Cisco Secure Firewall ASA Upgrade Guide

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Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

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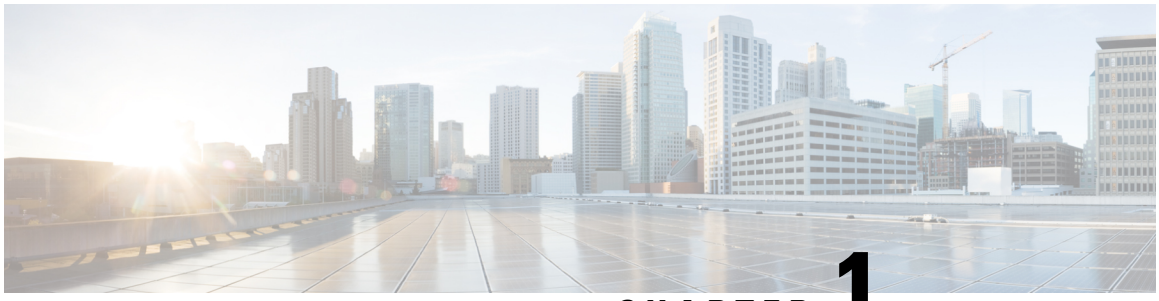


CHAPTER 1

Planning Your Upgrade

Before upgrading the Secure Firewall ASA, you should perform the following preparation:

- Check the upgrade path for the current version to the target version; ensure you plan for any intermediate versions required for each operating system.
- Check for guidelines and limitations that affect your intermediate and target versions, or that affect failover and clustering zero downtime upgrading.
- Download all software packages required from Cisco.com.
- Back up your configurations, especially if there is a configuration migration.

The following topics explain how to upgrade your ASA.

Important Guidelines Before You Upgrade

Check for upgrade guidelines and limitations, and configuration migrations for each operating system.

ASA Upgrade Guidelines

Before you upgrade, check for migrations and any other guidelines.

Version-Specific Guidelines and Migrations

Depending on your current version, you might experience one or more configuration migrations, and have to consider configuration guidelines for all versions between the starting version and the ending version when you upgrade.

9.20 Guidelines

- **OSPF redistribute commands that specify a route-map that matches a prefix-list will be removed in 9.20(2)**—When you upgrade to 9.20(2), OSPF **redistribute** commands where the specified **route-map** uses a **match ip address prefix-list** will be removed from the configuration. Although prefix lists have never been supported, the parser still accepted the command. Before upgrading, you should reconfigure OSPF to use route maps that specify an ACL in the **match ip address** command.

9.19 Guidelines

- **ASDM 7.19(1) requires Oracle Java version 8u261 or later**—Before you upgrade to ASDM 7.19, be sure to update Oracle Java (if used) to version 8u261 or later. This version supports TLSv1.3, which is required to upgrade the ASDM Launcher. OpenJRE is not affected.

9.18 Guidelines

- **ASDM signed-image support in 9.18(2)/7.18(1.152) and later**—The ASA now validates whether the ASDM image is a Cisco digitally signed image. If you try to run an older ASDM image with an ASA version with this fix, ASDM will be blocked and the message "%ERROR: Signature not valid for file disk0:/<filename>" will be displayed at the ASA CLI. ASDM release 7.18(1.152) and later are backwards compatible with all ASA versions, even those without this fix. (CSCwb05291, CSCwb05264)
- **9.18(1) upgrade issue if you enabled HTTPS/ASDM (with HTTPS authentication) and SSL on the same interface with the same port**—If you enable both SSL (**webvpn** > **enable** *interface*) and HTTPS/ASDM (**http**) access on the same interface, you can access AnyConnect from **https://***ip_address* and ASDM from **https://***ip_address***/admin**, both on port 443. However, if you also enable HTTPS authentication (**aaa authentication http console**), then you must specify a different port for ASDM access starting in 9.18(1). Make sure you change the port before you upgrade using the **http** command. (CSCvz92016)
- **ASDM Upgrade Wizard**—Due to ASD API migration, you must use ASDM 7.18 or later to upgrade to ASA 9.18 or later. Because ASDM is backwards compatible with earlier ASA versions, you can upgrade ASDM to 7.18 or later for any ASA version.

9.17 Guidelines

- **ASDM signed-image support in 9.17(1.13)/7.18(1.152) and later**—The ASA now validates whether the ASDM image is a Cisco digitally signed image. If you try to run an older ASDM image with an ASA version with this fix, ASDM will be blocked and the message "%ERROR: Signature not valid for file disk0:/<filename>" will be displayed at the ASA CLI. ASDM release 7.18(1.152) and later are backwards compatible with all ASA versions, even those without this fix. (CSCwb05291, CSCwb05264)
- **No support for Clientless SSL VPN in 9.17(1) and later**—Clientless SSL VPN is no longer supported.
  - **webvpn**—The following subcommands are removed:
    - **apcf**
    - **java-trustpoint**
    - **onscreen-keyboard**
    - **port-forward**
    - **portal-access-rule**

    - **rewrite**
    - **smart-tunnel**

  - **group-policy webvpn**—The following subcommands are removed:
    - **port-forward**
    - **smart-tunnel**
    - **ssl-clientless**

- **ASDM Upgrade Wizard**—Due to an internal change, starting in March 2022 the upgrade wizard will no longer work with pre-ASDM 7.17(1.152) versions. You must manually upgrade to 7.17(1.152) to use the wizard.

9.16 Guidelines

- **ASDM signed-image support in 9.16(3.19)/7.18(1.152) and later**—The ASA now validates whether the ASDM image is a Cisco digitally signed image. If you try to run an older ASDM image with an ASA version with this fix, ASDM will be blocked and the message "%ERROR: Signature not valid for file disk0:/<filename>" will be displayed at the ASA CLI. ASDM release 7.18(1.152) and later are backwards compatible with all ASA versions, even those without this fix. (CSCwb05291, CSCwb05264)
- **SNMPv3 users using MD5 hashing and DES encryption are no longer supported, and the users will be removed when you upgrade to 9.16(1)**—Be sure to change any user configuration to higher security algorithms using the **snmp-server user** command before you upgrade.
- **SSH host key action required in 9.16(1)**—In addition to RSA, we added support for the EDDSA and ECDSA host keys for SSH. The ASA tries to use keys in the following order if they exist: EDDSA, ECDSA, and then RSA. When you upgrade to 9.16(1), the ASA will fall back to using the existing RSA key. However, we recommend that you generate higher-security keys as soon as possible using the **crypto key generate** {**eddsa** | **ecdsa**} command. Moreover, if you explicitly configure the ASA to use the RSA key with the **ssh key-exchange hostkey rsa** command, you must generate a key that is 2048 bits or higher. For upgrade compatibility, the ASA will use smaller RSA host keys only when the default host key setting is used. RSA support will be removed in a later release.
- **In 9.16 and later, certificates with RSA keys are not compatible with ECDSA ciphers**—When you use the ECDHE_ECDSA cipher group, configure the trustpoint with a certificate that contains an ECDSA-capable key.
- **ssh version command removed in 9.16(1)**—This command has been removed. Only SSH version 2 is supported.
- **When you upgrade to 9.16 or later, you might see a different certificate serial number**—In 9.16, the ASA started using OpenSSL, which causes negative values in certificates to be computed differently, so you may see a different serial number after upgrading. This change does not affect operation. (CSCvv30338)
- **SAMLv1 feature removed in 9.16(1)**—Support for SAMLv1 was removed.
- **No support for DH groups 2, 5, and 24 in 9.16(1)**—Support has been removed for the DH groups 2, 5, and 24 in SSL DH group configuration. The **ssl dh-group** command has been updated to remove the command options **group2**, **group5**, and **group24**.

9.15 Guidelines

- **No support in ASA 9.15(1) and later for the ASA 5525-X, ASA 5545-X, and ASA 5555-X**—ASA 9.14(x) is the last supported version. For the ASA FirePOWER module, the last supported version is 6.6.
- **Cisco announces the feature deprecation for Clientless SSL VPN effective with ASA version 9.17(1)**—Limited support will continue on releases prior to 9.17(1).
- **For the Firepower 1010, invalid VLAN IDs can cause problems**—Before you upgrade to 9.15(1), make sure you are not using a VLAN for switch ports in the range 3968 to 4047. These IDs are for internal use only, and 9.15(1) includes a check to make sure you are not using these IDs. For example, if these IDs are in use after upgrading a failover pair, the failover pair will go into a suspended state. See CSCvw33057 for more information.
- **SAMLv1 feature deprecation**—Support for SAMLv1 is deprecated.
- **Low-Security Cipher Removal in ASA 9.15(1)**—Support for the following less secure ciphers used by IKE and IPsec have been removed:
  - Diffie-Hellman groups: 2 and 24
  - Encryption algorithms: DES, 3DES, AES-GMAC, AES-GMAC-192, AES-GMAC-256, NULL, ESP-3DES, ESP-DES, ESP-MD5-HMAC
  - Hash algorithms: MD5

Note Low-security SSH and SSL ciphers have not yet been removed.

Before you upgrade from an earlier version of ASA to Version 9.15(1), you must update your VPN configuration to use the ciphers supported in 9.15(1), or else the old configuration will be rejected. When the configuration is rejected, one of the following actions will occur, depending on the command:

- The command will use the default cipher.
- The command will be removed.

Fixing your configuration before upgrading is especially important for clustering or failover deployments. For example, if the secondary unit is upgraded to 9.15(1), and the removed ciphers are synced to this unit from the primary, then the secondary unit will reject the configuration. This rejection might cause unexpected behavior, like failure to join the cluster.

IKEv1: The following subcommands are removed:

- **crypto ikev1 policy** *priority*:
  - **hash md5**
  - **encryption 3des**
  - **encryption des**
  - **group 2**

IKEv2: The following subcommands are removed:

- **crypto ikev2 policy** *priority*:

- **prf md5**
- **integrity md5**
- **group 2**
- **group 24**
- **encryption 3des**
- **encryption des**
- **encryption null**

IPsec: The following subcommands are removed:

- **crypto ipsec ikev1 transform-set *name* esp-3des esp-des esp-md5-hmac**
- **crypto ipsec ikev2 ipsec-proposal *name***
  - **protocol esp integrity md5**
  - **protocol esp encryption 3des aes-gmac aes-gmac- 192 aes-gmac -256 des**
- **crypto ipsec profile *name***
  - **set pfs group2 group24**

Crypto Map: The following subcommands are removed:

- **crypto map *name sequence* set pfs group2**
- **crypto map *name sequence* set pfs group24**
- **crypto map *name sequence* set ikev1 phase1-mode aggressive group2**

- **Re-introduction of CRL Distribution Point configuration**—The static CDP URL configuration option, that was removed in 9.13(1), was re-introduced in the **match-certificate** command.
- **Restoration of bypass certificate validity checks option**—The option to bypass revocation checking due to connectivity problems with the CRL or OCSP server was restored.

  The following subcommands were restored:

  - **revocation-check crl none**
  - **revocation-check ocsp none**
  - **revocation-check crl ocsp none**
  - **revocation-check ocsp crl none**

9.14 Guidelines

- **ASDM signed-image support in 9.14(4.14)/7.18(1.152) and later**—The ASA now validates whether the ASDM image is a Cisco digitally signed image. If you try to run an older ASDM image with an ASA version with this fix, ASDM will be blocked and the message "%ERROR: Signature not valid for file

disk0:/<filename>" will be displayed at the ASA CLI. ASDM release 7.18(1.152) and later are backwards compatible with all ASA versions, even those without this fix. (CSCwb05291, CSCwb05264)

- **ASDM Cisco.com Upgrade Wizard failure on Firepower 1000 and 2100 in Appliance mode**—The ASDM Cisco.com Upgrade Wizard does not work for upgrading to 9.14 (**Tools > Check for ASA/ASDM Updates**). The wizard can upgrade ASDM from 7.13 to 7.14, but the ASA image upgrade is grayed out. (CSCvt72183) As a workaround, use one of the following methods:
  - Use **Tools > Upgrade Software from Local Computer** for both ASA and ASDM. Note that the ASDM image (7.14(1)) in the 9.14(1) bundle also has the bug CSCvt72183; you should download the newer 7.14(1.46) image to enable correct functioning of the wizard.
  - Use **Tools > Check for ASA/ASDM Updates** to upgrade to ASDM 7.14 (the version will be 7.14(1.46); then use the new ASDM to upgrade the ASA image. Note that you may see a **Fatal Installation Error**; in this case, click **OK**. You must then set the boot image manually on the **Configuration** > **Device Management** > **System Image/Configuration** > **Boot Image/Configuration** screen. Save the configuration and reload the ASA.
- **For Failover pairs in 9.14(1)+, the ASA no longer shares SNMP client engine data with its peer.**
- **No support in ASA 9.14(1)+ for cnatAddrBindNumberOfEntries and cnatAddrBindSessionCount OIDs (**CSCvy22526**)**.
- **Upgrading the Firepower 2100 in Platform mode**—When you upgrade to 9.14 or later, if your EtherChannel (port-channel) was disabled at the time of upgrade, then you will need to manually enable both the EtherChannel and its member interfaces after upgrade.
- **Downgrade issue for the Firepower 2100 in Platform mode from 9.13/9.14 to 9.12 or earlier**—For a Firepower 2100 with a fresh installation of 9.13 or 9.14 that you converted to Platform mode: If you downgrade to 9.12 or earlier, you will not be able to configure new interfaces or edit existing interfaces in FXOS (note that 9.12 and earlier only supports Platform mode). You either need to restore your version to 9.13 or later, or you need to clear your configuration using the FXOS erase configuration command. This problem does not occur if you originally upgraded to 9.13 or 9.14 from an earlier release; only fresh installations are affected, such as a new device or a re-imaged device. (CSCvr19755)
- **The tls-proxy keyword, and support for SCCP/Skinny encrypted inspection, was removed** from the **inspect skinny** command.
- **ASDM Upgrade Wizard**—Due to an internal change, the wizard is only supported using ASDM 7.10(1) and later; also, due to an image naming change, you must use ASDM 7.12(1) or later to upgrade to ASA 9.10(1) and later. Because ASDM is backwards compatible with earlier ASA releases, you can upgrade ASDM no matter which ASA version you are running. Note that ASDM 7.13 and 7.14 did not support the ASA 5512-X, 5515-X, 5585-X, or ASASM; you must upgrade to ASDM 7.13(1.101) or 7.14(1.48) to restore ASDM support.

9.13 Guidelines

- **ASAv requires 2GB memory in 9.13(1) and later**—Beginning with 9.13(1), the minimum memory requirement for the ASAv is 2GB. If your current ASAv runs with less than 2GB of memory, you cannot upgrade to 9.13(1) from an earlier version. You must adjust the memory size before upgrading. See the ASAv Getting Started Guide for information about the resource allocations (vCPU and memory) supported in version 9.13(1).
- **Downgrade issue for the Firepower 2100 in Platform mode from 9.13 to 9.12 or earlier**—For a Firepower 2100 with a fresh installation of 9.13 that you converted to Platform mode: If you downgrade

to 9.12 or earlier, you will not be able to configure new interfaces or edit existing interfaces in FXOS (note that 9.12 and earlier only supports Platform mode). You either need to restore your version to 9.13, or you need to clear your configuration using the FXOS erase configuration command. This problem does not occur if you originally upgraded to 9.13 from an earlier release; only fresh installations are affected, such as a new device or a re-imaged device. (CSCvr19755)

- **Cluster control link MTU change in 9.13(1)**—Starting in 9.13(1), many cluster control packets are larger than they were in previous releases. The recommended MTU for the cluster control link has always been 1600 or greater, and this value is appropriate. However, if you set the MTU to 1600 but then failed to match the MTU on connecting switches (for example, you left the MTU as 1500 on the switch), then you will start seeing the effects of this mismatch with dropped cluster control packets. Be sure to set all devices on the cluster control link to the same MTU, specifically 1600 or higher.
- **Beginning with 9.13(1), the ASA establishes an LDAP/SSL connection only if one of the following certification criteria is satisfied**:
  - The LDAP server certificate is trusted (exists in a trustpoint or the ASA trustpool) and is valid.
  - A CA certificate from servers issuing chain is trusted (exists in a trustpoint or the ASA trustpool) and all subordinate CA certificates in the chain are complete and valid.
- **Local CA server is removed in 9.13(1)**—When the ASA is configured as local CA server, it can issue digital certificates, publish Certificate Revocation Lists (CRLs), and securely revoke issued certificates. This feature has become obsolete and hence the **crypto ca server** command is removed.
- **Removal of CRL Distribution Point commands**—The static CDP URL configuration commands, namely **crypto-ca-trustpoint crl** and **crl url** were removed with other related logic. The CDP URL was moved to match certificate command.

Note The CDP URL configuration was enhanced to allow multiple instances of the CDP override for a single map (refer CSCvu05216).

- **Removal of bypass certificate validity checks option**—The option to bypass revocation checking due to connectivity problems with the CRL or OCSP server was removed.

  The following subcommands are removed:
  - **revocation-check crl none**
  - **revocation-check ocsp none**
  - **revocation-check crl ocsp none**
  - **revocation-check ocsp crl none**

  Thus, after an upgrade, any revocation-check command that is no longer supported will transition to the new behavior by ignoring the trailing none.

Note These commands were restored later (refer CSCtb41710).

- **Low-Security Cipher Deprecation**— Several encryption ciphers used by the ASA IKE, IPsec, and SSH modules are considered insecure and have been deprecated. They will be removed in a later release.

  IKEv1: The following subcommands are deprecated:

  - **crypto ikev1 policy** *priority*:
    - **hash md5**
    - **encryption 3des**
    - **encryption des**
    - **group 2**
    - **group 5**

  IKEv2: The following subcommands are deprecated:

  - **crypto ikev2 policy** *priority*
    - **integrity md5**
    - **prf md5**
    - **group 2**
    - **group 5**
    - **group 24**
    - **encryption 3des**
    - **encryption des** (this command is still available when you have the DES encryption license only)
    - **encryption null**

  IPsec: The following commands are deprecated:

  - **crypto ipsec ikev1 transform-set** ***name*** **esp-3des esp-des esp-md5-hmac**
  - **crypto ipsec ikev2 ipsec-proposal** ***name***
    - **protocol esp integrity md5**
    - **protocol esp encryption 3des aes-gmac aes-gmac- 192 aes-gmac -256 des**
  - **crypto ipsec profile** ***name***
    - **set pfs group2 group5 group24**

  SSH: The following commands are deprecated:

  - **ssh cipher integrity custom hmac-sha1-96:hmac-md5: hmac-md5-96**
  - **ssh key-exchange group dh-group1-sha1**

  SSL: The following commands are deprecated:

- **ssl dh-group group2**
- **ssl dh-group group5**
- **ssl dh-group group24**

Crypto Map: The following commands are deprecated:

- **crypto map *name sequence* set pfs group2**
- **crypto map *name sequence* set pfs group5**
- **crypto map *name sequence* set pfs group24**
- **crypto map *name sequence* set ikev1 phase1-mode aggressive group2**
- **crypto map *name sequence* set ikev1 phase1-mode aggressive group5**

- **In 9.13(1), Diffie-Hellman Group 14 is now the default** for the **group** command under **crypto ikev1 policy**, **ssl dh-group**, and **crypto ikev2 policy**for IPsec PFS using **crypto map set pfs**, **crypto ipsec profile**, **crypto dynamic-map set pfs**, and **crypto map set ikev1 phase1-mode**. The former default Diffie-Hellman group was Group 2.

  When you upgrade from a pre-9.13(1) release, if you need to use the old default (Diffie-Hellman Group 2), then you must *manually* configure the DH group as **group 2** or else your tunnels will default to Group 14. Because group 2 will be removed in a future release, you should move your tunnels to group 14 as soon as possible.

9.12 Guidelines

- **ASDM signed-image support in 9.12(4.50)/7.18(1.152) and later**—The ASA now validates whether the ASDM image is a Cisco digitally signed image. If you try to run an older ASDM image with an ASA version with this fix, ASDM will be blocked and the message "%ERROR: Signature not valid for file disk0:/<filename>" will be displayed at the ASA CLI. ASDM release 7.18(1.152) and later are backwards compatible with all ASA versions, even those without this fix. (CSCwb05291, CSCwb05264)
- ASDM Upgrade Wizard—Due to an internal change, the wizard is only supported using ASDM 7.10(1) and later; also, due to an image naming change, you must use ASDM 7.12(1) or later to upgrade to ASA 9.10(1) and later. Because ASDM is backwards compatible with earlier ASA releases, you can upgrade ASDM no matter which ASA version you are running.
- SSH security improvements and new defaults in 9.12(1)—See the following SSH security improvements:
  - SSH version 1 is no longer supported; only version 2 is supported. The **ssh version 1** command will be migrated to **ssh version 2**.
  - Diffie-Hellman Group 14 SHA256 key exchange support. This setting is now the default (**ssh key-exchange group dh-group14-sha256**). The former default was Group 1 SHA1. Make sure that your SSH client supports Diffie-Hellman Group 14 SHA256. If it does not, you may see an error such as "Couldn't agree on a key exchange algorithm." For example, OpenSSH supports Diffie-Hellman Group 14 SHA256.
  - HMAC-SHA256 integrity cipher support. The default is now the high security set of ciphers (hmac-sha1 and hmac-sha2-256 as defined by the **ssh cipher integrity high** command). The former default was the medium set.

- The NULL-SHA TLSv1 cipher is deprecated and removed in 9.12(1)—Because NULL-SHA doesn't offer encryption and is no longer considered secure against modern threats, it will be removed when listing supported ciphers for TLSv1 in the output of **tls-proxy** mode commands/options and **show ssl ciphers all**. The **ssl cipher tlsv1 all** and **ssl cipher tlsv1 custom NULL-SHA** commands will also be deprecated and removed.
- The default trustpool is removed in 9.12(1)—In order to comply with PSB requirement, SEC-AUT-DEFROOT, the "default" trusted CA bundle is removed from the ASA image. As a result, **crypto ca trustpool import default** and **crypto ca trustpool import clean default** commands are also removed along with other related logic. However, in existing deployments, certificates that were previously imported using these command will remain in place.
- The **ssl encryption** command is removed in 9.12(1)—In 9.3(2) the deprecation was announced and replaced by **ssl cipher**. In 9.12(1), **ssl encryption** is removed and no longer supported.

9.10 Guidelines

- Due to an internal change, the ASDM Upgrade wizard is only supported using ASDM 7.10(1) and later; also, due to an image naming change, you must use ASDM 7.12(1) or later to upgrade to ASA 9.10(1) and later. Because ASDM is backwards compatible with earlier ASA releases, you can upgrade ASDM no matter which ASA version you are running.

9.9 Guidelines

- ASA 5506-X memory issues with large configurations on 9.9(2) and later—If you upgrade to 9.9(2) or later, parts of a very large configuration might be rejected due to insufficient memory with the following message: "ERROR: Insufficient memory to install the rules". One option is to enter the **object-group-search access-control** command to improve memory usage for ACLs; your performance might be impacted, however. Alternatively, you can downgrade to 9.9(1).

9.8 Guidelines

- **ASDM signed-image support in 9.8(4.45)/7.18(1.152) and later**—The ASA now validates whether the ASDM image is a Cisco digitally signed image. If you try to run an older ASDM image with an ASA version with this fix, ASDM will be blocked and the message “%ERROR: Signature not valid for file disk0:/<filename>” will be displayed at the ASA CLI. ASDM release 7.18(1.152) and later are backwards compatible with all ASA versions, even those without this fix. (CSCwb05291, CSCwb05264)
- Before upgrading to 9.8(2) or later, FIPS mode requires the failover key to be at least 14 characters—Before you upgrade to to 9.8(2) or later in FIPS mode, you must change the **failover key** or **failover ipsec pre-shared-key** to be at least 14 characters long. If your failover key is too short, when you upgrade the first unit, the failover key will be rejected, and both units will become active until you set the failover key to a valid value.
- Do not upgrade to 9.8(1) for ASAv on Amazon Web Services--Due to CSCve56153, you should not upgrade to 9.8(1). After upgrading, the ASAv becomes unreachable. Upgrade to 9.8(1.5) or later instead.

9.7 Guidelines

- Upgrade issue with 9.7(1) to 9.7(1.x) and later for VTI and VXLAN VNI—If you configure both Virtual Tunnel Interfaces (VTIs) and VXLAN Virtual Network Identifier (VNI) interfaces, then you cannot perform a zero downtime upgrade for failover; connections on these interface types will not replicate to the standby unit until both units are on the same version. (CSCvc83062)

9.6 Guidelines

- (ASA 9.6(2) through 9.7(x)) Upgrade impact when using SSH public key authentication—Due to updates to SSH authentication, additional configuration is required to enable SSH public key authentication; as a result, existing SSH configurations using public key authentication no longer work after upgrading. Public key authentication is the default for the ASAv on Amazon Web Services (AWS), so AWS users will see this issue. To avoid loss of SSH connectivity, you can update your configuration *before* you upgrade. Or you can use ASDM after you upgrade (if you enabled ASDM access) to fix the configuration.

Note The original behavior was restored in 9.8(1).

Sample original configuration for a username "admin":

```
username admin nopassword privilege 15
username admin attributes
  ssh authentication publickey 55:06:47:eb:13:75:fc:5c:a8:c1:2c:bb:
  07:80:3a:fc:d9:08:a9:1f:34:76:31:ed:ab:bd:3a:9e:03:14:1e:1b hashed
```

To use the **ssh authentication** command, before you upgrade, enter the following commands:

```
aaa authentication ssh console LOCAL
username admin password <password> privilege 15
```

We recommend setting a password for the username as opposed to keeping the **nopassword** keyword, if present. The **nopassword** keyword means that *any* password can be entered, not that *no* password can be entered. Prior to 9.6(2), the **aaa** command was not required for SSH public key authentication, so the **nopassword** keyword was not triggered. Now that the **aaa** command is required, it automatically also allows regular password authentication for a **username** if the **password** (or **nopassword**) keyword is present.

After you upgrade, the **username** command no longer requires the **password** or **nopassword** keyword; you can require that a user cannot enter a password. Therefore, to force public key authentication only, re-enter the **username** command:

```
username admin privilege 15
```

- Upgrade impact when upgrading the ASA on the Firepower 9300— Due to license entitlement naming changes on the back-end, when you upgrade to ASA 9.6(1)/FXOS 1.1(4), the startup configuration may not parse correctly upon the initial reload; configuration that corresponds to add-on entitlements is rejected.

  For a standalone ASA, after the unit reloads with the new version, wait until all the entitlements are processed and are in an "Authorized" state (**show license all** or **Monitoring > Properties > Smart License**), and simply reload again (**reload** or **Tools > System Reload**) *without* saving the configuration. After the reload, the startup configuration will be parsed correctly.

  For a failover pair if you have any add-on entitlements, follow the upgrade procedure in the FXOS release notes, but reset failover after you reload each unit (**failover reset** or **Monitoring > Properties > Failover**

> **Status**, **Monitoring** > **Failover** > **System**, or **Monitoring** > **Failover** > **Failover Group**, and then click **Reset Failover**).

For a cluster, follow the upgrade procedure in the FXOS release notes; no additional action is required.

9.5 Guidelines and Migration

- 9.5(2) New Carrier License—The new Carrier license replaces the existing GTP/GPRS license, and also includes support for SCTP and Diameter inspection. For the Firepower 9300 ASA security module, the **feature mobile-sp** command will automatically migrate to the **feature carrier** command.
- 9.5(2) E-mail proxy commands deprecated—In ASA Version 9.5(2), the e-mail proxy commands (**imap4s**, **pop3s**, **smtps**) and subcommands are no longer supported.
- 9.5(2) CSD commands deprecated or migrated—In ASA Version 9.5(2), the CSD commands (**csd image**, **show webvpn csd image**, **show webvpn csd**, **show webvpn csd hostscan**, **show webvpn csd hostscan image**) are no longer supported.

  The following CSD commands will migrate: **csd enable** migrates to **hostscan enable**; **csd hostscan image** migrates to **hostscan image**.
- 9.5(2) Select AAA commands deprecated—In ASA Version 9.5(2), these AAA commands and subcommands (**override-account-disable**, **authentication crack**) are no longer supported.
- 9.5(1) We deprecated the following command: **timeout gsn**
- ASA 5508-X and 5516-X upgrade issue when upgrading to 9.5(x) or later—Before you upgrade to ASA Version 9.5(x) or later, if you never enabled jumbo frame reservation then you must check the maximum memory footprint. Due to a manufacturing defect, an incorrect software memory limit might have been applied. If you upgrade to 9.5(x) or later before performing the below fix, then your device will crash on bootup; in this case, you must downgrade to 9.4 using ROMMON (Load an Image for the ASA 5500-X Series Using ROMMON), perform the below procedure, and then upgrade again.

  1. Enter the following command to check for the failure condition:

     ```
     ciscoasa# show memory detail | include Max memory footprint
     Max memory footprint        =    456384512
     Max memory footprint        =            0
     Max memory footprint        =    456384512
     ```

     If a value less than **456,384,512** is returned for "Max memory footprint," then the failure condition is present, and you must complete the remaining steps before you upgrade. If the memory shown is 456,384,512 or greater, then you can skip the rest of this procedure and upgrade as normal.

  2. Enter global configuration mode:

     ```
     ciscoasa# configure terminal
     ciscoasa(config)#
     ```

  3. Temporarily enable jumbo frame reservation:

     ```
     ciscoasa(config)# jumbo-frame reservation
     WARNING: This command will take effect after the running-config
     is saved and the system has been rebooted. Command accepted.
     ```

```
INFO: Interface MTU should be increased to avoid fragmenting
jumbo frames during transmit
```

Note Do not reload the ASA.

4. Save the configuration:

```
ciscoasa(config)# write memory
Building configuration...
Cryptochecksum: b511ec95 6c90cadb aaf6b306 41579572
14437 bytes copied in 1.320 secs (14437 bytes/sec)
[OK]
```

5. Disable jumbo frame reservation:

```
ciscoasa(config)# no jumbo-frame reservation
WARNING: This command will take effect after the running-config is saved and
the system has been rebooted. Command accepted.
```

Note Do not reload the ASA.

6. Save the configuration again:

```
ciscoasa(config)# write memory
Building configuration...
Cryptochecksum: b511ec95 6c90cadb aaf6b306 41579572
14437 bytes copied in 1.320 secs (14437 bytes/sec)
[OK]
```

7. You can now upgrade to Version 9.5(x) or later.

9.4 Guidelines and Migration

- 9.4(1) Unified Communications Phone Proxy and Intercompany Media Engine Proxy are deprecated—In ASA Version 9.4, the Phone Proxy and IME Proxy are no longer supported.

9.3 Guidelines and Migration

- 9.3(2) Transport Layer Security (TLS) version 1.2 support—We now support TLS version 1.2 for secure message transmission for ASDM, Clientless SSVPN, and AnyConnect VPN. We introduced or modified the following commands: ssl client-version, ssl server-version, ssl cipher, ssl trust-point, ssl dh-group. We deprecated the following command: ssl encryption
- 9.3(1) Removal of AAA Windows NT domain authentication—We removed NTLM support for remote access VPN users. We deprecated the following command: aaa-server protocol nt

9.2 Guidelines and Migration

Auto Update Server certificate verification

9.2(1) Auto Update Server certificate verification enabled by default. The Auto Update Server certificate verification is now enabled by default; for new configurations, you must explicitly disable certificate verification. If you are upgrading from an earlier release, and you did not enable certificate verification, then certificate verification is not enabled, and you see the following warning:

```
WARNING: The certificate provided by the auto-update servers will not be verified. In order
to verify this certificate please use the verify-certificate option.
```

The configuration will be migrated to explicitly configure no verification:

auto-update server no-verification

Upgrade impact for ASDM login

Upgrade impact for ASDM login when upgrading from a pre-9.2(2.4) release to 9.2(2.4) or later. If you upgrade from a pre-9.2(2.4) release to ASA Version 9.2(2.4) or later and you use command authorization and ASDM-defined user roles, users with Read Only access will not be able to log in to ASDM. You must change the **more** command either before or after you upgrade to be at privilege level 5; only Admin level users can make this change. Note that ASDM version 7.3(2) and later includes the **more** command at level 5 for defined user roles, but preexisting configurations need to be fixed manually.

ASDM:

1. Choose **Configuration > Device Management > Users/AAA > AAA Access > Authorization**, and click **Configure Command Privileges**.
2. Select **more**, and click **Edit**.

3. Change the **Privilege Level** to 5, and click **OK**.
4. Click **OK**, and then **Apply**.

CLI:

```
ciscoasa(config)# privilege cmd level 5 mode exec command more
```

9.1 Guidelines and Migration

- Maximum MTU Is Now 9198 Bytes—If your MTU was set to a value higher than 9198, then the MTU is automatically lowered when you upgrade. In some cases, this MTU change can cause an MTU mismatch; be sure to set any connecting equipment to use the new MTU value. The maximum MTU that the ASA can use is 9198 bytes (check for your model's exact limit at the CLI help). This value does not include the Layer 2 header. Formerly, the ASA let you specify the maximum MTU as 65535 bytes, which was inaccurate and could cause problems.

9.0 Guidelines and Migration

- **IPv6 ACL Migration**—IPv6 ACLs (**ipv6 access-list**) will be migrated to extended ACLs (**access-list extended**); IPv6 ACLs are no longer supported.

If IPv4 and IPv6 ACLs are applied on the same direction of an interface (**access-group** command), then the ACLs are merged:

- If both IPv4 and IPv6 ACLs are not used anywhere other than the access-group, then the name of the IPv4 ACL is used for the merged ACL; the IPv6 access-list is removed.
- If at least one of the ACLs is used in another feature, then a new ACL is created with the name *IPv4-ACL-name_IPv6-ACL-name*; the in-use ACL(s) continue to be used for other features. ACLs not in use are removed. If the IPv6 ACL is in use for another feature, it is migrated to an extended ACL of the same name.

