



Introduction to the Cisco ASA

The Cisco ASA provides advanced stateful firewall and VPN concentrator functionality in one device as well as integrated services with add-on modules. The ASA includes many advanced features, such as multiple security contexts (similar to virtualized firewalls), clustering (combining multiple firewalls into a single firewall), transparent (Layer 2) firewall or routed (Layer 3) firewall operation, advanced inspection engines, IPsec VPN, SSL VPN, and clientless SSL VPN support, and many more features.



Note ASDM supports many ASA versions. The ASDM documentation and online help includes all of the latest features supported by the ASA. If you are running an older version of ASA software, the documentation might include features that are not supported in your version. Please refer to the feature history table for each chapter to determine when features were added. For the minimum supported version of ASDM for each ASA version, see Cisco ASA Compatibility. See also [Special, Deprecated, and Legacy Services, on page 17](#).

- [ASDM Requirements, on page 1](#)
- [Hardware and Software Compatibility, on page 5](#)
- [VPN Compatibility, on page 6](#)
- [New Features, on page 6](#)
- [Firewall Functional Overview, on page 12](#)
- [VPN Functional Overview, on page 15](#)
- [Security Context Overview, on page 16](#)
- [ASA Clustering Overview, on page 16](#)
- [Special, Deprecated, and Legacy Services, on page 17](#)

ASDM Requirements

ASDM Java Requirements

You can install ASDM using Oracle JRE 8.0 ([asdm-version.bin](#)) or OpenJRE 1.8.x ([asdm-openjre-version.bin](#)).



Note ASDM is not tested on Linux.

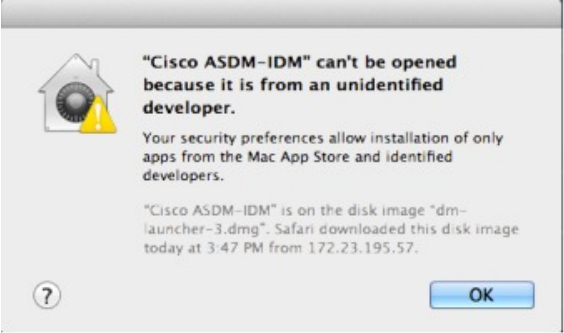
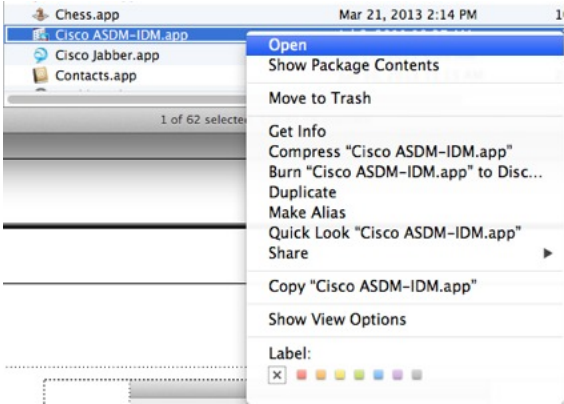

Table 1: ASA and ASA FirePOWER: ASDM Operating System and Browser Requirements

Operating System	Browser				Oracle JRE	OpenJRE
	Internet Explorer	Firefox	Safari	Chrome		
<ul style="list-style-type: none"> • Microsoft Windows (English and Japanese): • 10 • 8 • 7 • Server 2016 and Server 2019 (ASA management only; ASDM management of the FirePOWER module is not supported. You can alternatively use Firepower Management Center to manage the FirePOWER module when using ASDM for ASA management.) • Server 2012 R2 • Server 2012 • Server 2008 <p>Note See Windows 10 in ASDM Compatibility Notes, on page 2 if you have problems with the ASDM shortcut.</p>	Yes	Yes	No support	Yes	8.0	1.8
Apple OS X 10.4 and later	No support	Yes	Yes	Yes (64-bit version only)	8.0	1.8

ASDM Compatibility Notes

The following table lists compatibility caveats for ASDM.

