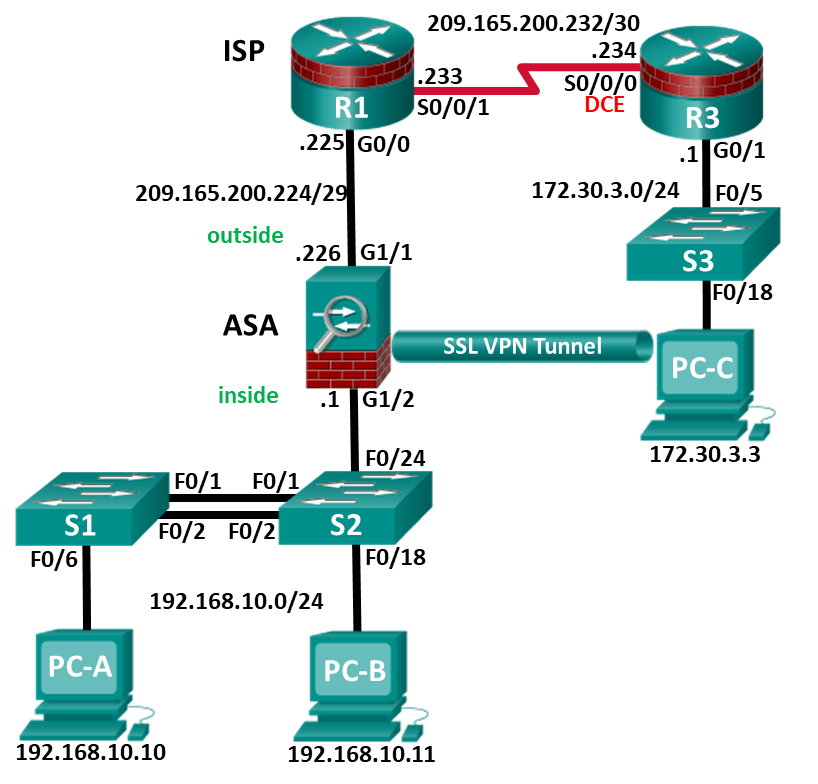
Skills Assessment Using ASA-5506-X – Form A (Answer Key)

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

1. Topology



1. 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)

1. 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.

1. 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

1. 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

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.

1. 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 |
| 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 |
| 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**

1. 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 |
| 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**

1. 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 |
| 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 |
| 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 | |
| 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**

1. 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 |
| 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 |
| 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.) |
| 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**

1. 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 |
| 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 |
| 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**

1. 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.

* 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 |

* 1. 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.

1. 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. | | | | |

1. Device Configs
2. 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

1. 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