- **ACL Any Keyword Migration**—Now that ACLs support both IPv4 and IPv6, the **any** keyword now represents "all IPv4 and IPv6 traffic." Any existing ACLs that use the **any** keyword will be changed to use the **any4** keyword, which denotes "all IPv4 traffic."

  In addition, a separate keyword was introduced to designate "all IPv6 traffic": **any6**.

  The **any4** and **any6** keywords are not available for all commands that use the **any** keyword. For example, the NAT feature uses only the **any** keyword; any represents IPv4 traffic or IPv6 traffic depending on the context within the specific NAT command.

- **Static NAT-with-port-translation Requirement Before Upgrading**—In Version 9.0 and later, static NAT-with-port-translation rules limit access to the destination IP address for the specified port only. If you try to access the destination IP address on a different port not covered by a NAT rule, then the connection is blocked. This behavior is also true for Twice NAT. Moreover, traffic that does not match the source IP address of the Twice NAT rule will be dropped if it matches the destination IP address, regardless of the destination port. Therefore, before you upgrade, you must add additional rules for all other traffic allowed to the destination IP address.

  For example, you have the following Object NAT rule to translate HTTP traffic to the inside server between port 80 and port 8080:

  ```
  object network my-http-server
    host 10.10.10.1
    nat (inside,outside) static 192.168.1.1 80 8080
  ```

  If you want any other services to reach the server, such as FTP, then you must explicitly allow them:

  ```
  object network my-ftp-server
    host 10.10.10.1
    nat (inside,outside) static 192.168.1.1 ftp ftp
  ```

  Or, to allow traffic to other ports of the server, you can add a general static NAT rule that will match all other ports:

  ```
  object network my-server-1
    host 10.10.10.1
    nat (inside,outside) static 192.168.1.1
  ```

  For Twice NAT, you have the following rule to allow HTTP traffic from 192.168.1.0/24 to the inside server and translate between port 80 and port 8080:

  ```
  object network my-real-server
    host 10.10.10.1
  ```

```
object network my-mapped-server
  host 192.168.1.1
object network outside-real-hosts
  subnet 192.168.1.0 255.255.255.0
object network outside-mapped-hosts
  subnet 10.10.11.0 255.255.255.0
object service http-real
  service tcp destination eq 80
object service http-mapped
  service tcp destination eq 8080
object service ftp-real
  service tcp destination eq 21
nat (outside,inside) source static outside-real-hosts outside-mapped-hosts destination
 static my-mapped-server my-real-server service http-mapped http-real
```

If you want the outside hosts to reach another service on the inside server, add another NAT rule for the service, for example FTP:

```
nat (outside,inside) source static outside-real-hosts outside-mapped-hosts destination
 static my-mapped-server my-real-server ftp-real ftp-real
```

If you want other source addresses to reach the inside server on any other ports, you can add another NAT rule for that specific IP address or for any source IP address. Make sure the general rule is ordered after the specific rule.

```
nat (outside,inside) source static any any destination static my-mapped-server
my-real-server
```

8.4 Guidelines and Migration

- Configuration Migration for Transparent Mode—In 8.4, all transparent mode interfaces now belong to a bridge group. When you upgrade to 8.4, the existing two interfaces are placed in bridge group 1, and the management IP address is assigned to the Bridge Group Virtual Interface (BVI). The functionality remains the same when using one bridge group. You can now take advantage of the bridge group feature to configure up to four interfaces per bridge group and to create up to eight bridge groups in single mode or per context.

Note Note In 8.3 and earlier, as an unsupported configuration, you could configure a management interface without an IP address, and you could access the interface using the device management address. In 8.4, the device management address is assigned to the BVI, and the management interface is no longer accessible using that IP address; the management interface requires its own IP address.

- When upgrading to 8.4(2) from 8.3(1), 8.3(2), and 8.4(1), all identity NAT configurations will now include the **no-proxy-arp** and **route-lookup** keywords, to maintain existing functionality. The **unidirectional** keyword is removed.

8.3 Guidelines and Migration

See the following guide that describes the configuration migration process when you upgrade from a pre-8.3 version of the Cisco ASA 5500 operating system (OS) to Version 8.3:

Cisco ASA 5500 Migration to Version 8.3

Clustering Guidelines

There are no special requirements for Zero Downtime Upgrades for ASA clustering with the following exceptions.

Note Zero Downtime *Downgrades* are not officially supported with clustering.

- Firepower 4100/9300 Failover and Clustering hitless upgrade requirements for flow offload—Due to bug fixes in the flow offload feature, some combinations of FXOS and ASA do not support flow offload (see the Firepower 4100/9300 Compatibility with ASA and Threat Defense). Flow offload is disabled by default for ASA. To perform a Failover or Clustering hitless upgrade when using flow offload, you need to follow the below upgrade paths to ensure that you are always running a compatible combination when upgrading to FXOS 2.3.1.130 or later:

  1. Upgrade ASA to 9.8(3) or later
  2. Upgrade FXOS to 2.3.1.130 or later
  3. Upgrade ASA to your final version

  For example, you are on FXOS 2.2.2.26/ASA 9.8(1), and you want to upgrade to FXOS 2.6.1/ASA 9.12(1), then you can:

  1. Upgrade ASA to 9.8(4)
  2. Upgrade FXOS to 2.6.1
  3. Upgrade ASA to 9.12(1)

- Firepower 4100/9300 Cluster Upgrade to FXOS 2.3/ASA 9.9(2)—Data units on ASA 9.8 and earlier cannot rejoin a cluster where the control unit is on FXOS 2.3/9.9(2) or later; they will join after you upgrade the ASA version to 9.9(2)+ [CSCvi54844].
- Distributed Site-to-Site VPN—Distributed Site-to-Site VPN sessions on a failed unit require up to 30 minutes to stabilize on other units. During this time, additional unit failures might result in lost sessions. Therefore, during a cluster upgrade, to avoid traffic loss, follow these steps. Refer to the FXOS/ASA cluster upgrade procedure so you can integrate these steps into your upgrade task.

Note Zero Downtime Upgrade is not supported with Distributed Site-to-Site VPN when upgrading from 9.9(1) to 9.9(2) or later. In 9.9(2), due to Active Session Redistribution enhancements, you cannot run some units on 9.9(2) and other units on 9.9(1).

1. On the chassis *without* the control unit, disable clustering on one module using the ASA console.

   cluster group *name*

   no enable

If you are upgrading FXOS on the chassis as well as ASA, save the configuration so clustering will be disabled after the chassis reboots:

write memory

2. Wait for the cluster to stabilize; verify all backup sessions have been created.

   show cluster vpn-sessiondb summary

3. Repeat steps 1 and 2 for each module on this chassis.
4. Upgrade FXOS on the chassis using the FXOS CLI or Firepower Chassis Manager.
5. After the chassis comes online, update the ASA image on each module using the FXOS CLI or Firepower Chassis Manager.
6. After the modules come online, re-enable clustering on each module at the ASA console.

   cluster group *name*

   enable

   write memory

7. Repeat steps 1 through 6 on the second chassis, being sure to disable clustering on the data units first, and then finally the control unit.

   A new control unit will be chosen from the upgraded chassis.

8. After the cluster has stabilized, redistribute active sessions among all modules in the cluster using the ASA console on the control unit.

   cluster redistribute vpn-sessiondb

- Upgrade issue for 9.9(1) and later with clustering—9.9(1) and later includes an improvement in the backup distribution. You should perform your upgrade to 9.9(1) or later as follows to take advantage of the new backup distribution method; otherwise upgraded units will continue to use the old method.
  1. Remove all secondary units from the cluster (so the cluster consists only of the primary unit).
  2. Upgrade 1 secondary unit, and rejoin the cluster.
  3. Disable clustering on the primary unit; upgrade it, and rejoin the cluster.
  4. Upgrade the remaining secondary units, and join them back to the cluster, one at a time.

- Firepower 4100/9300 Cluster Upgrade to ASA 9.8(1) and earlier—When you disable clustering on a data unit (**no enable**), which is part of the upgrade process, traffic directed to that unit can drop for up to three seconds before traffic is redirected to a new owner [CSCvc85008].
- Zero Downtime Upgrade may not be supported when upgrading to the following releases with the fix for CSCvb24585. This fix moved 3DES from the default (medium) SSL ciphers to the low cipher set. If you set a custom cipher that only includes 3DES, then you may have a mismatch if the other side of the connection uses the default (medium) ciphers that no longer include 3DES.
  - 9.1(7.12)
  - 9.2(4.18)
  - 9.4(3.12)

- 9.4(4)
- 9.5(3.2)
- 9.6(2.4)
- 9.6(3)
- 9.7(1)
- 9.8(1)

- Upgrade issues for fully-qualified domain name (FQDN) ACLs—Due to CSCuv92371, ACLs containing FQDNs might result in incomplete ACL replication to secondary units in a cluster or failover pair. This bug is present in 9.1(7), 9.5(2), 9.6(1), and some interim releases. We suggest that you upgrade to a version that includes the fix for CSCuy34265: 9.1(7.6) or later, 9.5(3) or later, 9.6(2) or later. However, due to the nature of configuration replication, zero downtime upgrade is not available. See CSCuy34265 for more information about different methods of upgrading.
- Firepower Threat Defense Version 6.1.0 clusters do not support inter-site clustering (you can configure inter-site features using FlexConfig starting in 6.2.0). If you deployed or re-deployed a 6.1.0 cluster in FXOS 2.1.1, and you entered a value for the (unsupported) site ID, then you must remove the site ID (set it to **0**) on each unit in FXOS before you upgrade to 6.2.3. Otherwise, the units will not be able to rejoin the cluster after the upgrade. If you already upgraded, change the site ID to **0** on each unit to resolve the issue. See the FXOS configuration guide to view or change the site ID
- Upgrade to 9.5(2) or later (CSCuv82933)—Before you upgrade the control unit, if you enter **show cluster info**, the upgraded data units show as "DEPUTY_BULK_SYNC"; other mismatched states are also shown. You can ignore this display; the status will show correctly when you upgrade all units.
- Upgrade from 9.0(1) or 9.1(1) (CSCue72961)—Zero Downtime Upgrade is not supported.

Failover Guidelines

There are no special requirements for Zero Downtime Upgrades for failover with the following exceptions:

- For the Firepower 1010, invalid VLAN IDs can cause problems—Before you upgrade to 9.15(1), make sure you are not using a VLAN for switch ports in the range 3968 to 4047. These IDs are for internal use only, and 9.15(1) includes a check to make sure you are not using these IDs. For example, if these IDs are in use after upgrading a failover pair, the failover pair will go into a suspended state. See CSCvw33057 for more information.
- Firepower 4100/9300 Failover and Clustering hitless upgrade requirements for flow offload—Due to bug fixes in the flow offload feature, some combinations of FXOS and ASA do not support flow offload (see the Firepower 4100/9300 Compatibility with ASA and Threat Defense). Flow offload is disabled by default for ASA. To perform a Failover or Clustering hitless upgrade when using flow offload, you need to follow the below upgrade paths to ensure that you are always running a compatible combination when upgrading to FXOS 2.3.1.130 or later:

  1. Upgrade ASA to 9.8(3) or later
  2. Upgrade FXOS to 2.3.1.130 or later
  3. Upgrade ASA to your final version

For example, you are on FXOS 2.2.2.26/ASA 9.8(1), and you want to upgrade to FXOS 2.6.1/ASA 9.12(1), then you can:

1. Upgrade ASA to 9.8(4)
2. Upgrade FXOS to 2.6.1
3. Upgrade ASA to 9.12(1)

- Upgrade issues with 8.4(6), 9.0(2) , and 9.1(2)—Due to CSCug88962, you cannot perform a Zero Downtime Upgrade to 8.4(6), 9.0(2), or 9.1(3). You should instead upgrade to 8.4(5) or 9.0(3). To upgrade 9.1(1), you cannot upgrade directly to the 9.1(3) release due to CSCuh25271, so there is no workaround for a Zero Downtime Upgrade; you must upgrade to 9.1(2) before you upgrade to 9.1(3) or later.
- Upgrade issues for fully-qualified domain name (FQDN) ACLs—Due to CSCuv92371, ACLs containing FQDNs might result in incomplete ACL replication to secondary units in a cluster or failover pair. This bug is present in 9.1(7), 9.5(2), 9.6(1), and some interim releases. We suggest that you upgrade to a version that includes the fix for CSCuy34265: 9.1(7.6) or later, 9.5(3) or later, 9.6(2) or later. However, due to the nature of configuration replication, zero downtime upgrade is not available. See CSCuy34265 for more information about different methods of upgrading.
- Upgrade issue with 9.7(1) to 9.7(1.x) and later for VTI and VXLAN VNI—If you configure both Virtual Tunnel Interfaces (VTIs) and VXLAN Virtual Network Identifier (VNI) interfaces, then you cannot perform a zero downtime upgrade for failover; connections on these interface types will not replicate to the standby unit until both units are on the same version. (CSCvc83062)
- Before upgrading to 9.8(2) or later, FIPS mode requires the failover key to be at least 14 characters—Before you upgrade to to 9.8(2) or later in FIPS mode, you must change the **failover key** or **failover ipsec pre-shared-key** to be at least 14 characters long. If your failover key is too short, when you upgrade the first unit, the failover key will be rejected, and both units will become active until you set the failover key to a valid value.
- Upgrade issue with GTP inspection—There could be some downtime during the upgrade, because the GTP data structures are not replicated to the new node.

Additional Guidelines

- Cisco ASA Clientless SSL VPN Portal Customization Integrity Vulnerability—Multiple vulnerabilities have been fixed for clientless SSL VPN in ASA software, so you should upgrade your software to a fixed version. See http://tools.cisco.com/security/center/content/CiscoSecurityAdvisory/cisco-sa-20141008-asa for details about the vulnerability and a list of fixed ASA versions. Also, if you ever ran an earlier ASA version that had a vulnerable configuration, then regardless of the version you are currently running, you should verify that the portal customization was not compromised. If an attacker compromised a customization object in the past, then the compromised object stays persistent after you upgrade the ASA to a fixed version. Upgrading the ASA prevents this vulnerability from being exploited further, but it will not modify any customization objects that were already compromised and are still present on the system.

FXOS Upgrade Guidelines

Before you upgrade, read the release notes for each FXOS version in your chosen upgrade path. Release notes contain important information about each FXOS release, including new features and changed functionality.

Upgrading may require configuration changes that you must address. For example, new hardware supported in an FXOS release might also require that you update the FXOS firmware.

FXOS release notes are available here: https://www.cisco.com/c/en/us/support/security/firepower-9000-series/products-release-notes-list.html.

ASA Upgrade Checklist

To plan your upgrade, use this checklist.

1. ASA model (Upgrade Path: ASA Appliances, on page 39): _____

   Current ASA version (Upgrade Path: ASA Appliances, on page 39): _____

2. Check the ASA/ASDM compatibility per model (ASA and ASDM Compatibility Per Model, on page 22).

   Target ASA version: _____

   Target ASDM version: _____

3. Check the upgrade path for the Firepower 2100 in Platform mode (Upgrade Path: ASA on Firepower 2100 in Platform Mode, on page 47). Are there intermediate versions required? Yes _____ No _____

   If yes, intermediate ASA version(s): _____

4. Download the target ASA/ASDM versions (Download ASA Software, on page 57).

   Note ASDM is included in the image package for all Firepower and Secure Firewall platforms.

5. Is your ASA model a Firepower 4100 or 9300? Yes _____ No _____

   If yes:

   a. Current FXOS version: _____

   b. Check ASA/Firepower 4100 and 9300 compatibility (Firepower 4100/9300 Compatibility with ASA and Threat Defense, on page 28).

      Target FXOS version: _____

   c. Are there intermediate versions required? Yes _____ No _____

      If yes, intermediate FXOS versions: _____

      Make sure you plan to upgrade the ASA in step with the FXOS upgrades to stay compatible.

      Intermediate ASA versions required to stay compatible during the upgrade:

      _____

   d. Download the target and intermediate FXOS version (Download FXOS for the Firepower 4100/9300, on page 67).

      Download the intermediate ASA versions (Download ASA Software, on page 57).

   e. Do you use the Radware DefensePro decorator application? Yes _____ No _____

If yes:

1. Current DefensePro version: _____
2. Check ASA/FXOS/DefensePro compatibility (Radware DefensePro Compatibility, on page 36).

   Target DefensePro version: _____
3. Download the target DefensePro version.

6. Check upgrade guidelines for each operating system.
   - ASA Upgrade Guidelines, on page 1.
   - FXOS guidelines: see the FXOS Release Notes for each intermediate and target version.
7. Back up your configurations. See the configuration guide for each operating system for backup methods.

Compatibility

This section includes tables showing the compatibility between platforms, operating systems, and applications.

ASA and ASDM Compatibility Per Model

The following tables list ASA and ASDM compatibility for current models. For older versions and models, see Cisco ASA Compatibility.

ASA 9.20 and 9.19

Releases in **bold** are the recommended versions.

Note

- ASA 9.18(x) was the final version for the Firepower 4110, 4120, 4140, 4150, and Security Modules SM-24, SM-36, and SM-44 for the Firepower 9300.
- ASDM versions are backwards compatible with all previous ASA versions, unless otherwise stated. For example, ASDM 7.19(1) can manage an ASA 5516-X on ASA 9.10(1).
- New ASA versions require the coordinating ASDM version or a later version; you cannot use an old version of ASDM with a new version of ASA. For example, you cannot use ASDM 7.18 with ASA 9.19. For ASA interims, you can continue to use the current ASDM version, unless otherwise stated. For example, you can use ASA 9.19(1.2) with ASDM 7.19(1).

Table 1: ASA and ASDM Compatibility: 9.20 and 9.19

ASA	ASDM	ASA Model								
		ASA Virtual	Firepower 1010 1120 1140 1150		Firepower 2110 2120 2130 2140	Secure Firewall 3105 3110 3120 3130 3140	Firepower 4112 4115 4125 4145	Secure Firewall 4215 Secure Firewall 4225 Secure Firewall 4245	Firepower 9300	ISA 3000
9.20(2)	7.20(2)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
9.20(1)	7.20(1)	—	—	—	—	—	—	**YES**	—	—
9.19(1)	7.19(1)	**YES**	**YES**		**YES**	**YES**	**YES**	—	**YES**	**YES**

ASA 9.18 to 9.17

Releases in **bold** are the recommended versions.

Note

- ASA 9.16(x) was the final version for the ASA 5506-X, 5506H-X, 5506W-X, 5508-X, and 5516-X.
- ASDM versions are backwards compatible with all previous ASA versions, unless otherwise stated. For example, ASDM 7.17(1) can manage an ASA 5516-X on ASA 9.10(1).
- New ASA versions require the coordinating ASDM version or a later version; you cannot use an old version of ASDM with a new version of ASA. For example, you cannot use ASDM 7.17 with ASA 9.18. For ASA interims, you can continue to use the current ASDM version, unless otherwise stated. For example, you can use ASA 9.17(1.2) with ASDM 7.17(1).
- ASA 9.17(1.13) and 9.18(2) and later requires ASDM 7.18(1.152) or later. The ASA now validates whether the ASDM image is a Cisco digitally signed image. If you try to run an older ASDM image than 7.18(1.152) with an ASA version with this fix, ASDM will be blocked and the message "%ERROR: Signature not valid for file disk0:/<filename>" will be displayed at the ASA CLI. (CSCwb05291, CSCwb05264)

Table 2: ASA and ASDM Compatibility: 9.18 to 9.17

ASA	ASDM	ASA Model							
		ASA Virtual	Firepower 1010 1120 1140 1150		Firepower 2110 2120 2130 2140	Secure Firewall 3110 3120 3130 3140	Firepower 4110 4112 4115 4120 4125 4140 4145 4150	Firepower 9300	ISA 3000
9.18(4)	7.20(1)	**YES**	**YES**		**YES**	**YES**	**YES**	**YES**	**YES**
9.18(3)	7.19(1.90)	**YES**	**YES**		**YES**	**YES**	**YES**	**YES**	**YES**
9.18(2)	7.18(1.152)	**YES**	**YES**	—	**YES**	**YES**	**YES**	**YES**	**YES**
9.18(1)	7.18(1)	**YES**	**YES**	—	**YES**	**YES**	**YES**	**YES**	**YES**
9.17(1.13)	7.18(1.152)	**YES**	**YES**	—	**YES**	**YES**	**YES**	**YES**	**YES**
9.17(1)	7.17(1)	**YES**	**YES**	—	**YES**	**YES**	**YES**	**YES**	**YES**

ASA 9.16 to 9.15

Releases in **bold** are the recommended versions.

Note

- ASA 9.16(x) was the final version for the ASA 5506-X, 5506H-X, 5506W-X, 5508-X, and 5516-X.
- ASA 9.14(x) was the final version for the ASA 5525-X, 5545-X, and 5555-X.
- ASDM versions are backwards compatible with all previous ASA versions, unless otherwise stated. For example, ASDM 7.15(1) can manage an ASA 5516-X on ASA 9.10(1).
- New ASA versions require the coordinating ASDM version or a later version; you cannot use an old version of ASDM with a new version of ASA. For example, you cannot use ASDM 7.15 with ASA 9.16. For ASA interims, you can continue to use the current ASDM version, unless otherwise stated. For example, you can use ASA 9.16(1.15) with ASDM 7.16(1).
- ASA 9.16(3.19) and later requires ASDM 7.18(1.152) or later. The ASA now validates whether the ASDM image is a Cisco digitally signed image. If you try to run an older ASDM image than 7.18(1.152) with an ASA version with this fix, ASDM will be blocked and the message "%ERROR: Signature not valid for file disk0:/<filename>" will be displayed at the ASA CLI. (CSCwb05291, CSCwb05264)

Table 3: ASA and ASDM Compatibility: 9.16 to 9.15

ASA	ASDM	ASA Model						
		ASA 5506-X 5506H-X 5506W-X 5508-X 5516-X	ASAv	Firepower 1010 1120 1140 1150	Firepower 2110 2120 2130 2140	Firepower 4110 4112 4115 4120 4125 4140 4145 4150	Firepower 9300	ISA 3000
9.16(4)	7.18(1.152)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
9.16(3.19)	7.18(1.152)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
9.16(3)	7.16(1.150)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
9.16(2)	7.16(1.150)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
9.16(1)	7.16(1)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
9.15(1)	7.15(1)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**

ASA 9.14 to 9.13

Releases in **bold** are the recommended versions.

Note

- ASA 9.14(x) was the final version for the ASA 5525-X, 5545-X, and 5555-X.
- ASA 9.12(x) was the final version for the ASA 5512-X, 5515-X, 5585-X, and ASASM.
- ASDM versions are backwards compatible with all previous ASA versions, unless otherwise stated. For example, ASDM 7.13(1) can manage an ASA 5516-X on ASA 9.10(1). ASDM 7.13(1) and ASDM 7.14(1) did not support ASA 5512-X, 5515-X, 5585-X, and ASASM; you must upgrade to ASDM 7.13(1.101) or 7.14(1.48) to restore ASDM support.
- New ASA versions require the coordinating ASDM version or a later version; you cannot use an old version of ASDM with a new version of ASA. For example, you cannot use ASDM 7.13 with ASA 9.14. For ASA interims, you can continue to use the current ASDM version, unless otherwise stated. For example, you can use ASA 9.14(1.2) with ASDM 7.14(1).
- ASA 9.14(4.14) and later requires ASDM 7.18(1.152) or later. The ASA now validates whether the ASDM image is a Cisco digitally signed image. If you try to run an older ASDM image than 7.18(1.152) with an ASA version with this fix, ASDM will be blocked and the message "%ERROR: Signature not valid for file disk0:/<filename>" will be displayed at the ASA CLI. (CSCwb05291, CSCwb05264)

Table 4: ASA and ASDM Compatibility: 9.14 to 9.13

ASA	ASDM	ASA Model							
		ASA 5506-X **5506H-X** **5506W-X** **5508-X** **5516-X**	**ASA 5525-X** **5545-X** **5555-X**	**ASAv**	**Firepower 1010** **1120** **1140** **1150**	**Firepower 2110** **2120** **2130** **2140**	**Firepower 4110** **4112** **4115** **4120** **4125** **4140** **4145** **4150**	**Firepower 9300**	**ISA 3000**
9.14(4.14)	7.18(1.152)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
9.14(4.6)	7.17(1.152)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
9.14(4)	7.17(1)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
9.14(3)	7.16(1.150)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
9.14(2)	7.14(1.48)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
9.14(1.30)	7.14(1.48)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
9.14(1.6)	7.14(1.48)	—	—	**YES** (+ASAv100)	—	—	—	—	—
9.14(1)	7.14(1)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
9.13(1)	7.13(1)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES** (except 4112)	**YES**	**YES**

ASA 9.12 to 9.5

Releases in **bold** are the recommended versions.

Note

- ASA 9.12(x) was the final version for the ASA 5512-X, 5515-X, 5585-X, and ASASM.
- ASDM versions are backwards compatible with all previous ASA versions, unless otherwise stated. For example, ASDM 7.12(1) can manage an ASA 5515-X on ASA 9.10(1).
- New ASA versions require the coordinating ASDM version or a later version; you cannot use an old version of ASDM with a new version of ASA. For example, you cannot use ASDM 7.10 with ASA 9.12. For ASA interims, you can continue to use the current ASDM version, unless otherwise stated. For example, you can use ASA 9.12(1.15) with ASDM 7.12(1).
- ASA 9.8(4.45) and 9.12(4.50) and later require ASDM 7.18(1.152) or later. The ASA now validates whether the ASDM image is a Cisco digitally signed image. If you try to run an older ASDM image than 7.18(1.152) with an ASA version with this fix, ASDM will be blocked and the message "%ERROR: Signature not valid for file disk0:/<filename>" will be displayed at the ASA CLI. (CSCwb05291, CSCwb05264)

Table 5: ASA and ASDM Compatibility: 9.12 to 9.5

ASA	ASDM	ASA Model									
		ASA 5506-X 5506H-X 5506W-X 5508-X 5516-X	ASA 5512-X 5515-X 5525-X 5545-X 5555-X	ASA 5585-X	ASAv	ASASM	Firepower 2110 2120 2130 2140	Firepower 4110 4120 4140 4150	Firepower 4115 4125 4145	Firepower 9300	ISA 3000
9.12(4.50)	7.18(1.152)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
9.12(4)	7.13(1.101)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
9.12(3)	7.12(2)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
9.12(2)	7.12(2)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
9.12(1)	7.12(1)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
9.10(1)	7.10(1)	YES	YES	YES	YES	YES	YES	YES	—	YES	YES
9.9(2)	7.9(2)	YES	YES	YES	YES	YES	YES	YES	—	YES	YES
9.9(1)	7.9(1)	YES	YES	YES	YES	YES	YES	YES	—	YES	YES
9.8(4.45)	7.18(1.152)	YES	YES	YES	YES	YES	YES	YES	—	YES	YES
9.8(4)	7.12(1)	YES	YES	YES	YES	YES	YES	YES	—	YES	YES
9.8(3)	7.9(2.152)	YES	YES	YES	YES	YES	YES	YES	—	YES	YES
9.8(2)	7.8(2)	YES	YES	YES	YES	YES	YES	YES	—	YES	YES

ASA	ASDM	ASA Model									
		ASA 5506-X 5506H-X 5506W-X 5508-X 5516-X	ASA 5512-X 5515-X 5525-X 5545-X 5555-X	ASA 5585-X	ASAv	ASASM	Firepower 2110 2120 2130 2140	Firepower 4110 4120 4140 4150	Firepower 4115 4125 4145	Firepower 9300	ISA 3000
9.8(1.200)	No support	—	—	—	**YES**	—	—	—	—	—	—
9.8(1)	7.8(1)	**YES**	**YES**	**YES**	**YES** (+ASAv50)	**YES**	—	**YES**	—	**YES**	**YES**
9.7(1.4)	7.7(1)	**YES**	**YES**	**YES**	**YES**	**YES**	—	**YES**	—	**YES**	**YES**
9.6(4)	7.9(1)	**YES**	**YES**	**YES**	**YES**	**YES**	—	**YES**	—	**YES**	**YES**
9.6(3.1)	7.7(1)	**YES**	**YES**	**YES**	**YES**	**YES**	—	**YES**	—	**YES**	**YES**
9.6(2)	7.6(2)	**YES**	**YES**	**YES**	**YES**	**YES**	—	**YES**	—	**YES**	**YES**
9.6(1)	7.6(1)	**YES**	**YES**	**YES**	**YES**	**YES**	—	**YES** (except 4150)	—	**YES**	**YES**
9.5(3.9)	7.6(2)	**YES**	**YES**	**YES**	**YES**	**YES**	—	—	—	—	**YES**
9.5(2.200)	7.5(2.153)	—	—	—	**YES**	—	—	—	—	—	—
9.5(2.2)	7.5(2)	—	—	—	—	—	—	—	—	**YES**	—
9.5(2.1)	7.5(2)	—	—	—	—	—	—	—	—	**YES**	—
9.5(2)	7.5(2)	**YES**	**YES**	**YES**	**YES**	**YES**	—	—	—	—	**YES**
9.5(1.200)	7.5(1)	—	—	—	**YES**	—	—	—	—	—	—
9.5(1.5)	7.5(1.112)	**YES**	**YES**	**YES**	**YES**	**YES**	—	—	—	—	—
9.5(1)	7.5(1)	**YES**	**YES**	**YES**	**YES**	**YES**	—	—	—	—	—

Firepower 4100/9300 Compatibility with ASA and Threat Defense

The following table lists compatibility between the ASA and threat defense applications with the Firepower 4100/9300.

The **bold** versions listed below are specially-qualified companion releases. You should use these software combinations whenever possible because Cisco performs enhanced testing for these combinations.

For upgrading, see the following guidelines:

- FXOS—For 2.2.2 and later, you can upgrade directly to a higher version. When upgrading from versions earlier than 2.2.2, you need to upgrade to each intermediate version. Note that you cannot upgrade FXOS to a version that does not support your current logical device version. You will need to upgrade in steps: upgrade FXOS to the highest version that supports your current logical device; then upgrade your logical device to the highest version supported with that FXOS version. For example, if you want to upgrade from FXOS 2.2/ASA 9.8 to FXOS 2.13/ASA 9.19, you would have to perform the following upgrades:

  1. FXOS 2.2→FXOS 2.11 (the highest version that supports 9.8)
  2. ASA 9.8→ASA 9.17 (the highest version supported by 2.11)
  3. FXOS 2.11→FXOS 2.13
  4. ASA 9.17→ASA 9.19

- ASA—ASA lets you upgrade directly from your current version to any higher version, noting the FXOS requirements above.

Note This section applies only to the Firepower 4100/9300. Other models utilize FXOS only as an underlying operating system that is included in the ASA and threat defense unified image bundles. For the Secure Firewall 3100 in multi-instance mode, see the Threat Defense compatibility guide.

Note FXOS 2.8(1.125)+ and later versions do not support ASA 9.14(1) or 9.14(1.10) for ASA SNMP polls and traps; you must use 9.14(1.15)+. Other releases, such as 9.13 or 9.12, are not affected.

Note FXOS 2.12/ASA 9.18/Threat Defense 7.2 was the final version for the Firepower 4110, 4120, 4140, 4150, and Security Modules SM-24, SM-36, and SM-44 for the Firepower 9300.

Table 6: ASA or Threat Defense, and Firepower 4100/9300 Compatibility

FXOS Version	Model	ASA Version	Threat Defense Version
2.14(1)	Firepower 4112	**9.20** (recommended) 9.19 9.18 9.17 9.16 9.15 9.14	**7.4** (recommended) 7.3 7.2 7.1 7.0 6.7 6.6
	Firepower 4145 Firepower 4125 Firepower 4115 Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40	**9.20** (recommended) 9.19 9.18 9.17 9.16 9.15 9.14	**7.4** (recommended) 7.3 7.2 7.1 7.0 6.7 6.6
2.13	Firepower 4112	**9.19** (recommended) 9.18 9.17 9.16 9.15 9.14	**7.3** (recommended) 7.2 7.1 7.0 6.7 6.6
	Firepower 4145 Firepower 4125 Firepower 4115 Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40	**9.19** (recommended) 9.18 9.17 9.16 9.15 9.14	**7.3** (recommended) 7.2 7.1 7.0 6.7 6.6

FXOS Version	Model	ASA Version	Threat Defense Version
2.12	Firepower 4112	**9.18** (recommended) 9.17 9.16 9.15 9.14	**7.2** (recommended) 7.1 7.0 6.7 6.6
	Firepower 4145 Firepower 4125 Firepower 4115	**9.18** (recommended) 9.17 9.16 9.15 9.14 9.12	**7.2** (recommended) 7.1 7.0 6.7 6.6 6.4
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.18** (recommended) 9.17 9.16 9.15 9.14 9.12	**7.2** (recommended) 7.1 7.0 6.7 6.6 6.4
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		

FXOS Version	Model	ASA Version	Threat Defense Version
2.11	Firepower 4112	**9.17** (recommended) 9.16 9.15 9.14	**7.1** (recommended) 7.0 6.7 6.6
	Firepower 4145 Firepower 4125 Firepower 4115	**9.17** (recommended) 9.16 9.15 9.14 9.12	**7.1** (recommended) 7.0 6.7 6.6 6.4
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.17** (recommended) 9.16 9.15 9.14 9.12 9.8	**7.1** (recommended) 7.0 6.7 6.6 6.4
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		

FXOS Version	Model	ASA Version	Threat Defense Version
2.10 **Note** For compatibility with 7.0.2+ and 9.16(3.11)+, you need FXOS 2.10(1.179)+.	Firepower 4112	**9.16** (recommended) 9.15 9.14	**7.0** (recommended) 6.7 6.6
	Firepower 4145 Firepower 4125 Firepower 4115	**9.16** (recommended) 9.15 9.14 9.12	**7.0** (recommended) 6.7 6.6 6.4
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.16** (recommended) 9.15 9.14 9.12 9.8	**7.0** (recommended) 6.7 6.6 6.4
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		
2.9	Firepower 4112	**9.15** (recommended) 9.14	**6.7** (recommended) 6.6
	Firepower 4145 Firepower 4125 Firepower 4115	**9.15** (recommended) 9.14 9.12	**6.7** (recommended) 6.6 6.4
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.15** (recommended) 9.14 9.12 9.8	**6.7** (recommended) 6.6 6.4
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		

FXOS Version	Model	ASA Version	Threat Defense Version
2.8	Firepower 4112	**9.14**	**6.6** **Note** 6.6.1+ requires FXOS 2.8(1.125)+.
	Firepower 4145 Firepower 4125 Firepower 4115	**9.14** (recommended) 9.12 **Note** Firepower 9300 SM-56 requires ASA 9.12(2)+	**6.6** (recommended) **Note** 6.6.1+ requires FXOS 2.8(1.125)+. 6.4
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.14** (recommended) 9.12 9.8	**6.6** (recommended) **Note** 6.6.1+ requires FXOS 2.8(1.125)+. 6.4 6.2.3
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		
2.6(1.157) **Note** You can now run ASA 9.12+ and FTD 6.4+ on separate modules in the same Firepower 9300 chassis	Firepower 4145 Firepower 4125 Firepower 4115	**9.12** **Note** Firepower 9300 SM-56 requires ASA 9.12.2+	**6.4**
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.12** (recommended) 9.8	**6.4** (recommended) 6.2.3
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		

FXOS Version	Model	ASA Version	Threat Defense Version
2.6(1.131)	Firepower 9300 SM-48 Firepower 9300 SM-40	**9.12**	Not supported
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.12** (recommended) 9.8	
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		
2.3(1.73)	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	9.8 **Note** 9.8(2.12)+ is required for flow offload when running FXOS 2.3(1.130)+.	**6.2.3** (recommended) **Note** 6.2.3.16+ requires FXOS 2.3.1.157+
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		
2.3(1.66) 2.3(1.58)	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	9.8 **Note** 9.8(2.12)+ is required for flow offload when running FXOS 2.3(1.130)+.	
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		
2.2	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.8**	Threat Defense versions are EoL
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		

Radware DefensePro Compatibility

The following table lists the supported Radware DefensePro version for each security appliance and associated logical device.

