



The AnyConnect Profile Editor

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About the Profile Editor

The Cisco AnyConnect Secure Mobility Client software package contains a profile editor for all operating systems. ASDM activates the profile editor when you load the AnyConnect client image on the ASA. You can upload a client profile from local or flash.

If you load multiple AnyConnect packages, ASDM activates the client profile editor from the newest AnyConnect package. This approach ensures that the editor displays the features for the newest AnyConnect loaded, as well as the older clients.

There is also a stand-alone profile editor which runs on Windows.

Add a New Profile from ASDM



Note You must first upload a client image before creating a client profile.

Profiles are deployed to administrator-defined end user requirements and authentication policies on endpoints as part of AnyConnect, and they make the preconfigured network profiles available to end users. Use the profile editor to create and configure one or more profiles. AnyConnect includes the profile editor as part of ASDM and as a stand-alone Windows program.

To add a new client profile to the ASA from ASDM:

Procedure

- Step 1** Open ASDM and select **Configuration > Remote Access VPN > Network (Client) Access > AnyConnect Client Profile**.
- Step 2** Click **Add**.
- Step 3** Enter a profile name.

- Step 4** From the Profile Usage drop-down list, choose the module for which you are creating a profile.
- Step 5** (Optional) In the Profile Location field, click **Browse Flash** and select a device file path for the XML file on the ASA.
- Step 6** (Optional) If you created a profile with the stand-alone editor, click **Upload** to use that profile definition.
- Step 7** (Optional) Choose an AnyConnect group policy from the drop-down list.
- Step 8** Click **OK**.
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The AnyConnect VPN Profile

Cisco AnyConnect Secure Mobility Client features are enabled in the AnyConnect profiles. These profiles contain configuration settings for the core client VPN functionality and for the optional client modules Network Access Manager, ISE posture, customer experience feedback, and Web Security. The ASA deploys the profiles during AnyConnect installation and updates. Users cannot manage or modify profiles.

You can configure the ASA or ISE to deploy profiles globally for all AnyConnect users or to users based on their group policy. Usually, a user has a single profile file for each AnyConnect module installed. In some cases, you might want to provide more than one VPN profile for a user. Someone who works from multiple locations might need more than one VPN profile.

Some profile settings are stored locally on the user's computer in a user preferences file or a global preferences file. The user file has information the AnyConnect client needs to display user-controllable settings in the Preferences tab of the client GUI and information about the last connection, such as the user, the group, and the host.

The global file has information about user-controllable settings so that you can apply those settings before login (since there is no user). For example, the client needs to know if Start Before Logon and/or AutoConnect On Start are enabled before login.

AnyConnect Profile Editor, Preferences (Part 1)

- **Use Start Before Logon**—(Windows Only) Forces the user to connect to the enterprise infrastructure over a VPN connection before logging on to Windows by starting AnyConnect before the Windows login dialog box appears. After authenticating, the login dialog box appears and the user logs in as usual.
- **Show Pre-connect Message**—Enables an administrator to have a one-time message displayed prior to a user's first connection attempt. For example, the message can remind users to insert their smart card into its reader. The message appears in the AnyConnect message catalog and is localized.
- **Certificate Store**—Controls which certificate store(s) AnyConnect uses for storing and reading certificates. The default setting (All) is appropriate for most cases. Do not change this setting unless you have a specific reason or scenario requirement to do so.
 - **All**—(Default) Directs the AnyConnect client to use all certificate stores for locating certificates.
 - **Machine**—Directs the AnyConnect client to restrict certificate lookup to the Windows local machine certificate store.
 - **User**—Directs the AnyConnect client to restrict certificate lookup to the local user certificate stores.

- **Certificate Store Override**—Allows an administrator to direct AnyConnect to utilize certificates in the Windows machine (Local System) certificate store for client certificate authentication. Certificate Store Override only applies to SSL, where the connection is initiated, by default, by the UI process. When using IPsec/IKEv2, this feature in the AnyConnect Profile is not applicable.



Note You must have a predeployed profile with this option enabled in order to connect with Windows using a machine certificate. If this profile does not exist on a Windows device prior to connection, the certificate is not accessible in the machine store, and the connection fails.

