lines to allow SSH access.	Switch: **S2** Allow only **SSH** access.	1/2
Configure the AAA authentication and authorization settings.	Switch: **S2** Enable **AAA** Use **local database** as default setting.	2
Create the VLAN list.	Switches: **S1 & S2** VLAN: **2,** Name: **NewNative** VLAN: **10,** Name: **LAN** VLAN: **99,** Name: **Blackhole**	1/2
Configure the trunk ports.	Switches: **S1 & S2** Interfaces: **F0/1, F0/2** Native VLAN: **2** Prevent DTP.	2
Disable trunking.	Switch: **S2** Ports: **F0/18, F0/24** VLAN assignment: **10**	2
Enable PortFast and BPDU guard.	Switch: **S2** Ports: **F0/18, F0/24**	2

Configuration Item or Task	Specification	Points
Configure basic port security.	Switch: **S2** Port: **F0/18** Maximum limit: **1** Remember the MAC address. Violation Action: **Shutdown**	3
Disable unused ports on S2, and assign ports to VLAN 99.	Switch: **S2** Ports: **F0/3-17, F0/19-23, G0/1-2**	1
Configure Loop guard.	Switch: **S2** Loop guard: **Default**	1
Configure DHCP snooping.	Enable DHCP snooping globally Enable DHCP for VLAN: **10** DHCP trusted interface: **F0/24**	3

NETLAB+ Note: Use a Maximum limit of **2** when configuring basic port security. Otherwise, the hidden Control Switch will cause a violation to occur and the port will be shutdown.

Configuration Item or Task	Configuration Commands	Verification Commands
Assign and encrypt a privileged EXEC password. (Switch: **S2 only)**	enable algorithm-type scrypt secret cisco12345	show run | inc enable Verify encryption type 9.
Add a user in the local database for administrator access. (Switch: **S2 only)**	username Admin01 privilege 15 algorithm-type scrypt secret admin01pass	show run | include username Verify username, privilege level, and encryption type. The password can be verified.
Configure an MOTD banner. (Switch: **S2 only)**	banner motd $Unauthorized Access is Prohibited!$	show run | inc banner
Disable the HTTP and HTTP secure server. (Switch: **S2 only)**	no ip http server no ip http secure-server	show run | inc http
Configure SSH. (Switch: **S2 only)**	ip domain-name ccnasecurity.com crypto key generate rsa general-keys modulus 1024 ip ssh version 2 ip ssh time-out 90 ip ssh authentication-retries 2	show ip ssh

Configuration Item or Task	Configuration Commands	Verification Commands
Configure the VTY lines to allow SSH access. (Switch: **S2 only)**	line vty 0 15 transport input ssh exit	show run | sec vty
Configure the AAA authentication and authorization settings. (Switch: **S2 only)**	aaa new-model aaa authentication login default local aaa authorization exec default local	show run | inc aaa
Create the VLAN list. (Switch: **S1 & S2**)	vlan 2 name NewNative vlan 10 name LAN vlan 99 name Blackhole exit	show vlan
Configure the trunk ports. (Switch: **S1 & S2**)	interface range f0/1-2 switchport mode trunk switchport trunk native vlan 2 switchport nonegotiate	show run | beg interface
Disable trunking. (Switch: **S2 only)**	interface ran f0/18, f0/24 switchport mode access switchport access vlan 10	show run interface f0/18 show run interface f0/24
Enable PortFast and BPDU guard. (Switch: **S2 only)**	interface ran f0/18, f0/24 spanning-tree portfast spanning-tree bpduguard enable	show run interface f0/18 show run interface f0/24
Configure basic port security. (Switch: **S2 only)**	interface f0/18 switchport port-security switchport port-security maximum 1 switchport port-security mac-address sticky switchport port-security violation shutdown	show run interface f0/18 show port-security interface fa0/18
Disable the unused ports on S2. (Switch: **S2 only)**	interface range f0/3-17, f0/19-23, g0/1-2 switchport mode access switchport access vlan 99 shutdown	show ip interface brief (Determine whether interfaces are administratively down.)
Configure Loop guard. (Switch: **S2 only)**	spanning-tree loopguard default	show spanning-tree summary (Determine whether Loopguard Default is enabled.)