Table 7: Radware DefensePro Compatibility

FXOS Version	ASA	Threat Defense	Radware DefensePro	Security Appliance Models
2.13.0	9.19(1)	7.3	8.13.01.09-3 8.22.2	Firepower 9300 Firepower 4112 Firepower 4115 Firepower 4125 Firepower 4145
2.12.0	9.18(1)	7.2	8.13.01.09-3 8.22.2	Firepower 9300 Firepower 4110 Firepower 4112 Firepower 4115 Firepower 4120 Firepower 4125 Firepower 4140 Firepower 4145 Firepower 4150
2.11.1	9.17(1)	7.1	8.13.01.09-3 8.22.2	Firepower 9300 Firepower 4110 Firepower 4112 Firepower 4115 Firepower 4120 Firepower 4125 Firepower 4140 Firepower 4145 Firepower 4150

FXOS Version	ASA	Threat Defense	Radware DefensePro	Security Appliance Models
2.10.1	9.16(1)	7.0	8.13.01.09-3 8.22.2	Firepower 9300 Firepower 4110 Firepower 4112 Firepower 4115 Firepower 4120 Firepower 4125 Firepower 4140 Firepower 4145 Firepower 4150
2.10.1	9.16(1)	7.0	8.13.01.09-3 8.22.2	Firepower 9300 Firepower 4110 Firepower 4112 Firepower 4115 Firepower 4120 Firepower 4125 Firepower 4140 Firepower 4145 Firepower 4150
2.9.1	9.15(1)	6.7.0	8.13.01.09-3 8.22.2	Firepower 9300 Firepower 4110 Firepower 4112 Firepower 4115 Firepower 4120 Firepower 4125 Firepower 4140 Firepower 4145 Firepower 4150

FXOS Version	ASA	Threat Defense	Radware DefensePro	Security Appliance Models
2.8.1	9.14(1)	6.6.0	8.13.01.09-3 8.22.2	Firepower 9300 Firepower 4110 Firepower 4112 Firepower 4115 Firepower 4120 Firepower 4125 Firepower 4140 Firepower 4145 Firepower 4150
2.7(1)	9.13(1)	6.5	8.13.01.09-3	Firepower 9300 Firepower 4110 Firepower 4115 Firepower 4120 Firepower 4125 Firepower 4140 Firepower 4145 Firepower 4150
2.6(1)	9.12(1) 9.10(1)	6.4.0 6.3.0	8.13.01.09-3	Firepower 9300 Firepower 4110 Firepower 4115 Firepower 4120 Firepower 4125 Firepower 4140 Firepower 4145 Firepower 4150
2.4(1)	9.9(2) 9.10(1)	6.2.3 6.3	8.13.01.09-2	Firepower 9300 Firepower 4110 Firepower 4120 Firepower 4140 Firepower 4150

FXOS Version	ASA	Threat Defense	Radware DefensePro	Security Appliance Models
2.3(1)	9.9(1) 9.9(2)	6.2.2 6.2.3	8.13.01.09-2	Firepower 9300 Firepower 4110 (Firepower Threat Defense only) Firepower 4120 Firepower 4140 Firepower 4150
2.2(2)	9.8(1) 9.8(2) 9.8(3)	6.2.0 6.2.2	8.10.01.17-2	Firepower 9300 Firepower 4110 (Firepower Threat Defense only) Firepower 4120 Firepower 4140 Firepower 4150
2.2(1)	9.7(1) 9.8(1)	6.2.0	8.10.01.17-2	Firepower 9300 Firepower 4110 (Firepower Threat Defense only) Firepower 4120 Firepower 4140 Firepower 4150
2.1(1)	9.6(2) 9.6(3) 9.6(4) 9.7(1)	not supported	8.10.01.16-5	Firepower 9300 Firepower 4120 Firepower 4140 Firepower 4150
2.0(1)	9.6(1) 9.6(2) 9.6(3) 9.6(4)	not supported	8.10.01.16-5	Firepower 9300 Firepower 4120 Firepower 4140 Firepower 4150
1.1(4)	9.6(1)	not supported	1.1(2.32-3)	9300

Upgrade Path

For each operating system that you are upgrading, check the supported upgrade path. In some cases, you may have to install interim upgrades before you can upgrade to your final version.

Upgrade Path: ASA Appliances

To view your current version and model, use one of the following methods:

- ASDM: Choose **Home** > **Device Dashboard** > **Device Information**.
- CLI: Use the **show version** command.

This table provides upgrade paths for ASA. Some older versions require an intermediate upgrade before you can upgrade to a newer version. Recommended versions are in **bold**.

Be sure to check the upgrade guidelines for each release between your starting version and your ending version. You may need to change your configuration before upgrading in some cases, or else you could experience an outage. See ASA Upgrade Guidelines, on page 1.

For guidance on security issues on the ASA, and which releases contain fixes for each issue, see the ASA Security Advisories.

Note 9.18 was the final version for the Firepower 4110, 4120, 4140, 4150, and Security Modules SM-24, SM-36, and SM-44 for the Firepower 9300.

ASA 9.16 was the final version for the ASA 5506-X, 5508-X, and 5516-X.

ASA 9.14 was the final version for the ASA 5525-X, 5545-X, and 5555-X.

ASA 9.12 was the final version for the ASA 5512-X, 5515-X, 5585-X, and ASASM.

ASA 9.2 was the final version for the ASA 5505.

ASA 9.1 was the final version for the ASA 5510, 5520, 5540, 5550, and 5580.

Table 8: Upgrade Path (Except for Firepower 2100 in Platform Mode)

Current Version	Interim Upgrade Version	Target Version
9.19	—	Any of the following: → **9.20**
9.18	—	Any of the following: → **9.20** → **9.19**
9.17	—	Any of the following: → **9.20** → **9.19** → **9.18**

Current Version	Interim Upgrade Version	Target Version
9.16	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17
9.15	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16**
9.14	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16** → 9.15
9.13	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16** → 9.15 → 9.14

Current Version	Interim Upgrade Version	Target Version
9.12	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16** → 9.15 → 9.14
9.10	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16** → 9.15 → 9.14 → 9.12
9.9	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16** → 9.15 → 9.14 → 9.12

Current Version	Interim Upgrade Version	Target Version
9.8	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16** → 9.15 → 9.14 → 9.12
9.7	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16** → 9.15 → 9.14 → 9.12 → 9.8
9.6	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16** → 9.15 → 9.14 → 9.12 → 9.8

Current Version	Interim Upgrade Version	Target Version
9.5	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16** → 9.15 → 9.14 → 9.12 → 9.8
9.4	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16** → 9.15 → 9.14 → 9.12 → 9.8
9.3	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16** → 9.15 → 9.14 → 9.12 → 9.8

Current Version	Interim Upgrade Version	Target Version
9.2	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16** → 9.15 → 9.14 → 9.12 → 9.8
9.1(2), 9.1(3), 9.1(4), 9.1(5), 9.1(6), or 9.1(7.4)	—	Any of the following: → 9.14 → **9.12** → 9.8 → 9.1(7.4)
9.1(1)	→ 9.1(2)	Any of the following: → 9.14 → **9.12** → 9.8 → 9.1(7.4)
9.0(2), 9.0(3), or 9.0(4)	—	Any of the following: → 9.14 → **9.12** → 9.8 → 9.6 → 9.1(7.4)

Current Version	Interim Upgrade Version	Target Version
9.0(1)	→ 9.0(4)	Any of the following: → 9.14 → **9.12** → 9.8 → 9.1(7.4)
8.6(1)	→ 9.0(4)	Any of the following: → 9.14 → **9.12** → 9.8 → 9.1(7.4)
8.5(1)	→ 9.0(4)	Any of the following: → **9.12** → 9.8 → 9.1(7.4)
8.4(5+)	—	Any of the following: → **9.12** → 9.8 → 9.1(7.4) → 9.0(4)
8.4(1) through 8.4(4)	→ 9.0(4)	→ **9.12** → 9.8 → 9.1(7.4)
8.3	→ 9.0(4)	Any of the following: → **9.12** → 9.8 → 9.1(7.4)
8.2 and earlier	→ 9.0(4)	Any of the following: → **9.12** → 9.8 → 9.1(7.4)

Upgrade Path: ASA on Firepower 2100 in Platform Mode

To view your current version and model, use one of the following methods:

- ASDM: Choose **Home** > **Device Dashboard** > **Device Information**.
- CLI: Use the **show version** command.

This table provides upgrade paths for the ASA on the Firepower 2100 in Platform mode. Some versions require an intermediate upgrade before you can upgrade to a newer version. Recommended versions are in **bold**.

Be sure to check the upgrade guidelines for each release between your starting version and your ending version. You may need to change your configuration before upgrading in some cases, or else you could experience an outage. See ASA Upgrade Guidelines, on page 1.

For guidance on security issues on the ASA, and which releases contain fixes for each issue, see the ASA Security Advisories.

Table 9: Upgrade Path for Firepower 2100 in Platform Mode

Current Version	Interim Upgrade Version	Target Version
9.19	—	Any of the following: → **9.20**
9.18	—	Any of the following: → **9.20** → **9.19**
9.17	—	Any of the following: → **9.20** → **9.19** → **9.18**
9.16	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17

Current Version	Interim Upgrade Version	Target Version
9.15	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16**
9.14	—	Any of the following: → **9.20** → **9.19** → **9.18** → 9.17 → **9.16** → 9.15
9.13	→ 9.18	Any of the following: → **9.20** → **9.19**
9.13	—	Any of the following: → **9.18** → 9.17 → **9.16** → 9.15 → 9.14
9.12	→ 9.18	Any of the following: → **9.20** → **9.19**

Current Version	Interim Upgrade Version	Target Version
9.12	—	Any of the following: → **9.18** → 9.17 → **9.16** → 9.15 → 9.14
9.10	→ 9.17	Any of the following: → **9.20** → **9.19** → **9.18**
9.10	—	Any of the following: → 9.17 → **9.16** → 9.15 → 9.14 → 9.12
9.9	→ 9.17	Any of the following: → **9.20** → **9.19** → **9.18**
9.9	—	Any of the following: → 9.17 → **9.16** → 9.15 → 9.14 → 9.12
9.8	→ 9.17	Any of the following: → **9.20** → **9.19** → **9.18**

Current Version	Interim Upgrade Version	Target Version
9.8	—	Any of the following: → 9.17 → **9.16** → 9.15 → 9.14 → 9.12

Upgrade Path: ASA Logical Devices for the Firepower 4100/9300

To view your current version and model, use one of the following methods:

- Firepower Chassis Manager: Choose **Overview**, and look at the **Model** and **Version** fields at the top.
- CLI: For the version, use the **show version** command, and look at the Package-Vers: field. For the model, enter **scope chassis 1**, and then **show inventory**.

For upgrading, see the following guidelines:

- FXOS—For 2.2.2 and later, you can upgrade directly to a higher version. When upgrading from versions earlier than 2.2.2, you need to upgrade to each intermediate version. Note that you cannot upgrade FXOS to a version that does not support your current logical device version. You will need to upgrade in steps: upgrade FXOS to the highest version that supports your current logical device; then upgrade your logical device to the highest version supported with that FXOS version. For example, if you want to upgrade from FXOS 2.2/ASA 9.8 to FXOS 2.13/ASA 9.19, you would have to perform the following upgrades:
  1. FXOS 2.2→FXOS 2.11 (the highest version that supports 9.8)
  2. ASA 9.8→ASA 9.17 (the highest version supported by 2.11)
  3. FXOS 2.11→FXOS 2.13
  4. ASA 9.17→ASA 9.19
- ASA—ASA lets you upgrade directly from your current version to any higher version, noting the FXOS requirements above.

Table 10: ASA or Threat Defense, and Firepower 4100/9300 Compatibility

FXOS Version	Model	ASA Version	Threat Defense Version
2.14(1)	Firepower 4112	**9.20** (recommended) 9.19 9.18 9.17 9.16 9.15 9.14	**7.4** (recommended) 7.3 7.2 7.1 7.0 6.7 6.6
	Firepower 4145 Firepower 4125 Firepower 4115	**9.20** (recommended) 9.19 9.18 9.17 9.16 9.15 9.14	**7.4** (recommended) 7.3 7.2 7.1 7.0 6.7 6.6
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		
2.13	Firepower 4112	**9.19** (recommended) 9.18 9.17 9.16 9.15 9.14	**7.3** (recommended) 7.2 7.1 7.0 6.7 6.6
	Firepower 4145 Firepower 4125 Firepower 4115	**9.19** (recommended) 9.18 9.17 9.16 9.15 9.14	**7.3** (recommended) 7.2 7.1 7.0 6.7 6.6
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		

FXOS Version	Model	ASA Version	Threat Defense Version
2.12	Firepower 4112	**9.18** (recommended) 9.17 9.16 9.15 9.14	**7.2** (recommended) 7.1 7.0 6.7 6.6
	Firepower 4145 Firepower 4125 Firepower 4115	**9.18** (recommended) 9.17 9.16 9.15 9.14 9.12	**7.2** (recommended) 7.1 7.0 6.7 6.6 6.4
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.18** (recommended) 9.17 9.16 9.15 9.14 9.12	**7.2** (recommended) 7.1 7.0 6.7 6.6 6.4
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		

FXOS Version	Model	ASA Version	Threat Defense Version
2.11	Firepower 4112	**9.17** (recommended) 9.16 9.15 9.14	**7.1** (recommended) 7.0 6.7 6.6
	Firepower 4145 Firepower 4125 Firepower 4115	**9.17** (recommended) 9.16 9.15 9.14 9.12	**7.1** (recommended) 7.0 6.7 6.6 6.4
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.17** (recommended) 9.16 9.15 9.14 9.12 9.8	**7.1** (recommended) 7.0 6.7 6.6 6.4
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		

FXOS Version	Model	ASA Version	Threat Defense Version
2.10 **Note** For compatibility with 7.0.2+ and 9.16(3.11)+, you need FXOS 2.10(1.179)+.	Firepower 4112	**9.16** (recommended) 9.15 9.14	**7.0** (recommended) 6.7 6.6
	Firepower 4145 Firepower 4125 Firepower 4115	**9.16** (recommended) 9.15 9.14 9.12	**7.0** (recommended) 6.7 6.6 6.4
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.16** (recommended) 9.15 9.14 9.12 9.8	**7.0** (recommended) 6.7 6.6 6.4
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		
2.9	Firepower 4112	**9.15** (recommended) 9.14	**6.7** (recommended) 6.6
	Firepower 4145 Firepower 4125 Firepower 4115	**9.15** (recommended) 9.14 9.12	**6.7** (recommended) 6.6 6.4
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.15** (recommended) 9.14 9.12 9.8	**6.7** (recommended) 6.6 6.4
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		

FXOS Version	Model	ASA Version	Threat Defense Version
2.8	Firepower 4112	**9.14**	**6.6** **Note** 6.6.1+ requires FXOS 2.8(1.125)+.
	Firepower 4145 Firepower 4125 Firepower 4115	**9.14** (recommended) 9.12 **Note** Firepower 9300 SM-56 requires ASA 9.12(2)+	**6.6** (recommended) **Note** 6.6.1+ requires FXOS 2.8(1.125)+. 6.4
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.14** (recommended) 9.12 9.8	**6.6** (recommended) **Note** 6.6.1+ requires FXOS 2.8(1.125)+. 6.4 6.2.3
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		
2.6(1.157) **Note** You can now run ASA 9.12+ and FTD 6.4+ on separate modules in the same Firepower 9300 chassis	Firepower 4145 Firepower 4125 Firepower 4115	**9.12** **Note** Firepower 9300 SM-56 requires ASA 9.12.2+	**6.4**
	Firepower 9300 SM-56 Firepower 9300 SM-48 Firepower 9300 SM-40		
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.12** (recommended) 9.8	**6.4** (recommended) 6.2.3
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		

FXOS Version	Model	ASA Version	Threat Defense Version
2.6(1.131)	Firepower 9300 SM-48 Firepower 9300 SM-40	**9.12**	Not supported
	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.12** (recommended) 9.8	
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		
2.3(1.73)	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	9.8 **Note** 9.8(2.12)+ is required for flow offload when running FXOS 2.3(1.130)+.	**6.2.3** (recommended) **Note** 6.2.3.16+ requires FXOS 2.3.1.157+
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		
2.3(1.66) 2.3(1.58)	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	9.8 **Note** 9.8(2.12)+ is required for flow offload when running FXOS 2.3(1.130)+.	
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		
2.2	Firepower 4150 Firepower 4140 Firepower 4120 Firepower 4110	**9.8**	Threat Defense versions are EoL
	Firepower 9300 SM-44 Firepower 9300 SM-36 Firepower 9300 SM-24		

Note on Downgrades

Downgrade of FXOS images is not officially supported. The only Cisco-supported method of downgrading an image version of FXOS is to perform a complete re-image of the device.

Download the Software from Cisco.com

Download all software packages from Cisco.com before you start your upgrade. Depending on the operating system and whether you are using CLI or GUI, you should place the images on a server or on your management computer. See each installation procedure for details on supported file locations.

Note A Cisco.com login and Cisco service contract are required.

Download ASA Software

If you are using the ASDM Upgrade Wizard, you do not have to pre-download the software. If you are manually upgrading, for example for a failover upgrade, download the images to your local computer.

For a CLI upgrade, you can put the software on many server types, including TFTP, HTTP, and FTP. See the **copy** command in the ASA command reference.

ASA software can be downloaded from Cisco.com. These tables include naming conventions and information about ASA packages.

Table 11: Current Platforms

ASA Model	Download Location	Packages
ASA virtual	http://www.cisco.com/go/asav-software	
	ASA Software (Upgrade) Choose **Adaptive Security Appliance (ASA) Software** > *version*.	The ASA virtual upgrade file has a filename like asa962-**smp-k8.bin**; use this upgrade file for all hypervisors. **Note:** The .zip (VMware), .vhdx (Hyper-V), and .qcow2 (KVM) files are only for initial deployment. **Note** To upgrade the ASA virtual for public cloud services such as Amazon Web Services, you can download the above image from Cisco.com (which requires a Cisco.com login and Cisco service contract) and perform the upgrade as described in this guide. There is no way to obtain an *upgrade* image from the public cloud service.
	ASDM Software (Upgrade) Choose **Adaptive Security Appliance (ASA) Device Manager** > *version*.	The ASDM software file has a filename like asdm-762**.bin**.
	REST API Software Choose **Adaptive Security Appliance REST API Plugin** > *version*.	The API software file has a filename like asa-restapi-132-**lfbff-k8.SPA**. To install the REST API, see the API quick start guide.
	ASA Device Package for Cisco Application Policy Infrastructure Controller (APIC) Choose **ASA for Application Centric Infrastructure (ACI) Device Packages** > *version*.	For APIC 1.2(7) and later, choose either the Policy Orchestration with Fabric Insertion, or the Fabric Insertion-only package. The device package software file has a filename like asa-device-pkg-1.2.7.10**.zip**. To install the ASA device package, see the "Importing a Device Package" chapter of the Cisco APIC Layer 4 to Layer 7 Services Deployment Guide.

ASA Model	Download Location	Packages
Firepower 1000	http://www.cisco.com/go/asa-firepower-sw	
	ASA, ASDM, and FXOS Software Choose your *model* > **Adaptive Security Appliance (ASA) Software** > *version*.	The ASA package includes ASA, ASDM, and FXOS software. The ASA package has a filename like cisco-asa-fp1k.9.13.1**.SPA**.
	ASDM Software (Upgrade) Choose your *model* > **Adaptive Security Appliance (ASA) Device Manager** > *version*.	Use this image to upgrade to a later version of ASDM using your current ASDM or the ASA CLI. The ASDM software file has a filename like asdm-7131**.bin**. **Note** When you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA because they have the same name (**asdm.bin**). But if you manually chose a different ASDM image that you uploaded (for example, **asdm-7131.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should either upgrade ASDM before you upgrade the bundle, or you should reconfigure the ASA to use the bundled ASDM image (**asdm.bin**) just before upgrading the ASA bundle.

ASA Model	Download Location	Packages
Firepower 2100	http://www.cisco.com/go/asa-firepower-sw	
	ASA, ASDM, and FXOS Software Choose your *model* > **Adaptive Security Appliance (ASA) Software** > *version*.	The ASA package includes ASA, ASDM, and FXOS software. The ASA package has a filename like cisco-asa-fp2k.9.8.2**.SPA**.
	ASDM Software (Upgrade) Choose your *model* > **Adaptive Security Appliance (ASA) Device Manager** > *version*.	Use this image to upgrade to a later version of ASDM using your current ASDM or the ASA CLI. The ASDM software file has a filename like asdm-782**.bin**. **Note** When you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA because they have the same name (**asdm.bin**). But if you manually chose a different ASDM image that you uploaded (for example, **asdm-782.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should either upgrade ASDM before you upgrade the bundle, or you should reconfigure the ASA to use the bundled ASDM image (**asdm.bin**) just before upgrading the ASA bundle.

ASA Model	Download Location	Packages
Secure Firewall 3100	https://cisco.com/go/asa-secure-firewall-sw	
	ASA, ASDM, and FXOS Software Choose your *model* > **Adaptive Security Appliance (ASA) Software** > *version*.	The ASA package includes ASA, ASDM, and FXOS software. The ASA package has a filename like cisco-asa-fp3k.9.17.1**.SPA**.
	ASDM Software (Upgrade) Choose your *model* > **Adaptive Security Appliance (ASA) Device Manager** > *version*.	Use this image to upgrade to a later version of ASDM using your current ASDM or the ASA CLI. The ASDM software file has a filename like asdm-7171**.bin**. **Note** When you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA because they have the same name (**asdm.bin**). But if you manually chose a different ASDM image that you uploaded (for example, **asdm-7171.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should either upgrade ASDM before you upgrade the bundle, or you should reconfigure the ASA to use the bundled ASDM image (**asdm.bin**) just before upgrading the ASA bundle.

ASA Model	Download Location	Packages
Firepower 4100	http://www.cisco.com/go/firepower4100-software	
	ASA and ASDM Software Choose your *model* > **Adaptive Security Appliance (ASA) Software** > *version*.	The ASA package includes both ASA and ASDM. The ASA package has a filename like cisco-asa.9.6.2**.SPA.csp**.
	ASDM Software (Upgrade) Choose your *model* > **Adaptive Security Appliance (ASA) Device Manager** > *version*.	Use this image to upgrade to a later version of ASDM using your current ASDM or the ASA CLI. The ASDM software file has a filename like asdm-762**.bin**. **Note** When you upgrade the ASA bundle in FXOS, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA because they have the same name (**asdm.bin**). But if you manually chose a different ASDM image that you uploaded (for example, **asdm-782.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should either upgrade ASDM before you upgrade the bundle, or you should reconfigure the ASA to use the bundled ASDM image (**asdm.bin**) just before upgrading the ASA bundle.
	REST API Software Choose your *model* > **Adaptive Security Appliance REST API Plugin** > *version*.	The API software file has a filename like asa-restapi-132-**lfbff-k8.SPA**. To install the REST API, see the API quick start guide.

ASA Model	Download Location	Packages
Secure Firewall 4200	https://cisco.com/go/asa-secure-firewall-sw	
	ASA, ASDM, and FXOS Software Choose your *model* > **Adaptive Security Appliance (ASA) Software** > *version*.	The ASA package includes ASA, ASDM, and FXOS software. The ASA package has a filename like cisco-asa-fp4200.9.20.1**.SPA**.
	ASDM Software (Upgrade) Choose your *model* > **Adaptive Security Appliance (ASA) Device Manager** > *version*.	Use this image to upgrade to a later version of ASDM using your current ASDM or the ASA CLI. The ASDM software file has a filename like asdm-7201**.bin**. **Note** When you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA because they have the same name (**asdm.bin**). But if you manually chose a different ASDM image that you uploaded (for example, **asdm-7201.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should either upgrade ASDM before you upgrade the bundle, or you should reconfigure the ASA to use the bundled ASDM image (**asdm.bin**) just before upgrading the ASA bundle.

ASA Model	Download Location	Packages
Firepower 9300	http://www.cisco.com/go/firepower9300-software	
	ASA and ASDM Software Choose **Adaptive Security Appliance (ASA) Software** > *version*.	The ASA package includes both ASA and ASDM. The ASA package has a filename like cisco-asa.9.6.2**.SPA.csp**.
	ASDM Software (Upgrade) Choose **Adaptive Security Appliance (ASA) Device Manager** > *version*.	Use this image to upgrade to a later version of ASDM using your current ASDM or the ASA CLI. The ASDM software file has a filename like asdm-762**.bin**. **Note** When you upgrade the ASA bundle in FXOS, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA because they have the same name (**asdm.bin**). But if you manually chose a different ASDM image that you uploaded (for example, **asdm-782.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should either upgrade ASDM before you upgrade the bundle, or you should reconfigure the ASA to use the bundled ASDM image (**asdm.bin**) just before upgrading the ASA bundle.
	REST API Software Choose **Adaptive Security Appliance REST API Plugin** > *version*.	The API software file has a filename like asa-restapi-132-**lfbff-k8.SPA**. To install the REST API, see the API quick start guide.
ASA Services Module	**ASDM Software** http://www.cisco.com/go/asdm-software Choose **Adaptive Security Appliance (ASA) Device Manager** > *version*.	The ASDM software file has a filename like asdm-762**.bin**.

ASA Model	Download Location	Packages
ISA 3000	http://www.cisco.com/go/isa3000-software	
	ASA Software Choose your *model* > **Adaptive Security Appliance (ASA) Software** > *version*.	The ASA software file has a filename like asa962-**lfbff-k8.SPA**.
	ASDM Software Choose your *model* > **Adaptive Security Appliance (ASA) Device Manager** > *version*.	The ASDM software file has a filename like asdm-762**.bin**.
	REST API Software Choose your *model* > **Adaptive Security Appliance REST API Plugin** > *version*.	The API software file has a filename like asa-restapi-132-**lfbff-k8.SPA**. To install the REST API, see the API quick start guide.

Table 12: Legacy Platforms

ASA Model	Download Location	Packages
ASA 5506-X, ASA 5508-X, and ASA 5516-X	http://www.cisco.com/go/asa-firepower-sw	
	ASA Software Choose your *model* > **Adaptive Security Appliance (ASA) Software** > *version*.	The ASA software file has a filename like asa962-**lfbff-k8.SPA**.
	ASDM Software Choose your *model* > **Adaptive Security Appliance (ASA) Device Manager** > *version*.	The ASDM software file has a filename like asdm-762**.bin**.
	REST API Software Choose your *model* > **Adaptive Security Appliance REST API Plugin** > *version*.	The API software file has a filename like asa-restapi-132-**lfbff-k8.SPA**. To install the REST API, see the API quick start guide
	ROMMON Software Choose your *model* > **ASA Rommon Software** > *version*.	The ROMMON software file has a filename like asa5500-firmware-1108**.SPA**.

ASA Model	Download Location	Packages
ASA 5512-X, ASA 5515-X, ASA 5525-X, ASA 5545-X, and ASA 5555-X	http://www.cisco.com/go/asa-software	
	ASA Software Choose your *model* > **Software on Chassis** > **Adaptive Security Appliance (ASA) Software** > *version*.	The ASA software file has a filename like asa962-**smp-k8.bin**.
	ASDM Software Choose your *model* > **Software on Chassis** > **Adaptive Security Appliance (ASA) Device Manager** > *version*.	The ASDM software file has a filename like asdm-762**.bin**.
	REST API Software Choose your *model* > **Software on Chassis** > **Adaptive Security Appliance REST API Plugin** > *version*.	The API software file has a filename like asa-restapi-132-**lfbff-k8.SPA**. To install the REST API, see the API quick start guide
	ASA Device Package for Cisco Application Policy Infrastructure Controller (APIC) Choose your *model* > **Software on Chassis** > **ASA for Application Centric Infrastructure (ACI) Device Packages** > *version*.	For APIC 1.2(7) and later, choose either the Policy Orchestration with Fabric Insertion, or the Fabric Insertion-only package. The device package software file has a filename like asa-device-pkg-1.2.7.10**.zip**. To install the ASA device package, see the "Importing a Device Package" chapter of the Cisco APIC Layer 4 to Layer 7 Services Deployment Guide.

ASA Model	Download Location	Packages
ASA 5585-X	http://www.cisco.com/go/asa-software	
	ASA Software Choose your *model* > **Software on Chassis** > **Adaptive Security Appliance (ASA) Software** > *version*.	The ASA software file has a filename like asa962-**smp-k8.bin**.
	ASDM Software Choose your *model* > **Software on Chassis** > **Adaptive Security Appliance (ASA) Device Manager** > *version*.	The ASDM software file has a filename like asdm-762**.bin**.
	REST API Software Choose your *model* > **Software on Chassis** > **Adaptive Security Appliance REST API Plugin** > *version*.	The API software file has a filename like asa-restapi-132-**lfbff-k8.SPA**. To install the REST API, see the API quick start guide.
	ASA Device Package for Cisco Application Policy Infrastructure Controller (APIC) Choose your *model* > **Software on Chassis** > **ASA for Application Centric Infrastructure (ACI) Device Packages** > *version*.	For APIC 1.2(7) and later, choose either the Policy Orchestration with Fabric Insertion, or the Fabric Insertion-only package. The device package software file has a filename like asa-device-pkg-1.2.7.10**.zip**. To install the ASA device package, see the "Importing a Device Package" chapter of the Cisco APIC Layer 4 to Layer 7 Services Deployment Guide.
ASA Services Module	**ASA Software** http://www.cisco.com/go/asasm-software Choose your *version*.	The ASA software file has a filename like asa962-**smp-k8.bin**.
	ASDM Software http://www.cisco.com/go/asdm-software Choose **Adaptive Security Appliance (ASA) Device Manager** > *version*.	The ASDM software file has a filename like asdm-762**.bin**.

Download FXOS for the Firepower 4100/9300

FXOS packages for the Firepower 4100/9300 are available on the Cisco Support & Download site.

- Firepower 4100 series: http://www.cisco.com/go/firepower4100-software
- Firepower 9300: http://www.cisco.com/go/firepower9300-software

To find FXOS packages, select or search for your Firepower appliance model, then browse to the Firepower Extensible Operating System download page for the target version.

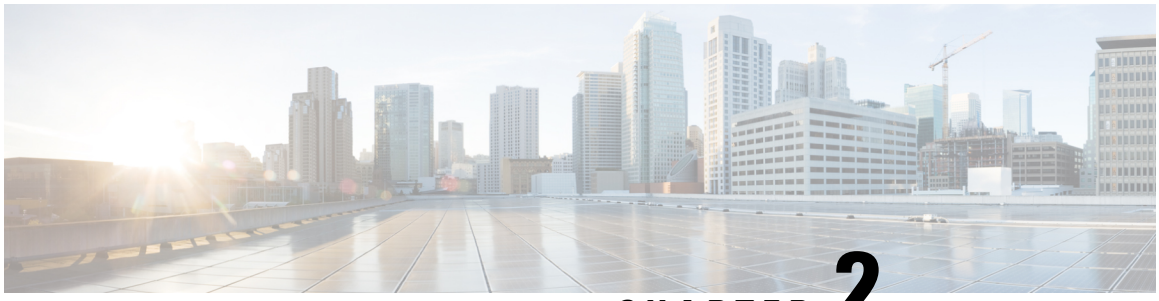
Note If you plan to use the CLI to upgrade FXOS, copy the upgrade package to a server that the Firepower 4100/9300 can access using SCP, SFTP, TFTP, or FTP.

Table 13: FXOS Packages for the Firepower 4100/9300

Package Type	Package
FXOS image	fxos-k9.*version*.**SPA**
Recovery (kickstart)	fxos-k9-**kickstart**.*version*.**SPA**
Recovery (manager)	fxos-k9-**manager**.*version*.**SPA**
Recovery (system)	fxos-k9-**system**.*version*.**SPA**
MIBs	fxos-**mibs**-fp9k-fp4k.*version*.**zip**
Firmware: Firepower 4100 series	fxos-k9-fpr4k-**firmware**.*version*.**SPA**
Firmware: Firepower 9300	fxos-k9-fpr9k-**firmware**.*version*.**SPA**

Back Up Your Configurations

We recommend that you back up your configurations and other critical files before you upgrade, especially if there is a configuration migration. Each operating system has a different method to perform backups. Check the ASA, ASDM, ASA FirePOWER local management, Firepower Management Center, and FXOS configuration guides for more information.