Conditions	Notes
Windows 10	<p data-bbox="837 296 1365 323">"This app can't run on your PC" error message.</p> <p data-bbox="837 342 1523 432">When you install the ASDM Launcher, Windows 10 might replace the ASDM shortcut target with the Windows Scripting Host path, which causes this error. To fix the shortcut target:</p> <ol data-bbox="837 451 1523 814" style="list-style-type: none"><li data-bbox="837 451 1523 516">1. Choose Start > Cisco ASDM-IDM Launcher, and right-click the Cisco ASDM-IDM Launcher application.<li data-bbox="837 535 1523 611">2. Choose More > Open file location. Windows opens the directory with the shortcut icon.<li data-bbox="837 630 1523 657">3. Right click the shortcut icon, and choose Properties.<li data-bbox="837 676 1523 762">4. Change the Target to: C:\Windows\System32\wscript.exe invisible.vbs run.bat<li data-bbox="837 781 1523 808">5. Click OK.
OS X	<p data-bbox="837 863 1523 953">On OS X, you may be prompted to install Java the first time you run ASDM; follow the prompts as necessary. ASDM will launch after the installation completes.</p>

Conditions	Notes
OS X 10.8 and later	<p>You need to allow ASDM to run because it is not signed with an Apple Developer ID. If you do not change your security preferences, you see an error screen.</p>  <p>1. To allow ASDM to run, right-click (or Ctrl-Click) the Cisco ASDM-IDM Launcher icon, and choose Open.</p>  <p>2. You see a similar error screen; however, you can open ASDM from this screen. Click Open. The ASDM-IDM Launcher opens.</p> 

Conditions	Notes
<p>Requires Strong Encryption license (3DES/AES) on ASA</p> <p>Note Smart licensing models allow initial access with ASDM without the Strong Encryption license.</p>	<p>ASDM requires an SSL connection to the ASA. You can request a 3DES license from Cisco:</p> <ol style="list-style-type: none"> 1. Go to www.cisco.com/go/license. 2. Click Continue to Product License Registration. 3. In the Licensing Portal, click Get Other Licenses next to the text field. 4. Choose IPS, Crypto, Other... from the drop-down list. 5. Type ASA in to the Search by Keyword field. 6. Select Cisco ASA 3DES/AES License in the Product list, and click Next. 7. Enter the serial number of the ASA, and follow the prompts to request a 3DES/AES license for the ASA.
<ul style="list-style-type: none"> • Self-signed certificate or an untrusted certificate • IPv6 • Firefox and Safari 	<p>When the ASA uses a self-signed certificate or an untrusted certificate, Firefox and Safari are unable to add security exceptions when browsing using HTTPS over IPv6. See https://bugzilla.mozilla.org/show_bug.cgi?id=633001. This caveat affects all SSL connections originating from Firefox or Safari to the ASA (including ASDM connections). To avoid this caveat, configure a proper certificate for the ASA that is issued by a trusted certificate authority.</p>
<ul style="list-style-type: none"> • SSL encryption on the ASA must include both RC4-MD5 and RC4-SHA1 or disable SSL false start in Chrome. • Chrome 	<p>If you change the SSL encryption on the ASA to exclude both RC4-MD5 and RC4-SHA1 algorithms (these algorithms are enabled by default), then Chrome cannot launch ASDM due to the Chrome “SSL false start” feature. We suggest re-enabling one of these algorithms (see the Configuration > Device Management > Advanced > SSL Settings pane); or you can disable SSL false start in Chrome using the --disable-ssl-false-start flag according to Run Chromium with flags.</p>
IE9 for servers	<p>For Internet Explorer 9.0 for servers, the “Do not save encrypted pages to disk” option is enabled by default (See Tools > Internet Options > Advanced). This option causes the initial ASDM download to fail. Be sure to disable this option to allow ASDM to download.</p>

Hardware and Software Compatibility

For a complete list of supported hardware and software, see [Cisco ASA Compatibility](#).

VPN Compatibility

See [Supported VPN Platforms, Cisco ASA Series](#).

New Features

This section lists new features for each release.



Note New, changed, and deprecated syslog messages are listed in the syslog message guide.

New Features in ASA 9.12(4)

Released: May 26, 2020

Feature	Description
Routing Features	
Multicast IGMP interface state limit raised from 500 to 5000	The multicast IGMP state limit per interface was raised from 500 to 5000. New/Modified commands: igmp limit No ASDM support.
Troubleshooting Features	
show tech-support command enhanced	The show ssl objects and show ssl errors command was added to the output of the show tech-support command. New/Modified commands: show tech-support No modified screens.
VPN Features	
Support for configuring the maximum in-negotiation SAs as an absolute value	You can now configure the maximum in-negotiation SAs as an absolute value up to 15000 or a maximum value derived from the maximum device capacity; formerly, only a percentage was allowed. New/Modified commands: crypto ikev2 limit max-in-negotiation-sa value No ASDM support.