Configuration Item or Task	Configuration Commands	Verification Commands
Configure DHCP snooping. (Switch: **S2 only)**	ip dhcp snooping ip dhcp snooping vlan 10 int f0/24 ip dhcp snooping trust end	show ip dhcp snooping

Troubleshoot as necessary to correct any issues.

Note: Before proceeding to Part 6, ask your instructor to verify your switch configuration and functionality.

Instructor Sign-Off Part 5: _____

Points: _____ **of 22**

Part 6: Configure ASA Basic Management and Firewall Settings

Total points: 17

Time: 15 minutes

Note: By default, the privileged EXEC password is blank. Press **Enter** at the password prompt.

In Part 6, you will configure the ASA's basic setting and firewall using the CLI. Configuration tasks include the following:

Configuration Item or Task	Specification	Points
Configure the ASA hostname.	Name: **CCNAS-ASA**	1/2
Configure the domain name.	Domain name: **ccnasecurity.com**	1/2
Configure the privileged EXEC password.	Password: **cisco12345**	1/2
Add a user in the local database with administrator console access.	User: **Admin01** Password: **admin01pass**	1/2
Configure interface G1/2.	Name: **inside** IP address: **192.168.10.1** Subnet mask: **255.255.255.0** Security level: **100**	3
Configure interface G1/1.	Name: **outside** IP address: **209.165.200.226** Subnet mask: **255.255.255.248** Security level: **0**	3
Configure the AAA to use the local database for SSH user authentication.		1
Generate an RSA key pair to support the SSH connections.	Key: **RSA** Modulus size: **1024**	1

Configuration Item or Task	Specification	Points
Configure the ASA to accept SSH connections from hosts on the inside LAN.	Inside network: **192.168.10.0/24** Timeout: **10** minutes Version: **2**	2
Configure the default route.	Default route IP address: **209.165.200.225**	1
Configure the ASDM access to the ASA.	Enable HTTPS server services. Enable HTTPS on the inside network.	2
Create a network object to identify internal addresses for PAT. Dynamically bind interfaces by using the interface address as the mapped IP.	Object name: **INSIDE-NET** Subnet: **192.168.10.0/24** Interfaces: **inside, outside**	2
Modify the default global policy to allow returning ICMP traffic through the firewall.	Policy-map: **global_policy** Class: **inspection_default** Inspect: **icmp**	1

Configuration Item or Task	Configuration Commands	Verification Commands
Configure the ASA hostname.	hostname CCNAS-ASA	(View the command prompt to verify the CCNAS-ASA name.)
Configure the domain name.	domain-name ccnasecurity.com	show run domain
Configure the privileged EXEC password.	enable password cisco12345	show run enable
Add a user in the local database with administrator console access.	username Admin01 password admin01pass	show run username
Configure interface G1/2.	interface G1/2 nameif inside ip add 192.168.10.1 255.255.255.0 security-level 100 no shutdown	show run interface G1/2
Configure interface G1/1.	interface G1/1 nameif outside ip add 209.165.200.226 255.255.255.248 security-level 0 no shutdown	show run interface G1/1
Configure the AAA to use the local database for SSH user authentication.	aaa authentication ssh console LOCAL	show run aaa

Configuration Item or Task	Configuration Commands	Verification Commands
Generate an RSA key pair to support the SSH connections.	crypto key generate rsa modulus 1024	show crypto key mypubkey rsa
Configure the ASA to accept SSH connections from hosts on the inside LAN.	ssh 192.168.10.0 255.255.255.0 inside ssh timeout 10 ssh version 2	show ssh
Configure the default route.	route outside 0.0.0.0 0.0.0.0 209.165.200.225	show route (Look for the quad-zero static route.)
Configure the ASDM access to the ASA.	http server enable http 192.168.10.0 255.255.255.0 inside	show run http
Create a network object to identify internal addresses for PAT. Dynamically bind the interfaces by using the interface address as the mapped IP.	object network INSIDE-NET subnet 192.168.10.0 255.255.255.0 nat (inside,outside) dynamic interface	show nat show run object
Modify the default global policy to allow returning ICMP traffic through the firewall.	policy-map global_policy class inspection_default inspect icmp	show run policy-map

Troubleshoot as necessary to correct any issues.