- **Auto Connect on Start**—AnyConnect, when started, automatically establishes a VPN connection with the secure gateway specified by the AnyConnect profile, or to the last gateway to which the client connected.
- **Minimize On Connect**—After establishing a VPN connection, the AnyConnect GUI minimizes.
- **Local LAN Access**—Allows the user complete access to the local LAN connected to the remote computer during the VPN session to the ASA.



Note Enabling local LAN access can potentially create a security weakness from the public network through the user computer into the corporate network. Alternatively, you can configure the security appliance (version 8.4(1) or later) to deploy an SSL client firewall that uses the AnyConnect Client Local Print firewall rule included in the default group policy. In order to enable this firewall rule, you also must enable Automatic VPN Policy, Always on, and Allow VPN Disconnect in this editor, Preferences (Part 2).

- **Auto Reconnect**—AnyConnect attempts to reestablish a VPN connection if you lose connectivity. If you disable Auto Reconnect, it does not attempt to reconnect, regardless of the cause of the disconnection.



Note Use Auto Reconnect in scenarios where the user has control over the behavior of the client. This feature is not supported with AlwaysOn.

- **Auto Reconnect Behavior**

- **DisconnectOnSuspend**—AnyConnect releases the resources assigned to the VPN session upon a system suspend and does not attempt to reconnect after the system resumes.
 - **ReconnectAfterResume (Default)**—AnyConnect attempts to reestablish a VPN connection if you lose connectivity.
- **Auto Update**—When checked, enables the automatic update of the client. If you check User Controllable, the user can override this setting in the client.

- **RSA Secure ID Integration** (Windows only)—Controls how the user interacts with RSA. By default, AnyConnect determines the correct method of RSA interaction (automatic setting: both software or hardware tokens accepted).
- **Windows Logon Enforcement**—Allows a VPN session to be established from a Remote Desktop Protocol (RDP) session. Split tunneling must be configured in the group policy. AnyConnect disconnects the VPN connection when the user who established the VPN connection logs off. If the connection is established by a remote user, and that remote user logs off, the VPN connection terminates.
- **Windows VPN Establishment**—Determines the behavior of AnyConnect when a user who is remotely logged on to the client PC establishes a VPN connection. The possible values are:
 - **Local Users Only (Default)**—Prevents a remotely logged-on user from establishing a VPN connection. This is the same functionality as in prior versions of AnyConnect.
 - **Allow Remote Users**—Allows remote users to establish a VPN connection. However, if the configured VPN connection routing causes the remote user to become disconnected, the VPN connection terminates to allow the remote user to regain access to the client PC. Remote users must wait 90 seconds after VPN establishment if they want to disconnect their remote login session without causing the VPN connection to be terminated.
- **Clear SmartCard PIN**
- **IP Protocol Supported**—For clients with both an IPv4 and IPv6 address attempting to connect to the ASA using AnyConnect, AnyConnect needs to decide which IP protocol to use to initiate the connection. By default AnyConnect initially attempts to connect using IPv4. If that is not successful, AnyConnect attempts to initiate the connection using IPv6.

This field configures the initial IP protocol and order of fallback.

- **IPv4**—Only IPv4 connections can be made to the ASA.
- **IPv6**—Only IPv6 connections can be made to the ASA.
- **IPv4, IPv6**—First, attempt to make an IPv4 connection to the ASA. If the client cannot connect using IPv4, then try to make an IPv6 connection.
- **IPv6, IPv4**—First attempt to make an IPv6 connection to the ASA. If the client cannot connect using IPv6 then try to make an IPv4 connection.



Note The IP protocol failover can also happen during the VPN session. Whether performed prior to or during the VPN session, the failover is maintained until the currently used secure gateway IP address is no longer reachable. The client fails over to the IP address matching the alternate IP protocol, if available, whenever the currently used IP address address isn't reachable.

AnyConnect Profile Editor, Preferences (Part 2)

- **Disable Automatic Certificate Selection** (Windows only)—Disables automatic certificate selection by the client and prompts the user to select the authentication certificate.