New Features in ASA 9.12(3)

Released: November 25, 2019

There are no new features in this release.

New Features in ASA 9.12(2)/ASDM 7.12(2)

Released: May 30, 2019

Feature	Description
Platform Features	
Firepower 9300 SM-56 support	We introduced the following security modules: SM-56. Requires FXOS 2.6.1.157 No modified screens.
Administration Features	
Setting the SSH key exchange mode is restricted to the Admin context	You must set the SSH key exchange in the Admin context; this setting is inherited by all other contexts. New/Modified screen: Configuration > Device Management > Management Access > ASDM/HTTPS/Telnet/SSH > SSH Settings > DH Key Exchange
ASDM Features	
OpenJRE version of ASDM	You can install a version of ASDM that uses OpenJRE 1.8.x instead of Oracle JRE. The filename of the OpenJRE version is asdm-openjre-version.bin .
Tools > Preferences option to specify the ASA FirePOWER module local management file folder	You can now specify the location to install ASA FirePOWER module local management files. You must have read/write privileges to the configured location. New/Modified screen: Tools > Preferences > SFR Location Wizard area

New Features in ASA 9.12(1)/ASDM 7.12(1)

Released: March 13, 2019

Feature	Description
Platform Features	
ASA for the Firepower 4115, 4125, and 4145	We introduced the Firepower 4115, 4125, and 4145. Requires FXOS 2.6.1. No modified screens.

Feature	Description
Support for ASA and FTD on separate modules of the same Firepower 9300	You can now deploy ASA and FTD logical devices on the same Firepower 9300. Requires FXOS 2.6.1. No modified screens.
Firepower 9300 SM-40 and SM-48 support	We introduced the following two security modules: SM-40 and SM-48. Requires FXOS 2.6.1. No modified screens.
Firewall Features	
GTPv1 release 10.12 support.	The system now supports GTPv1 release 10.12. Previously, the system supported release 6.1. The new support includes recognition of 25 additional GTPv1 messages and 66 information elements. In addition, there is a behavior change. Now, any unknown message IDs are allowed. Previously, unknown messages were dropped and logged. No modified screens.
Cisco Umbrella Enhancements.	You can now identify local domain names that should bypass Cisco Umbrella. DNS requests for these domains go directly to the DNS servers without Umbrella processing. You can also identify which Umbrella servers to use for resolving DNS requests. Finally, you can define the Umbrella inspection policy to fail open, so that DNS requests are not blocked if the Umbrella server is unavailable. New/Modified screens: Configuration > Firewall > Objects > Umbrella, Configuration > Firewall > Objects > Inspect Maps > DNS.
The object group search threshold is now disabled by default.	If you enabled object group search, the feature was subject to a threshold to help prevent performance degradation. That threshold is now disabled by default. You can enable it by using the object-group-search threshold command. We changed the following screen: Configuration > Access Rules > Advanced.
Interim logging for NAT port block allocation.	When you enable port block allocation for NAT, the system generates syslog messages during port block creation and deletion. If you enable interim logging, the system generates message 305017 at the interval you specify. The messages report all active port blocks allocated at that time, including the protocol (ICMP, TCP, UDP) and source and destination interface and IP address, and the port block. New/Modified screen: Configuration > Firewall > Advanced > PAT Port Block Allocation.
VPN Features	
New condition option for debug aaa .	The condition option was added to the debug aaa command. You can use this option to filter VPN debugging based on group name, user name, or peer IP address. No modified screens.
Support for RSA SHA-1 in IKEv2	You can now generate a signature using the RSA SHA-1 hashing algorithm for IKEv2. New/Modified screens:

Feature	Description
View the default SSL configuration for both DES and 3DES encryption licenses as well as available ciphers	<p>You can now view the default SSL configuration with and without the 3DES encryption license. In addition, you can view all the ciphers supported on the device.</p> <p>New/Modified commands: show ssl information</p> <p>No modified screens.</p>
Add subdomains to webVPN HSTS	<p>Allows domain owners to submit what domains should be included in the HSTS preload list for web browsers.</p> <p>New/Modified screens:</p> <p>Configuration > Remote Access VPN > Clientless SSL VPN Access > Advanced > Proxies > Enable HSTS Subdomainsfield</p>
High Availability and Scalability Features	
Per-site gratuitous ARP for clustering	<p>The ASA now generates gratuitous ARP (GARP) packets to keep the switching infrastructure up to date: the highest priority member at each site periodically generates GARP traffic for the global MAC/IP addresses. When using per-site MAC and IP addresses, packets sourced from the cluster use a site-specific MAC address and IP address, while packets received by the cluster use a global MAC address and IP address. If traffic is not generated from the global MAC address periodically, you could experience a MAC address timeout on your switches for the global MAC address. After a timeout, traffic destined for the global MAC address will be flooded across the entire switching infrastructure, which can cause performance and security concerns. GARP is enabled by default when you set the site ID for each unit and the site MAC address for each Spanned EtherChannel.</p> <p>New/Modified screens: Configuration > Device Management > High Availability and Scalability > ASA Cluster > Cluster Configuration > Site Periodic GARP field</p>
Multiple context mode HTTPS resource management	<p>You can now set the maximum number of non-ASDM HTTPS sessions in a resource class. By default, the limit is set to 6 per context, the maximum. You can use up to 100 HTTPS sessions across all contexts.</p> <p>New/Modified commands: limit-resource http</p> <p>No ASDM support.</p>
Routing Features	
OSPF Keychain support for authentication	<p>OSPF authenticates the neighbor and route updates using MD5 keys. In ASA, the keys that are used to generate the MD5 digest had no lifetime associated with it. Thus, user intervention was required to change the keys periodically. To overcome this limitation, OSPFv2 supports MD5 authentication with rotating keys.</p> <p>Based on the accept and send lifetimes of Keys in KeyChain, OSPF authenticates, accepts or rejects keys and forms adjacency.</p> <p>New/Modified screens:</p> <ul style="list-style-type: none"> • Configuration > Device Setup > Key Chain • Configuration > Device Setup > Routing > OSPF > Setup > Authentication • Configuration > Device Setup > Routing > OSPF > Setup > Virtual Link

Feature	Description
Certificate Features	
Local CA configurable FQDN for enrollment URL	To make the FQDN of the enrollment URL configurable instead of using the ASA's configured FQDN, a new CLI option is introduced. This new option is added to the smtp mode of crypto ca server . New/Modified commands: fqdn
Administrative, Monitoring, and Troubleshooting Features	
enable password change now required on a login	The default enable password is blank. When you try to access privileged EXEC mode on the ASA, you are now required to change the password to a value of 3 characters or longer. You cannot keep it blank. The no enable password command is no longer supported. At the CLI, you can access privileged EXEC mode using the enable command, the login command (with a user at privilege level 2+), or an SSH or Telnet session when you enable aaa authorization exec auto-enable . All of these methods require you to set the enable password. This password change requirement is not enforced for ASDM logins. In ASDM, by default you can log in without a username and with the enable password. No modified screens.
Configurable limitation of admin sessions	You can configure the maximum number of aggregate, per user, and per-protocol administrative sessions. Formerly, you could configure only the aggregate number of sessions. This feature does not affect console sessions. Note that in multiple context mode, you cannot configure the number of HTTPS sessions, where the maximum is fixed at 5 sessions. The quota management-session command is also no longer accepted in the system configuration, and is instead available in the context configuration. The maximum aggregate sessions is now 15; if you configured 0 (unlimited) or 16+, then when you upgrade, the value is changed to 15. New/Modified screens: Configuration > Device Management > Management Access > Management Session Quota
Notifications for administrative privilege level changes	When you authenticate for enable access (aaa authentication enable console) or allow privileged EXEC access directly (aaa authorization exec auto-enable), then the ASA now notifies users if their assigned access level has changed since their last login. New/Modified screens: Status bar > Login History icon
NTP support on IPv6	You can now specify an IPv6 address for the NTP server. New/Modified screens: Configuration > Device Setup > System Time > NTP > Add button > Add NTP Server Configuration dialog box