CHAPTER 2

Upgrade the ASA

Upgrade the ASA according to the procedures in this document.

Upgrade the Firepower 1000/2100 and Secure Firewall 3100/4200

This document describes how to plan and implement an ASA, FXOS, and ASDM upgrade for standalone, failover, or clustering deployments on the Firepower 1000/2100 and Secure Firewall 3100/4200.

For the Firepower 2100 in 9.12 and earlier, only Platform mode is available. In 9.13 and later, Appliance mode is the default. Check the mode by using the **show fxos mode** command at the ASA CLI.

Upgrade the Firepower 1000, 2100 in Appliance Mode, and Secure Firewall 3100/4200

This document describes how to plan and implement an ASA, FXOS, and ASDM upgrade for standalone or failover deployments for the Firepower 1000, 2100 in Appliance mode, and Secure Firewall 3100/4200. Prior to version 9.13, the Firepower 2100 only supported Platform mode. In 9.14 and later, Appliance mode is the default. In 9.14 and later, use the **show fxos mode** command on the ASA to determine your current mode. For Platform mode procedures, see Upgrade the Firepower 2100 in Platform Mode, on page 87.

Upgrade a Standalone Unit

Use the CLI or ASDM to upgrade the standalone unit.

Upgrade a Standalone Unit Using the CLI

This section describes how to install the ASDM and ASA images on the Firepower 1000, Firepower 2100 in Appliance mode, Secure Firewall 3100/4200.

Before you begin

This procedure uses FTP. For TFTP, HTTP, or other server types, see the **copy** command in the ASA command reference.

Procedure

Step 1 In global configuration mode, if you previously set a non-default ASDM image, then reset it to the image that came with your image bundle.

asdm image disk0:/asdm.bin

write memory

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

Step 2 In privileged EXEC mode (minimum), copy the ASA software to flash memory.

copy ftp://[[*user*[**:***password*]**@**]*server*[*/path*]*/asa_image_name* **disk***n***:/**[*path*/]*asa_image_name*

Example:

```
ciscoasa# copy ftp://jcrichton:aeryn@10.1.1.1/cisco-asa-fp1k.9.14.1.SPA
disk0:/cisco-asa-fp1k.9.14.1.SPA
```

Step 3 Access global configuration mode.

configure terminal

Example:

```
ciscoasa# configure terminal
ciscoasa(config)#
```

Step 4 Show the current boot image configured, if present.

show running-config boot system

Note that you may not have a **boot system** command present in your configuration; for example, if you installed the image from ROMMON, have a new device, or you removed the command manually.

Example:

```
ciscoasa(config)# show running-config boot system
boot system disk0:/cisco-asa-fp1k.9.13.1.SPA
```

Step 5 If you have a **boot system** command configured, remove it so that you can enter the new boot image.

no boot system disk*n***:/**[*path*/]*asa_image_name*

If you did not have a **boot system** command configured, skip this step.

Example:

```
ciscoasa(config)# no boot system disk0:/cisco-asa-fp1k.9.13.1.SPA
```

Step 6 Set the ASA image to boot (the one you just uploaded).

boot system disk*n*:/[*path*/]*asa_image_name*

You can only enter a single **boot system** command. The **boot system** command performs an action when you enter it: the system validates and unpacks the image and copies it to the boot location (an internal location on disk0 managed by FXOS). The new image will load when you reload the ASA. If you change your mind prior to reloading, you can enter the **no boot system** command to delete the new image from the boot location, so the current image continues to run.

Example:

```
ciscoasa(config)# boot system disk0:/cisco-asa-fp1k.9.14.1.SPA

The system is currently installed with security software package 9.13.1, which has:
   - The platform version:  2.7.1
   - The CSP (asa) version: 9.13.1
Preparing new image for install...
!!!!!!!!!!!!!
Image download complete (Successful unpack the image).
Installation of version 9.14.1 will do the following:
   - upgrade to the new platform version 2.8.1
   - upgrade to the CSP ASA version 9.14.1
After the installation is complete, reload to apply the new image.
Finalizing image install process...

Install_status: ready...........
Install_status: validating-images.....
Install_status: update-software-pack-completed
ciscoasa(config)#
```

Step 7 Save the new settings to the startup configuration:

write memory

Step 8 Reload the ASA:

reload

Upgrade a Standalone Unit from Your Local Computer Using ASDM

The **Upgrade Software from Local Computer** tool lets you upload an image file from your computer to the flash file system to upgrade the ASA for the Firepower 1000, Firepower 2100 in Appliance mode, Secure Firewall 3100/4200.

Procedure

Step 1 If you previously set a non-default ASDM image, then reset it to the image that came with your image bundle.

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

a) In the main ASDM application window, choose **Configuration** > **Device Management** > **System Image/Configuration** > **Boot Image/Configuration**.

b) For the **ASDM Image File Path**, enter **disk0:/asdm.bin**.
c) Click **Apply**.

Step 2 In the main ASDM application window, choose **Tools** > **Upgrade Software from Local Computer**.

Step 3 From the **Image to Upload** drop-down list, choose **ASA**.

Step 4 In the **Local File Path** field, click **Browse Local Files** to find the file on your PC.

Step 5 In the **Flash File System Path** field, click **Browse Flash** to find the directory or file in the flash file system.

Step 6 Click **Upload Image**.

The uploading process might take a few minutes.

Step 7 You are prompted to set this image as the ASA image. Click **Yes**.

Step 8 You are reminded to reload the ASA to use the new image. Click **OK**.

You exit the **Upgrade** tool.

Step 9 Choose **Tools** > **System Reload** to reload the ASA.

A new window appears that asks you to verify the details of the reload.

a) Click the **Save the running configuration at the time of reload** radio button (the default).
b) Choose a time to reload (for example, **Now**, the default).
c) Click **Schedule Reload**.

Once the reload is in progress, a **Reload Status** window appears that indicates that a reload is being performed. An option to exit ASDM is also provided.

Step 10 After the ASA reloads, restart ASDM.

You can check the reload status from a console port, or you can wait a few minutes and try to connect using ASDM until you are successful.

Upgrade a Standalone Unit Using the ASDM Cisco.com Wizard

The **Upgrade Software from Cisco.com Wizard** lets you automatically upgrade the ASDM and ASA to more current versions for the Firepower 1000, Firepower 2100 in Appliance mode, Secure Firewall 3100.

In this wizard, you can do the following:

- Choose an ASA image file and/or ASDM image file to upgrade.

Note ASDM downloads the latest image version, which includes the build number. For example, if you are downloading 9.9(1), the download might be 9.9(1.2). This behavior is expected, so you can proceed with the planned upgrade.

- Review the upgrade changes that you have made.
- Download the image or images and install them.
- Review the status of the installation.

- If the installation completed successfully, reload the ASA to save the configuration and complete the upgrade.

Before you begin

Due to an internal change, the wizard is only supported using ASDM 7.10(1) and later; also, due to an image naming change, you must use ASDM 7.12(1) or later to upgrade to ASA 9.10(1) and later. Because ASDM is backwards compatible with earlier ASA releases, you can upgrade ASDM no matter which ASA version you are running.

Procedure

Step 1 Choose **Tools** > **Check for ASA/ASDM Updates**.

In multiple context mode, access this menu from the System.

The **Cisco.com Authentication** dialog box appears.

Step 2 Enter your Cisco.com username and password, and then click **Login**.

The **Cisco.com Upgrade Wizard** appears.

Note If there is no upgrade available, a dialog box appears. Click **OK** to exit the wizard.

Step 3 Click **Next** to display the **Select Software** screen.

The current ASA version and ASDM version appear.

Step 4 To upgrade the ASA version and ASDM version, perform the following steps:

a) In the **ASA** area, check the **Upgrade to** check box, and then choose an ASA version to which you want to upgrade from the drop-down list.

b) In the **ASDM** area, check the **Upgrade to** check box, and then choose an ASDM version to which you want to upgrade from the drop-down list.

Step 5 Click **Next** to display the **Review Changes** screen.

Step 6 Verify the following items:

- The ASA image file and/or ASDM image file that you have downloaded are the correct ones.
- The ASA image file and/or ASDM image file that you want to upload are the correct ones.
- The correct ASA boot image has been selected.

Step 7 Click **Next** to start the upgrade installation.

You can then view the status of the upgrade installation as it progresses.

The **Results** screen appears, which provides additional details, such as the upgrade installation status (success or failure).

Step 8 If the upgrade installation succeeded, for the upgrade versions to take effect, check the **Save configuration and reload device now** check box to restart the ASA, and restart ASDM.

Step 9 Click **Finish** to exit the wizard and save the configuration changes that you have made.

Note To upgrade to the next higher version, if any, you must restart the wizard.

Step 10 After the ASA reloads, restart ASDM.

You can check the reload status from a console port, or you can wait a few minutes and try to connect using ASDM until you are successful.

Upgrade an Active/Standby Failover Pair

Use the CLI or ASDM to upgrade the Active/Standby failover pair for a zero downtime upgrade.

Upgrade an Active/Standby Failover Pair Using the CLI

To upgrade the Active/Standby failover pair for the Firepower 1000, Firepower 2100 in Appliance mode, Secure Firewall 3100/4200, perform the following steps.

Before you begin

- Perform these steps on the active unit. For SSH access, connect to the active IP address; the active unit always owns this IP address. When you connect to the CLI, determine the failover status by looking at the ASA prompt; you can configure the ASA prompt to show the failover status and priority (primary or secondary), which is useful to determine which unit you are connected to. See the prompt command. Alternatively, enter the **show failover** command to view this unit's status and priority (primary or secondary).
- This procedure uses FTP. For TFTP, HTTP, or other server types, see the **copy** command in the ASA command reference.

Procedure

Step 1 On the primary unit in global configuration mode, if you previously set a non-default ASDM image, then reset it to the image that came with your image bundle.

asdm image disk0:/asdm.bin

write memory

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

Step 2 On the active unit in privileged EXEC mode (minimum), copy the ASA software to the active unit flash memory:

copy ftp://[[*user*[**:***password*]**@**]*server*[/*path*]/*asa_image_name* **disk***n***:**/[*path*/]*asa_image_name*

Example:

```
asa/act# copy ftp://jcrichton:aeryn@10.1.1.1/cisco-asa-fp1k.9.14.1.SPA
disk0:/cisco-asa-fp1k.9.14.1.SPA
```

Step 3 Copy the software to the standby unit; be sure to specify the same path as for the active unit:

failover exec mate copy /noconfirm ftp://[[*user*[**:***password*]**@**]*server*[/*path*]/*asa_image_name*
disk*n***:/**[*path*/]*asa_image_name*

Example:

```
asa/act# failover exec mate copy /noconfirm
ftp://jcrichton:aeryn@10.1.1.1/cisco-asa-fp1k.9.14.1.SPA disk0:/cisco-asa-fp1k.9.14.1.SPA
```

Step 4 If you are not already in global configuration mode, access global configuration mode:

configure terminal

Step 5 Show the current boot image configured, if present.

show running-config boot system

Note that you may not have a **boot system** command present in your configuration; for example, if you installed the image from ROMMON, have a new device, or you removed the command manually.

Example:

```
ciscoasa(config)# show running-config boot system
boot system disk0:/cisco-asa-fp1k.9.13.1.SPA
```

Step 6 If you have a **boot system** command configured, remove it so that you can enter the new boot image.

no boot system disk*n***:/**[*path*/]*asa_image_name*

If you did not have a **boot system** command configured, skip this step.

Example:

```
ciscoasa(config)# no boot system disk0:/cisco-asa-fp1k.9.13.1.SPA
```

Step 7 Set the ASA image to boot (the one you just uploaded).

boot system disk*n***:/**[*path*/]*asa_image_name*

You can only enter a single **boot system** command. The **boot system** command performs an action when you enter it: the system validates and unpacks the image and copies it to the boot location (an internal location on disk0 managed by FXOS). The new image will load when you reload the ASA. If you change your mind prior to reloading, you can enter the **no boot system** command to delete the new image from the boot location, so the current image continues to run.

Example:

```
ciscoasa(config)# boot system disk0:/cisco-asa-fp1k.9.14.1.SPA

The system is currently installed with security software package 9.13.1, which has:
   - The platform version:  2.7.1
   - The CSP (asa) version: 9.13.1
Preparing new image for install...
!!!!!!!!!!!!!
Image download complete (Successful unpack the image).
Installation of version 9.14.1 will do the following:
   - upgrade to the new platform version 2.8.1
   - upgrade to the CSP ASA version 9.14.1
After the installation is complete, reload to apply the new image.
```

```
Finalizing image install process...

Install_status: ready...........
Install_status: validating-images.....
Install_status: update-software-pack-completed
ciscoasa(config)#
```

Step 8 Save the new settings to the startup configuration:

write memory

These configuration changes are automatically saved on the standby unit.

Step 9 Reload the standby unit to boot the new image:

failover reload-standby

Wait for the standby unit to finish loading. Use the **show failover** command to verify that the standby unit is in the Standby Ready state.

Step 10 Force the active unit to fail over to the standby unit.

no failover active

If you are disconnected from your SSH session, reconnect to the main IP address, now on the new active/former standby unit.

Step 11 From the new active unit, reload the former active unit (now the new standby unit).

failover reload-standby

Example:

```
asa/act# failover reload-standby
```

Note If you are connected to the former active unit console port, you should instead enter the **reload** command to reload the former active unit.

Upgrade an Active/Standby Failover Pair Using ASDM

The **Upgrade Software from Local Computer** tool lets you upload an image file from your computer to the flash file system to upgrade the Active/Standby failover pair for the Firepower 1000, Firepower 2100 in Appliance mode, Secure Firewall 3100/4200.

Procedure

Step 1 Launch ASDM on the *standby* unit by connecting to the standby IP address.

Step 2 In the main ASDM application window, choose **Tools** > **Upgrade Software from Local Computer**.

The **Upgrade Software** dialog box appears.

Step 3 From the **Image to Upload** drop-down list, choose **ASA**.

Step 4 In the **Local File Path** field, enter the local path to the file on your computer or click **Browse Local Files** to find the file on your PC.

Step 5 In the **Flash File System Path** field, enter the path to the flash file system or click **Browse Flash** to find the directory or file in the flash file system.

Step 6 Click **Upload Image**. The uploading process might take a few minutes.

When you are prompted to set this image as the ASA image, click **No**. You exit the Upgrade tool.

Step 7 Connect ASDM to the *active* unit by connecting to the main IP address.

Step 8 If you previously set a non-default ASDM image, then reset it to the image that came with your image bundle.

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

a) Choose **Configuration** > **Device Management** > **System Image/Configuration** > **Boot Image/Configuration**.
b) For the **ASDM Image File Path**, enter **disk0:/asdm.bin**.
c) Click **Apply**.

Step 9 Upload the ASA software, using the same file location you used on the standby unit.

Step 10 When you are prompted to set the image as the ASA image, click **Yes**.

You are reminded to reload the ASA to use the new image. Click **OK**. You exit the Upgrade tool.

Step 11 Click the **Save** icon on the toolbar to save your configuration changes.

These configuration changes are automatically saved on the standby unit.

Step 12 Reload the standby unit by choosing **Monitoring** > **Properties** > **Failover** > **Status**, and clicking **Reload Standby**.

Stay on the **System** pane to monitor when the standby unit reloads.

Step 13 After the standby unit reloads, force the active unit to fail over to the standby unit by choosing **Monitoring** > **Properties** > **Failover** > **Status**, and clicking **Make Standby**.

ASDM will automatically reconnect to the new active unit.

Step 14 Reload the (new) standby unit by choosing **Monitoring** > **Properties** > **Failover** > **Status**, and clicking **Reload Standby**.

Upgrade an Active/Active Failover Pair

Use the CLI or ASDM to upgrade the Active/Active failover pair for a zero downtime upgrade.

Upgrade an Active/Active Failover Pair Using the CLI

To upgrade two units in an Active/Active failover configuration, perform the following steps on the Firepower 1000, Firepower 2100 in Appliance mode, Secure Firewall 3100/4200.

Before you begin

- Perform these steps on the primary unit.
- Perform these steps in the system execution space.
- This procedure uses FTP. For TFTP, HTTP, or other server types, see the **copy** command in the ASA command reference.

Procedure

Step 1 On the primary unit in global configuration mode, if you previously set a non-default ASDM image, then reset it to the image that came with your image bundle.

asdm image disk0:/asdm.bin

write memory

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

Step 2 On the primary unit in privileged EXEC mode (minimum), copy the ASA software to flash memory:

copy ftp://[[*user*[**:***password*]**@**]*server*[*/path*]*/asa_image_name* **disk***n***:/**[*path/*]*asa_image_name*

Note ASDM is included in the ASA image.

Example:

```
asa/act/pri# copy ftp://jcrichton:aeryn@10.1.1.1/cisco-asa-fp1k.9.14.1.SPA
disk0:/cisco-asa-fp1k.9.14.1.SPA
```

Step 3 Copy the software to the secondary unit; be sure to specify the same path as for the primary unit:

failover exec mate copy /noconfirm ftp://[[*user*[**:***password*]**@**]*server*[*/path*]*/asa_image_name* **disk***n***:/**[*path/*]*asa_image_name*

Example:

```
asa/act/pri# failover exec mate copy /noconfirm
ftp://jcrichton:aeryn@10.1.1.1/cisco-asa-fp1k.9.14.1.SPA disk0:/cisco-asa-fp1k.9.14.1.SPA
```

Step 4 If you are not already in global configuration mode, access global configuration mode:

configure terminal

Step 5 Show the current boot image configured, if present.

show running-config boot system

Note that you may not have a **boot system** command present in your configuration; for example, if you installed the image from ROMMON, have a new device, or you removed the command manually.

Example:

```
ciscoasa(config)# show running-config boot system
boot system disk0:/cisco-asa-fp1k.9.13.1.SPA
```

Step 6 If you have a **boot system** command configured, remove it so that you can enter the new boot image.

no boot system disk*n***:/**[*path*/]*asa_image_name*

If you did not have a **boot system** command configured, skip this step.

Example:

```
ciscoasa(config)# no boot system disk0:/cisco-asa-fp1k.9.13.1.SPA
```

Step 7 Set the ASA image to boot (the one you just uploaded).

boot system disk*n***:/**[*path*/]*asa_image_name*

You can only enter a single **boot system** command. The **boot system** command performs an action when you enter it: the system validates and unpacks the image and copies it to the boot location (an internal location on disk0 managed by FXOS). The new image will load when you reload the ASA. If you change your mind prior to reloading, you can enter the **no boot system** command to delete the new image from the boot location, so the current image continues to run.

Example:

```
ciscoasa(config)# boot system disk0:/cisco-asa-fp1k.9.14.1.SPA

The system is currently installed with security software package 9.13.1, which has:
   - The platform version:  2.7.1
   - The CSP (asa) version: 9.13.1
Preparing new image for install...
!!!!!!!!!!!!!
Image download complete (Successful unpack the image).
Installation of version 9.14.1 will do the following:
   - upgrade to the new platform version 2.8.1
   - upgrade to the CSP ASA version 9.14.1
After the installation is complete, reload to apply the new image.
Finalizing image install process...

Install_status: ready...........
Install_status: validating-images.....
Install_status: update-software-pack-completed
ciscoasa(config)#
```

Step 8 Save the new settings to the startup configuration.

write memory

These configuration changes are automatically saved on the secondary unit.

Step 9 Make both failover groups active on the primary unit.

failover active group 1

failover active group 2

Example:

```
asa/act/pri(config)# failover active group 1
asa/act/pri(config)# failover active group 2
```

Step 10 Reload the secondary unit to boot the new image:

failover reload-standby

Wait for the secondary unit to finish loading. Use the **show failover** command to verify that both failover groups are in the Standby Ready state.

Step 11 Force both failover groups to become active on the secondary unit:

no failover active group 1

no failover active group 2

Example:

```
asa/act/pri(config)# no failover active group 1
asa/act/pri(config)# no failover active group 2
asa/stby/pri(config)#
```

If you are disconnected from your SSH session, reconnect to the failover group 1 IP address, now on the secondary unit.

Step 12 Reload the primary unit:

failover reload-standby

Example:

```
asa/act/sec# failover reload-standby
```

Note If you are connected to the primary unit console port, you should instead enter the **reload** command to reload the primary unit.

You may be disconnected from your SSH session.

Step 13 If the failover groups are configured with the **preempt** command, they automatically become active on their designated unit after the preempt delay has passed.

Upgrade an Active/Active Failover Pair Using ASDM

The **Upgrade Software from Local Computer** tool lets you upload an image file from your computer to the flash file system to upgrade the Active/Active failover pair for the Firepower 1000, Firepower 2100 in Appliance mode, Secure Firewall 3100/4200.

Before you begin

- Perform these steps in the system execution space.
- Place the ASA image on your local management computer.

Procedure

Step 1 Launch ASDM on the *secondary* unit by connecting to the management address in failover group 2.

Step 2 In the main ASDM application window, choose **Tools** > **Upgrade Software from Local Computer**.

The **Upgrade Software** dialog box appears.

Step 3 From the **Image to Upload** drop-down list, choose **ASA**.

Step 4 In the **Local File Path** field, enter the local path to the file on your computer or click **Browse Local Files** to find the file on your PC.

Step 5 In the **Flash File System Path** field, enter the path to the flash file system or click **Browse Flash** to find the directory or file in the flash file system.

Step 6 Click **Upload Image**. The uploading process might take a few minutes.

When you are prompted to set this image as the ASA image, click **No**. You exit the Upgrade tool.

Step 7 Connect ASDM to the *primary* unit by connecting to the management IP address in failover group 1.

Step 8 If you previously set a non-default ASDM image, then reset it to the image that came with your image bundle.

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

a) Choose **Configuration** > **Device Management** > **System Image/Configuration** > **Boot Image/Configuration**.
b) For the **ASDM Image File Path**, enter **disk0:/asdm.bin**.
c) Click **Apply**.

Step 9 Upload the ASA software, using the same file location you used on the secondary unit.

Step 10 When you are prompted to set the image as the ASA image, click **Yes**.

You are reminded to reload the ASA to use the new image. Click **OK**. You exit the Upgrade tool.

Step 11 Click the **Save** icon on the toolbar to save your configuration changes.

These configuration changes are automatically saved on the secondary unit.

Step 12 Make both failover groups active on the primary unit by choosing **Monitoring** > **Failover** > **Failover Group #**, where **#** is the number of the failover group you want to move to the primary unit, and clicking **Make Active**.

Step 13 Reload the secondary unit by choosing **Monitoring** > **Failover** > **System**, and clicking **Reload Standby**.

Stay on the **System** pane to monitor when the secondary unit reloads.

Step 14 After the secondary unit comes up, make both failover groups active on the secondary unit by choosing **Monitoring** > **Failover** > **Failover Group #**, where **#** is the number of the failover group you want to move to the secondary unit, and clicking **Make Standby**.

ASDM will automatically reconnect to the failover group 1 IP address on the secondary unit.

Step 15 Reload the primary unit by choosing **Monitoring** > **Failover** > **System**, and clicking **Reload Standby**.

Step 16 If the failover groups are configured with Preempt Enabled, they automatically become active on their designated unit after the preempt delay has passed. ASDM will automatically reconnect to the failover group 1 IP address on the primary unit.

Upgrade an ASA Cluster (Secure Firewall 3100/4200)

•

Upgrade an ASA Cluster Using the CLI (Secure Firewall 3100/4200)

To upgrade all nodes in an ASA cluster, perform the following steps. This procedure uses FTP. For TFTP, HTTP, or other server types, see the **copy** command in the ASA command reference.

Before you begin

- Perform these steps on the control node. You can configure the ASA prompt to show the cluster node and state (control or data), which is useful to determine which node you are connected to. See the prompt command. Alternatively, enter the **show cluster info** command to view each node's role.
- You must use the console port; you cannot enable or disable clustering from a remote CLI connection.
- Perform these steps in the system execution space for multiple context mode.

Procedure

Step 1 On the control node in global configuration mode, if you previously set a non-default ASDM image, then reset it to the image that came with your image bundle.

asdm image disk0:/asdm.bin

write memory

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

Step 2 On the control node in privileged EXEC mode (minimum), copy the ASA software to all nodes in the cluster.

cluster exec copy /noconfirm ftp://[[*user*[**:***password*]**@**]*server*[*/path*]*/asa_image_name*
disk*n***:/**[*path/*]*asa_image_name*

Example:

```
asa/unit1/control# cluster exec copy /noconfirm
ftp://dwinchester:sam@10.1.1.1/cisco-asa-fp3k.9.19.1.SPA disk0:/cisco-asa-fp3k.9.19.1.SPA
```

Step 3 If you are not already in global configuration mode, access it now.

configure terminal

Example:

```
asa/unit1/control# configure terminal
asa/unit1/control(config)#
```

Step 4 Show the current boot image configured, if present.

show running-config boot system

Note that you may not have a **boot system** command present in your configuration; for example, if you installed the image from ROMMON, have a new device, or you removed the command manually.

Example:

```
ciscoasa(config)# show running-config boot system
boot system disk0:/cisco-asa-fp1k.9.17.1.SPA
```

Step 5 If you have a **boot system** command configured, remove it so that you can enter the new boot image.

no boot system disk*n***:/**[*path*/]*asa_image_name*

If you did not have a **boot system** command configured, skip this step.

Example:

```
ciscoasa(config)# no boot system disk0:/cisco-asa-fp1k.9.17.1.SPA
```

Step 6 Set the ASA image to boot (the one you just uploaded).

boot system disk*n***:/**[*path*/]*asa_image_name*

You can only enter a single **boot system** command. The **boot system** command performs an action when you enter it: the system validates and unpacks the image and copies it to the boot location (an internal location on disk0 managed by FXOS). The new image will load when you reload the ASA. If you change your mind prior to reloading, you can enter the **no boot system** command to delete the new image from the boot location, so the current image continues to run.

Example:

```
ciscoasa(config)# boot system disk0:/cisco-asa-fp1k.9.19.1.SPA

The system is currently installed with security software package 9.17.1, which has:
   - The platform version:  2.11.1
   - The CSP (asa) version: 9.17.1
Preparing new image for install...
!!!!!!!!!!!!!
Image download complete (Successful unpack the image).
Installation of version 9.19.1 will do the following:
   - upgrade to the new platform version 2.13.1
   - upgrade to the CSP ASA version 9.19.1
After the installation is complete, reload to apply the new image.
Finalizing image install process...

Install_status: ready...........
Install_status: validating-images.....
Install_status: update-software-pack-completed
ciscoasa(config)#
```

Step 7 Save the new settings to the startup configuration:

write memory

These configuration changes are automatically saved on the data nodes.

Step 8 Upgrade the data nodes by reloading.

Note During the upgrade process, never use the **cluster control-node unit** command to force a data node to become control; you can cause network connectivity and cluster stability-related problems. You must upgrade and reload all data nodes first, and then continue with this procedure to ensure a smooth transition from the current control node to a new control node.

a) On the control node, to view member names, enter **cluster exec unit ?**, or enter the **show cluster info** command.

b) Reload a data node.

cluster exec unit *data-node* **reload noconfirm**

Example:

```
asa/unit1/control# cluster exec unit node2 reload noconfirm
```

c) Repeat for each data node.

To avoid connection loss and allow traffic to stabilize, wait for each node to come back up and rejoin the cluster (approximately 5 minutes) before repeating these steps for the next node. To view when a node rejoins the cluster, enter **show cluster info**.

Step 9 Upgrade the control node by reloading.

a) Disable clustering. We recommend manually disabling clustering on the control node if possible so that a new control node can be elected as quickly and cleanly as possible.

cluster group *name*

no enable

Wait for 5 minutes for a new control node to be selected and traffic to stabilize.

Do not save this configuration; you want clustering to be enabled when you reload.

Example:

```
asa/unit1/control(config)# cluster group cluster1
asa/unit1/control(cfg-cluster)# no enable
Cluster disable is performing cleanup..done.
All data interfaces have been shutdown due to clustering being disabled. To recover
either enable clustering or remove cluster group configuration.

Cluster unit node1 transitioned from CONTROL to DISABLED
asa/unit1/ClusterDisabled(cfg-cluster)#
```

b) Reload this node.

reload noconfirm

When the former control node rejoins the cluster, it will be a data node.

Upgrade an ASA Cluster Using ASDM (Secure Firewall 3100/4200)

To upgrade all nodes in an ASA cluster, perform the following steps.

Before you begin

- Perform these steps on the control node.
- Perform these steps in the system execution space for multiple context mode.
- Place the ASA image on your local management computer.

Procedure

Step 1 Launch ASDM on the *control* node by connecting to the main cluster IP address.

This IP address always stays with the control node.

Step 2 If you previously set a non-default ASDM image, then reset it to the image that came with your image bundle.

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

a) In the main ASDM application window, choose **Configuration** > **Device Management** > **System Image/Configuration** > **Boot Image/Configuration**.
b) For the **ASDM Image File Path**, enter **disk0:/asdm.bin**.
c) Click **Apply**.

Step 3 In the main ASDM application window, choose **Tools** > **Upgrade Software from Local Computer**.

The **Upgrade Software from Local Computer** dialog box appears.

Step 4 Click the **All devices in the cluster** radio button.

The **Upgrade Software** dialog box appears.

Step 5 From the **Image to Upload** drop-down list, choose **ASA**.

Step 6 In the **Local File Path** field, click **Browse Local Files** to find the file on your computer.

Step 7 (Optional) In the **Flash File System Path** field, enter the path to the flash file system or click **Browse Flash** to find the directory or file in the flash file system.

By default, this field is prepopulated with the following path: **disk0:/***filename*.

Step 8 Click **Upload Image**. The uploading process might take a few minutes.

Step 9 You are prompted to set this image as the ASA image. Click **Yes**.

Step 10 You are reminded to reload the ASA to use the new image. Click **OK**.

You exit the Upgrade tool.

Step 11 Click the **Save** icon on the toolbar to save your configuration changes.

These configuration changes are automatically saved on the data nodes.

Step 12 Take note of the individual management IP addresses for each node on **Configuration** > **Device Management** > **High Availability and Scalability** > **ASA Cluster** > **Cluster Members** so that you can connect ASDM directly to data nodes later.

Step 13 Upgrade the data nodes by reloading.

Note During the upgrade process, never change the control node using the **Monitoring** > **ASA Cluster** > **Cluster Summary** page to force a data node to become control; you can cause network connectivity and cluster stability-related problems. You must reload all data nodes first, and then continue with this procedure to ensure a smooth transition from the current control node to a new control node.

a) On the control node, choose **Tools** > **System Reload**.
b) Choose a data node name from the **Device** drop-down list.
c) Click **Schedule Reload**.
d) Click **Yes** to continue the reload.
e) Repeat for each data node.

To avoid connection loss and allow traffic to stabilize, wait for each node to come back up and rejoin the cluster (approximately 5 minutes) before repeating these steps for the next node. To view when a node rejoins the cluster, see the **Monitoring** > **ASA Cluster** > **Cluster Summary** pane.

Step 14 Upgrade the control node by reloading.

a) In ASDM on the control node, choose **Configuration** > **Device Management** > **High Availability and Scalability** > **ASA Cluster** > **Cluster Configuration** pane.
b) Uncheck the **Participate in ASA cluster** check box, and click **Apply**.

You are prompted to exit ASDM.

c) Wait for up to 5 minutes for a new control node to be selected and traffic to stabilize.

When the former control node rejoins the cluster, it will be a data node.

d) Re-connect ASDM to the former control node by connecting to its *individual* management IP address that you noted earlier.

The main cluster IP address now belongs to the new control node; this former control node is still accessible on its individual management IP address.

e) Choose **Tools** > **System Reload**.
f) Click the **Reload without saving the running configuration** radio button.

You do not want to save the configuration; when this node reloads, you want clustering to be enabled on it.

g) Click **Schedule Reload**.
h) Click **Yes** to continue the reload.

You are prompted to exit ASDM. Restart ASDM on the main cluster IP address; you will reconnect to the new control node.

Upgrade the Firepower 2100 in Platform Mode

This document describes how to plan and implement an ASA, FXOS, and ASDM upgrade for standalone or failover deployments for the Firepower 2100 in Platform mode. Prior to version 9.13, the Firepower 2100 only supported Platform mode. In 9.14 and later, Appliance mode is the default. In 9.14 and later, use the **show fxos mode** command on the ASA to determine your current mode. For appliance mode procedures, see Upgrade the Firepower 1000, 2100 in Appliance Mode, and Secure Firewall 3100/4200, on page 69.

Upgrade a Standalone Unit

Use the FXOS CLI or Firepower Chassis Manager to upgrade the standalone unit.

Upgrade a Standalone Unit Using the Firepower Chassis Manager

This section describes how to upgrade the ASA bundle, which includes both ASA and ASDM, for a standalone unit. You will upload the package from your management computer.

Procedure

Step 1 If you previously set a non-default ASDM image in the ASA configuration, then reset it to the image that came with your image bundle.

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

a) In the main ASDM application window, choose **Configuration** > **Device Management** > **System Image/Configuration** > **Boot Image/Configuration**.
b) For the **ASDM Image File Path**, enter **disk0:/asdm.bin**.
c) Click **Apply**
d) Click the **Save** icon on the toolbar to save your configuration changes.
e) Quit ASDM.

Step 2 Connect to the Firepower Chassis Manager.

Step 3 Choose **System** > **Updates**.
The **Available Updates** area shows a list of the packages available on the chassis.

Step 4 Click **Upload Image** to upload the new package from your management computer.

Step 5 Click **Choose File** to navigate to and select the package that you want to upload.

Step 6 Click **Upload**.

The selected package is uploaded to the chassis. The **Upload Image** dialog box shows the upload status. Wait for the **Success** dialog box, and click **OK**. After completing the upload, the integrity of the image is automatically verified.