Note: Before proceeding to Part 7, ask your instructor to verify your ASA configuration and functionality.

Instructor Sign-Off Part 6: _____

Points: _____ **of 17**

Part 7: Configure the ASA for SSL VPN Remote Access Using ASDM

Total points: 14

Time: 15 minutes

In Part 7, you will configure an AnyConnect SSL remote access VPN on the ASA using ASDM. You will then use a browser on PC-C to connect and download the Cisco AnyConnect Secure Mobility Client software located on the ASA. After the software has downloaded, you will manually install the AnyConnect software to PC-C and use it to establish a remote SSL VPN connection to the ASA.

Step 1: Configure SSL VPN settings on the ASA using the ASDM from PC-B.

Use a browser on PC-B to establish an ASDM session to the ASA. After the session is established, use the **AnyConnect VPN Wizard** to configure the ASA to allow SSL VPN client connections. Configuration parameters include the following:

Configuration Item or Task	Specification	Points
Use a browser on PC-B, and connect to the ASA.	Connection: **HTTPS** IP address: **192.168.10.1** Username: **Admin01** Password: **admin01pass** **Note:** You will need to accept all security messages.	1
Use the AnyConnect VPN Wizard to configure the ASA to accept SSL VPN connections from the Cisco AnyConnect Secure Mobility Client.	Connection profile name: **ANYCONNECT-SSL-VPN** VPN access interface: **outside** VPN protocols: **SSL** only. Client images: **anyconnect-win-4.1.00028-k9.pkg** or **equivalent** Username: **VPNuser** Password: **VPNuserpa55** IP address pool name: **VPN-POOL** IP address pool starting address: **192.168.10.201** IP address pool ending address: **192.168.10.210** IP address pool subnet mask: **255.255.255.0** DNS server: **10.20.30.40** Domain name: **ccnasecurity.com** Exempt VPN traffic from NAT: **Enable** Inside interface: **inside** Local network: **any4**	7

Step 2: Establish an SSL VPN connection to the ASA from PC-C

To establish an SSL VPN connection to the ASA, you will need to use a browser on PC-C to download the Cisco AnyConnect Secure Mobility Client software from the ASA. After the software is downloaded, you will install the AnyConnect software to PC-C and then establish an SSL VPN connection to the ASA. The steps required are as follows:

Configuration Item or Task	Specification	Points
Use a browser on PC-C. Connect to the ASA. Download the Cisco AnyConnect Secure Mobility Client software to the PC.	Connection: **HTTPS** IP address: **209.165.200.226** Username: **VPNuser** Password: **VPNuserpa55**	2
Download and install the Cisco AnyConnect Secure Mobility Client. After installation is complete the AnyConnect SSL VPN session should be established automatically.	Accept all security warning messages. If the **Untrusted Server Blocked!** window appears. Click **Change Setting** to allow the connection to the ASA. When asked to change PC settings to allow AnyConnect Client to be installed, click **Yes**.	2
Verify that an SSL VPN session has been established to the ASA using ASDM from PC-B.	ASDM **Monitoring** **VPN** tab Filter by: **AnyConnect Client**	2

Troubleshoot as necessary to correct any issues.

Instructor Sign-Off Part 7: _____

Points: _____ **of 14**

Instructor Note: Have student demonstrate that PC-C has established an SSL VPN connection to the ASA by pinging PC-B. The student should also be able to display the established VPN session using the ASDM on PC-B.