Related Topics: [Configure Certificate Selection](#)

- **Proxy Settings**—Specifies a policy in the AnyConnect profile to control client access to a proxy server. Use this when a proxy configuration prevents the user from establishing a tunnel from outside the corporate network.
 - **Native**—Causes the client to use both proxy settings previously configured by AnyConnect, and the proxy settings configured in the browser. The proxy settings configured in the global user preferences are pre-pended to the browser proxy settings.
 - **IgnoreProxy**—Ignores the browser proxy settings on the user's computer.
 - **Override**—Manually configures the address of the Public Proxy Server. Public proxy is the only type of proxy supported for Linux. Windows also supports public proxy. You can configure the public proxy address to be User Controllable.
- **Allow Local Proxy Connections**—By default, AnyConnect lets Windows users establish a VPN session through a transparent or non-transparent proxy service on the local PC. Uncheck this parameter if you want to disable support for local proxy connections. Some examples of elements that provide a transparent proxy service include acceleration software provided by some wireless data cards, and network component on some antivirus software
- **Enable Optimal Gateway Selection (OGS), (IPv4 clients only)**—AnyConnect identifies and selects which secure gateway is best for connection or reconnection based on the round trip time (RTT), minimizing latency for Internet traffic without user intervention. OGS is not a security feature, and it performs no load balancing between secure gateway clusters or within clusters. You control the activation and deactivation of OGS and specify whether end users may control the feature themselves. Automatic Selection displays in the Connect To drop-down list on the Connection tab of the client GUI.
 - **Suspension Time Threshold (hours)**—Enter the minimum time (in hours) that the VPN must have been suspended before invoking a new gateway-selection calculation. By optimizing this value in combination with the next configurable parameter (Performance Improvement Threshold), you can find the correct balance between selecting the optimal gateway and reducing the number of times to force the re-entering of credentials.
 - **Performance Improvement Threshold (%)**—The percentage of performance improvement that triggers the client to re-connect to another secure gateway following a system resume. Adjust these values for your particular network to find the correct balance between selecting the optimal gateway and reducing the number of times to force the re-entering of credentials. The default is 20%.

When OGS is enabled, we recommend that you also make the feature user-controllable.

OGS has the following limitations:

- It cannot operate with Always On
 - It cannot operate with automatic proxy detection
 - It cannot operate with proxy auto-configuration (PAC) files
 - If AAA is used, users may have to re-enter their credentials when transitioning to a different secure gateway. Using certificates eliminates this problem.
- **Automatic VPN Policy (Windows and macOS only)**—Enables Trusted Network Detection allowing AnyConnect to automatically manage when to start or stop a VPN connection according to the Trusted Network Policy and Untrusted Network Policy. If disabled, VPN connections can only be started and

stopped manually. Setting an Automatic VPN Policy does not prevent users from manually controlling a VPN connection.

- **Trusted Network Policy**—Action AnyConnect automatically takes on the VPN connection when the user is inside the corporate network (the trusted network).
 - **Disconnect (Default)**—Disconnects the VPN connection upon the detection of the trusted network.
 - **Connect**—Initiates a VPN connection upon the detection of the trusted network.
 - **Do Nothing**—Takes no action in the untrusted network. Setting both the Trusted Network Policy and Untrusted Network Policy to Do Nothing disables Trusted Network Detection.
 - **Pause**—AnyConnect suspends the VPN session instead of disconnecting it if a user enters a network configured as trusted after establishing a VPN session outside the trusted network. When the user goes outside the trusted network again, AnyConnect resumes the session. This feature is for the user's convenience because it eliminates the need to establish a new VPN session after leaving a trusted network.

- **Untrusted Network Policy**—AnyConnect starts the VPN connection when the user is outside the corporate network (the untrusted network). This feature encourages greater security awareness by initiating a VPN connection when the user is outside the trusted network.
 - **Connect (Default)**—Initiates the VPN connection upon the detection of an untrusted network.
 - **Do Nothing**—Takes no action in the trusted network. This option disables Always-On VPN. Setting both the Trusted Network Policy and Untrusted Network Policy to Do Nothing disables Trusted Network Detection.

- **Trusted DNS Domains**—DNS suffixes (a string separated by commas) that a network interface may have when the client is in the trusted network. For example: *.cisco.com. Wildcards (*) are supported for DNS suffixes.



Note If you are using NVM, Trusted DNS Domains and Servers are not supported because the the NVM module uses an administrator-defined trusted server and certificate hash to determine whether the user is on a trusted or untrusted network.

- You must have a secure web server that is accessible with a trusted certificate to be considered trusted. Secure TND attempts a connection to the first configured server in the list. If the server cannot be contacted, secure TND attempts to contact the next server in the configured list. If the server can be contacted but the hash of the certificate doesn't match, the network will be identified as "untrusted." No other servers will be evaluated. If the hash is trusted, the "trusted" criteria is met.