Feature	Description
SSH stronger security	<p>See the following SSH security improvements:</p> <ul style="list-style-type: none"> • Diffie-Hellman Group 14 SHA256 key exchange support. This setting is now the default. The former default was Group 1 SHA1. • HMAC-SHA256 integrity cipher support. The default is now the high security set of ciphers (hmac-sha2-256 only). The former default was the medium set. <p>New/Modified screens:</p> <ul style="list-style-type: none"> • Configuration > Device Management > Management Access > ASDM/HTTPS/Telnet/SSH • Configuration > Device Management > Advanced > SSH Ciphers
Allow non-browser-based HTTPS clients to access the ASA	<p>You can allow non-browser-based HTTPS clients to access HTTPS services on the ASA. By default, ASDM, CSM, and REST API are allowed.</p> <p>New/Modified screens:</p> <p>Configuration > Device Management > Management Access > HTTP Non-Browser Client Support</p>
Capture control plane packets only on the cluster control link	<p>You can now capture control plane packets only on the cluster control link (and no data plane packets). This option is useful in the system in multiple context mode where you cannot match traffic using an ACL.</p> <p>New/Modified screens:</p> <p>Wizards > Packet Capture Wizard > Cluster Option</p>
debug conn command	<p>The debug conn command was added to provide two history mechanisms that record connection processing. The first history list is a per-thread list that records the operations of the thread. The second history list is a list that records the operations into the conn-group. When a connection is enabled, processing events such as a connection lock, unlock, and delete are recorded into the two history lists. When a problem occurs, these two lists can be used to look back at the processing to determine the incorrect logic.</p> <p>New/Modified commands: debug conn</p>
show tech-support includes additional output	<p>The output of the show tech-support is enhanced to display the output of the following:</p> <ul style="list-style-type: none"> • show ipv6 interface • show aaa-server • show fragment <p>New/Modified commands: show tech-support</p>
ASDM support to enable and disable the results for free memory and used memory statistics during SNMP walk operations	<p>To avoid overutilization of CPU resources, you can enable and disable the query of free memory and used memory statistics collected through SNMP walk operations.</p> <p>New or modified screen: Configuration > Device Management > Management Access > SNMP</p>

Feature	Description
Configurable graph update interval for the ASDM Home pane for the System in multiple-context mode	For the System in multiple context mode, you can now set the amount of time between updates for the graphs on the Home pane. New/Modified screens: Tools > Preferences > Graph User time interval in System Context

Firewall Functional Overview

Firewalls protect inside networks from unauthorized access by users on an outside network. A firewall can also protect inside networks from each other, for example, by keeping a human resources network separate from a user network. If you have network resources that need to be available to an outside user, such as a web or FTP server, you can place these resources on a separate network behind the firewall, called a *demilitarized zone* (DMZ). The firewall allows limited access to the DMZ, but because the DMZ only includes the public servers, an attack there only affects the servers and does not affect the other inside networks. You can also control when inside users access outside networks (for example, access to the Internet), by allowing only certain addresses out, by requiring authentication or authorization, or by coordinating with an external URL filtering server.

When discussing networks connected to a firewall, the *outside* network is in front of the firewall, the *inside* network is protected and behind the firewall, and a *DMZ*, while behind the firewall, allows limited access to outside users. Because the ASA lets you configure many interfaces with varied security policies, including many inside interfaces, many DMZs, and even many outside interfaces if desired, these terms are used in a general sense only.

Security Policy Overview

A security policy determines which traffic is allowed to pass through the firewall to access another network. By default, the ASA allows traffic to flow freely from an inside network (higher security level) to an outside network (lower security level). You can apply actions to traffic to customize the security policy.

Permitting or Denying Traffic with Access Rules

You can apply access rules to limit traffic from inside to outside, or allow traffic from outside to inside. For bridge group interfaces, you can also apply an EtherType access rule to allow non-IP traffic.

Applying NAT

Some of the benefits of NAT include the following:

- You can use private addresses on your inside networks. Private addresses are not routable on the Internet.
- NAT hides the local addresses from other networks, so attackers cannot learn the real address of a host.
- NAT can resolve IP routing problems by supporting overlapping IP addresses.

Protecting from IP Fragments

The ASA provides IP fragment protection. This feature performs full reassembly of all ICMP error messages and virtual reassembly of the remaining IP fragments that are routed through the ASA. Fragments that fail the security check are dropped and logged. Virtual reassembly cannot be disabled.

Applying HTTP, HTTPS, or FTP Filtering

Although you can use access lists to prevent outbound access to specific websites or FTP servers, configuring and managing web usage this way is not practical because of the size and dynamic nature of the Internet.

You can configure Cloud Web Security on the ASA, or install an ASA module that provides URL and other filtering services, such as ASA CX or ASA FirePOWER. You can also use the ASA in conjunction with an external product such as the Cisco Web Security Appliance (WSA).