Router Interface Summary

Router Interface Summary				
Router Model	**Ethernet Interface #1**	**Ethernet Interface #2**	**Serial Interface #1**	**Serial Interface #2**
1800	Fast Ethernet 0/0 (F0/0)	Fast Ethernet 0/1 (F0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
1900	Gigabit Ethernet 0/0 (G0/0)	Gigabit Ethernet 0/1 (G0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
2801	Fast Ethernet 0/0 (F0/0)	Fast Ethernet 0/1 (F0/1)	Serial 0/1/0 (S0/1/0)	Serial 0/1/1 (S0/0/1)
2811	Fast Ethernet 0/0 (F0/0)	Fast Ethernet 0/1 (F0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
2900	Gigabit Ethernet 0/0 (G0/0)	Gigabit Ethernet 0/1 (G0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
Note: To find out how the router is configured, look at the interfaces, identify the type of router, and how many interfaces the router has. There is no way to effectively list all of the combinations of configurations for each router class. This table includes identifiers for the possible combinations of Ethernet and Serial interfaces in the device. This table does not include any other type of interface, even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in Cisco IOS commands to represent the interface.				

Device Configs

Router R1 (After completion of Part 4)

```
R1# show run

Building configuration...

Current configuration : 1582 bytes
!
version 15.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
```

```
boot-end-marker
!
no aaa new-model
memory-size iomem 15
!
no ip domain lookup
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
cts logging verbose
!
redundancy
!
interface Embedded-Service-Engine0/0
 no ip address
 shutdown
!
interface GigabitEthernet0/0
 ip address 209.165.200.225 255.255.255.248
 duplex auto
 speed auto
!
interface GigabitEthernet0/1
 no ip address
 shutdown
 duplex auto
 speed auto
!
interface Serial0/0/0
 no ip address
 shutdown
 clock rate 2000000
!
interface Serial0/0/1
 ip address 209.165.200.233 255.255.255.252
!
ip forward-protocol nd
!
no ip http server
no ip http secure-server
!
ip route 172.30.3.0 255.255.255.0 209.165.200.234
ip route 192.168.10.0 255.255.255.0 209.165.200.226
!
control-plane
!
line con 0
```

```
line aux 0
line 2
 no activation-character
 no exec
 transport preferred none
 transport output pad telnet rlogin lapb-ta mop udptn v120 ssh
 stopbits 1
line vty 0 4
 login
 transport input none
!
scheduler allocate 20000 1000
ntp authentication-key 1 md5 153C3F3C142B38373F3C2726 7
ntp authenticate
ntp trusted-key 1
ntp master 3
!
end
```