Step 7 Click the **Upgrade** icon to the right of the new package.

Step 8 Click **Yes** to confirm that you want to proceed with installation.

There is no indicator that the new package is being loaded. You will still see the Firepower Chassis Manager at the beginning of the upgrade process. When the system reboots, you will be logged out. You must wait for

the system to come back up before you can log in to the Firepower Chassis Manager. The reboot process takes approximately 20 minutes. After the reboot, you will see the login screen.

Upgrade a Standalone Unit Using the FXOS CLI

This section describes how to upgrade the ASA bundle, which includes both ASA and ASDM, for a standalone unit. You can use FTP, SCP, SFTP, or TFTP to copy the package to the Firepower 2100 chassis.

Procedure

Step 1 Connect to the FXOS CLI, either the console port (preferred) or using SSH.

Step 2 If you previously set a non-default ASDM image in the ASA configuration, then reset it to the image that came with your image bundle.

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

a) Connect to ASA.

connect asa

Example:

```
firepower-2100# connect asa
Attaching to Diagnostic CLI ... Press 'Ctrl+a then d' to detach.
Type help or '?' for a list of available commands.
ciscoasa>
```

b) Access privileged EXEC mode, and then global configuration mode.

enable

configure terminal

c) Set the ASDM image.

asdm image disk0:/asdm.bin

d) Save the configuration.

write memory

e) Return to the FXOS console by entering **Ctrl+a**, **d**.

Step 3 In FXOS, download the package to the chassis.

a) Enter firmware mode.

scope firmware

Example:

```
firepower-2110# scope firmware
```

```
firepower-2110 /firmware#
```

b) Download the package.

download image *url*

Specify the URL for the file being imported using one of the following:

- **ftp:**//*username@server*/[*path*/]*image_name*
- **scp:**//*username@server*/[*path*/]*image_name*
- **sftp:**//*username@server*/[*path*/]*image_name*
- **tftp:**//*server*[**:***port*]/[*path*/]*image_name*

Example:

```
firepower-2110 /firmware# download image tftp://10.88.29.181/cisco-asa-fp2k.9.8.2.2.SPA
Please use the command 'show download-task' or 'show download-task detail' to check
download progress.
```

c) Monitor the download process.

show download-task

Example:

```
firepower-2110 /firmware # show download

Download task:
    File Name Protocol Server          Port       Userid          State
    --------- -------- --------------- ---------- --------------- -----
    cisco-asa-fp2k.9.8.2.SPA
              Tftp     10.88.29.181             0                 Downloaded
    cisco-asa-fp2k.9.8.2.2.SPA
              Tftp     10.88.29.181             0                 Downloading
firepower-2110 /firmware #
```

Step 4 When the new package finishes downloading (**Downloaded** state), boot the package.

a) View the version number of the new package.

show package

Example:

```
firepower-2110 /firmware # show package
Name                                       Package-Vers
------------------------------------------ ------------
cisco-asa-fp2k.9.8.2.SPA                   9.8.2
cisco-asa-fp2k.9.8.2.2.SPA                 9.8.2.2
firepower-2110 /firmware #
```

b) Install the package.

scope auto-install

install security-pack version *version*

In the **show package** output, copy the **Package-Vers** value for the **security-pack version** number. The chassis installs the ASA image and reboots.

Example:

```
firepower-2110 /firmware # scope auto-install
firepower-2110 /firmware/auto-install # install security-pack version 9.8.3

The system is currently installed with security software package 9.8.2, which has:
   - The platform version: 2.2.2.52
   - The CSP (asa) version: 9.8.2
If you proceed with the upgrade 9.8.3, it will do the following:
   - upgrade to the new platform version 2.2.2.97
   - upgrade to the CSP asa version 9.8.3
During the upgrade, the system will be reboot

Do you want to proceed ? (yes/no):yes

This operation upgrades firmware and software on Security Platform Components
Here is the checklist of things that are recommended before starting Auto-Install
(1) Review current critical/major faults
(2) Initiate a configuration backup

Do you want to proceed? (yes/no):yes

Triggered the install of software package version 9.8.3
Install started. This will take several minutes.
For monitoring the upgrade progress, please enter 'show' or 'show detail' command.
firepower-2110 /firmware/auto-install #
```

Step 5 Wait for the chassis to finish rebooting (5-10 minutes).

Although FXOS is up, you still need to wait for the ASA to come up (5 minutes). Wait until you see the following messages:

```
firepower-2110#
Cisco ASA: CMD=-install, CSP-ID=cisco-asa.9.8.2.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Verifying signature for cisco-asa.9.8.2.2 ...
Verifying signature for cisco-asa.9.8.2.2 ... success

Cisco ASA: CMD=-start, CSP-ID=cisco-asa.9.8.2.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Cisco ASA starting ...
Registering to process manager ...
Cisco ASA started successfully.
[…]
```

Upgrade an Active/Standby Failover Pair

Use the FXOS CLI or Firepower Chassis Manager to upgrade the Active/Standby failover pair for a zero downtime upgrade.

Upgrade an Active/Standby Failover Pair Using the Firepower Chassis Manager

This section describes how to upgrade the ASA bundle, which includes both ASA and ASDM, for an Active/Standby failover pair. You will upload the package from your management computer.

Before you begin

You need to determine which unit is active and which is standby: connect ASDM to the active ASA IP address. The active unit always owns the active IP address. Then choose **Monitoring** > **Properties** > **Failover** > **Status** to view this unit's priority (primary or secondary) so you know which unit you are connected to.

Procedure

Step 1 If you previously set a non-default ASDM image in the ASA configuration, then reset it to the image that came with your image bundle.

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

a) Connect to ASDM on the *active* unit.
b) In the main ASDM application window, choose **Configuration** > **Device Management** > **System Image/Configuration** > **Boot Image/Configuration**.
c) For the **ASDM Image File Path**, enter **disk0:/asdm.bin**.
d) Click **Apply**
e) Click the **Save** icon on the toolbar to save your configuration changes.
f) Quit ASDM.

Step 2 Upgrade the *standby* unit.

a) Connect to the Firepower Chassis Manager on the *standby* unit.
b) Choose **System** > **Updates**.
The **Available Updates** area shows a list of the packages available on the chassis.
c) Click **Upload Image** to upload the new package from your management computer.
d) Click **Choose File** to navigate to and select the package that you want to upload.
e) Click **Upload**.

The selected package is uploaded to the chassis. The **Upload Image** dialog box shows the upload status. Wait for the **Success** dialog box, and click **OK**. After completing the upload, the integrity of the image is automatically verified.

f) Click the **Upgrade** icon to the right of the new package.
g) Click **Yes** to confirm that you want to proceed with installation.

There is no indicator that the new package is being loaded. You will still see the Firepower Chassis Manager at the beginning of the upgrade process. When the system reboots, you will be logged out. You must wait for the system to come back up before you can log in to the Firepower Chassis Manager. The reboot process takes approximately 20 minutes. After the reboot, you will see the login screen.

Step 3 Make the unit that you just upgraded the active unit so that traffic flows to the upgraded unit.

a) Launch ASDM on the *standby* unit by connecting to the standby ASA IP address.
b) Force the standby unit to become active by choosing **Monitoring** > **Properties** > **Failover** > **Status**, and clicking **Make Active**.

Step 4 Upgrade the former *active* unit.

a) Connect to the Firepower Chassis Manager on the former *active* unit.

b) Choose **System** > **Updates**.
The **Available Updates** area shows a list of the packages available on the chassis.
c) Click **Upload Image** to upload the new package from your management computer.
d) Click **Choose File** to navigate to and select the package that you want to upload.
e) Click **Upload**.

The selected package is uploaded to the chassis. The **Upload Image** dialog box shows the upload status. Wait for the **Success** dialog box, and click **OK**. After completing the upload, the integrity of the image is automatically verified.

f) Click the **Upgrade** icon to the right of the new package.
g) Click **Yes** to confirm that you want to proceed with installation.

There is no indicator that the new package is being loaded. You will still see the Firepower Chassis Manager at the beginning of the upgrade process. When the system reboots, you will be logged out. You must wait for the system to come back up before you can log in to the Firepower Chassis Manager. The reboot process takes approximately 20 minutes. After the reboot, you will see the login screen.

Upgrade an Active/Standby Failover Pair Using the FXOS CLI

This section describes how to upgrade the ASA bundle, which includes both ASA and ASDM, for an Active/Standby failover pair. You can use FTP, SCP, SFTP, or TFTP to copy the package to the Firepower 2100 chassis.

Before you begin

You need to determine which unit is active and which is standby. To determine the failover status, look at the ASA prompt; you can configure the ASA prompt to show the failover status and priority (primary or secondary), which is useful to determine which unit you are connected to. See the prompt command. However, the FXOS prompt is not aware of ASA failover. Alternatively, enter the ASA **show failover** command to view this unit's status and priority (primary or secondary).

Procedure

Step 1 If you previously set a non-default ASDM image in the ASA configuration, then reset it to the image that came with your image bundle.

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

a) Connect to the FXOS CLI on the *active* unit, either the console port (preferred) or using SSH.
b) Connect to ASA.

connect asa

Example:

```
firepower-2100# connect asa
Attaching to Diagnostic CLI ... Press 'Ctrl+a then d' to detach.
```

```
Type help or '?' for a list of available commands.
ciscoasa>
```

c) Access privileged EXEC mode, and then global configuration mode.

enable

configure terminal

d) Set the ASDM image.

asdm image disk0:/asdm.bin

e) Save the configuration.

write memory

f) Return to the FXOS console by entering **Ctrl+a**, **d**.

Step 2 Upgrade the *standby* unit.

a) Connect to the FXOS CLI on the *standby* unit, either the console port (preferred) or using SSH.

b) Enter firmware mode.

scope firmware

Example:

```
2110-sec# scope firmware
2110-sec /firmware#
```

c) Download the package.

download image *url*

Specify the URL for the file being imported using one of the following:

- **ftp:**//*username@server*/[*path*/]*image_name*
- **scp:**//*username@server*/[*path*/]*image_name*
- **sftp:**//*username@server*/[*path*/]*image_name*
- **tftp:**//*server*[**:***port*]/[*path*/]*image_name*

Example:

```
2110-sec /firmware# download image tftp://10.88.29.181/cisco-asa-fp2k.9.8.2.2.SPA
Please use the command 'show download-task' or 'show download-task detail' to check
download progress.
```

d) Monitor the download process.

show download-task

Example:

```
2110-sec /firmware # show download

Download task:
    File Name Protocol Server          Port       Userid          State
    --------- -------- --------------- ---------- --------------- -----
```

```
    cisco-asa-fp2k.9.8.2.SPA
             Tftp     10.88.29.181            0                Downloaded
    cisco-asa-fp2k.9.8.2.2.SPA
             Tftp     10.88.29.181            0                Downloading
2110-sec /firmware #
```

e) When the new package finishes downloading (**Downloaded** state), boot the package. View the version number of the new package.

show package

Example:

```
2110-sec /firmware # show package
Name                                       Package-Vers
------------------------------------------ ------------
cisco-asa-fp2k.9.8.2.SPA                   9.8.2
cisco-asa-fp2k.9.8.2.2.SPA                 9.8.2.2
2110-sec /firmware #
```

f) Install the package.

scope auto-install

install security-pack version *version*

In the **show package** output, copy the **Package-Vers** value for the **security-pack version** number. The chassis installs the ASA image and reboots.

Example:

```
2110-sec /firmware # scope auto-install
2110-sec /firmware/auto-install # install security-pack version 9.8.3

The system is currently installed with security software package 9.8.2, which has:
   - The platform version: 2.2.2.52
   - The CSP (asa) version: 9.8.2
If you proceed with the upgrade 9.8.3, it will do the following:
   - upgrade to the new platform version 2.2.2.97
   - upgrade to the CSP asa version 9.8.3
During the upgrade, the system will be reboot

Do you want to proceed ? (yes/no):yes

This operation upgrades firmware and software on Security Platform Components
Here is the checklist of things that are recommended before starting Auto-Install
(1) Review current critical/major faults
(2) Initiate a configuration backup

Do you want to proceed? (yes/no):yes

Triggered the install of software package version 9.8.3
Install started. This will take several minutes.
For monitoring the upgrade progress, please enter 'show' or 'show detail' command.
2110-sec /firmware/auto-install #
```

g) Wait for the chassis to finish rebooting (5-10 minutes).

Although FXOS is up, you still need to wait for the ASA to come up (5 minutes). Wait until you see the following messages:

```
2110-sec#
Cisco ASA: CMD=-install, CSP-ID=cisco-asa.9.8.2.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Verifying signature for cisco-asa.9.8.2.2 ...
Verifying signature for cisco-asa.9.8.2.2 ... success

Cisco ASA: CMD=-start, CSP-ID=cisco-asa.9.8.2.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Cisco ASA starting ...
Registering to process manager ...
Cisco ASA started successfully.
[…]
```

Step 3 Make the unit that you just upgraded the active unit so that traffic flows to the upgraded unit.

a) Connect to the standby ASA CLI from FXOS.

connect asa

enable

Example:

```
2110-sec# connect asa
Attaching to Diagnostic CLI ... Press 'Ctrl+a then d' to detach.
Type help or '?' for a list of available commands.
asa/stby/sec> enable
Password: *****
asa/stby/sec#
```

b) Force to the standby unit to become active.

failover active

Example:

```
asa/stby/sec> failover active
asa/act/sec#
```

c) To return to the FXOS console, enter **Ctrl+a**, **d**.

Step 4 Upgrade the former *active* unit.

a) Connect to the FXOS CLI on the former *active* unit, either the console port (preferred) or using SSH.

b) Enter firmware mode.

scope firmware

Example:

```
2110-pri# scope firmware
2110-pri /firmware#
```

c) Download the package.

download image *url*

Specify the URL for the file being imported using one of the following:

- **ftp:**//*username@server*/[*path*/]*image_name*

- **scp://***username@server*/[*path*/]*image_name*
- **sftp://***username@server*/[*path*/]*image_name*
- **tftp://***server*[**:***port*]/[*path*/]*image_name*

Example:

```
2110-pri /firmware# download image tftp://10.88.29.181/cisco-asa-fp2k.9.8.2.2.SPA
Please use the command 'show download-task' or 'show download-task detail' to check
download progress.
```

d) Monitor the download process.

show download-task

Example:

```
2110-pri /firmware # show download

Download task:
    File Name Protocol Server          Port       Userid          State
    --------- -------- --------------- ---------- --------------- -----
    cisco-asa-fp2k.9.8.2.SPA
              Tftp     10.88.29.181             0                 Downloaded
    cisco-asa-fp2k.9.8.2.2.SPA
              Tftp     10.88.29.181             0                 Downloading
2110-pri /firmware #
```

e) When the new package finishes downloading (**Downloaded** state), boot the package. View the version number of the new package.

show package

Example:

```
2110-pri /firmware # show package
Name                                       Package-Vers
------------------------------------------ ------------
cisco-asa-fp2k.9.8.2.SPA                   9.8.2
cisco-asa-fp2k.9.8.2.2.SPA                 9.8.2.2
2110-pri /firmware #
```

f) Install the package.

scope auto-install

install security-pack version *version*

In the **show package** output, copy the **Package-Vers** value for the **security-pack version** number. The chassis installs the ASA image and reboots.

Example:

```
2110-pri /firmware # scope auto-install
2110-pri /firmware/auto-install # install security-pack version 9.8.3

The system is currently installed with security software package 9.8.2, which has:
   - The platform version: 2.2.2.52
```

```
   - The CSP (asa) version: 9.8.2
If you proceed with the upgrade 9.8.3, it will do the following:
   - upgrade to the new platform version 2.2.2.97
   - upgrade to the CSP asa version 9.8.3
During the upgrade, the system will be reboot

Do you want to proceed ? (yes/no):yes

This operation upgrades firmware and software on Security Platform Components
Here is the checklist of things that are recommended before starting Auto-Install
(1) Review current critical/major faults
(2) Initiate a configuration backup

Do you want to proceed? (yes/no):yes

Triggered the install of software package version 9.8.3
Install started. This will take several minutes.
For monitoring the upgrade progress, please enter 'show' or 'show detail' command.
2110-pri /firmware/auto-install #
```

g) Wait for the chassis to finish rebooting (5-10 minutes).

Although FXOS is up, you still need to wait for the ASA to come up (5 minutes). Wait until you see the following messages:

```
2110-pri#
Cisco ASA: CMD=-install, CSP-ID=cisco-asa.9.8.2.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Verifying signature for cisco-asa.9.8.2.2 ...
Verifying signature for cisco-asa.9.8.2.2 ... success

Cisco ASA: CMD=-start, CSP-ID=cisco-asa.9.8.2.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Cisco ASA starting ...
Registering to process manager ...
Cisco ASA started successfully.
[…]
```

Upgrade an Active/Active Failover Pair

Use the FXOS CLI or Firepower Chassis Manager to upgrade the Active/Active failover pair for a zero downtime upgrade.

Upgrade an Active/Active Failover Pair Using the Firepower Chassis Manager

This section describes how to upgrade the ASA bundle, which includes both ASA and ASDM, for an Active/Active failover pair. You will upload the package from your management computer.

Procedure

Step 1 Make both failover groups active on the *primary* unit.

a) Launch ASDM on the *primary* unit (or the unit with failover group 1 active) by connecting to the management address in failover group 1.

b) Choose **Monitoring** > **Failover** > **Failover Group 2**, and click **Make Active**.

c) Stay connected to ASDM on this unit for later steps.

Step 2 If you previously set a non-default ASDM image in the ASA configuration, then reset it to the image that came with your image bundle.

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

a) In the main ASDM application window on the primary unit, choose **Configuration** > **Device Management** > **System Image/Configuration** > **Boot Image/Configuration**.
b) For the **ASDM Image File Path**, enter **disk0:/asdm.bin**.
c) Click **Apply**
d) Click the **Save** icon on the toolbar to save your configuration changes.

Step 3 Upgrade the *secondary* unit.

a) Connect to the Firepower Chassis Manager on the *secondary* unit.
b) Choose **System** > **Updates**.
The **Available Updates** area shows a list of the packages available on the chassis.
c) Click **Upload Image** to upload the new package from your management computer.
d) Click **Choose File** to navigate to and select the package that you want to upload.
e) Click **Upload**.

The selected package is uploaded to the chassis. The **Upload Image** dialog box shows the upload status. Wait for the **Success** dialog box, and click **OK**. After completing the upload, the integrity of the image is automatically verified.

f) Click the **Upgrade** icon to the right of the new package.
g) Click **Yes** to confirm that you want to proceed with installation.

There is no indicator that the new package is being loaded. You will still see the Firepower Chassis Manager at the beginning of the upgrade process. When the system reboots, you will be logged out. You must wait for the system to come back up before you can log in to the Firepower Chassis Manager. The reboot process takes approximately 20 minutes. After the reboot, you will see the login screen.

Step 4 Make both failover groups active on the secondary unit. In ASDM on the *primary* unit, choose **Monitoring** > **Failover** > **Failover Group 1**, and click **Make Standby**.

ASDM will automatically reconnect to the failover group 1 IP address on the secondary unit.

Step 5 Upgrade the *primary* unit.

a) Connect to the Firepower Chassis Manager on the *primary* unit.
b) Choose **System** > **Updates**.
The **Available Updates** area shows a list of the packages available on the chassis.
c) Click **Upload Image** to upload the new package from your management computer.
d) Click **Choose File** to navigate to and select the package that you want to upload.
e) Click **Upload**.

The selected package is uploaded to the chassis. The **Upload Image** dialog box shows the upload status. Wait for the **Success** dialog box, and click **OK**. After completing the upload, the integrity of the image is automatically verified.

f) Click the **Upgrade** icon to the right of the new package.
g) Click **Yes** to confirm that you want to proceed with installation.

There is no indicator that the new package is being loaded. You will still see the Firepower Chassis Manager at the beginning of the upgrade process. When the system reboots, you will be logged out. You must wait for the system to come back up before you can log in to the Firepower Chassis Manager. The reboot process takes approximately 20 minutes. After the reboot, you will see the login screen.

Step 6 If the failover groups are configured with Preempt Enabled, they automatically become active on their designated unit after the preempt delay has passed. If the failover groups are not configured with Preempt Enabled, you can return them to active status on their designated units using the ASDM **Monitoring > Failover > Failover Group #** pane.

Upgrade an Active/Active Failover Pair Using the FXOS CLI

This section describes how to upgrade the ASA bundle, which includes both ASA and ASDM, for an Active/Active failover pair. You can use FTP, SCP, SFTP, or TFTP to copy the package to the Firepower 2100 chassis.

Procedure

Step 1 If you previously set a non-default ASDM image in the ASA configuration, then reset it to the image that came with your image bundle.

The image bundle includes the ASDM image, and when you upgrade the ASA bundle, the ASDM image in the bundle replaces the previous ASDM bundle image on the ASA after reloading because they have the same name (**asdm.bin**). If you manually chose a different ASDM image that you uploaded (for example, **asdm-7191.bin**), then you continue to use that image even after a bundle upgrade. To make sure that you are running a compatible version of ASDM, you should reconfigure the ASA to use the bundled ASDM image.

a) Connect to the FXOS CLI on the *primary* unit, either the console port (preferred) or using SSH.

b) Connect to ASA.

connect asa

Example:

```
firepower-2100# connect asa
Attaching to Diagnostic CLI ... Press 'Ctrl+a then d' to detach.
Type help or '?' for a list of available commands.
ciscoasa>
```

c) Access privileged EXEC mode, and then global configuration mode.

enable

configure terminal

d) Set the ASDM image.

asdm image disk0:/asdm.bin

e) Save the configuration.

write memory

f) Return to the FXOS console by entering **Ctrl+a**, **d**.

Step 2 Connect to the FXOS CLI on the *secondary* unit, either the console port (preferred) or using SSH.

Step 3 Make both failover groups active on the primary unit.

a) Connect to the ASA CLI from FXOS.

connect asa

enable

The enable password is blank by default.

Example:

```
2110-sec# connect asa
Attaching to Diagnostic CLI ... Press 'Ctrl+a then d' to detach.
Type help or '?' for a list of available commands.
asa/act/sec> enable
Password: <blank>
asa/act/sec#
```

b) Make both failover groups active on the primary unit.

no failover active group 1

no failover active group 2

Example:

```
asa/act/sec# no failover active group 1
asa/act/sec# no failover active group 2
```

c) Enter **Ctrl+a**, **d** to return to the FXOS console.

Step 4 Upgrade the *secondary* unit.

a) In FXOS, enter firmware mode.

scope firmware

Example:

```
2110-sec# scope firmware
2110-sec /firmware#
```

b) Download the package.

download image *url*

Specify the URL for the file being imported using one of the following:

- **ftp:**//*username@server*/[*path*/]*image_name*
- **scp:**//*username@server*/[*path*/]*image_name*
- **sftp:**//*username@server*/[*path*/]*image_name*
- **tftp:**//*server*[**:***port*]/[*path*/]*image_name*

Example:

```
2110-sec /firmware# download image tftp://10.88.29.181/cisco-asa-fp2k.9.8.2.2.SPA
Please use the command 'show download-task' or 'show download-task detail' to check
```

```
download progress.
```

c) Monitor the download process.

show download-task

Example:

```
2110-sec /firmware # show download

Download task:
    File Name Protocol Server          Port       Userid          State
    --------- -------- --------------- ---------- --------------- -----
    cisco-asa-fp2k.9.8.2.SPA
              Tftp     10.88.29.181             0                 Downloaded
    cisco-asa-fp2k.9.8.2.2.SPA
              Tftp     10.88.29.181             0                 Downloading
2110-sec /firmware #
```

d) When the new package finishes downloading (**Downloaded** state), boot the package. View the version number of the new package.

show package

Example:

```
2110-sec /firmware # show package
Name                                         Package-Vers
-------------------------------------------- ------------
cisco-asa-fp2k.9.8.2.SPA                     9.8.2
cisco-asa-fp2k.9.8.2.2.SPA                   9.8.2.2
2110-sec /firmware #
```

e) Install the package.

scope auto-install

install security-pack version *version*

In the **show package** output, copy the **Package-Vers** value for the **security-pack version** number. The chassis installs the ASA image and reboots.

Example:

```
2110-sec /firmware # scope auto-install
2110-sec /firmware/auto-install # install security-pack version 9.8.3

The system is currently installed with security software package 9.8.2, which has:
   - The platform version: 2.2.2.52
   - The CSP (asa) version: 9.8.2
If you proceed with the upgrade 9.8.3, it will do the following:
   - upgrade to the new platform version 2.2.2.97
   - upgrade to the CSP asa version 9.8.3
During the upgrade, the system will be reboot

Do you want to proceed ? (yes/no):yes

This operation upgrades firmware and software on Security Platform Components
Here is the checklist of things that are recommended before starting Auto-Install
(1) Review current critical/major faults
```

```
(2) Initiate a configuration backup

Do you want to proceed? (yes/no):yes

Triggered the install of software package version 9.8.3
Install started. This will take several minutes.
For monitoring the upgrade progress, please enter 'show' or 'show detail' command.
2110-sec /firmware/auto-install #
```

f) Wait for the chassis to finish rebooting (5-10 minutes).

Although FXOS is up, you still need to wait for the ASA to come up (5 minutes). Wait until you see the following messages:

```
2110-sec#
Cisco ASA: CMD=-install, CSP-ID=cisco-asa.9.8.2.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Verifying signature for cisco-asa.9.8.2.2 ...
Verifying signature for cisco-asa.9.8.2.2 ... success

Cisco ASA: CMD=-start, CSP-ID=cisco-asa.9.8.2.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Cisco ASA starting ...
Registering to process manager ...
Cisco ASA started successfully.
[…]
```

Step 5 Make both failover groups active on the secondary unit.

a) Connect to the ASA CLI from FXOS.

connect asa

enable

The enable password is blank by default.

Example:

```
2110-sec# connect asa
Attaching to Diagnostic CLI ... Press 'Ctrl+a then d' to detach.
Type help or '?' for a list of available commands.
asa/stby/sec> enable
Password: <blank>
asa/stby/sec#
```

b) Make both failover groups active on the secondary unit.

failover active group 1

failover active group 2

Example:

```
asa/stby/sec# failover active group 1
asa/act/sec# failover active group 2
```

c) Enter **Ctrl+a**, **d** to return to the FXOS console.

Step 6 Upgrade the *primary* unit.

a) Connect to the FXOS CLI on the *primary* unit, either the console port (preferred) or using SSH.

b) Enter firmware mode.

scope firmware

Example:

```
2110-pri# scope firmware
2110-pri /firmware#
```

c) Download the package.

download image *url*

Specify the URL for the file being imported using one of the following:

- **ftp:**//*username@server*/[*path*/]*image_name*
- **scp:**//*username@server*/[*path*/]*image_name*
- **sftp:**//*username@server*/[*path*/]*image_name*
- **tftp:**//*server*[**:***port*]/[*path*/]*image_name*

Example:

```
2110-pri /firmware# download image tftp://10.88.29.181/cisco-asa-fp2k.9.8.2.2.SPA
Please use the command 'show download-task' or 'show download-task detail' to check
download progress.
```

d) Monitor the download process.

show download-task

Example:

```
2110-pri /firmware # show download

Download task:
    File Name Protocol Server          Port       Userid          State
    --------- -------- --------------- ---------- --------------- -----
    cisco-asa-fp2k.9.8.2.SPA
              Tftp     10.88.29.181             0                 Downloaded
    cisco-asa-fp2k.9.8.2.2.SPA
              Tftp     10.88.29.181             0                 Downloading
2110-pri /firmware #
```

e) When the new package finishes downloading (**Downloaded** state), boot the package. View the version number of the new package.

show package

Example:

```
2110-pri /firmware # show package
Name                                       Package-Vers
------------------------------------------ ------------
cisco-asa-fp2k.9.8.2.SPA                   9.8.2
cisco-asa-fp2k.9.8.2.2.SPA                 9.8.2.2
2110-pri /firmware #
```

f) Install the package.

scope auto-install

install security-pack version *version*

In the **show package** output, copy the **Package-Vers** value for the **security-pack version** number. The chassis installs the ASA image and reboots.

Example:

```
2110-pri /firmware # scope auto-install
2110-pri /firmware/auto-install # install security-pack version 9.8.3

The system is currently installed with security software package 9.8.2, which has:
   - The platform version: 2.2.2.52
   - The CSP (asa) version: 9.8.2
If you proceed with the upgrade 9.8.3, it will do the following:
   - upgrade to the new platform version 2.2.2.97
   - upgrade to the CSP asa version 9.8.3
During the upgrade, the system will be reboot

Do you want to proceed ? (yes/no):yes

This operation upgrades firmware and software on Security Platform Components
Here is the checklist of things that are recommended before starting Auto-Install
(1) Review current critical/major faults
(2) Initiate a configuration backup

Do you want to proceed? (yes/no):yes

Triggered the install of software package version 9.8.3
Install started. This will take several minutes.
For monitoring the upgrade progress, please enter 'show' or 'show detail' command.
2110-pri /firmware/auto-install #
```

g) Wait for the chassis to finish rebooting (5-10 minutes).

Although FXOS is up, you still need to wait for the ASA to come up (5 minutes). Wait until you see the following messages:

```
2110-pri#
Cisco ASA: CMD=-install, CSP-ID=cisco-asa.9.8.2.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Verifying signature for cisco-asa.9.8.2.2 ...
Verifying signature for cisco-asa.9.8.2.2 ... success

Cisco ASA: CMD=-start, CSP-ID=cisco-asa.9.8.2.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Cisco ASA starting ...
Registering to process manager ...
Cisco ASA started successfully.
[…]
```

Step 7 If the failover groups are configured with the ASA **preempt** command, they automatically become active on their designated unit after the preempt delay has passed. If the failover groups are not configured with the **preempt** command, you can return them to active status on their designated units by connecting to the ASA CLI and using the **failover active group** command.

Upgrade the Firepower 4100/9300

This document describes how to upgrade the ASA on the Firepower 4100/9300.

Upgrade FXOS and an ASA Standalone Device or Intra-Chassis Cluster

Use the FXOS CLI or Firepower Chassis Manager to upgrade FXOS and a standalone ASA device or an ASA intra-chassis cluster on a Firepower 9300.

Upgrade FXOS and an ASA Standalone Device or Intra-Chassis Cluster Using Secure Firewall Chassis Manager

The upgrade process can take up to 45 minutes. Traffic will not traverse through the device while it is upgrading. Please plan your upgrade activity accordingly.

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- Download the FXOS and ASA software packages to which you are upgrading.
- Back up your FXOS and ASA configurations.

Procedure

Step 1 In Secure Firewall chassis manager, choose **System** > **Updates**.
The **Available Updates** area shows a list of the packages available on the chassis.

Step 2 Upload the new FXOS platform bundle image and ASA software image::

a) Click **Upload Image**.
b) Click **Choose File** to navigate to and select the image that you want to upload.
c) Click **Upload**.
The selected image is uploaded to the chassis.

Step 3 After the new FXOS platform bundle image has successfully uploaded, click the **Upgrade** icon for the FXOS platform bundle to which you want to upgrade.

The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently-installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade. As long as the ASA version is listed as upgradeable in the compatibility table, you can ignore these warnings.

Step 4 Click **Yes** to confirm that you want to proceed with installation.

FXOS unpacks the bundle and upgrades/reloads the components.

Step 5 Firepower Chassis Manager will be unavailable during upgrade. You can monitor the upgrade process using the FXOS CLI (see Monitor the Upgrade Progress, on page 136).

Step 6 After all components have successfully upgraded, verify the status of the security modules/security engine and any installed applications before continuing (see Verify the Installation, on page 136).

Step 7 Choose **Logical Devices**.
The **Logical Devices** page opens to show a list of configured logical devices on the chassis.

Step 8 For each ASA logical device that you want to upgrade:

a) Click the **Set Version** icon for the logical device that you want to update to open the **Update Image Version** dialog box.

b) For the **New Version**, choose the software version to which you want to upgrade.

c) Click **OK**.

Step 9 After the upgrade process finishes, verify that the applications are online and have upgraded successfully:

a) Choose **Logical Devices**.

b) Verify the application version and operational status.

Upgrade FXOS and an ASA Standalone Device or Intra-Chassis Cluster Using the FXOS CLI

The upgrade process can take up to 45 minutes. Traffic will not traverse through the device while it is upgrading. Please plan your upgrade activity accordingly.

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- Download the FXOS and ASA software packages to which you are upgrading.
- Back up your FXOS and ASA configurations.
- Collect the following information that you will need to download software images to the chassis:
  - IP address and authentication credentials for the server from which you are copying the images.
  - Fully qualified names of the image files.

Procedure

Step 1 Connect to the FXOS CLI.