Applying Application Inspection

Inspection engines are required for services that embed IP addressing information in the user data packet or that open secondary channels on dynamically assigned ports. These protocols require the ASA to do a deep packet inspection.

Sending Traffic to Supported Hardware or Software Modules

Some ASA models allow you to configure software modules, or to insert hardware modules into the chassis, to provide advanced services. These modules provide additional traffic inspection and can block traffic based on your configured policies. You can send traffic to these modules to take advantage of these advanced services.

Applying QoS Policies

Some network traffic, such as voice and streaming video, cannot tolerate long latency times. QoS is a network feature that lets you give priority to these types of traffic. QoS refers to the capability of a network to provide better service to selected network traffic.

Applying Connection Limits and TCP Normalization

You can limit TCP and UDP connections and embryonic connections. Limiting the number of connections and embryonic connections protects you from a DoS attack. The ASA uses the embryonic limit to trigger TCP Intercept, which protects inside systems from a DoS attack perpetrated by flooding an interface with TCP SYN packets. An embryonic connection is a connection request that has not finished the necessary handshake between source and destination.

TCP normalization is a feature consisting of advanced TCP connection settings designed to drop packets that do not appear normal.

Enabling Threat Detection

You can configure scanning threat detection and basic threat detection, and also how to use statistics to analyze threats.

Basic threat detection detects activity that might be related to an attack, such as a DoS attack, and automatically sends a system log message.

A typical scanning attack consists of a host that tests the accessibility of every IP address in a subnet (by scanning through many hosts in the subnet or sweeping through many ports in a host or subnet). The scanning threat detection feature determines when a host is performing a scan. Unlike IPS scan detection that is based on traffic signatures, the ASA scanning threat detection feature maintains an extensive database that contains host statistics that can be analyzed for scanning activity.

The host database tracks suspicious activity such as connections with no return activity, access of closed service ports, vulnerable TCP behaviors such as non-random IPID, and many more behaviors.

You can configure the ASA to send system log messages about an attacker or you can automatically shun the host.

Firewall Mode Overview

The ASA runs in two different firewall modes:

- Routed
- Transparent

In routed mode, the ASA is considered to be a router hop in the network.

In transparent mode, the ASA acts like a “bump in the wire,” or a “stealth firewall,” and is not considered a router hop. The ASA connects to the same network on its inside and outside interfaces in a “bridge group”.

You might use a transparent firewall to simplify your network configuration. Transparent mode is also useful if you want the firewall to be invisible to attackers. You can also use a transparent firewall for traffic that would otherwise be blocked in routed mode. For example, a transparent firewall can allow multicast streams using an EtherType access list.

Routed mode supports Integrated Routing and Bridging, so you can also configure bridge groups in routed mode, and route between bridge groups and regular interfaces. In routed mode, you can replicate transparent mode functionality; if you do not need multiple context mode or clustering, you might consider using routed mode instead.

Stateful Inspection Overview

All traffic that goes through the ASA is inspected using the Adaptive Security Algorithm and either allowed through or dropped. A simple packet filter can check for the correct source address, destination address, and ports, but it does not check that the packet sequence or flags are correct. A filter also checks *every* packet against the filter, which can be a slow process.



Note The TCP state bypass feature allows you to customize the packet flow.

A stateful firewall like the ASA, however, takes into consideration the state of a packet:

- Is this a new connection?

If it is a new connection, the ASA has to check the packet against access lists and perform other tasks to determine if the packet is allowed or denied. To perform this check, the first packet of the session goes through the “session management path,” and depending on the type of traffic, it might also pass through the “control plane path.”

The session management path is responsible for the following tasks:

- Performing the access list checks
- Performing route lookups
- Allocating NAT translations (xlates)
- Establishing sessions in the “fast path”

The ASA creates forward and reverse flows in the fast path for TCP traffic; the ASA also creates connection state information for connectionless protocols like UDP, ICMP (when you enable ICMP inspection), so that they can also use the fast path.



Note For other IP protocols, like SCTP, the ASA does not create reverse path flows. As a result, ICMP error packets that refer to these connections are dropped.

Some packets that require Layer 7 inspection (the packet payload must be inspected or altered) are passed on to the control plane path. Layer 7 inspection engines are required for protocols that have two or more channels: a data channel, which uses well-known port numbers, and a control channel, which uses different port numbers for each session. These protocols include FTP, H.323, and SNMP.

- Is this an established connection?