Router R3 (After completion of Part 4)

```
R3# show run
Building configuration...

Current configuration : 3627 bytes
!
version 15.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
security passwords min-length 10
enable secret 9 $9$rxoObVVh3R4CCE$OEtqQQnqHB9NEtwQUbm5.f1FNwxsvM8GyUkN5n7pGWY
!
aaa new-model
!
!
aaa authentication login default local
aaa authorization exec default local
!
aaa session-id common
memory-size iomem 15
!
no ip domain lookup
ip domain name ccnassecurity.com
```

```
ip ips config location flash:IPSDIR retries 1
ip ips notify SDEE
ip ips name IOSIPS
!
ip ips signature-category
  category all
    retired true
  category ios_ips basic
    retired false
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
cts logging verbose
!
username Admin01 privilege 15 secret 9
$9$OO4UiFgwfSbn3E$BDXZW8G3iwG0TNBVq/kCiJyUG.SsprZ88YDkEodP.bo
!
redundancy
!
crypto key pubkey-chain rsa
 named-key realm-cisco.pub signature
  key-string
    30820122 300D0609 2A864886 F70D0101 01050003 82010F00 3082010A 02820101
    00C19E93 A8AF124A D6CC7A24 5097A975 206BE3A2 06FBA13F 6F12CB5B 4E441F16
    17E630D5 C02AC252 912BE27F 37FDD9C8 11FC7AF7 DCDD81D9 43CDABC3 6007D128
    B199ABCB D34ED0F9 085FADC1 359C189E F30AF10A C0EFB624 7E0764BF 3E53053E
    5B2146A9 D7A5EDE3 0298AF03 DED7A5B8 9479039D 20F30663 9AC64B93 C0112A35
    FE3F0C87 89BCB7BB 994AE74C FA9E481D F65875D6 85EAF974 6D9CC8E3 F0B08B85
    50437722 FFBE85B9 5E4189FF CC189CB9 69C46F9C A84DFBA5 7A0AF99E AD768C36
    006CF498 079F88F8 A3B3FB1F 9FB7B3CB 5539E1D1 9693CCBB 551F78D2 892356AE
    2F56D826 8918EF3C 80CA4F4D 87BFCA3B BFF668E9 689782A5 CF31CB6E B4B094D3
    F3020301 0001
  quit
!
ip ssh time-out 90
ip ssh authentication-retries 2
ip ssh version 2
!
class-map type inspect match-any INSIDE_PROTOCOLS
 match protocol tcp
 match protocol udp
 match protocol icmp
!
policy-map type inspect INSIDE_TO_INTERNET
 class type inspect INSIDE_PROTOCOLS
  inspect
```

```
 class class-default
  drop
!
zone security INSIDE
zone security INTERNET
zone-pair security IN_TO_OUT_ZONE source INSIDE destination INTERNET
 service-policy type inspect INSIDE_TO_INTERNET
!
interface Embedded-Service-Engine0/0
 no ip address
 shutdown
!
interface GigabitEthernet0/0
 no ip address
 shutdown
 duplex auto
 speed auto
!
interface GigabitEthernet0/1
 ip address 172.30.3.1 255.255.255.0
 zone-member security INSIDE
 duplex auto
 speed auto
 no shutdown
!
interface Serial0/0/0
 ip address 209.165.200.234 255.255.255.252
 ip ips IOSIPS in
 zone-member security INTERNET
 clock rate 125000
 no shutdown
!
interface Serial0/0/1
 no ip address
 shutdown
!
ip forward-protocol nd
!
ip http server
no ip http secure-server
!
ip route 0.0.0.0 0.0.0.0 209.165.200.233
!
logging trap warnings
logging host 172.30.3.3
!
control-plane
!
banner motd ^CUnauthorized Access is Prohibited!^C
```

```
!
line con 0
line aux 0
line 2
 no activation-character
 no exec
 transport preferred none
 transport output pad telnet rlogin lapb-ta mop udptn v120 ssh
 stopbits 1
line vty 0 4
transport input ssh
line vty 5
transport input ssh
!
scheduler allocate 20000 1000
ntp authentication-key 1 md5 132B23221B0D17393C2B3A37 7
ntp authenticate
ntp update-calendar
ntp server 209.165.200.233
!
end
```

Switch S1 (After completion of Part 5)

```
S1# show run
hostname S1
!
no ip domain-lookup
!
spanning-tree mode pvst
spanning-tree extend system-id
spanning-tree vlan 1 priority 24576
!
interface FastEthernet0/1
 switchport mode trunk
 switchport nonegotiate
!
interface FastEthernet0/2
 switchport mode trunk
 switchport nonegotiate
!
end
```