Note You can configure this parameter only when at least one of the Trusted DNS Domains or Trusted DNS Servers is defined. If Trusted DNS Domains or Trusted DNS Servers are not defined, this field is disabled.

You can configure this parameter only when at least one of the Trusted DNS Domains or Trusted DNS Servers is defined. The Network Visibility Module sends flow information only when this feature is enabled so that data is sent over a secure TND connection. If Trusted DNS Domains or Trusted DNS Servers are not defined, this field is disabled.

- **Always On**—Determines whether AnyConnect automatically connects to the VPN when the user logs in to a computer running one of the supported Windows or macOS operating systems. You can enforce corporate policies, protecting the computer from security threats by preventing access to Internet resources when it is not in a trusted network. You can set the Always-On VPN parameter in group policies and dynamic access policies to override this setting by specifying exceptions according to the matching criteria used to assign the policy. If an AnyConnect policy enables Always-On and a dynamic access policy or group policy disables it, the client retains the disable setting for the current and future VPN sessions, as long as its criteria match the dynamic access policy or group policy on the establishment of each new session. After enabling, you will be able to configure additional parameters.



Note AlwaysOn is used for scenarios where the connection establishment and redundancy run without user intervention; therefore, while using this feature, you need not configure or enable Auto Reconnect in Preferences, part 1.

Related Topics: [Require VPN Connections Using Always On](#)

- **Allow VPN Disconnect**—Determines whether AnyConnect displays a Disconnect button for Always-On VPN sessions. Users of Always-On VPN sessions may want to click Disconnect so they can choose an alternative secure gateway for reasons such as performance issues with the current VPN session or reconnection issues following the interruption of a VPN session.

The Disconnect locks all interfaces to prevent data from leaking out and to protect the computer from internet access except for establishing a VPN session. For the reasons noted above, disabling the Disconnect button can at times hinder or prevent VPN access.

- **Connect Failure Policy**—Determines whether the computer can access the Internet if AnyConnect cannot establish a VPN session (for example, when an ASA is unreachable). This parameter applies only if Always-On and Allow VPN Disconnect are enabled. If you choose Always-On, the fail-open policy permits network connectivity, and the fail-close policy disables network connectivity.
 - Closed—Restricts network access when the VPN is unreachable. The purpose of this setting is to help protect corporate assets from network threats when resources in the private network responsible for protecting the endpoint are unavailable.
 - Open—Permits network access when the VPN is unreachable.

**Caution**

A connect failure closed policy prevents network access if AnyConnect fails to establish a VPN session. It is primarily for exceptionally secure organizations where security persistence is a greater concern than always-available network access. It prevents all network access except for local resources such as printers and tethered devices permitted by split tunneling and limited by ACLs. It can halt productivity if users require Internet access beyond the VPN if a secure gateway is unavailable. AnyConnect detects most captive portals. If it cannot detect a captive portal, a connect failure closed policy prevents all network connectivity.

If you deploy a closed connection policy, we highly recommend that you follow a phased approach. For example, first deploy Always-On VPN with a connect failure open policy and survey users for the frequency with which AnyConnect does not connect seamlessly. Then deploy a small pilot deployment of a connect failure closed policy among early-adopter users and solicit their feedback. Expand the pilot program gradually while continuing to solicit feedback before considering a full deployment. As you deploy a connect failure closed policy, be sure to educate the VPN users about the network access limitation as well as the advantages of a connect failure closed policy.

Related Topics: [About Captive Portals](#)

If Connect Failure Policy is Closed, then you can configure the following settings:

- **Allow Captive Portal Remediation**—Lets AnyConnect lift the network access restrictions imposed by the closed connect failure policy when the client detects a captive portal (hotspot). Hotels and airports typically use captive portals to require the user to open a browser and satisfy conditions required to permit Internet access. By default, this parameter is unchecked to provide the greatest security; however, you must enable it if you want the client to connect to the VPN if a captive portal is preventing it from doing so.
- **Remediation Timeout**—Number of minutes AnyConnect lifts the network access restrictions. This parameter applies if the Allow Captive Portal Remediation parameter is checked and the client detects a captive portal. Specify enough time to meet typical captive portal requirements (for example, 5 minutes).
- **Apply Last VPN Local Resource Rules**—If the VPN is unreachable, the client applies the last client firewall it received from the ASA, which may include ACLs allowing access to resources on the local LAN.