If the connection is already established, the ASA does not need to re-check packets; most matching packets can go through the “fast” path in both directions. The fast path is responsible for the following tasks:

- IP checksum verification
- Session lookup
- TCP sequence number check
- NAT translations based on existing sessions
- Layer 3 and Layer 4 header adjustments

Data packets for protocols that require Layer 7 inspection can also go through the fast path.

Some established session packets must continue to go through the session management path or the control plane path. Packets that go through the session management path include HTTP packets that require inspection or content filtering. Packets that go through the control plane path include the control packets for protocols that require Layer 7 inspection.

VPN Functional Overview

A VPN is a secure connection across a TCP/IP network (such as the Internet) that appears as a private connection. This secure connection is called a tunnel. The ASA uses tunneling protocols to negotiate security parameters, create and manage tunnels, encapsulate packets, transmit or receive them through the tunnel, and unencapsulate them. The ASA functions as a bidirectional tunnel endpoint: it can receive plain packets, encapsulate them, and send them to the other end of the tunnel where they are unencapsulated and sent to

their final destination. It can also receive encapsulated packets, unencapsulate them, and send them to their final destination. The ASA invokes various standard protocols to accomplish these functions.

The ASA performs the following functions:

- Establishes tunnels
- Negotiates tunnel parameters
- Authenticates users
- Assigns user addresses
- Encrypts and decrypts data
- Manages security keys
- Manages data transfer across the tunnel
- Manages data transfer inbound and outbound as a tunnel endpoint or router

The ASA invokes various standard protocols to accomplish these functions.

Security Context Overview

You can partition a single ASA into multiple virtual devices, known as security contexts. Each context is an independent device, with its own security policy, interfaces, and administrators. Multiple contexts are similar to having multiple standalone devices. Many features are supported in multiple context mode, including routing tables, firewall features, IPS, and management; however, some features are not supported. See the feature chapters for more information.

In multiple context mode, the ASA includes a configuration for each context that identifies the security policy, interfaces, and almost all the options you can configure on a standalone device. The system administrator adds and manages contexts by configuring them in the system configuration, which, like a single mode configuration, is the startup configuration. The system configuration identifies basic settings for the ASA. The system configuration does not include any network interfaces or network settings for itself; rather, when the system needs to access network resources (such as downloading the contexts from the server), it uses one of the contexts that is designated as the admin context.

The admin context is just like any other context, except that when a user logs into the admin context, then that user has system administrator rights and can access the system and all other contexts.

ASA Clustering Overview

ASA Clustering lets you group multiple ASAs together as a single logical device. A cluster provides all the convenience of a single device (management, integration into a network) while achieving the increased throughput and redundancy of multiple devices.

You perform all configuration (aside from the bootstrap configuration) on the control unit only; the configuration is then replicated to the member units.

Special, Deprecated, and Legacy Services

For some services, documentation is located outside of the main configuration guides and online help.

Special Services Guides

Special services allow the ASA to interoperate with other Cisco products; for example, by providing a security proxy for phone services (Unified Communications), or by providing Botnet traffic filtering in conjunction with the dynamic database from the Cisco update server, or by providing WCCP services for the Cisco Web Security Appliance. Some of these special services are covered in separate guides:

- [Cisco ASA Botnet Traffic Filter Guide](#)
- [Cisco ASA NetFlow Implementation Guide](#)
- [Cisco ASA Unified Communications Guide](#)
- [Cisco ASA WCCP Traffic Redirection Guide](#)
- [SNMP Version 3 Tools Implementation Guide](#)

Deprecated Services

For deprecated features, see the configuration guide for your ASA version. Similarly, for redesigned features such as NAT between Version 8.2 and 8.3 or transparent mode interfaces between Version 8.3 and 8.4, refer to the configuration guide for your version. Although ASDM is backwards compatible with previous ASA releases, the configuration guide and online help only cover the latest release.

Legacy Services Guide

Legacy services are still supported on the ASA, however there may be better alternative services that you can use instead. Legacy services are covered in a separate guide:

[Cisco ASA Legacy Feature Guide](#)

This guide includes the following chapters:

- Configuring RIP
- AAA Rules for Network Access
- Using Protection Tools, which includes Preventing IP Spoofing (**ip verify reverse-path**), Configuring the Fragment Size (**fragment**), Blocking Unwanted Connections (**shun**), Configuring TCP Options (for ASDM), and Configuring IP Audit for Basic IPS Support (**ip audit**).
- Configuring Filtering Services