Switch S2 (After completion of Part 5)

```
S2# show run
Building configuration...

Current configuration : 2599 bytes
!
```

```
version 15.0
no service pad
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname S2
!
boot-start-marker
boot-end-marker
!
enable secret 9 $9$6E0RH.UQ3Nt221$fSKp.he411vh54DhobJk678MmZzj3sHxY3JMX/QdcTE
!
username Admin01 privilege 15 secret 9
$9$ELG3vxsMl43KNo$V3AYoDX3ogPeDL2FWjpeM9R.2/Sek8UY65l6OcqxK3E
aaa new-model
!
aaa authentication login default local
aaa authorization exec default local
!
aaa session-id common
system mtu routing 1500
!
ip dhcp snooping vlan 10
ip dhcp snooping
no ip domain-lookup
ip domain-name ccnasecurity.com
!
spanning-tree mode pvst
spanning-tree loopguard default
spanning-tree extend system-id
spanning-tree vlan 1 priority 28672
!
vlan internal allocation policy ascending
!
ip ssh time-out 90
ip ssh authentication-retries 2
ip ssh version 2
!
interface FastEthernet0/1
 switchport mode trunk
 switchport nonegotiate
!
interface FastEthernet0/2
 switchport mode trunk
 switchport nonegotiate
!
interface FastEthernet0/3
switchport access vlan 99
```

```
 switchport mode access
 shutdown
!
interface FastEthernet0/4
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/5
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/6
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/7
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/8
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/9
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/10
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/11
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/12
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/13
```

```
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/14
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/15
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/16
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/17
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/18
 switchport access vlan 10
 switchport mode access
 switchport port-security mac-address sticky
 switchport port-security mac-address sticky 0050.56be.dca4
 switchport port-security
 spanning-tree portfast
 spanning-tree bpduguard enable
!
interface FastEthernet0/19
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/20
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/21
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/22
```

```
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/23
switchport access vlan 99
 switchport mode access
 shutdown
!
interface FastEthernet0/24
 switchport access vlan 10
 switchport mode access
 spanning-tree portfast
 spanning-tree bpduguard enable
ip dhcp snooping trust
!
interface GigabitEthernet0/1
switchport access vlan 99
 switchport mode access
 shutdown
!
interface GigabitEthernet0/2
switchport access vlan 99
 switchport mode access
 shutdown
!
interface Vlan1
 no ip address
!
no ip http server
no ip http secure-server
!
banner motd ^CUnauthorized Access is Prohibited!^C
!
line con 0
line vty 0 4
 transport input ssh
line vty 5 15
 transport input ssh
!
end
```

ASA (Config after Part 6)

```
CCNAS-ASA# show run
: Saved

:
: Hardware:   ASA5506, 4096 MB RAM, CPU Atom C2000 series 1250 MHz, 1 CPU (4 cores)
:
```

```
ASA Version 9.10(1)
!
hostname CCNAS-ASA
domain-name ccnasecurity.com
enable password ***** pbkdf2
names
no mac-address auto

!
interface GigabitEthernet1/1
 nameif outside
 security-level 0
 ip address 209.165.200.226 255.255.255.248
!
interface GigabitEthernet1/2
 nameif inside
 security-level 100
 ip address 192.168.10.1 255.255.255.0
!