Related Topics: [Configure a Connect Failure Policy](#)

- **Captive Portal Remediation Browser Failover**—Allows the end user to use an external browser (after closing the AnyConnect browser) for captive portal remediation.
- **Allow Manual Host Input**—Enables users to enter different VPN addresses than those listed in the drop-down box of the AnyConnect UI. If you uncheck this checkbox, the VPN connection choices are only those in the drop-down box, and users are restricted from entering a new VPN address.
- **PPP Exclusion**—For a VPN tunnel over a PPP connection, specifies whether and how to determine the exclusion route. The client can exclude traffic destined for the secure gateway from the tunneled traffic

intended for destinations beyond the secure gateway. The exclusion route appears as a non-secured route in the Route Details display of the AnyConnect GUI. If you make this feature user controllable, users can read and change the PPP exclusion settings.

- **Automatic**—Enables PPP exclusion. AnyConnect automatically determines the IP address of the PPP server.
- **Override**—Enables PPP Exclusion using a predefined server IP address specified in the *PPP Exclusion Server IP* field. The *PPP Exclusion Server IP* field is only applicable to this Override method and should only be used when the Automatic options fails to detect the IP address of the PPP server.

Checking **User Controllable** for the PPP Exclusion Server IP field allows the end user to manually update the IP address via the preferences.xml file. Refer to the [Instruct Users to Override PPP Exclusion](#) section.

- **Disabled**—PPP exclusion is not applied.
- **Enable Scripting**—Launches OnConnect and OnDisconnect scripts if present on the security appliance flash memory.
 - **Terminate Script On Next Event**—Terminates a running script process if a transition to another scriptable event occurs. For example, AnyConnect terminates a running OnConnect script if the VPN session ends, and terminates a running OnDisconnect script if the client starts a new VPN session. On Microsoft Windows, the client also terminates any scripts that the OnConnect or OnDisconnect script launched, and all their script descendents. On macOS and Linux, the client terminates only the OnConnect or OnDisconnect script; it does not terminate child scripts.
 - **Enable Post SBL On Connect Script**—Launches the OnConnect script if present, and SBL establishes the VPN session. (Only supported if VPN endpoint is running Microsoft Windows.)
- **Retain VPN On Logoff**—Determines whether to keep the VPN session when the user logs off a Windows OS.
 - **User Enforcement**—Specifies whether to end the VPN session if a different user logs on. This parameter applies only if “Retain VPN On Logoff” is checked, and the original user logged off Windows when the VPN session was up.
- **Authentication Timeout Values**—By default, AnyConnect waits up to 12 seconds for an authentication from the secure gateway before terminating the connection attempt. AnyConnect then displays a message indicating the authentication timed out. Enter a number of seconds in the range of 10 to 120.

AnyConnect Profile Editor, Backup Servers

You can configure a list of backup servers the client uses in case the user-selected server fails. If the user-selected server fails, the client attempts to connect to the optimal server’s backup at the top of the list. If that fails, the client attempts each remaining server in the Optimal Gateway Selection list, ordered by its selection results.



Note Any backup servers that you configure here are **only** attempted when no backup servers are defined in [AnyConnect Profile Editor, Add/Edit a Server List, on page 15](#). Those servers configured in the Server List take precedence, and backup servers listed here are overwritten.

Host Address—Specifies an IP address or a Fully-Qualified Domain Name (FQDN) to include in the backup server list.

- **Add**—Adds the host address to the backup server list.
- **Move Up**—Moves the selected backup server higher in the list. If the user-selected server fails, the client attempts to connect to the backup server at the top of the list first, and moves down the list, if necessary.
- **Move Down**—Moves the selected backup server down in the list.
- **Delete**—Removes the backup server from the server list.

AnyConnect Profile Editor, Certificate Matching

Enable the definition of various attributes that can be used to refine automatic client certificate selection on this pane.

If no certificate matching criteria is specified, AnyConnect applies the following certificate matching rules:

- Key Usage: Digital_Signature
- Extended Key Usage: Client Auth

If any criteria matching specifications are made in the profile, neither of these matching rules are applied unless they are specifically listed in the profile.