Step 2 Download the new FXOS platform bundle image to the chassis:

a) Enter firmware mode:

scope firmware

b) Download the FXOS platform bundle software image:

download image *URL*

Specify the URL for the file being imported using one of the following syntax:

- **ftp**://*username@server/path/image_name*
- **scp**://*username@server/path/image_name*

- **sftp**://*username@server*/*path*/*image_name*
- **tftp**://*server***:***port-num*/*path*/*image_name*

c) To monitor the download process:

scope download-task *image_name*

show detail

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis # scope firmware
Firepower-chassis /firmware # download image
scp://user@192.168.1.1/images/fxos-k9.2.3.1.58.SPA
Firepower-chassis /firmware # scope download-task fxos-k9.2.3.1.58.SPA
Firepower-chassis /firmware/download-task # show detail
Download task:
    File Name: fxos-k9.2.3.1.58.SPA
    Protocol: scp
    Server: 192.168.1.1
    Userid:
    Path:
    Downloaded Image Size (KB): 853688
    State: Downloading
    Current Task: downloading image fxos-k9.2.3.1.58.SPA from
192.168.1.1(FSM-STAGE:sam:dme:FirmwareDownloaderDownload:Local)
```

Step 3 After the new FXOS platform bundle image has successfully downloaded, upgrade the FXOS bundle:

a) If necessary, return to firmware mode:

up

b) Make note of the version number for the FXOS platform bundle you are installing:

show package

c) Enter auto-install mode:

scope auto-install

d) Install the FXOS platform bundle:

install platform platform-vers *version_number*

version_number is the version number of the FXOS platform bundle you are installing--for example, 2.3(1.58).

e) The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently-installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade. As long as the ASA version is listed as upgradeable in the compatibility table, you can ignore these warnings.

Enter **yes** to confirm that you want to proceed with verification.

f) Enter **yes** to confirm that you want to proceed with installation, or enter **no** to cancel the installation.

FXOS unpacks the bundle and upgrades/reloads the components.

g) To monitor the upgrade process, see Monitor the Upgrade Progress, on page 136.

Step 4 After all components have successfully upgraded, verify the status of the security modules/security engine and any installed applications before continuing (see Verify the Installation, on page 136).

Step 5 Download the new ASA software image to the chassis:

a) Enter Security Services mode:

top

scope ssa

b) Enter Application Software mode:

scope app-software

c) Download the logical device software image:

download image *URL*

Specify the URL for the file being imported using one of the following syntax:

- **ftp**://*username@server*/*path*
- **scp**://*username@server*/*path*
- **sftp**://*username@server*/*path*
- **tftp**://*server*:*port-num*/*path*

d) To monitor the download process:

show download-task

e) To view the downloaded applications:

up

show app

Make note of the ASA version for the software package you downloaded. You will need to use the exact version string to enable the application in a later step.

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis # scope ssa
Firepower-chassis /ssa # scope app-software
Firepower-chassis /ssa/app-software # download image
scp://user@192.168.1.1/images/cisco-asa.9.4.1.65.csp
Firepower-chassis /ssa/app-software # show download-task

Downloads for Application Software:
    File Name                     Protocol   Server               Userid          State
    ----------------------------- ---------- -------------------- --------------- -----
    cisco-asa.9.4.1.65.csp        Scp        192.168.1.1          user            Downloaded

Firepower-chassis /ssa/app-software # up

Firepower-chassis /ssa # show app

Application:
```

```
Name       Version    Description Author     Deploy Type CSP Type    Is Default App
---------- ---------- ----------- ---------- ----------- ----------- --------------
asa        9.4.1.41   N/A                    Native      Application No
asa        9.4.1.65   N/A                    Native      Application Yes
```

Step 6 For each ASA logical device that you want to upgrade:

a) Enter Security Services mode:

top

scope ssa

b) Set the scope to the security module you are updating:

scope slot*slot_number*

c) Set the scope to the ASA application:

scope app-instance asa *instance_name*

d) Set the Startup version to the new ASA software version:

set startup-version *version_number*

Step 7 Commit the configuration:

commit-buffer

Commits the transaction to the system configuration. The application image is updated and the application restarts.

Step 8 To verify the status of the security modules/security engine and any installed applications, see Verify the Installation, on page 136.

Upgrade FXOS and an ASA Active/Standby Failover Pair

Use the FXOS CLI or Firepower Chassis Manager to upgrade FXOS and an ASA Active/Standby failover pair.

Upgrade FXOS and an ASA Active/Standby Failover Pair Using Secure Firewall Chassis Manager

The upgrade process can take up to 45 minutes per chassis. Please plan your upgrade activity accordingly.

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- You need to determine which unit is active and which is standby: connect ASDM to the active ASA IP address. The active unit always owns the active IP address. Then choose **Monitoring** > **Properties** > **Failover** > **Status** to view this unit's priority (primary or secondary) so you know which unit you are connected to.
- Download the FXOS and ASA software packages to which you are upgrading.
- Back up your FXOS and ASA configurations.

Procedure

Step 1 On the chassis that contains the *standby* ASA logical device, upload the new FXOS platform bundle image and ASA software image:

a) In Secure Firewall chassis manager, choose **System** > **Updates**.
The **Available Updates** area shows a list of the packages available on the chassis.
b) Click **Upload Image**.
c) Click **Choose File** to navigate to and select the image that you want to upload.
d) Click **Upload**.
The selected image is uploaded to the chassis.

Step 2 After the new FXOS platform bundle image has successfully uploaded, upgrade the FXOS bundle on the chassis that contains the *standby* ASA logical device:

a) Click the **Upgrade** icon for the FXOS platform bundle to which you want to upgrade.

The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently-installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade. As long as the ASA version is listed as upgradeable in the compatibility table, you can ignore these warnings.

b) Click **Yes** to confirm that you want to proceed with installation.

FXOS unpacks the bundle and upgrades/reloads the components.

Step 3 Secure Firewall chassis manager will be unavailable during upgrade. You can monitor the upgrade process using the FXOS CLI (see Monitor the Upgrade Progress, on page 136).

Step 4 After all components have successfully upgraded, verify the status of the security modules/security engine and any installed applications before continuing (see Verify the Installation, on page 136).

Step 5 Upgrade the ASA logical device image:

a) Choose **Logical Devices** to open the Logical Devices page.
The **Logical Devices** page opens to show a list of configured logical devices on the chassis.
b) Click the **Set Version** icon for the logical device that you want to update to open the **Update Image Version** dialog box.
c) For the **New Version**, choose the software version to which you want to update.
d) Click **OK**.

Step 6 After the upgrade process finishes, verify that the applications are online and have upgraded successfully:

a) Choose **Logical Devices**.
b) Verify the application version and operational status.

Step 7 Make the unit that you just upgraded the *active* unit so that traffic flows to the upgraded unit:

a) Launch ASDM on the *standby* unit by connecting to the standby ASA IP address.
b) Force the standby unit to become active by choosing **Monitoring** > **Properties** > **Failover** > **Status**, and clicking **Make Active**.

Step 8 On the chassis that contains the *new standby* ASA logical device, upload the new FXOS platform bundle image and ASA software image:

a) In Secure Firewall chassis manager, choose **System** > **Updates**.
The **Available Updates** area shows a list of the packages available on the chassis.

b) Click **Upload Image**.
c) Click **Choose File** to navigate to and select the image that you want to upload.
d) Click **Upload**.
The selected image is uploaded to the chassis.

Step 9 After the new FXOS platform bundle image has successfully uploaded, upgrade the FXOS bundle on the chassis that contains the *new standby* ASA logical device:

a) Click the **Upgrade** icon for the FXOS platform bundle to which you want to upgrade.

The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently-installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade. As long as the ASA version is listed as upgradeable in the compatibility table, you can ignore these warnings.

b) Click **Yes** to confirm that you want to proceed with installation.

FXOS unpacks the bundle and upgrades/reloads the components.

Step 10 Secure Firewall chassis manager will be unavailable during upgrade. You can monitor the upgrade process using the FXOS CLI (see Monitor the Upgrade Progress, on page 136).

Step 11 After all components have successfully upgraded, verify the status of the security modules/security engine and any installed applications before continuing (see Verify the Installation, on page 136).

Step 12 Upgrade the ASA logical device image:

a) Choose **Logical Devices**.
The **Logical Devices** page opens to shows a list of configured logical devices on the chassis. If no logical devices have been configured, a message stating so is shown instead.
b) Click the **Set Version** icon for the logical device that you want to update to open the **Update Image Version** dialog box.
c) For the **New Version**, choose the software version to which you want to update.
d) Click **OK**.

Step 13 After the upgrade process finishes, verify that the applications are online and have upgraded successfully:

a) Choose **Logical Devices**.
b) Verify the application version and operational status.

Step 14 (Optional) Make the unit that you just upgraded the *active* unit as it was before the upgrade:

a) Launch ASDM on the *standby* unit by connecting to the standby ASA IP address.
b) Force the standby unit to become active by choosing **Monitoring** > **Properties** > **Failover** > **Status**, and clicking **Make Active**.

Upgrade FXOS and an ASA Active/Standby Failover Pair Using the FXOS CLI

The upgrade process can take up to 45 minutes per chassis. Please plan your upgrade activity accordingly.

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- You need to determine which unit is active and which is standby: connect to the ASA console on the chassis and enter the **show failover** command to view the Active/Standby status of the unit.

- Download the FXOS and ASA software packages to which you are upgrading.
- Back up your FXOS and ASA configurations.
- Collect the following information that you will need to download software images to the chassis:
  - IP address and authentication credentials for the server from which you are copying the image.
  - Fully qualified name of the image file.

Procedure

Step 1 On the chassis that contains the *standby* ASA logical device, download the new FXOS platform bundle image:

a) Connect to the FXOS CLI.

b) Enter firmware mode:

scope firmware

c) Download the FXOS platform bundle software image:

download image *URL*

Specify the URL for the file being imported using one of the following syntax:

- **ftp**://*username@server*/*path*/*image_name*
- **scp**://*username@server*/*path*/*image_name*
- **sftp**://*username@server*/*path*/*image_name*
- **tftp**://*server***:***port-num*/*path*/*image_name*

d) To monitor the download process:

scope download-task *image_name*

show detail

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis # scope firmware
Firepower-chassis /firmware # download image
scp://user@192.168.1.1/images/fxos-k9.2.3.1.58.SPA
Firepower-chassis /firmware # scope download-task fxos-k9.2.3.1.58.SPA
Firepower-chassis /firmware/download-task # show detail
Download task:
    File Name: fxos-k9.2.3.1.58.SPA
    Protocol: scp
    Server: 192.168.1.1
    Userid:
    Path:
    Downloaded Image Size (KB): 853688
    State: Downloading
    Current Task: downloading image fxos-k9.2.3.1.58.SPA from
192.168.1.1(FSM-STAGE:sam:dme:FirmwareDownloaderDownload:Local)
```

Step 2 After the new FXOS platform bundle image has successfully downloaded, upgrade the FXOS bundle:

a) If necessary, return to firmware mode:

up

b) Make note of the version number for the FXOS platform bundle you are installing:

show package

c) Enter auto-install mode:

scope auto-install

d) Install the FXOS platform bundle:

install platform platform-vers *version_number*

version_number is the version number of the FXOS platform bundle you are installing--for example, 2.3(1.58).

e) The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently-installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade. As long as the ASA version is listed as upgradeable in the compatibility table, you can ignore these warnings.

Enter **yes** to confirm that you want to proceed with verification.

f) Enter **yes** to confirm that you want to proceed with installation, or enter **no** to cancel the installation.

FXOS unpacks the bundle and upgrades/reloads the components.

g) To monitor the upgrade process, see Monitor the Upgrade Progress, on page 136.

Step 3 After all components have successfully upgraded, verify the status of the security modules/security engine and any installed applications before continuing (see Verify the Installation, on page 136).

Step 4 Download the new ASA software image to the chassis:

a) Enter Security Services mode:

top

scope ssa

b) Enter Application Software mode:

scope app-software

c) Download the logical device software image:

download image *URL*

Specify the URL for the file being imported using one of the following syntax:

- **ftp**://*username@server/path*
- **scp**://*username@server/path*
- **sftp**://*username@server/path*
- **tftp**://*server*:*port-num*/*path*

d) To monitor the download process:

show download-task

e) To view the downloaded applications:

up

show app

Make note of the ASA version for the software package you downloaded. You will need to use the exact version string to enable the application in a later step.

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis # scope ssa
Firepower-chassis /ssa # scope app-software
Firepower-chassis /ssa/app-software # download image
scp://user@192.168.1.1/images/cisco-asa.9.4.1.65.csp
Firepower-chassis /ssa/app-software # show download-task

Downloads for Application Software:
    File Name                     Protocol   Server               Userid          State
    ------------------------------ ---------- -------------------- --------------- -----
    cisco-asa.9.4.1.65.csp        Scp       192.168.1.1         user           Downloaded

Firepower-chassis /ssa/app-software # up

Firepower-chassis /ssa # show app

Application:
    Name       Version    Description Author     Deploy Type CSP Type    Is Default App
    ---------- ---------- ----------- ---------- ----------- ----------- --------------
    asa        9.4.1.41   N/A                    Native      Application No
    asa        9.4.1.65   N/A                    Native      Application Yes
```

Step 5 Upgrade the ASA logical device image:

a) Enter Security Services mode:

top

scope ssa

b) Set the scope to the security module you are updating:

scope slot*slot_number*

c) Set the scope to the ASA application:

scope app-instance asa *instance_name*

d) Set the Startup version to the version you want to update:

set startup-version *version_number*

e) Commit the configuration:

commit-buffer

Commits the transaction to the system configuration. The application image is updated and the application restarts.

Step 6 To verify the status of the security modules/security engine and any installed applications, see Verify the Installation, on page 136.

Step 7 Make the unit that you just upgraded the *active* unit so that traffic flows to the upgraded unit:

a) On the chassis that contains the standby ASA logical device, connect to the module CLI using a console connection or a Telnet connection.

connect module *slot_number* {**console** | **telnet**}

To connect to the security engine of a device that does not support multiple security modules, always use **1** as the *slot_number*.

Example:

```
Firepower# connect module 1 console
Telnet escape character is '~'.
Trying 127.5.1.1...
Connected to 127.5.1.1.
Escape character is '~'.

CISCO Serial Over LAN:
Close Network Connection to Exit

Firepower-module1>
```

b) Connect to the application console.

connect asa

Example:

```
Firepower-module1> connect asa
Connecting to asa(asa1) console... hit Ctrl + A + D  to return to bootCLI
[...]
asa>
```

c) Make this unit active:

failover active

d) Save the configuration:

write memory

e) Verify that the unit is active:

show failover

Step 8 Exit the application console to the FXOS module CLI.

Enter **Ctrl-a, d**

Step 9 Return to the supervisor level of the FXOS CLI.

Exit the console:

a) Enter **~**

You exit to the Telnet application.

b) To exit the Telnet application, enter:

telnet>**quit**

Exit the Telnet session:

a) Enter **Ctrl-], .**

Step 10 On the chassis that contains the *new standby* ASA logical device, download the new FXOS platform bundle image:

a) Connect to the FXOS CLI.

b) Enter firmware mode:

scope firmware

c) Download the FXOS platform bundle software image:

download image *URL*

Specify the URL for the file being imported using one of the following syntax:

- **ftp**://*username@server*/*path*/*image_name*
- **scp**://*username@server*/*path*/*image_name*
- **sftp**://*username@server*/*path*/*image_name*
- **tftp**://*server***:***port-num*/*path*/*image_name*

d) To monitor the download process:

scope download-task *image_name*

show detail

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis # scope firmware
Firepower-chassis /firmware # download image
scp://user@192.168.1.1/images/fxos-k9.2.3.1.58.SPA
Firepower-chassis /firmware # scope download-task fxos-k9.2.3.1.58.SPA
Firepower-chassis /firmware/download-task # show detail
Download task:
    File Name: fxos-k9.2.3.1.58.SPA
    Protocol: scp
    Server: 192.168.1.1
    Userid:
    Path:
    Downloaded Image Size (KB): 853688
    State: Downloading
    Current Task: downloading image fxos-k9.2.3.1.58.SPA from
192.168.1.1(FSM-STAGE:sam:dme:FirmwareDownloaderDownload:Local)
```

Step 11 After the new FXOS platform bundle image has successfully downloaded, upgrade the FXOS bundle:

a) If necessary, return to firmware mode:

up

b) Make note of the version number for the FXOS platform bundle you are installing:

show package

c) Enter auto-install mode:

scope auto-install

d) Install the FXOS platform bundle:

install platform platform-vers *version_number*

version_number is the version number of the FXOS platform bundle you are installing--for example, 2.3(1.58).

e) The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently-installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade. As long as the ASA version is listed as upgradeable in the compatibility table, you can ignore these warnings.

Enter **yes** to confirm that you want to proceed with verification.

f) Enter **yes** to confirm that you want to proceed with installation, or enter **no** to cancel the installation.

FXOS unpacks the bundle and upgrades/reloads the components.

g) To monitor the upgrade process, see Monitor the Upgrade Progress, on page 136.

Step 12 After all components have successfully upgraded, verify the status of the security modules/security engine and any installed applications before continuing (see Verify the Installation, on page 136).

Step 13 Download the new ASA software image to the chassis:

a) Enter Security Services mode:

top

scope ssa

b) Enter Application Software mode:

scope app-software

c) Download the logical device software image:

download image *URL*

Specify the URL for the file being imported using one of the following syntax:

- **ftp**://*username@server/path*
- **scp**://*username@server/path*
- **sftp**://*username@server/path*
- **tftp**://*server*:*port-num*/*path*

d) To monitor the download process:

show download-task

e) To view the downloaded applications:

up

show app

Make note of the ASA version for the software package you downloaded. You will need to use the exact version string to enable the application in a later step.

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis # scope ssa
Firepower-chassis /ssa # scope app-software
Firepower-chassis /ssa/app-software # download image
scp://user@192.168.1.1/images/cisco-asa.9.4.1.65.csp
Firepower-chassis /ssa/app-software # show download-task

Downloads for Application Software:
    File Name                     Protocol   Server               Userid          State
    ----------------------------- ---------- -------------------- --------------- -----
    cisco-asa.9.4.1.65.csp        Scp        192.168.1.1          user            Downloaded

Firepower-chassis /ssa/app-software # up

Firepower-chassis /ssa # show app

Application:
    Name       Version    Description Author     Deploy Type CSP Type    Is Default App
    ---------- ---------- ----------- ---------- ----------- ----------- --------------
    asa        9.4.1.41   N/A                    Native      Application No
    asa        9.4.1.65   N/A                    Native      Application Yes
```

Step 14 Upgrade the ASA logical device image:

a) Enter Security Services mode:

top

scope ssa

b) Set the scope to the security module you are updating:

scope slot*slot_number*

c) Set the scope to the ASA application:

scope app-instance asa *instance_name*

d) Set the Startup version to the version you want to update:

set startup-version *version_number*

e) Commit the configuration:

commit-buffer

Commits the transaction to the system configuration. The application image is updated and the application restarts.

Step 15 To verify the status of the security modules/security engine and any installed applications, see Verify the Installation, on page 136.

Step 16 (Optional) Make the unit that you just upgraded the *active* unit as it was before the upgrade:

a) On the chassis that contains the standby ASA logical device, connect to the module CLI using a console connection or a Telnet connection.

connect module *slot_number* {**console** | **telnet**}

To connect to the security engine of a device that does not support multiple security modules, always use **1** as the *slot_number*.

Example:

```
Firepower# connect module 1 console
Telnet escape character is '~'.
Trying 127.5.1.1...
Connected to 127.5.1.1.
Escape character is '~'.

CISCO Serial Over LAN:
Close Network Connection to Exit

Firepower-module1>
```

b) Connect to the application console.

connect asa

Example:

```
Firepower-module1> connect asa
Connecting to asa(asa1) console... hit Ctrl + A + D  to return to bootCLI
[...]
asa>
```

c) Make this unit active:

failover active

d) Save the configuration:

write memory

e) Verify that the unit is active:

show failover

Upgrade FXOS and an ASA Active/Active Failover Pair

Use the FXOS CLI or Firepower Chassis Manager to upgrade FXOS and an ASA Active/Active failover pair.

Upgrade FXOS and an ASA Active/Active Failover Pair Using Secure Firewall Chassis Manager

The upgrade process can take up to 45 minutes per chassis. Please plan your upgrade activity accordingly.

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- You need to determine which unit is the primary unit: connect ASDM and then choose **Monitoring** > **Properties** > **Failover** > **Status** to view this unit's priority (primary or secondary) so you know which unit you are connected to.
- Download the FXOS and ASA software packages to which you are upgrading.
- Back up your FXOS and ASA configurations.

Procedure

Step 1 Make both failover groups active on the *primary* unit.

a) Launch ASDM on the *primary* unit (or the unit with failover group 1 active) by connecting to the management address in failover group 1.
b) Choose **Monitoring** > **Failover** > **Failover Group 2**, and click **Make Active**.
c) Stay connected to ASDM on this unit for later steps.

Step 2 On the chassis that contains the *secondary* ASA logical device, upload the new FXOS platform bundle image and ASA software image:

a) Connect to the Secure Firewall chassis manager on the *secondary* unit.
b) Choose **System** > **Updates**.
The **Available Updates** area shows a list of the packages available on the chassis.
c) Click **Upload Image**.
d) Click **Choose File** to navigate to and select the image that you want to upload.
e) Click **Upload**.
The selected image is uploaded to the chassis.

Step 3 After the new FXOS platform bundle image has successfully uploaded, upgrade the FXOS bundle on the chassis that contains the *secondary* ASA logical device:

a) Click the **Upgrade** icon for the FXOS platform bundle to which you want to upgrade.

The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently-installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade. As long as the ASA version is listed as upgradeable in the compatibility table, you can ignore these warnings.

b) Click **Yes** to confirm that you want to proceed with installation.

FXOS unpacks the bundle and upgrades/reloads the components.

Step 4 Secure Firewall chassis manager will be unavailable during upgrade. You can monitor the upgrade process using the FXOS CLI (see Monitor the Upgrade Progress, on page 136).

Step 5 After all components have successfully upgraded, verify the status of the security modules/security engine and any installed applications before continuing (see Verify the Installation, on page 136).

Step 6 Upgrade the ASA logical device image:

a) Choose **Logical Devices**.
The **Logical Devices** page opens to show a list of configured logical devices on the chassis.
b) Click the **Set Version** icon for the logical device that you want to update to open the **Update Image Version** dialog box.
c) For the **New Version**, choose the software version to which you want to update.

d) Click **OK**.

Step 7 After the upgrade process finishes, verify that the applications are online and have upgraded successfully:

a) Choose **Logical Devices**.
b) Verify the application version and operational status.

Step 8 Make both failover groups active on the *secondary* unit.

a) Launch ASDM on the *primary* unit (or the unit with failover group 1 active) by connecting to the management address in failover group 1.
b) Choose **Monitoring** > **Failover** > **Failover Group 1**, and click **Make Standby**.
c) Choose **Monitoring** > **Failover** > **Failover Group 2**, and click **Make Standby**.

ASDM will automatically reconnect to the failover group 1 IP address on the secondary unit.

Step 9 On the chassis that contains the *primary* ASA logical device, upload the new FXOS platform bundle image and ASA software image:

a) Connect to the Secure Firewall chassis manager on the *primary* unit.
b) Choose **System** > **Updates**.
The **Available Updates** area shows a list of the packages available on the chassis.
c) Click **Upload Image** to open the Upload Image dialog box.
d) Click **Choose File** to navigate to and select the image that you want to upload.
e) Click **Upload**.
The selected package is uploaded to the chassis.
f) For certain software images you will be presented with an end-user license agreement after uploading the image. Follow the system prompts to accept the end-user license agreement.

Step 10 After the new FXOS platform bundle image has successfully uploaded, upgrade the FXOS bundle on the chassis that contains the *primary* ASA logical device:

a) Click the **Upgrade** icon for the FXOS platform bundle to which you want to upgrade.

The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently-installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade. As long as the ASA version is listed as upgradeable in the compatibility table, you can ignore these warnings.

b) Click **Yes** to confirm that you want to proceed with installation.

FXOS unpacks the bundle and upgrades/reloads the components.

Step 11 Secure Firewall chassis manager will be unavailable during upgrade. You can monitor the upgrade process using the FXOS CLI (see Monitor the Upgrade Progress, on page 136).

Step 12 After all components have successfully upgraded, verify the status of the security modules/security engine and any installed applications before continuing (see Verify the Installation, on page 136).

Step 13 Upgrade the ASA logical device image:

a) Choose **Logical Devices**.
The **Logical Devices** page opens to show a list of configured logical devices on the chassis.
b) Click the **Set Version** icon for the logical device that you want to update to open the **Update Image Version** dialog box.
c) For the **New Version**, choose the software version to which you want to update.
d) Click **OK**.

Step 14 After the upgrade process finishes, verify that the applications are online and have upgraded successfully:

a) Choose **Logical Devices**.

b) Verify the application version and operational status.

Step 15 If the failover groups are configured with Preempt Enabled, they automatically become active on their designated unit after the preempt delay has passed. If the failover groups are not configured with Preempt Enabled, you can return them to active status on their designated units using the ASDM **Monitoring > Failover > Failover Group #** pane.

Upgrade FXOS and an ASA Active/Active Failover Pair Using the FXOS CLI

The upgrade process can take up to 45 minutes per chassis. Please plan your upgrade activity accordingly.

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- You need to determine which unit is primary: connect to the ASA console on the chassis and enter the **show failover** command to view the unit's status and priority (primary or secondary).
- Download the FXOS and ASA software packages to which you are upgrading.
- Back up your FXOS and ASA configurations.
- Collect the following information that you will need to download software images to the chassis:
  - IP address and authentication credentials for the server from which you are copying the image.
  - Fully qualified name of the image file.

Procedure

Step 1 Connect to the FXOS CLI on the *secondary* unit, either the console port (preferred) or using SSH.

Step 2 Make both failover groups active on the primary unit.

a) Connect to the module CLI using a console connection or a Telnet connection.

connect module *slot_number* {**console** | **telnet**}

To connect to the security engine of a device that does not support multiple security modules, always use **1** as the *slot_number*.

Example:

```
Firepower# connect module 1 console
Telnet escape character is '~'.
Trying 127.5.1.1...
Connected to 127.5.1.1.
Escape character is '~'.

CISCO Serial Over LAN:
Close Network Connection to Exit

Firepower-module1>
```

b) Connect to the application console.

connect asa

Example:

```
Firepower-module1> connect asa
Connecting to asa(asa1) console... hit Ctrl + A + D  to return to bootCLI
[...]
asa>
```

c) Make both failover groups active on the primary unit.

enable

The enable password is blank by default.

no failover active group 1

no failover active group 2

Example:

```
asa> enable
Password: <blank>
asa# no failover active group 1
asa# no failover active group 2
```

Step 3 Exit the application console to the FXOS module CLI.

Enter **Ctrl-a, d**

Step 4 Return to the supervisor level of the FXOS CLI.

Exit the console:

a) Enter **~**

You exit to the Telnet application.

b) To exit the Telnet application, enter:

telnet>**quit**

Exit the Telnet session:

a) Enter **Ctrl-], .**

Step 5 On the chassis that contains the *secondary* ASA logical device, download the new FXOS platform bundle image and ASA software image:

a) Connect to the FXOS CLI.

b) Enter firmware mode:

scope firmware

c) Download the FXOS platform bundle software image:

download image *URL*

Specify the URL for the file being imported using one of the following syntax:

- **ftp**://*username@server/path/image_name*

- **scp**://*username@server*/*path*/*image_name*
- **sftp**://*username@server*/*path*/*image_name*
- **tftp**://*server***:***port-num*/*path*/*image_name*

d) To monitor the download process:

scope download-task *image_name*

show detail

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis # scope firmware
Firepower-chassis /firmware # download image
scp://user@192.168.1.1/images/fxos-k9.2.3.1.58.SPA
Firepower-chassis /firmware # scope download-task fxos-k9.2.3.1.58.SPA
Firepower-chassis /firmware/download-task # show detail
Download task:
    File Name: fxos-k9.2.3.1.58.SPA
    Protocol: scp
    Server: 192.168.1.1
    Userid:
    Path:
    Downloaded Image Size (KB): 853688
    State: Downloading
    Current Task: downloading image fxos-k9.2.3.1.58.SPA from
192.168.1.1(FSM-STAGE:sam:dme:FirmwareDownloaderDownload:Local)
```

Step 6 After the new FXOS platform bundle image has successfully downloaded, upgrade the FXOS bundle:

a) If necessary, return to firmware mode:

top

scope firmware

b) Make note of the version number for the FXOS platform bundle you are installing:

show package

c) Enter auto-install mode:

scope auto-install

d) Install the FXOS platform bundle:

install platform platform-vers *version_number*

version_number is the version number of the FXOS platform bundle you are installing--for example, 2.3(1.58).

e) The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently-installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade. As long as the ASA version is listed as upgradeable in the compatibility table, you can ignore these warnings.

Enter **yes** to confirm that you want to proceed with verification.

f) Enter **yes** to confirm that you want to proceed with installation, or enter **no** to cancel the installation.

FXOS unpacks the bundle and upgrades/reloads the components.

g) To monitor the upgrade process, see Monitor the Upgrade Progress, on page 136.

Step 7 After all components have successfully upgraded, verify the status of the security modules/security engine and any installed applications before continuing (see Verify the Installation, on page 136).

Step 8 Download the new ASA software image to the chassis:

a) Enter Security Services mode:

top

scope ssa

b) Enter Application Software mode:

scope app-software

c) Download the logical device software image:

download image *URL*

Specify the URL for the file being imported using one of the following syntax:

- **ftp**://*username@server/path*
- **scp**://*username@server/path*
- **sftp**://*username@server/path*
- tftp://*server*:*port-num*/*path*

d) To monitor the download process:

show download-task

e) To view the downloaded applications:

up

show app

Make note of the ASA version for the software package you downloaded. You will need to use the exact version string to enable the application in a later step.

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis # scope ssa
Firepower-chassis /ssa # scope app-software
Firepower-chassis /ssa/app-software # download image
scp://user@192.168.1.1/images/cisco-asa.9.4.1.65.csp
Firepower-chassis /ssa/app-software # show download-task

Downloads for Application Software:
    File Name                     Protocol   Server               Userid          State
    ----------------------------- ---------- -------------------- --------------- -----
    cisco-asa.9.4.1.65.csp        Scp        192.168.1.1          user            Downloaded

Firepower-chassis /ssa/app-software # up
```

```
Firepower-chassis /ssa # show app

Application:
    Name       Version    Description Author     Deploy Type CSP Type    Is Default App
    ---------- ---------- ----------- ---------- ----------- ----------- --------------
    asa        9.4.1.41   N/A                    Native      Application No
    asa        9.4.1.65   N/A                    Native      Application Yes
```

Step 9 Upgrade the ASA logical device image:

a) Enter Security Services mode:

top

scope ssa

b) Set the scope to the security module you are updating:

scope slot*slot_number*

c) Set the scope to the ASA application:

scope app-instance asa *instance_name*

d) Set the Startup version to the version you want to update:

set startup-version *version_number*

e) Commit the configuration:

commit-buffer

Commits the transaction to the system configuration. The application image is updated and the application restarts.

Step 10 To verify the status of the security modules/security engine and any installed applications, see Verify the Installation, on page 136.

Step 11 Make both failover groups active on the *secondary* unit.

a) Connect to the module CLI using a console connection or a Telnet connection.

connect module *slot_number* {**console** | **telnet**}

To connect to the security engine of a device that does not support multiple security modules, always use **1** as the *slot_number*.

Example:

```
Firepower# connect module 1 console
Telnet escape character is '~'.
Trying 127.5.1.1...
Connected to 127.5.1.1.
Escape character is '~'.

CISCO Serial Over LAN:
Close Network Connection to Exit

Firepower-module1>
```

b) Connect to the application console.

connect asa

Example:

```
Firepower-module1> connect asa
Connecting to asa(asa1) console... hit Ctrl + A + D  to return to bootCLI
[...]
asa>
```

c) Make both failover groups active on the *secondary* unit.

enable

The enable password is blank by default.

failover active group 1

failover active group 2

Example:

```
asa> enable
Password: <blank>
asa# failover active group 1
asa# failover active group 2
```

Step 12 Exit the application console to the FXOS module CLI.

Enter **Ctrl-a, d**

Step 13 Return to the supervisor level of the FXOS CLI.

Exit the console:

a) Enter **~**

You exit to the Telnet application.

b) To exit the Telnet application, enter:

telnet>**quit**

Exit the Telnet session:

a) Enter **Ctrl-], .**

Step 14 On the chassis that contains the *primary* ASA logical device, download the new FXOS platform bundle image and ASA software image:

a) Connect to the FXOS CLI.

b) Enter firmware mode:

scope firmware

c) Download the FXOS platform bundle software image:

download image *URL*

Specify the URL for the file being imported using one of the following syntax:

- **ftp**://*username@server/path/image_name*
- **scp**://*username@server/path/image_name*

- **sftp**://*username@server*/*path*/*image_name*
- tftp://*server*:*port-num*/*path*/*image_name*

d) To monitor the download process:

scope download-task *image_name*

show detail

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis # scope firmware
Firepower-chassis /firmware # download image
scp://user@192.168.1.1/images/fxos-k9.2.3.1.58.SPA
Firepower-chassis /firmware # scope download-task fxos-k9.2.3.1.58.SPA
Firepower-chassis /firmware/download-task # show detail
Download task:
    File Name: fxos-k9.2.3.1.58.SPA
    Protocol: scp
    Server: 192.168.1.1
    Userid:
    Path:
    Downloaded Image Size (KB): 853688
    State: Downloading
    Current Task: downloading image fxos-k9.2.3.1.58.SPA from
192.168.1.1(FSM-STAGE:sam:dme:FirmwareDownloaderDownload:Local)
```

Step 15 After the new FXOS platform bundle image has successfully downloaded, upgrade the FXOS bundle:

a) If necessary, return to firmware mode:

up

b) Make note of the version number for the FXOS platform bundle you are installing:

show package

c) Enter auto-install mode:

scope auto-install

d) Install the FXOS platform bundle:

install platform platform-vers *version_number*

version_number is the version number of the FXOS platform bundle you are installing--for example, 2.3(1.58).

e) The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently-installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade. As long as the ASA version is listed as upgradeable in the compatibility table, you can ignore these warnings.

Enter **yes** to confirm that you want to proceed with verification.

f) Enter **yes** to confirm that you want to proceed with installation, or enter **no** to cancel the installation.

FXOS unpacks the bundle and upgrades/reloads the components.

g) To monitor the upgrade process, see Monitor the Upgrade Progress, on page 136.

Step 16 After all components have successfully upgraded, verify the status of the security modules/security engine and any installed applications before continuing (see Verify the Installation, on page 136).

Step 17 Download the new ASA software image to the chassis:

a) Enter Security Services mode:

top

scope ssa

b) Enter Application Software mode:

scope app-software

c) Download the logical device software image:

download image *URL*

Specify the URL for the file being imported using one of the following syntax:

- **ftp**://*username@server/path*
- **scp**://*username@server/path*
- **sftp**://*username@server/path*
- **tftp**://*server*:*port-num*/*path*

d) To monitor the download process:

show download-task

e) To view the downloaded applications:

up

show app

Make note of the ASA version for the software package you downloaded. You will need to use the exact version string to enable the application in a later step.

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis # scope ssa
Firepower-chassis /ssa # scope app-software
Firepower-chassis /ssa/app-software # download image
scp://user@192.168.1.1/images/cisco-asa.9.4.1.65.csp
Firepower-chassis /ssa/app-software # show download-task

Downloads for Application Software:
    File Name                     Protocol   Server               Userid          State
    ----------------------------- ---------- -------------------- --------------- -----
    cisco-asa.9.4.1.65.csp        Scp        192.168.1.1          user            Downloaded

Firepower-chassis /ssa/app-software # up

Firepower-chassis /ssa # show app

Application:
```

```
Name       Version    Description Author     Deploy Type CSP Type    Is Default App
---------- ---------- ----------- ---------- ----------- ----------- --------------
asa        9.4.1.41   N/A                    Native      Application No
asa        9.4.1.65   N/A                    Native      Application Yes
```

Step 18 Upgrade the ASA logical device image:

a) Enter Security Services mode:

top

scope ssa

b) Set the scope to the security module you are updating:

scope slot*slot_number*

c) Set the scope to the ASA application:

scope app-instance asa *instance_name*

d) Set the Startup version to the version you want to update:

set startup-version *version_number*

e) Commit the configuration:

commit-buffer

Commits the transaction to the system configuration. The application image is updated and the application restarts.