interface GigabitEthernet1/3
 shutdown
 no nameif
 no security-level
 no ip address
!
interface GigabitEthernet1/4
 shutdown
 no nameif
 no security-level
 no ip address
!
interface GigabitEthernet1/5
 shutdown
 no nameif
 no security-level
 no ip address
!
interface GigabitEthernet1/6
 shutdown
 no nameif
 no security-level
 no ip address
!
interface GigabitEthernet1/7
 shutdown
 no nameif
 no security-level
 no ip address
!
```

```
interface GigabitEthernet1/8
 shutdown
 no nameif
 no security-level
 no ip address
!
interface Management1/1
 management-only
 shutdown
 no nameif
 no security-level
 no ip address
!
ftp mode passive
dns server-group DefaultDNS
 domain-name ccnasecurity.com
object network INSIDE-NET
 subnet 192.168.10.0 255.255.255.0
pager lines 24
mtu inside 1500
mtu outside 1500
icmp unreachable rate-limit 1 burst-size 1
no asdm history enable
arp timeout 14400
no arp permit-nonconnected
arp rate-limit 16384
!
object network INSIDE-NET
 nat (inside,outside) dynamic interface
route outside 0.0.0.0 0.0.0.0 209.165.200.225 1
timeout xlate 3:00:00
timeout pat-xlate 0:00:30
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 sctp 0:02:00 icmp 0:00:02
timeout sunrpc 0:10:00 h323 0:05:00 h225 1:00:00 mgcp 0:05:00 mgcp-pat 0:05:00
timeout sip 0:30:00 sip_media 0:02:00 sip-invite 0:03:00 sip-disconnect 0:02:00
timeout sip-provisional-media 0:02:00 uauth 0:05:00 absolute
timeout tcp-proxy-reassembly 0:01:00
timeout floating-conn 0:00:00
timeout conn-holddown 0:00:15
timeout igp stale-route 0:01:10
user-identity default-domain LOCAL
aaa authentication ssh console LOCAL
aaa authentication login-history
http server enable
http 192.168.10.0 255.255.255.0 inside
no snmp-server location
no snmp-server contact
service sw-reset-button
crypto ipsec security-association pmtu-aging infinite
```

```
crypto ca trustpool policy
telnet timeout 5
ssh stricthostkeycheck
ssh timeout 5
ssh version 2
ssh key-exchange group dh-group1-sha1
console timeout 0

threat-detection basic-threat
threat-detection statistics access-list
no threat-detection statistics tcp-intercept
dynamic-access-policy-record DfltAccessPolicy
username Admin01 password ***** pbkdf2
!
class-map inspection_default
 match default-inspection-traffic
!
!
policy-map type inspect dns preset_dns_map
 parameters
  message-length maximum client auto
  message-length maximum 512
  no tcp-inspection
policy-map global_policy
 class inspection_default
  inspect ftp
  inspect h323 h225
  inspect h323 ras
  inspect ip-options
  inspect netbios
  inspect rsh
  inspect rtsp
  inspect skinny
  inspect esmtp
  inspect sqlnet
  inspect sunrpc
  inspect tftp
  inspect sip
  inspect xdmcp
  inspect dns preset_dns_map
  inspect icmp
policy-map type inspect dns migrated_dns_map_2
 parameters
  message-length maximum client auto
  message-length maximum 512
  no tcp-inspection
policy-map type inspect dns migrated_dns_map_1
 parameters
  message-length maximum client auto
```

```
  message-length maximum 512
  no tcp-inspection
!
service-policy global_policy global
prompt hostname context
no call-home reporting anonymous
call-home
 profile CiscoTAC-1
  no active
  destination address http
https://tools.cisco.com/its/service/oddce/services/DDCEService
  destination address email callhome@cisco.com
  destination transport-method http
  subscribe-to-alert-group diagnostic
  subscribe-to-alert-group environment
  subscribe-to-alert-group inventory periodic monthly
  subscribe-to-alert-group configuration periodic monthly
  subscribe-to-alert-group telemetry periodic daily
Cryptochecksum:be9c401436b4d204e84b81ff1cc6b043
: end
```