- **Key Usage**—Use the following Certificate Key attributes for choosing acceptable client certificates:
 - Decipher_Only—Deciphering data, and that no other bit (except Key_Agreement) is set.
 - Encipher_Only—Enciphering data, and any other bit (except Key_Agreement) is not set.
 - CRL_Sign—Verifying the CA signature on a CRL.
 - Key_Cert_Sign—Verifying the CA signature on a certificate.
 - Key_Agreement—Key agreement.
 - Data_Encipherment—Encrypting data other than Key_Encipherment.
 - Key_Encipherment—Encrypting keys.
 - Non_Repudiation—Verifying digital signatures protecting against falsely denying some action, other than Key_Cert_sign or CRL_Sign.
 - Digital_Signature—Verifying digital signatures other than Non_Repudiation, Key_Cert_Sign or CRL_Sign.
- **Extended Key Usage**—Use these Extended Key Usage settings. The OIDs are included in parenthesis:
 - ServerAuth (1.3.6.1.5.5.7.3.1)

- ClientAuth (1.3.6.1.5.5.7.3.2)
 - CodeSign (1.3.6.1.5.5.7.3.3)
 - EmailProtect (1.3.6.1.5.5.7.3.4)
 - IPSecEndSystem (1.3.6.1.5.5.7.3.5)
 - IPSecTunnel (1.3.6.1.5.5.7.3.6)
 - IPSecUser (1.3.6.1.5.5.7.3.7)
 - TimeStamp (1.3.6.1.5.5.7.3.8)
 - OCSPSign (1.3.6.1.5.5.7.3.9)
 - DVCS (1.3.6.1.5.5.7.3.10)
 - IKE Intermediate
- **Custom Extended Match Key** (Max 10)—Specifies custom extended match keys, if any (maximum 10). A certificate must match all of the specified key(s) you enter. Enter the key in the OID format (for example, 1.3.6.1.5.5.7.3.11).



Note If a Custom Extended Match Key is created with the OID size greater than 30 characters, it is unaccepted when you click the OK button. The limit for the maximum characters for an OID is 30.

- **Distinguished Name** (Max 10):—Specifies distinguished names (DNs) for exact match criteria in choosing acceptable client certificates.
 - **Name**—The distinguished name (DN) to use for matching:
 - CN—Subject Common Name
 - C—Subject Country
 - DC—Domain Component
 - DNQ—Subject Dn Qualifier
 - EA—Subject Email Address
 - GENQ—Subject Gen Qualifier
 - GN—Subject Given Name
 - I—Subject Initials
 - L—Subject City
 - N—Subject Unstruct Name
 - O—Subject Company
 - OU—Subject Department

- SN—Subject Sur Name
 - SP—Subject State
 - ST—Subject State
 - T—Subject Title
 - ISSUER-CN—Issuer Common Name
 - ISSUER-DC—Issuer Component
 - ISSUER-SN—Issuer Sur Name
 - ISSUER-GN—Issuer Given Name
 - ISSUER-N—Issuer Unstruct Name
 - ISSUER-I—Issuer Initials
 - ISSUER-GENQ—Issuer Gen Qualifier
 - ISSUER-DNQ—Issuer Dn Qualifier
 - ISSUER-C—Issuer Country
 - ISSUER-L—Issuer City
 - ISSUER-SP—Issuer State
 - ISSUER-ST—Issuer State
 - ISSUER-O—Issuer Company
 - ISSUER-OU—Issuer Department
 - ISSUER-T—Issuer Title
 - ISSUER-EA—Issuer Email Address
- **Pattern**—Specifies the string to match. The pattern to be matched should include only the portion of the string you want to match. There is no need to include pattern match or regular expression syntax. If entered, this syntax will be considered part of the string to search for.
For example, if a sample string was abc.cisco.com and the intent is to match cisco.com, the pattern entered should be cisco.com.
 - **Operator**—The operator to use when performing matches for this DN.
 - Equal—equivalent to ==
 - Not Equal—equivalent to !=
 - **Wildcard**—Enabled includes wildcard pattern matching. With wildcard enabled, the pattern can be anywhere in the string.
 - **Match Case**—Check to enable case-sensitive pattern matching.

Related Topics

[Configure Certificate Matching](#)

AnyConnect Profile Editor, Certificate Enrollment

Certificate Enrollment enables AnyConnect to use the Simple Certificate Enrollment Protocol (SCEP) to provision and renew a certificate for client authentication.