Step 19 To verify the status of the security modules/security engine and any installed applications, see Verify the Installation, on page 136.

Step 20 If the failover groups are configured with Preempt Enabled, they automatically become active on their designated unit after the preempt delay has passed. If the failover groups are not configured with Preempt Enabled, you can return them to active status on their designated units using the ASDM **Monitoring > Failover > Failover Group #** pane.

Upgrade FXOS and an ASA Inter-chassis Cluster

Use the FXOS CLI or Firepower Chassis Manager to upgrade FXOS and ASA on all chassis in an inter-chassis cluster.

Upgrade FXOS and an ASA Inter-chassis Cluster Using Secure Firewall Chassis Manager

The upgrade process can take up to 45 minutes per chassis. Please plan your upgrade activity accordingly.

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- Download the FXOS and ASA software packages to which you are upgrading.
- Back up your FXOS and ASA configurations.

Procedure

Step 1 Determine which chassis has the control node. You will upgrade this chassis last.

a) Connect to Secure Firewall chassis manager.
b) Choose **Logical Devices**.
c) Click the plus sign (+) to see the attributes for the security modules included in the cluster.
d) Verify that the control node is on this chassis. There should be an ASA instance with **CLUSTER-ROLE** set to "Control".

Step 2 Connect to Secure Firewall chassis manager on a chassis in the cluster that **does not have the control node**.

Step 3 Upload the new FXOS platform bundle image and ASA software image:

a) In Secure Firewall chassis manager, choose **System** > **Updates**.
The **Available Updates** area shows a list of the packages available on the chassis.
b) Click **Upload Image**.
c) Click **Choose File** to navigate to and select the image that you want to upload.
d) Click **Upload**.
The selected image is uploaded to the chassis.
e) Wait for the images to successfully upload before continuing.

Step 4 Upgrade the FXOS bundle:

a) Choose **System** > **Updates**.
b) Click the **Upgrade** icon for the FXOS platform bundle to which you want to upgrade.

The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently-installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade. As long as the ASA version is listed as upgradeable in the compatibility table, you can ignore these warnings.

c) Click **Yes** to confirm that you want to proceed with installation.

FXOS unpacks the bundle and upgrades/reloads the components.

Step 5 Secure Firewall chassis manager will be unavailable during upgrade. You can monitor the upgrade process using the FXOS CLI (see Monitor the Upgrade Progress, on page 136).

Step 6 After all components have successfully upgraded, verify the status of the security modules/security engine and any installed applications before continuing (see Verify the Installation, on page 136).

Step 7 Upgrade the ASA logical device image on each security module:

a) Choose **Logical Devices**.
The **Logical Devices** page opens to show a list of configured logical devices on the chassis.
b) Click the **Set Version** icon for the logical device that you want to update to open the **Update Image Version** dialog box.
c) For the **New Version**, choose the software version to which you want to update.
d) Click **OK**.

Step 8 After the upgrade process finishes, verify that the applications are online and have upgraded successfully:

a) Choose **Logical Devices**.
b) Verify the application version and operational status.

Step 9 Repeat steps Step 2, on page 131-Step 8, on page 131 for all remaining chassis in the cluster that do not have the control node.

Step 10 After all chassis in the cluster that do not have the control node have been upgraded, repeat steps Step 2, on page 131-Step 8, on page 131 on the chassis **with the control node**.
A new control node will be chosen from one of the previously upgraded chassis.

Step 11 For distributed VPN clustering mode, after the cluster has stabilized you can redistribute active sessions among all modules in the cluster using the ASA console on the control node.

cluster redistribute vpn-sessiondb

What to do next

Set the chassis Site ID. For more information about how to set the chassis Site ID, see the Inter-Site Clustering topic in Deploying a Cluster for ASA on the Firepower 4100/9300 for Scalability and High Availability on Cisco.com.

Upgrade FXOS and an ASA Inter-chassis Cluster Using the FXOS CLI

The upgrade process can take up to 45 minutes per chassis. Please plan your upgrade activity accordingly.

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- Download the FXOS and ASA software packages to which you are upgrading.
- Back up your FXOS and ASA configurations.
- Collect the following information that you will need to download software images to the chassis:
  - IP address and authentication credentials for the server from which you are copying the image.
  - Fully qualified name of the image file.

Procedure

Step 1 Determine which chassis has the control node. You will upgrade this chassis last.

a) Connect to the FXOS CLI.

b) Verify that the control node is on this chassis. There should be an ASA instance with Cluster Role set to "Control":

scope ssa

show app-instance

Step 2 Connect to the FXOS CLI on a chassis in the cluster that **does not have the control node**.

Step 3 Download the new FXOS platform bundle image to the chassis:

a) Enter firmware mode:

scope firmware

b) Download the FXOS platform bundle software image:

download image *URL*

Specify the URL for the file being imported using one of the following syntax:

- **ftp**://*username@server/path/image_name*
- **scp**://*username@server/path/image_name*
- **sftp**://*username@server/path/image_name*
- **tftp**://*server***:***port-num/path/image_name*

c) To monitor the download process:

scope download-task *image_name*

show detail

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis # scope firmware
Firepower-chassis /firmware # download image
scp://user@192.168.1.1/images/fxos-k9.2.3.1.58.SPA
Firepower-chassis /firmware # scope download-task fxos-k9.2.3.1.58.SPA
Firepower-chassis /firmware/download-task # show detail
Download task:
    File Name: fxos-k9.2.3.1.58.SPA
    Protocol: scp
    Server: 192.168.1.1
    Userid:
    Path:
    Downloaded Image Size (KB): 853688
    State: Downloading
    Current Task: downloading image fxos-k9.2.3.1.58.SPA from
192.168.1.1(FSM-STAGE:sam:dme:FirmwareDownloaderDownload:Local)
```

Step 4 Upgrade the FXOS bundle:

a) If necessary, return to firmware mode:

top

scope firmware

b) Make note of the version number for the FXOS platform bundle you are installing:

show package

c) Enter auto-install mode:

scope auto-install

d) Install the FXOS platform bundle:

install platform platform-vers *version_number*

version_number is the version number of the FXOS platform bundle you are installing--for example, 2.3(1.58).

e) The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently-installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade. As long as the ASA version is listed as upgradeable in the compatibility table, you can ignore these warnings.

Enter **yes** to confirm that you want to proceed with verification.

f) Enter **yes** to confirm that you want to proceed with installation, or enter **no** to cancel the installation.

FXOS unpacks the bundle and upgrades/reloads the components.

g) To monitor the upgrade process, see Monitor the Upgrade Progress, on page 136.

Step 5 After all components have successfully upgraded, verify the status of the security modules/security engine and any installed applications before continuing (see Verify the Installation, on page 136).

Step 6 Download the new ASA software image to the chassis:

a) Enter Security Services mode:

top

scope ssa

b) Enter Application Software mode:

scope app-software

c) Download the logical device software image:

download image *URL*

Specify the URL for the file being imported using one of the following syntax:

- **ftp**://*username@server*/*path*
- **scp**://*username@server*/*path*
- **sftp**://*username@server*/*path*
- **tftp**://*server*:*port-num*/*path*

d) To monitor the download process:

show download-task

e) To view the downloaded applications:

up

show app

Make note of the ASA version for the software package you downloaded. You will need to use the exact version string to enable the application in a later step.

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis # scope ssa
Firepower-chassis /ssa # scope app-software
Firepower-chassis /ssa/app-software # download image
scp://user@192.168.1.1/images/cisco-asa.9.4.1.65.csp
```

```
Firepower-chassis /ssa/app-software # show download-task

Downloads for Application Software:
    File Name                     Protocol   Server               Userid          State
    ----------------------------- ---------- -------------------- --------------- -----
    cisco-asa.9.4.1.65.csp        Scp        192.168.1.1          user            Downloaded

Firepower-chassis /ssa/app-software # up

Firepower-chassis /ssa # show app

Application:
    Name       Version    Description Author     Deploy Type CSP Type    Is Default App
    ---------- ---------- ----------- ---------- ----------- ----------- --------------
    asa        9.4.1.41   N/A                    Native      Application No
    asa        9.4.1.65   N/A                    Native      Application Yes
```

Step 7 Upgrade the ASA logical device image:

a) Enter Security Services mode:

top

scope ssa

b) Set the scope to the security module you are updating:

scope slot*slot_number*

c) Set the scope to the ASA application:

scope app-instance asa *instance_name*

d) Set the Startup version to the version you want to update:

set startup-version *version_number*

e) Commit the configuration:

commit-buffer

Commits the transaction to the system configuration. The application image is updated and the application restarts.

Step 8 To verify the status of the security modules/security engine and any installed applications, see Verify the Installation, on page 136.

Step 9 Repeat steps Step 2, on page 132-Step 8, on page 135 for all remaining chassis in the cluster that do not have the control node.

Step 10 After all chassis in the cluster that do not have the control node have been upgraded, repeat steps Step 2, on page 132-Step 8, on page 135 on the chassis **with the control node**.
A new control node will be chosen from one of the previously upgraded chassis.

Step 11 For distributed VPN clustering mode, after the cluster has stabilized you can redistribute active sessions among all modules in the cluster using the ASA console on the control node.

cluster redistribute vpn-sessiondb

What to do next

Set the chassis Site ID. For more information about how to set the chassis Site ID, see the Inter-Site Clustering topic in Deploying a Cluster for ASA on the Firepower 4100/9300 for Scalability and High Availability on Cisco.com.

Monitor the Upgrade Progress

You can monitor the upgrade process using the FXOS CLI:

Procedure

Step 1 Connect to the FXOS CLI.

Step 2 Enter **scope system**.

Step 3 Enter **show firmware monitor**.

Step 4 Wait for all components (FPRM, Fabric Interconnect, and Chassis) to show `Upgrade-Status: Ready`.

Note After the FPRM component is upgraded, the system will reboot and then continue upgrading the other components.

Example

```
Firepower-chassis# scope system
Firepower-chassis /system # show firmware monitor
FPRM:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready

Fabric Interconnect A:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready

Chassis 1:
    Server 1:
        Package-Vers: 2.3(1.58)
        Upgrade-Status: Ready
    Server 2:
        Package-Vers: 2.3(1.58)
        Upgrade-Status: Ready
```

Verify the Installation

Enter the following commands to verify the status of the security modules/security engine and any installed applications:

Procedure

Step 1 Connect to the FXOS CLI.

Step 2 Enter **top**.

Step 3 Enter **scope ssa**.

Step 4 Enter **show slot**.

Step 5 Verify that the Admin State is `Ok` and the Oper State is `Online` for the security engine on a Firepower 4100 series appliance or for any security modules installed on a Firepower 9300 appliance.

Example:

Step 6 Enter **show app-instance**.

Step 7 Verify that the Oper State is `Online` for any logical devices installed on the chassis and that the correct version is listed.

If this chassis is part of a cluster, verify that the cluster operational state is "In-Cluster" for all security modules installed in the chassis. Also, verify that the control unit is not on the chassis for which you are upgrading—there should not be any instance with Cluster Role set to "Master".

Example

```
Firepower-chassis# scope ssa
Firepower-chassis /ssa # show slot

Slot:
    Slot ID    Log Level Admin State  Oper State
    ---------- --------- ------------ ----------
    1          Info      Ok           Online
    2          Info      Ok           Online
    3          Info      Ok           Not Available
Firepower-chassis /ssa #
Firepower-chassis /ssa # show app-instance
App Name   Identifier Slot ID    Admin State Oper State      Running Version Startup Version
 Cluster State   Cluster Role
---------- ---------- ---------- ----------- ---------------- --------------- ---------------
 --------------- ------------
asa        asa1       1          Enabled     Online           9.10.0.85       9.10.0.85
    Not Applicable  None
asa        asa2       2          Enabled     Online           9.10.0.85       9.10.0.85
    Not Applicable  None
Firepower-chassis /ssa #
```

Upgrade the ASA 5500-X, ASA Virtual, ASASM, or ISA 3000

This document describes how to plan and implement an ASA and ASDM upgrade for the ASA 5500-X, ASA virtual, ASASM, or ISA 3000 for standalone, failover, or clustering deployments.

Upgrade a Standalone Unit

Use the CLI or ASDM to upgrade the standalone unit.

Upgrade a Standalone Unit Using the CLI

This section describes how to install the ASDM and ASA images, and also when to upgrade the ASA FirePOWER module.

Before you begin

This procedure uses FTP. For TFTP, HTTP, or other server types, see the **copy** command in the ASA command reference.

Procedure

Step 1 In privileged EXEC mode, copy the ASA software to flash memory.

copy ftp://[[*user*[**:***password*]**@**]*server*[/*path*]/*asa_image_name* **disk***n***:/**[*path*/]*asa_image_name*

Example:

```
ciscoasa# copy ftp://jcrichton:aeryn@10.1.1.1/asa-9-12-1-smp-k8.bin
disk0:/asa-9-12-1-smp-k8.bin
```

Step 2 Copy the ASDM image to flash memory.

copy ftp://[[*user*[**:***password*]**@**]*server*[/*path*]/*asdm_image_name* **disk***n***:/**[*path*/]*asdm_image_name*

Example:

```
ciscoasa# copy ftp://jcrichton:aeryn@10.1.1.1/asdm-7121.bin disk0:/asdm-7121.bin
```

Step 3 Access global configuration mode.

configure terminal

Example:

```
ciscoasa# configure terminal
ciscoasa(config)#
```

Step 4 Show the current boot images configured (up to 4):

show running-config boot system

The ASA uses the images in the order listed; if the first image is unavailable, the next image is used, and so on. You cannot insert a new image URL at the top of the list; to specify the new image to be first, you must remove any existing entries, and enter the image URLs in the order desired, according to the next steps.

Example:

```
ciscoasa(config)# show running-config boot system
boot system disk0:/cdisk.bin
```

```
boot system disk0:/asa931-smp-k8.bin
```

Step 5 Remove any existing boot image configurations so that you can enter the new boot image as your first choice:

no boot system disk*n***:/**[*path*/]*asa_image_name*

Example:

```
ciscoasa(config)# no boot system disk0:/cdisk.bin
ciscoasa(config)# no boot system disk0:/asa931-smp-k8.bin
```

Step 6 Set the ASA image to boot (the one you just uploaded):

boot system disk*n***:/**[*path*/]*asa_image_name*

Repeat this command for any backup images that you want to use in case this image is unavailable. For example, you can re-enter the images that you previously removed.

Example:

```
ciscoasa(config)# boot system disk0:/asa-9-12-1-smp-k8.bin
```

Step 7 Set the ASDM image to use (the one you just uploaded):

asdm image disk*n***:/**[*path*/]*asdm_image_name*

You can only configure one ASDM image to use, so you do not need to first remove the existing configuration.

Example:

```
ciscoasa(config)# asdm image disk0:/asdm-7121.bin
```

Step 8 Save the new settings to the startup configuration:

write memory

Step 9 Reload the ASA:

reload

Step 10 If you are upgrading the ASA FirePOWER module, disable the ASA REST API or else the upgrade will fail.

no rest-api agent

You can reenable it after the upgrade:

rest-api agent

Note The ASA 5506-X series does not support the ASA REST API if you are running the FirePOWER module Version 6.0 or later.

Step 11 Upgrade the ASA FirePOWER module.

Upgrade a Standalone Unit from Your Local Computer Using ASDM

The **Upgrade Software from Local Computer** tool lets you upload an image file from your computer to the flash file system to upgrade the ASA.

Procedure

Step 1 In the main ASDM application window, choose **Tools** > **Upgrade Software from Local Computer**.

The **Upgrade Software** dialog box appears.

Step 2 From the **Image to Upload** drop-down list, choose **ASDM**.

Step 3 In the **Local File Path** field, click **Browse Local Files** to find the file on your PC.

Step 4 In the **Flash File System Path** field, click **Browse Flash** to find the directory or file in the flash file system.

Step 5 Click **Upload Image**.

The uploading process might take a few minutes.

Step 6 You are prompted to set this image as the ASDM image. Click **Yes**.

Step 7 You are reminded to exit ASDM and save the configuration. Click **OK**.

You exit the **Upgrade** tool. **Note:** You will save the configuration and exit and reconnect to ASDM *after* you upgrade the ASA software.

Step 8 Repeat these steps, choosing **ASA** from the **Image to Upload** drop-down list. You can also use this procedure to upload other file types.

Step 9 Choose **Tools** > **System Reload** to reload the ASA.

A new window appears that asks you to verify the details of the reload.

a) Click the **Save the running configuration at the time of reload** radio button (the default).
b) Choose a time to reload (for example, **Now**, the default).
c) Click **Schedule Reload**.

Once the reload is in progress, a **Reload Status** window appears that indicates that a reload is being performed. An option to exit ASDM is also provided.

Step 10 After the ASA reloads, restart ASDM.

You can check the reload status from a console port, or you can wait a few minutes and try to connect using ASDM until you are successful.

Step 11 If you are upgrading an ASA FirePOWER module, disable the ASA REST API by choosing **Tools** > **Command Line Interface**, and entering **no rest-api agent**.

If you do not disable the REST API, the ASA FirePOWER module upgrade will fail. You can reenable it after the upgrade:

rest-api agent

Note The ASA 5506-X series does not support the ASA REST API if you are running the FirePOWER module Version 6.0 or later.

Step 12 Upgrade the ASA FirePOWER module.

Upgrade a Standalone Unit Using the ASDM Cisco.com Wizard

The **Upgrade Software from Cisco.com Wizard** lets you automatically upgrade the ASDM and ASA to more current versions.

In this wizard, you can do the following:

- Choose an ASA image file and/or ASDM image file to upgrade.

Note ASDM downloads the latest image version, which includes the build number. For example, if you are downloading 9.9(1), the download might be 9.9(1.2). This behavior is expected, so you can proceed with the planned upgrade.

- Review the upgrade changes that you have made.
- Download the image or images and install them.
- Review the status of the installation.
- If the installation completed successfully, reload the ASA to save the configuration and complete the upgrade.

Before you begin

Due to an internal change, the wizard is only supported using ASDM 7.10(1) and later; also, due to an image naming change, you must use ASDM 7.12(1) or later to upgrade to ASA 9.10(1) and later. Because ASDM is backwards compatible with earlier ASA releases, you can upgrade ASDM no matter which ASA version you are running.

Procedure

Step 1 Choose **Tools** > **Check for ASA/ASDM Updates**.

In multiple context mode, access this menu from the System.

The **Cisco.com Authentication** dialog box appears.

Step 2 Enter your Cisco.com username and password, and then click **Login**.

The **Cisco.com Upgrade Wizard** appears.

Note If there is no upgrade available, a dialog box appears. Click **OK** to exit the wizard.

Step 3 Click **Next** to display the **Select Software** screen.

The current ASA version and ASDM version appear.

Step 4 To upgrade the ASA version and ASDM version, perform the following steps:

a) In the **ASA** area, check the **Upgrade to** check box, and then choose an ASA version to which you want to upgrade from the drop-down list.
b) In the **ASDM** area, check the **Upgrade to** check box, and then choose an ASDM version to which you want to upgrade from the drop-down list.

Step 5 Click **Next** to display the **Review Changes** screen.

Step 6 Verify the following items:

- The ASA image file and/or ASDM image file that you have downloaded are the correct ones.
- The ASA image file and/or ASDM image file that you want to upload are the correct ones.
- The correct ASA boot image has been selected.

Step 7 Click **Next** to start the upgrade installation.

You can then view the status of the upgrade installation as it progresses.

The **Results** screen appears, which provides additional details, such as the upgrade installation status (success or failure).

Step 8 If the upgrade installation succeeded, for the upgrade versions to take effect, check the **Save configuration and reload device now** check box to restart the ASA, and restart ASDM.

Step 9 Click **Finish** to exit the wizard and save the configuration changes that you have made.

Note To upgrade to the next higher version, if any, you must restart the wizard.

Step 10 After the ASA reloads, restart ASDM.

You can check the reload status from a console port, or you can wait a few minutes and try to connect using ASDM until you are successful.

Step 11 If you are upgrading an ASA FirePOWER module, disable the ASA REST API by choosing **Tools** > **Command Line Interface**, and entering **no rest-api agent**.

If you do not disable the REST API, the ASA FirePOWER module upgrade will fail. You can reenable it after the upgrade:

rest-api agent

Note The ASA 5506-X series does not support the ASA REST API if you are running the FirePOWER module Version 6.0 or later.

Step 12 Upgrade the ASA FirePOWER module.

Upgrade an Active/Standby Failover Pair

Use the CLI or ASDM to upgrade the Active/Standby failover pair for a zero downtime upgrade.

Upgrade an Active/Standby Failover Pair Using the CLI

To upgrade the Active/Standby failover pair, perform the following steps.

Before you begin

- Perform these steps on the active unit. For SSH access, connect to the active IP address; the active unit always owns this IP address. When you connect to the CLI, determine the failover status by looking at the ASA prompt; you can configure the ASA prompt to show the failover status and priority (primary or secondary), which is useful to determine which unit you are connected to. See the prompt command. Alternatively, enter the **show failover** command to view this unit's status and priority (primary or secondary).
- This procedure uses FTP. For TFTP, HTTP, or other server types, see the **copy** command in the ASA command reference.

Procedure

Step 1 On the active unit in privileged EXEC mode, copy the ASA software to the active unit flash memory:

copy ftp://[[*user*[**:***password*]**@**]*server*[*/path*]*/asa_image_name* **disk***n***:/**[*path/*]*asa_image_name*

Example:

```
asa/act# copy ftp://jcrichton:aeryn@10.1.1.1/asa9-15-1-smp-k8.bin disk0:/asa9-15-1-smp-k8.bin
```

Step 2 Copy the software to the standby unit; be sure to specify the same path as for the active unit:

failover exec mate copy /noconfirm ftp://[[*user*[**:***password*]**@**]*server*[*/path*]*/asa_image_name* **disk***n***:/**[*path/*]*asa_image_name*

Example:

```
asa/act# failover exec mate copy /noconfirm
ftp://jcrichton:aeryn@10.1.1.1/asa9-15-1-smp-k8.bin disk0:/asa9-15-1-smp-k8.bin
```

Step 3 Copy the ASDM image to the active unit flash memory:

copy ftp://[[*user*[**:***password*]**@**]*server*[*/path*]*/asdm_image_name* **disk***n***:/**[*path/*]*asdm_image_name*

Example:

```
asa/act# copy ftp://jcrichton:aeryn@10.1.1.1/asdm-77171417151.bin disk0:/asdm-77171417151.bin
```

Step 4 Copy the ASDM image to the standby unit; be sure to specify the same path as for the active unit:

failover exec mate copy /noconfirm ftp://[[*user*[**:***password*]**@**]*server*[*/path*]*/asdm_image_name* **disk***n***:/**[*path/*]*asdm_image_name*

Example:

```
asa/act# failover exec mate copy /noconfirm
ftp://jcrichton:aeryn@10.1.1.1/asdm-77171417151.bin disk0:/asdm-77171417151.bin
```

Step 5 If you are not already in global configuration mode, access global configuration mode:

configure terminal

Step 6 Show the current boot images configured (up to 4):

show running-config boot system

Example:

```
asa/act(config)# show running-config boot system
boot system disk0:/cdisk.bin
boot system disk0:/asa931-smp-k8.bin
```

The ASA uses the images in the order listed; if the first image is unavailable, the next image is used, and so on. You cannot insert a new image URL at the top of the list; to specify the new image to be first, you must remove any existing entries, and enter the image URLs in the order desired, according to the next steps.

Step 7 Remove any existing boot image configurations so that you can enter the new boot image as your first choice:

no boot system disk*n***:/**[*path*/]*asa_image_name*

Example:

```
asa/act(config)# no boot system disk0:/cdisk.bin
asa/act(config)# no boot system disk0:/asa931-smp-k8.bin
```

Step 8 Set the ASA image to boot (the one you just uploaded):

boot system disk*n***:/**[*path*/]*asa_image_name*

Example:

```
asa/act(config)# boot system disk0://asa9-15-1-smp-k8.bin
```

Repeat this command for any backup images that you want to use in case this image is unavailable. For example, you can re-enter the images that you previously removed.

Step 9 Set the ASDM image to use (the one you just uploaded):

asdm image disk*n***:/**[*path*/]*asdm_image_name*

Example:

```
asa/act(config)# asdm image disk0:/asdm-77171417151.bin
```

You can only configure one ASDM image to use, so you do not need to first remove the existing configuration.

Step 10 Save the new settings to the startup configuration:

write memory

These configuration changes are automatically saved on the standby unit.

Step 11 If you are upgrading ASA FirePOWER modules, disable the ASA REST API or else the upgrade will fail.

no rest-api agent

Step 12 Upgrade the ASA FirePOWER module on the standby unit.

For an ASA FirePOWER module managed by ASDM, connect ASDM to the *standby* management IP address. Wait for the upgrade to complete.

Step 13 Reload the standby unit to boot the new image:

failover reload-standby

Wait for the standby unit to finish loading. Use the **show failover** command to verify that the standby unit is in the Standby Ready state.

Step 14 Force the active unit to fail over to the standby unit.

no failover active

If you are disconnected from your SSH session, reconnect to the main IP address, now on the new active/former standby unit.

Step 15 Upgrade the ASA FirePOWER module on the former active unit.

For an ASA FirePOWER module managed by ASDM, connect ASDM to the *standby* management IP address. Wait for the upgrade to complete.

Step 16 From the new active unit, reload the former active unit (now the new standby unit).

failover reload-standby

Example:

```
asa/act# failover reload-standby
```

Note If you are connected to the former active unit console port, you should instead enter the **reload** command to reload the former active unit.

Upgrade an Active/Standby Failover Pair Using ASDM

To upgrade the Active/Standby failover pair, perform the following steps.

Before you begin

Place the ASA and ASDM images on your local management computer.

Procedure

Step 1 Launch ASDM on the *standby* unit by connecting to the standby IP address.

Step 2 In the main ASDM application window, choose **Tools** > **Upgrade Software from Local Computer**.

The **Upgrade Software** dialog box appears.

Step 3 From the **Image to Upload** drop-down list, choose **ASDM**.

Step 4 In the **Local File Path** field, enter the local path to the file on your computer or click **Browse Local Files** to find the file on your PC.

Step 5 In the **Flash File System Path** field, enter the path to the flash file system or click **Browse Flash** to find the directory or file in the flash file system.

Step 6 Click **Upload Image**. The uploading process might take a few minutes.

When you are prompted to set this image as the ASDM image, click **No**. You exit the Upgrade tool.

Step 7 Repeat these steps, choosing **ASA** from the **Image to Upload** drop-down list.

When you are prompted to set this image as the ASA image, click **No**. You exit the Upgrade tool.

Step 8 Connect ASDM to the *active* unit by connecting to the main IP address, and upload the ASDM software, using the same file location you used on the standby unit.

Step 9 When you are prompted to set the image as the ASDM image, click **Yes**.

You are reminded to exit ASDM and save the configuration. Click **OK**. You exit the Upgrade tool. **Note:** You will save the configuration and reload ASDM *after* you upgrade the ASA software.

Step 10 Upload the ASA software, using the same file location you used for the standby unit.

Step 11 When you are prompted to set the image as the ASA image, click **Yes**.

You are reminded to reload the ASA to use the new image. Click **OK**. You exit the Upgrade tool.

Step 12 Click the **Save** icon on the toolbar to save your configuration changes.

These configuration changes are automatically saved on the standby unit.

Step 13 If you are upgrading ASA FirePOWER modules, disable the ASA REST API by choosing **Tools** > **Command Line Interface**, and entering **no rest-api enable**.

If you do not disable the REST API, the ASA FirePOWER module upgrade will fail.

Step 14 Upgrade the ASA FirePOWER module on the standby unit.

For an ASA FirePOWER module managed by ASDM, connect ASDM to the *standby* management IP address. Wait for the upgrade to complete, and then connect ASDM back to the active unit.

Step 15 Reload the standby unit by choosing **Monitoring** > **Properties** > **Failover** > **Status**, and clicking **Reload Standby**.

Stay on the **System** pane to monitor when the standby unit reloads.

Step 16 After the standby unit reloads, force the active unit to fail over to the standby unit by choosing **Monitoring** > **Properties** > **Failover** > **Status**, and clicking **Make Standby**.

ASDM will automatically reconnect to the new active unit.

Step 17 Upgrade the ASA FirePOWER module on the former active unit.

For an ASA FirePOWER module managed by ASDM, connect ASDM to the *standby* management IP address. Wait for the upgrade to complete, and then connect ASDM back to the active unit.

Step 18 Reload the (new) standby unit by choosing **Monitoring** > **Properties** > **Failover** > **Status**, and clicking **Reload Standby**.

Upgrade an Active/Active Failover Pair

Use the CLI or ASDM to upgrade the Active/Active failover pair for a zero downtime upgrade.

Upgrade an Active/Active Failover Pair Using the CLI

To upgrade two units in an Active/Active failover configuration, perform the following steps.

Before you begin

- Perform these steps on the primary unit.
- Perform these steps in the system execution space.
- This procedure uses FTP. For TFTP, HTTP, or other server types, see the **copy** command in the ASA command reference.

Procedure

Step 1 On the primary unit in privileged EXEC mode, copy the ASA software to flash memory:

copy ftp://[[*user*[**:***password*]**@**]*server*[*/path*]/*asa_image_name* **disk***n***:/**[*path/*]*asa_image_name*

Example:

```
asa/act/pri# copy ftp://jcrichton:aeryn@10.1.1.1/asa9-15-1-smp-k8.bin
disk0:/asa9-15-1-smp-k8.bin
```

Step 2 Copy the software to the secondary unit; be sure to specify the same path as for the primary unit:

failover exec mate copy /noconfirm ftp://[[*user*[**:***password*]**@**]*server*[*/path*]/*asa_image_name* **disk***n***:/**[*path/*]*asa_image_name*

Example:

```
asa/act/pri# failover exec mate copy /noconfirm
ftp://jcrichton:aeryn@10.1.1.1/asa9-15-1-smp-k8.bin disk0:/asa9-15-1-smp-k8.bin
```

Step 3 Copy the ASDM image to the primary unit flash memory:

copy ftp://[[*user*[**:***password*]**@**]*server*[*/path*]/*asdm_image_name* **disk***n***:/**[*path/*]*asdm_image_name*

Example:

```
asa/act/pri# ciscoasa# copy ftp://jcrichton:aeryn@10.1.1.1/asdm-77171417151.bin
disk0:/asdm-77171417151.bin
```

Step 4 Copy the ASDM image to the secondary unit; be sure to specify the same path as for the primary unit:

failover exec mate copy /noconfirm ftp://[[*user*[**:***password*]**@**]*server*[*/path*]/*asdm_image_name* **disk***n***:/**[*path/*]*asdm_image_name*

Example:

```
asa/act/pri# failover exec mate copy /noconfirm
ftp://jcrichton:aeryn@10.1.1.1/asdm-77171417151.bin disk0:/asdm-77171417151.bin
```

Step 5 If you are not already in global configuration mode, access global configuration mode:

configure terminal

Step 6 Show the current boot images configured (up to 4):

show running-config boot system

Example:

```
asa/act/pri(config)# show running-config boot system
boot system disk0:/cdisk.bin
boot system disk0:/asa931-smp-k8.bin
```

The ASA uses the images in the order listed; if the first image is unavailable, the next image is used, and so on. You cannot insert a new image URL at the top of the list; to specify the new image to be first, you must remove any existing entries, and enter the image URLs in the order desired, according to the next steps.

Step 7 Remove any existing boot image configurations so that you can enter the new boot image as your first choice:

no boot system disk*n***:/**[*path*/]*asa_image_name*

Example:

```
asa/act/pri(config)# no boot system disk0:/cdisk.bin
asa/act/pri(config)# no boot system disk0:/asa931-smp-k8.bin
```

Step 8 Set the ASA image to boot (the one you just uploaded):

boot system disk*n***:/**[*path*/]*asa_image_name*

Example:

```
asa/act/pri(config)# boot system disk0://asa9-15-1-smp-k8.bin
```

Repeat this command for any backup images that you want to use in case this image is unavailable. For example, you can re-enter the images that you previously removed.

Step 9 Set the ASDM image to use (the one you just uploaded):

asdm image disk*n***:/**[*path*/]*asdm_image_name*

Example:

```
asa/act/pri(config)# asdm image disk0:/asdm-77171417151.bin
```

You can only configure one ASDM image to use, so you do not need to first remove the existing configuration.

Step 10 Save the new settings to the startup configuration:

write memory

These configuration changes are automatically saved on the secondary unit.

Step 11 If you are upgrading ASA FirePOWER modules, disable the ASA REST API or else the upgrade will fail.

no rest-api agent

Step 12 Make both failover groups active on the primary unit:

failover active group 1

failover active group 2

Example:

```
asa/act/pri(config)# failover active group 1
asa/act/pri(config)# failover active group 2
```

Step 13 Upgrade the ASA FirePOWER module on the secondary unit.