ASA (Final Configuration)

```
CCNAS-ASA# show run
: Saved

:
: Hardware:   ASA5506, 4096 MB RAM, CPU Atom C2000 series 1250 MHz, 1 CPU (4 cores)
:
ASA Version 9.10(1)
!
hostname CCNAS-ASA
domain-name ccnasecurity.com
enable password ***** pbkdf2
names
no mac-address auto
ip local pool VPN-POOL 192.168.10.201-192.168.10.210 mask 255.255.255.0

!
interface GigabitEthernet1/1
 nameif outside
 security-level 0
 ip address 209.165.200.226 255.255.255.248
!
interface GigabitEthernet1/2
 nameif inside
 security-level 100
 ip address 192.168.10.1 255.255.255.0
!
interface GigabitEthernet1/3
```

```
 shutdown
 no nameif
 no security-level
 no ip address
!
interface GigabitEthernet1/4
 shutdown
 no nameif
 no security-level
 no ip address
!
interface GigabitEthernet1/5
 shutdown
 no nameif
 no security-level
 no ip address
!
interface GigabitEthernet1/6
 shutdown
 no nameif
 no security-level
 no ip address
!
interface GigabitEthernet1/7
 shutdown
 no nameif
 no security-level
 no ip address
!
interface GigabitEthernet1/8
 shutdown
 no nameif
 no security-level
 no ip address
!
interface Management1/1
 management-only
 shutdown
 no nameif
 no security-level
 no ip address
!
ftp mode passive
dns server-group DefaultDNS
 domain-name ccnasecurity.com
object network INSIDE-NET
 subnet 192.168.10.0 255.255.255.0
object network NETWORK_OBJ_192.168.10.192_27
 subnet 192.168.10.192 255.255.255.224
```

```
pager lines 24
mtu inside 1500
mtu outside 1500
icmp unreachable rate-limit 1 burst-size 1
no asdm history enable
arp timeout 14400
no arp permit-nonconnected
arp rate-limit 16384
nat (inside,outside) source static any any destination static
NETWORK_OBJ_192.168.10.192_27 NETWORK_OBJ_192.168.10.192_27 no-proxy-arp route-
lookup
!
object network INSIDE-NET
 nat (inside,outside) dynamic interface
route outside 0.0.0.0 0.0.0.0 209.165.200.225 1
timeout xlate 3:00:00
timeout pat-xlate 0:00:30
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 sctp 0:02:00 icmp 0:00:02
timeout sunrpc 0:10:00 h323 0:05:00 h225 1:00:00 mgcp 0:05:00 mgcp-pat 0:05:00
timeout sip 0:30:00 sip_media 0:02:00 sip-invite 0:03:00 sip-disconnect 0:02:00
timeout sip-provisional-media 0:02:00 uauth 0:05:00 absolute
timeout tcp-proxy-reassembly 0:01:00
timeout floating-conn 0:00:00
timeout conn-holddown 0:00:15
timeout igp stale-route 0:01:10
user-identity default-domain LOCAL
aaa authentication ssh console LOCAL
aaa authentication login-history
http server enable
http 192.168.10.0 255.255.255.0 inside
no snmp-server location
no snmp-server contact
service sw-reset-button
crypto ipsec security-association pmtu-aging infinite
crypto ca trustpool policy
telnet timeout 5
ssh stricthostkeycheck
ssh timeout 5
ssh version 2
ssh key-exchange group dh-group1-sha1
console timeout 0

threat-detection basic-threat
threat-detection statistics access-list
no threat-detection statistics tcp-intercept
webvpn
 enable outside
 anyconnect image disk0:/anyconnect-win-4.6.04054-webdeploy-k9.pkg 1
 anyconnect enable
```

```
 tunnel-group-list enable
 cache
  disable
 error-recovery disable
group-policy GroupPolicy_ANYCONNECT-SSL-VPN internal
group-policy GroupPolicy_ANYCONNECT-SSL-VPN attributes
 wins-server none
 dns-server value 10.20.30.40
 vpn-tunnel-protocol ssl-client
 default-domain value ccnasecurity.com
dynamic-access-policy-record DfltAccessPolicy
username Admin01 password ***** pbkdf2
username VPNuser password ***** pbkdf2
tunnel-group ANYCONNECT-SSL-VPN type remote-access
tunnel-group ANYCONNECT-SSL-VPN general-attributes
 address-pool VPN-POOL
 default-group-policy GroupPolicy_ANYCONNECT-SSL-VPN
tunnel-group ANYCONNECT-SSL-VPN webvpn-attributes
 group-alias ANYCONNECT-SSL-VPN enable
!
class-map inspection_default
 match default-inspection-traffic
!
!
policy-map type inspect dns preset_dns_map
 parameters
  message-length maximum client auto
  message-length maximum 512
  no tcp-inspection
policy-map global_policy
 class inspection_default
  inspect ftp
  inspect h323 h225
  inspect h323 ras
  inspect ip-options
  inspect netbios
  inspect rsh
  inspect rtsp
  inspect skinny
  inspect esmtp
  inspect sqlnet
  inspect sunrpc
  inspect tftp
  inspect sip
  inspect xdmcp
  inspect dns preset_dns_map
  inspect icmp
policy-map type inspect dns migrated_dns_map_2
 parameters
```

```
  message-length maximum client auto
  message-length maximum 512
  no tcp-inspection
policy-map type inspect dns migrated_dns_map_1
 parameters
  message-length maximum client auto
  message-length maximum 512
  no tcp-inspection
!
service-policy global_policy global
prompt hostname context
no call-home reporting anonymous
call-home
 profile CiscoTAC-1
  no active
  destination address http
https://tools.cisco.com/its/service/oddce/services/DDCEService
  destination address email callhome@cisco.com
  destination transport-method http
  subscribe-to-alert-group diagnostic
  subscribe-to-alert-group environment
  subscribe-to-alert-group inventory periodic monthly
  subscribe-to-alert-group configuration periodic monthly
  subscribe-to-alert-group telemetry periodic daily
Cryptochecksum:70b79ea38a4953d56311e0ef8ec9db18
: end
```