For an ASA FirePOWER module managed by ASDM, connect ASDM to the failover group 1 or 2 *standby* management IP address. Wait for the upgrade to complete.

Step 14 Reload the secondary unit to boot the new image:

failover reload-standby

Wait for the secondary unit to finish loading. Use the **show failover** command to verify that both failover groups are in the Standby Ready state.

Step 15 Force both failover groups to become active on the secondary unit:

no failover active group 1

no failover active group 2

Example:

```
asa/act/pri(config)# no failover active group 1
asa/act/pri(config)# no failover active group 2
asa/stby/pri(config)#
```

If you are disconnected from your SSH session, reconnect to the failover group 1 IP address, now on the secondary unit.

Step 16 Upgrade the ASA FirePOWER module on the primary unit.

For an ASA FirePOWER module managed by ASDM, connect ASDM to the failover group 1 or 2 *standby* management IP address. Wait for the upgrade to complete.

Step 17 Reload the primary unit:

failover reload-standby

Example:

```
asa/act/sec# failover reload-standby
```

Note If you are connected to the primary unit console port, you should instead enter the **reload** command to reload the primary unit.

You may be disconnected from your SSH session.

Step 18 If the failover groups are configured with the **preempt** command, they automatically become active on their designated unit after the preempt delay has passed.

Upgrade an Active/Active Failover Pair Using ASDM

To upgrade two units in an Active/Active failover configuration, perform the following steps.

Before you begin

- Perform these steps in the system execution space.
- Place the ASA and ASDM images on your local management computer.

Procedure

Step 1 Launch ASDM on the *secondary* unit by connecting to the management address in failover group 2.

Step 2 In the main ASDM application window, choose **Tools** > **Upgrade Software from Local Computer**.

The **Upgrade Software** dialog box appears.

Step 3 From the **Image to Upload** drop-down list, choose **ASDM**.

Step 4 In the **Local File Path** field, enter the local path to the file on your computer or click **Browse Local Files** to find the file on your PC.

Step 5 In the **Flash File System Path** field, enter the path to the flash file system or click **Browse Flash** to find the directory or file in the flash file system.

Step 6 Click **Upload Image**. The uploading process might take a few minutes.

When you are prompted to set this image as the ASDM image, click **No**. You exit the Upgrade tool.

Step 7 Repeat these steps, choosing **ASA** from the **Image to Upload** drop-down list.

When you are prompted to set this image as the ASA image, click **No**. You exit the Upgrade tool.

Step 8 Connect ASDM to the *primary* unit by connecting to the management IP address in failover group 1, and upload the ASDM software, using the same file location you used on the secondary unit.

Step 9 When you are prompted to set the image as the ASDM image, click **Yes**.

You are reminded to exit ASDM and save the configuration. Click **OK**. You exit the Upgrade tool. **Note:** You will save the configuration and reload ASDM *after* you upgrade the ASA software.

Step 10 Upload the ASA software, using the same file location you used for the secondary unit.

Step 11 When you are prompted to set the image as the ASA image, click **Yes**.

You are reminded to reload the ASA to use the new image. Click **OK**. You exit the Upgrade tool.

Step 12 Click the **Save** icon on the toolbar to save your configuration changes.

These configuration changes are automatically saved on the secondary unit.

Step 13 If you are upgrading ASA FirePOWER modules, disable the ASA REST API by choosing **Tools** > **Command Line Interface**, and entering **no rest-api enable**.

If you do not disable the REST API, the ASA FirePOWER module upgrade will fail.

Step 14 Make both failover groups active on the primary unit by choosing **Monitoring** > **Failover** > **Failover Group #**, where **#** is the number of the failover group you want to move to the primary unit, and clicking **Make Active**.

Step 15 Upgrade the ASA FirePOWER module on the secondary unit.

For an ASA FirePOWER module managed by ASDM, connect ASDM to the failover group 1 or 2 *standby* management IP address. Wait for the upgrade to complete, and then connect ASDM back to the primary unit.

Step 16 Reload the secondary unit by choosing **Monitoring** > **Failover** > **System**, and clicking **Reload Standby**.

Stay on the **System** pane to monitor when the secondary unit reloads.

Step 17 After the secondary unit comes up, make both failover groups active on the secondary unit by choosing **Monitoring** > **Failover** > **Failover Group #**, where **#** is the number of the failover group you want to move to the secondary unit, and clicking **Make Standby**.

ASDM will automatically reconnect to the failover group 1 IP address on the secondary unit.

Step 18 Upgrade the ASA FirePOWER module on the primary unit.

For an ASA FirePOWER module managed by ASDM, connect ASDM to the failover group 1 or 2 *standby* management IP address. Wait for the upgrade to complete, and then connect ASDM back to the secondary unit.

Step 19 Reload the primary unit by choosing **Monitoring** > **Failover** > **System**, and clicking **Reload Standby**.

Step 20 If the failover groups are configured with Preempt Enabled, they automatically become active on their designated unit after the preempt delay has passed. ASDM will automatically reconnect to the failover group 1 IP address on the primary unit.

Upgrade an ASA Cluster

Use the CLI or ASDM to upgrade the ASA Cluster for a zero downtime upgrade.

Upgrade an ASA Cluster Using the CLI

To upgrade all units in an ASA cluster, perform the following steps. This procedure uses FTP. For TFTP, HTTP, or other server types, see the **copy** command in the ASA command reference.

Before you begin

- Perform these steps on the control unit. If you are also upgrading the ASA FirePOWER module, then you need console or ASDM access on each data unit. You can configure the ASA prompt to show the cluster unit and state (control or data), which is useful to determine which unit you are connected to. See the prompt command. Alternatively, enter the **show cluster info** command to view each unit's role.
- You must use the console port; you cannot enable or disable clustering from a remote CLI connection.
- Perform these steps in the system execution space for multiple context mode.

Procedure

Step 1 On the control unit in privileged EXEC mode, copy the ASA software to all units in the cluster.

cluster exec copy /noconfirm ftp://[[*user*[**:***password*]**@**]*server*[*/path*]*/asa_image_name*
disk*n***:/**[*path*/]*asa_image_name*

Example:

```
asa/unit1/master# cluster exec copy /noconfirm
ftp://jcrichton:aeryn@10.1.1.1/asa9-15-1-smp-k8.bin disk0:/asa9-15-1-smp-k8.bin
```

Step 2 Copy the ASDM image to all units in the cluster:

cluster exec copy /noconfirm ftp://[[*user*[**:***password*]**@**]*server*[*/path*]*/asdm_image_name*
disk*n***:/**[*path*/]*asdm_image_name*

Example:

```
asa/unit1/master# cluster exec copy /noconfirm
ftp://jcrichton:aeryn@10.1.1.1/asdm-77171417151.bin disk0:/asdm-77171417151.bin
```

Step 3 If you are not already in global configuration mode, access it now.

configure terminal

Example:

```
asa/unit1/master# configure terminal
asa/unit1/master(config)#
```

Step 4 Show the current boot images configured (up to 4).

show running-config boot system

Example:

```
asa/unit1/master(config)# show running-config boot system
boot system disk0:/cdisk.bin
boot system disk0:/asa931-smp-k8.bin
```

The ASA uses the images in the order listed; if the first image is unavailable, the next image is used, and so on. You cannot insert a new image URL at the top of the list; to specify the new image to be first, you must remove any existing entries, and enter the image URLs in the order desired, according to the next steps.

Step 5 Remove any existing boot image configurations so that you can enter the new boot image as your first choice:

no boot system disk*n***:/**[*path*/]*asa_image_name*

Example:

```
asa/unit1/master(config)# no boot system disk0:/cdisk.bin
asa/unit1/master(config)# no boot system disk0:/asa931-smp-k8.bin
```

Step 6 Set the ASA image to boot (the one you just uploaded):

boot system disk*n*:/[*path*/]*asa_image_name*

Example:

```
asa/unit1/master(config)# boot system disk0://asa9-15-1-smp-k8.bin
```

Repeat this command for any backup images that you want to use in case this image is unavailable. For example, you can re-enter the images that you previously removed.

Step 7 Set the ASDM image to use (the one you just uploaded):

asdm image disk*n*:/[*path*/]*asdm_image_name*

Example:

```
asa/unit1/master(config)# asdm image disk0:/asdm-77171417151.bin
```

You can only configure one ASDM image to use, so you do not need to first remove the existing configuration.

Step 8 Save the new settings to the startup configuration:

write memory

These configuration changes are automatically saved on the data units.

Step 9 If you are upgrading ASA FirePOWER modules, disable the ASA REST API or else the ASA FirePOWER module upgrade will fail.

no rest-api agent

Step 10 If you are upgrading ASA FirePOWER modules that are managed by ASDM, you will need to connect ASDM to the *individual* management IP addresses, so you need to note the IP addresses for each unit.

show running-config interface *management_interface_id*

Note the **cluster-pool** poolname used.

show ip[**v6**] **local pool** *poolname*

Note the cluster unit IP addresses.

Example:

```
asa/unit2/slave# show running-config interface gigabitethernet0/0
!
interface GigabitEthernet0/0
 management-only
 nameif inside
 security-level 100
 ip address 10.86.118.1 255.255.252.0 cluster-pool inside-pool
asa/unit2/slave# show ip local pool inside-pool
Begin           End             Mask            Free     Held     In use
10.86.118.16    10.86.118.17    255.255.252.0       0        0        2

Cluster Unit                    IP Address Allocated
unit2                           10.86.118.16
unit1                           10.86.118.17
asa1/unit2/slave#
```

Step 11 Upgrade the data units.

Choose the procedure below depending on whether you are also upgrading ASA FirePOWER modules. The ASA FirePOWER procedures minimize the number of ASA reloads when also upgrading the ASA FirePOWER module. You can choose to use the data Console or ASDM for these procedures. You may want to use ASDM instead of the Console if you do not have ready access to all of the console ports but can reach ASDM over the network.

Note During the upgrade process, never use the **cluster master unit** command to force a data unit to become control; you can cause network connectivity and cluster stability-related problems. You must upgrade and reload all data units first, and then continue with this procedure to ensure a smooth transition from the current control unit to a new control unit.

If you do not have ASA FirePOWER module upgrades:

a) On the control unit, to view member names, enter **cluster exec unit ?**, or enter the **show cluster info** command.

b) Reload a data unit.

cluster exec unit *data-unit* **reload noconfirm**

Example:

```
asa/unit1/master# cluster exec unit unit2 reload noconfirm
```

c) Repeat for each data unit.

To avoid connection loss and allow traffic to stabilize, wait for each unit to come back up and rejoin the cluster (approximately 5 minutes) before repeating these steps for the next unit. To view when a unit rejoins the cluster, enter **show cluster info**.

If you also have ASA FirePOWER module upgrades (using the data Console):

a) Connect to the console port of a data unit, and enter global configuration mode.

enable

configure terminal

Example:

```
asa/unit2/slave> enable
Password:
asa/unit2/slave# configure terminal
asa/unit2/slave(config)#
```

b) Disable clustering.

cluster group *name*

no enable

Do not save this configuration; you want clustering to be enabled when you reload. You need to disable clustering to avoid multiple failures and rejoins during the upgrade process; this unit should only rejoin after all of the upgrading and reloading is complete.

Example:

```
asa/unit2/slave(config)# cluster group cluster1
asa/unit2/slave(cfg-cluster)# no enable
Cluster disable is performing cleanup..done.
All data interfaces have been shutdown due to clustering being disabled. To recover
either enable clustering or remove cluster group configuration.

Cluster unit unit2 transitioned from SLAVE to DISABLED
asa/unit2/ClusterDisabled(cfg-cluster)#
```

c) Upgrade the ASA FirePOWER module on this data unit.

For an ASA FirePOWER module managed by ASDM, connect ASDM to the *individual* management IP address that you noted earlier. Wait for the upgrade to complete.

d) Reload the data unit.

reload noconfirm

e) Repeat for each data unit.

To avoid connection loss and allow traffic to stabilize, wait for each unit to come back up and rejoin the cluster (approximately 5 minutes) before repeating these steps for the next unit. To view when a unit rejoins the cluster, enter **show cluster info**.

If you also have ASA FirePOWER module upgrades (using ASDM):

a) Connect ASDM to the *individual* management IP address of this data unit that you noted earlier.
b) Choose **Configuration** > **Device ManagementHigh Availability and Scalability** > **ASA Cluster** > **Cluster Configuration** > **.**
c) Uncheck the **Participate in ASA cluster** check box.

You need to disable clustering to avoid multiple failures and rejoins during the upgrade process; this unit should only rejoin after all of the upgrading and reloading is complete.

Do not uncheck the **Configure ASA cluster settings** check box; this action clears all cluster configuration, and also shuts down all interfaces including the management interface to which ASDM is connected. To restore connectivity in this case, you need to access the CLI at the console port.

Note Some older versions of ASDM do not support disabling the cluster on this screen; in this case, use the **Tools** > **Command Line Interface** tool, click the **Multiple Line** radio button, and enter **cluster group** *name* and **no enable**. You can view the cluster group name in the **Home** > **Device Dashboard** > **Device Information** > **ASA Cluster** area.

d) Click **Apply**.
e) You are prompted to exit ASDM. Reconnect ASDM to the same IP address.
f) Upgrade the ASA FirePOWER module.

Wait for the upgrade to complete.

g) In ASDM, choose **Tools** > **System Reload**.
h) Click the **Reload without saving the running configuration** radio button.

You do not want to save the configuration; when this unit reloads, you want clustering to be enabled on it.

i) Click **Schedule Reload**.
j) Click **Yes** to continue the reload.

k) Repeat for each data unit.

To avoid connection loss and allow traffic to stabilize, wait for each unit to come back up and rejoin the cluster (approximately 5 minutes) before repeating these steps for the next unit. To view when a unit rejoins the cluster, see the **Monitoring** > **ASA Cluster** > **Cluster Summary** pane on the control unit.

Step 12 Upgrade the control unit.

a) Disable clustering.

cluster group *name*

no enable

Wait for 5 minutes for a new control unit to be selected and traffic to stabilize.

Do not save this configuration; you want clustering to be enabled when you reload.

We recommend manually disabling cluster on the control unit if possible so that a new control unit can be elected as quickly and cleanly as possible.

Example:

```
asa/unit1/master(config)# cluster group cluster1
asa/unit1/master(cfg-cluster)# no enable
Cluster disable is performing cleanup..done.
All data interfaces have been shutdown due to clustering being disabled. To recover
either enable clustering or remove cluster group configuration.

Cluster unit unit1 transitioned from MASTER to DISABLED
asa/unit1/ClusterDisabled(cfg-cluster)#
```

b) Upgrade the ASA FirePOWER module on this unit.

For an ASA FirePOWER module managed by ASDM, connect ASDM to the *individual* management IP address that you noted earlier. The main cluster IP address now belongs to the new control unit; this former control unit is still accessible on its individual management IP address.

Wait for the upgrade to complete.

c) Reload this unit.

reload noconfirm

When the former control unit rejoins the cluster, it will be a data unit.

Upgrade an ASA Cluster Using ASDM

To upgrade all units in an ASA cluster, perform the following steps.

Before you begin

- Perform these steps on the control unit. If you are also upgrading the ASA FirePOWER module, then you need ASDM access to each data unit.
- Perform these steps in the system execution space for multiple context mode.
- Place the ASA and ASDM images on your local management computer.

Procedure

Step 1 Launch ASDM on the *control* unit by connecting to the main cluster IP address.

This IP address always stays with the control unit.

Step 2 In the main ASDM application window, choose **Tools** > **Upgrade Software from Local Computer**.

The **Upgrade Software from Local Computer** dialog box appears.

Step 3 Click the **All devices in the cluster** radio button.

The **Upgrade Software** dialog box appears.

Step 4 From the **Image to Upload** drop-down list, choose **ASDM**.

Step 5 In the **Local File Path** field, click **Browse Local Files** to find the file on your computer.

Step 6 (Optional) In the **Flash File System Path** field, enter the path to the flash file system or click **Browse Flash** to find the directory or file in the flash file system.

By default, this field is prepopulated with the following path: **disk0:/***filename*.

Step 7 Click **Upload Image**. The uploading process might take a few minutes.

Step 8 You are prompted to set this image as the ASDM image. Click **Yes**.

Step 9 You are reminded to exit ASDM and save the configuration. Click **OK**.

You exit the Upgrade tool. **Note:** You will save the configuration and reload ASDM *after* you upgrade the ASA software.

Step 10 Repeat these steps, choosing **ASA** from the **Image to Upload** drop-down list.

Step 11 Click the **Save** icon on the toolbar to save your configuration changes.

These configuration changes are automatically saved on the data units.

Step 12 Take note of the individual management IP addresses for each unit on **Configuration** > **Device Management** > **High Availability and Scalability** > **ASA Cluster** > **Cluster Members** so that you can connect ASDM directly to data units later.

Step 13 If you are upgrading ASA FirePOWER modules, disable the ASA REST API by choosing **Tools** > **Command Line Interface**, and entering **no rest-api enable**.

If you do not disable the REST API, the ASA FirePOWER module upgrade will fail.

Step 14 Upgrade the data units.

Choose the procedure below depending on whether you are also upgrading ASA FirePOWER modules. The ASA FirePOWER procedure minimizes the number of ASA reloads when also upgrading the ASA FirePOWER module.

Note During the upgrade process, never change the control unit using the **Monitoring** > **ASA Cluster** > **Cluster Summary** page to force a data unit to become control; you can cause network connectivity and cluster stability-related problems. You must reload all data units first, and then continue with this procedure to ensure a smooth transition from the current control unit to a new control unit.

If you do not have ASA FirePOWER module upgrades:

a) On the control unit, choose **Tools** > **System Reload**.

b) Choose a data unit name from the **Device** drop-down list.
c) Click **Schedule Reload**.
d) Click **Yes** to continue the reload.
e) Repeat for each data unit.

To avoid connection loss and allow traffic to stabilize, wait for each unit to come back up and rejoin the cluster (approximately 5 minutes) before repeating these steps for the next unit. To view when a unit rejoins the cluster, see the **Monitoring** > **ASA Cluster** > **Cluster Summary** pane.

If you also have ASA FirePOWER module upgrades:

a) On the control unit, choose **Configuration** > **Device Management** > **High Availability and Scalability** > **ASA Cluster** > **Cluster Members**.
b) Select the data unit that you want to upgrade, and click **Delete**.
c) Click **Apply**.
d) Exit ASDM, and connect ASDM to the data unit by connecting to its *individual* management IP address that you noted earlier.
e) Upgrade the ASA FirePOWER module.

Wait for the upgrade to complete.

f) In ASDM, choose **Tools** > **System Reload**.
g) Click the **Reload without saving the running configuration** radio button.

You do not want to save the configuration; when this unit reloads, you want clustering to be enabled on it.

h) Click **Schedule Reload**.
i) Click **Yes** to continue the reload.
j) Repeat for each data unit.

To avoid connection loss and allow traffic to stabilize, wait for each unit to come back up and rejoin the cluster (approximately 5 minutes) before repeating these steps for the next unit. To view when a unit rejoins the cluster, see the **Monitoring** > **ASA Cluster** > **Cluster Summary** pane.

Step 15 Upgrade the control unit.

a) In ASDM on the control unit, choose **Configuration** > **Device Management** > **High Availability and Scalability** > **ASA Cluster** > **Cluster Configuration** pane.
b) Uncheck the **Participate in ASA cluster** check box, and click **Apply**.

You are prompted to exit ASDM.

c) Wait for up to 5 minutes for a new control unit to be selected and traffic to stabilize.

When the former control unit rejoins the cluster, it will be a data unit.

d) Re-connect ASDM to the former control unit by connecting to its *individual* management IP address that you noted earlier.

The main cluster IP address now belongs to the new control unit; this former control unit is still accessible on its individual management IP address.

e) Upgrade the ASA FirePOWER module.

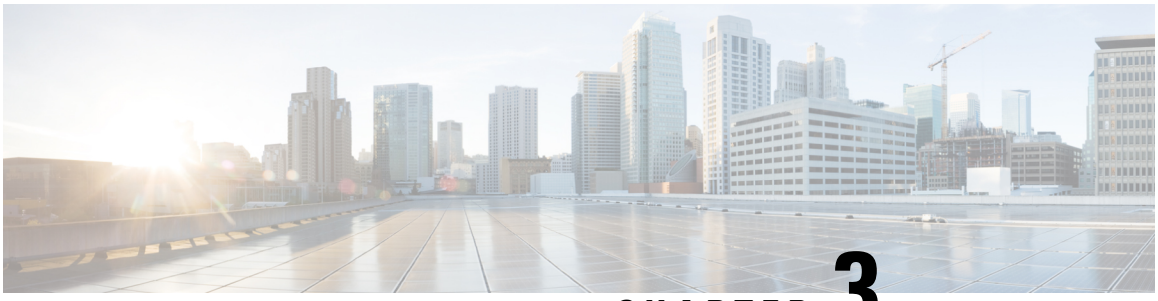
Wait for the upgrade to complete.

f) Choose **Tools** > **System Reload**.
g) Click the **Reload without saving the running configuration** radio button.

   You do not want to save the configuration; when this unit reloads, you want clustering to be enabled on it.

h) Click **Schedule Reload**.
i) Click **Yes** to continue the reload.

   You are prompted to exit ASDM. Restart ASDM on the main cluster IP address; you will reconnect to the new control unit.



CHAPTER 3

Downgrade the ASA

In many cases, you can downgrade your ASA software and restore a backup configuration from the previous software version. The method of downgrading depends on your ASA platform.

Guidelines and Limitations for Downgrading

See the following guidelines before downgrading:

- **There is no official Zero Downtime Downgrade support for clustering**—However, in some cases, Zero Downtime Downgrading will work. See the following known issues for downgrading; note that there may be other issues that require you to reload your cluster units, thus causing downtime.
  - **Downgrade to a pre-9.9(1) release with clustering**—9.9(1) and later includes an improvement in the backup distribution. If you have 3 or more units in the cluster, you must perform the following steps:
    1. Remove all secondary units from the cluster (so the cluster consists only of the primary unit).
    2. Downgrade 1 secondary unit, and rejoin it to the cluster.
    3. Disable clustering on the primary unit; downgrade it, and rejoin the cluster.
    4. Downgrade the remaining secondary units, and join them back to the cluster, one at a time.
  - **Downgrade to a pre-9.9(1) release when you enable cluster site redundancy**—You should disable site redundancy if you want to downgrade (or if you want to add a pre-9.9(1) unit to a cluster). Otherwise, you will see side effects, for example, dummy forwarding flows on the unit running the old version.
  - **Downgrade from 9.8(1) with clustering and crypto-map**—There is no Zero Downtime Downgrade support when downgrading from 9.8(1) when you have a crypto-map configured. You should clear the crypto-map configuration before downgrading, and then re-apply the configuration after the downgrade.

  - **Downgrade from 9.8(1) with clustering unit health check set to .3 to .7 seconds**—If you downgrade your ASA software after setting the hold time to .3 - .7 (**health-check holdtime**), this setting will revert to the default of 3 seconds because the new setting is unsupported.
  - **Downgrade from 9.5(2) or later to 9.5(1) or earlier with clustering (CSCuv82933)**—There is no Zero Downtime Downgrade support when downgrading from 9.5(2). You must reload all units at roughly the same time so that a new cluster is formed when the units come back online. If you wait to reload the units sequentially, then they will be unable to form a cluster.
  - **Downgrade from 9.2(1) or later to 9.1 or earlier with clustering**—Zero Downtime Downgrade is not supported.

- **Downgrade issue from 9.18 or later**—There is a behavior change in 9.18 where the **access-group** command will be listed before its **access-list** commands. If you downgrade, the **access-group** command will be rejected because it has not yet loaded the **access-list** commands. This outcome occurs even if you had previously enabled the **forward-reference enable** command, because that command is now removed. Before you downgrade, be sure to copy all **access-group** commands manually, and then after downgrading, re-enter them.
- **Downgrade issue for the Firepower 2100 in Platform mode from 9.13/9.14 to 9.12 or earlier**—For a Firepower 2100 with a fresh installation of 9.13 or 9.14 that you converted to Platform mode: If you downgrade to 9.12 or earlier, you will not be able to configure new interfaces or edit existing interfaces in FXOS (note that 9.12 and earlier only supports Platform mode). You either need to restore your version to 9.13 or later, or you need to clear your configuration using the FXOS erase configuration command. This problem does not occur if you originally upgraded to 9.13 or 9.14 from an earlier release; only fresh installations are affected, such as a new device or a re-imaged device. (CSCvr19755)
- **Downgrade from 9.10(1) for smart licensing**—Due to changes in the smart agent, if you downgrade, you must re-register your device to the Cisco Smart Software Manager. The new smart agent uses an encrypted file, so you need to re-register to use an unencrypted file required by the old smart agent.
- **Downgrade to 9.5 and earlier with passwords using PBKDF2 (Password-Based Key Derivation Function 2) hash**—Versions before 9.6 do not support PBKDF2 hashing. In 9.6(1), **enable** and **username** passwords longer than 32 characters use PBKDF2 hashing. In 9.7(1), new passwords of all lengths use PBKDF2 hashing (existing passwords continue to use MD5 hashing). If you downgrade, the **enable** password reverts to the default (which is blank). Usernames will not parse correctly, and the **username** commands will be removed. You must re-create your local users.
- **Downgrade from Version 9.5(2.200) for the ASA Virtual**—The ASA virtual does not retain the licensing registration state. You need to re-register with the **license smart register idtoken id_token force** command (for ASDM: see the **Configuration > Device Management > Licensing > Smart Licensing** page, and use the **Force registration** option); obtain the ID token from the Smart Software Manager.
- **VPN tunnels are replicated to the standby unit even if the standby unit is running a version of software that does not support the Ciphersuite that the original tunnel negotiated**—This scenario occurs when downgrading. In this case, disconnect your VPN connection and reconnect.

Incompatible Configuration Removed After Downgrading

When you downgrade to an old version, commands that were introduced in later versions will be removed from the configuration. There is no automated way to check the configuration against the target version before you downgrade. You can view when new commands were added in ASA new features by release.

You can view rejected commands *after* you downgrade using the **show startup-config errors** command. If you can perform a downgrade on a lab device, you can preview the effects using this command before you perform the downgrade on a production device.

In some cases, the ASA migrates commands to new forms automatically when you upgrade, so depending on your version, even if you did not manually configure new commands, the downgrade could be affected by configuration migrations. We recommend that you have a backup of your old configuration that you can use when you downgrade. In the case of upgrading to 8.3, a backup is automatically created (<old_version>_startup_cfg.sav). Other migrations do not create back-ups. See Version-Specific Guidelines and Migrations, on page 1 for more information about automatic command migrations that could affect downgrading.

See also known downgrade issues in Guidelines and Limitations for Downgrading, on page 161.

For example, an ASA running version 9.8(2) includes the following commands:

```
access-list acl1 extended permit sctp 192.0.2.0 255.255.255.0 198.51.100.0 255.255.255.0
username test1 password $sha512$1234$abcdefghijklmnopqrstuvwxyz privilege 15
snmp-server user snmpuser1 snmpgroup1 v3 engineID abcdefghijklmnopqrstuvwxyz encrypted auth
 md5 12:ab:34 priv aes 128 12:ab:34
```

When you downgrade to 9.0(4), you will see the following errors on startup:

```
access-list acl1 extended permit sctp 192.0.2.0 255.255.255.0 198.51.100.0 255.255.255.0
                                       ^
ERROR: % Invalid input detected at '^' marker.

username test1 password $sha512$1234$abcdefghijklmnopqrstuvwxyz pbkdf2 privilege 15
                                                               ^
ERROR: % Invalid input detected at '^' marker.

snmp-server user snmpuser1 snmpgroup1 v3 engineID abcdefghijklmnopqrstuvwxyz encrypted auth
 md5 12:ab:34 priv aes 128 12:ab:34
                                     ^
ERROR: % Invalid input detected at '^' marker.
```

In this example, support for **sctp** in the **access-list extended** command was added in version 9.5(2), support for **pbkdf2** in the **username** command was added in version 9.6(1), and support for **engineID** in the **snmp-server user** command was added in version 9.5(3).

Downgrade the Firepower 1000, 2100 in Appliance Mode, Secure Firewall 3100/4200

You can downgrade the ASA software version by setting the ASA version to the old version, restoring the backup configuration to the startup configuration, and then reloading.

Before you begin

This procedure requires a backup configuration of the ASA before you upgraded, so you can restore the old configuration. If you do not restore the old configuration, you may have incompatible commands representing new or changed features. Any new commands will be rejected when you load the old software version.

Procedure

Step 1 Load the old ASA software version using the upgrade procedure in Upgrade the Firepower 1000, 2100 in Appliance Mode, and Secure Firewall 3100/4200, on page 69 for standalone, failover, or clustering deployments. In this case, specify the old ASA version instead of a new version. **Important:** Do *not* reload the ASA yet.

Step 2 At the ASA CLI, copy the backup ASA configuration to the startup configuration. For failover, perform this step on the active unit. This step replicates the command to the standby unit.

copy *old_config_url* **startup-config**

It's important that you do not save the running configuration to the startup configuration using **write memory**; this command will overwrite your backup configuration.

Example:

```
ciscoasa# copy disk0:/9.13.1_cfg.sav startup-config
```

Step 3 Reload the ASA.

ASA CLI

reload

ASDM

Choose **Tools** > **System Reload**.

Downgrade the Firepower 2100 in Platform Mode

You can downgrade the ASA software version by restoring the backup configuration to the startup configuration, setting the ASA version to the old version, and then reloading.

Before you begin

This procedure requires a backup configuration of the ASA before you upgraded, so you can restore the old configuration. If you do not restore the old configuration, you may have incompatible commands representing new or changed features. Any new commands will be rejected when you load the old software version.

Procedure

Step 1 At the ASA CLI, copy the backup ASA configuration to the startup configuration. For failover, perform this step on the active unit. This step replicates the command to the standby unit.

copy *old_config_url* **startup-config**

It's important that you do not save the running configuration to the startup configuration using **write memory**; this command will overwrite your backup configuration.

Example:

```
ciscoasa# copy disk0:/9.12.4_cfg.sav startup-config
```

Step 2 In FXOS, use the chassis manager or FXOS CLI to use the old ASA software version using the upgrade procedure in Upgrade the Firepower 2100 in Platform Mode, on page 87 for standalone, failover, or clustering deployments. In this case, specify the old ASA version instead of a new version.

Downgrade the Firepower 4100/9300

You can downgrade the ASA software version by restoring the backup configuration to the startup configuration, setting the ASA version to the old version, and then reloading.

Before you begin

- This procedure requires a backup configuration of the ASA before you upgraded, so you can restore the old configuration. If you do not restore the old configuration, you may have incompatible commands representing new or changed features. Any new commands will be rejected when you load the old software version.
- Make sure the old ASA version is compatibile with the current FXOS version. If not, downgrade FXOS as the first step before you restore the old ASA configuration. Just make sure the downgraded FXOS is also compatible with the current ASA version (before you downgrade it). If you cannot achieve compatibility, we suggest you do not perform a downgrade.

Procedure

Step 1 At the ASA CLI, copy the backup ASA configuration to the startup configuration. For failover or clustering, perform this step on the active/control unit. This step replicates the command to the standby/data units.

copy *old_config_url* **startup-config**

It's important that you do not save the running configuration to the startup configuration using **write memory**; this command will overwrite your backup configuration.

Example:

```
ciscoasa# copy disk0:/9.8.4_cfg.sav startup-config
```

Step 2 In FXOS, use the chassis manager or FXOS CLI to use the old ASA software version using the upgrade procedure in Upgrade the Firepower 4100/9300, on page 105 for standalone, failover, or clustering deployments. In this case, specify the old ASA version instead of a new version.

Step 3 If you are also downgrading FXOS, use the chassis manager or FXOS CLI to set the old FXOS software version to be the current version using the upgrade procedure in Upgrade the Firepower 4100/9300, on page 105 for standalone, failover, or clustering deployments.

Downgrade the ISA 3000

The downgrade feature provides a shortcut for completing the following functions on ISA 3000 models:

- Clearing the boot image configuration (**clear configure boot**).
- Setting the boot image to be the old image (**boot system**).
- (Optional) Entering a new activation key (**activation-key**).
- Saving the running configuration to startup (**write memory**). This sets the BOOT environment variable to the old image, so when you reload, the old image is loaded.
- Copying the old configuration backup to the startup configuration (**copy** *old_config_url* **startup-config**).
- Reloading (**reload**).

Before you begin

- This procedure requires a backup configuration of the ASA before you upgraded, so you can restore the old configuration.

Procedure

Step 1 **ASA CLI:** Downgrade the software and restore the old configuration.

downgrade [**/noconfirm**] *old_image_url old_config_url* [**activation-key** *old_key*]

Example:

```
ciscoasa(config)# downgrade /noconfirm disk0:/asa821-k8.bin disk0:/8_2_1_0_startup_cfg.sav
```

The **/noconfirm** option downgrades without prompting. The *image_url* is the path to the old image on disk0, disk1, tftp, ftp, or smb. The *old_config_url* is the path to the saved, pre-migration configuration. If you need to revert to a pre-8.3 activation key, then you can enter the old activation key.

Step 2 **ASDM:** Choose **Tools** > **Downgrade Software** .

The Downgrade Software dialog box appears.

Step 3 For the **ASA Image**, click **Select Image File**.

The **Browse File Locations** dialog box appears.

Step 4 Click one of the following radio buttons:

- **Remote Server**—Choose ftp, smb, or http from the drop-down list, and type the path to the old image file.
- **Flash File System**—Click **Browse Flash** to choose the old image file on the local flash file system.

Step 5 For the **Configuration**, click **Browse Flash** to choose the pre-migration configuration file.

Step 6 (Optional) In the **Activation Key** field, enter the old activation key if you need to revert to a pre-8.3 activation key.

Step 7 Click **Downgrade**.