- **Certificate Expiration Threshold**—The number of days before the certificate expiration date that AnyConnect warns users their certificate is going to expire (not supported by RADIUS password-management). The default is zero (no warning displayed). The range of values is zero to 180 days.
- **macOS**
 - Enrollment certificates can only be imported to the user Login Keychain.
- **Mobile platforms**
 - Enrollment certificates can only be imported to the app sandbox.
- **Certificate Import Store**—Select which Windows certificate store to save enrollment certificates to.
- **Automatic SCEP Host**—For Legacy SECP, specifies the host name and connection profile (tunnel group) of the ASA that has SCEP certificate retrieval configured. Enter a Fully Qualified Domain Name (FQDN) or a connection profile name of the ASA. For example, the hostname `asa.cisco.com` and the connection profile name `scep_eng`.
- **CA URL**—For Legacy SCEP, identifies the SCEP CA server. Enter an FQDN or IP Address of the CA server. For example, `http://ca01.cisco.com`.
 - **Prompt For Challenge PW**—Enable to let the user make certificate requests manually. When the user clicks **Get Certificate**, the client prompts the user for a username and one-time password.
 - **Thumbprint**—The certificate thumbprint of the CA. Use SHA1 or MD5 hashes.



Note Your CA server administrator can provide the CA URL and thumbprint and should retrieve the thumbprint directly from the server and not from a “fingerprint” or “thumbprint” attribute field in the issued server certificate.

- **Certificate Contents**—Specifies certificate contents to include in the SCEP enrollment request:
 - Name (CN)—Common Name in the certificate.
 - Department (OU)—Department name specified in certificate.
 - Company (O)—Company name specified in certificate.
 - State (ST)—State identifier named in certificate.
 - State (SP)—Another state identifier.
 - Country (C)—Country identifier named in certificate.
 - Email (EA)—Email address. In the following example, Email (EA) is `%USER%@cisco.com`. `%USER%` corresponds to the user’s ASA username login credential.

- Domain (DC)—Domain component. In the following example, Domain (DC) is set to cisco.com.
 - SurName (SN)—The family name or last name.
 - GivenName (GN)—Generally, the first name.
 - UnstructName (N)—Undefined name.
 - Initials (I)—The initials of the user.
 - Qualifier (GEN)—The generation qualifier of the user. For example, “Jr.” or “III.”
 - Qualifier (DN)—A qualifier for the entire DN.
 - City (L)—The city identifier.
 - Title (T)—The person's title. For example, Ms., Mrs., Mr.
 - CA Domain—Used for the SCEP enrollment and is generally the CA domain.
 - Key size—The size of the RSA keys generated for the certificate to be enrolled.
- **Display Get Certificate Button**—Enables the AnyConnect GUI to display the Get Certificate button under the following conditions:
 - The certificate is set to expire within the period defined by the Certificate Expiration Threshold (not supported with RADIUS).
 - The certificate has expired.
 - No certificate is present.
 - The certificate fails to match.

Related Topics

[Configure Certificate Enrollment](#)

AnyConnect Profile Editor, Certificate Pin

Prerequisites

Use the VPN profile editor to enable the preference and configure global and per host certificate pins. You can only pin per host certificates in the server list section if the preference in the Global Pins section is enabled. After enabling the preference, you can configure a list of global pins that the client uses for certificate pin verification. Adding per host pins in the server list section is similar to adding global pins. You can pin any certificates in the certificate chain, and they get imported to the profile editor to calculate the information required for pinning.

Add Pin—Initiates the Certificate Pinning Wizard which guides you through importing certificates into the Profile Editor and pinning them.

The certificate details portion of the window allows you to visually verify the Subject and Issuer columns.

Certificate Pinning Wizard

You can import any certificate of the server certificate chain into the profile editor to specify the information required for pinning. The profile editor supports three certificate import options:

- Browse local file—Choose the certificate that is locally present on your computer.
- Download file from a URL—Download the certificate from any file hosting server.
- Paste information in PEM format—Insert information in PEM format including certificate begin and end headers.



Note You can only import certificates in DER, PEM, and PKCS7 data format.

AnyConnect Profile Editor, Mobile Policy

AnyConnect version 3.0 and later does not support Windows Mobile devices. See *Cisco AnyConnect Secure Mobility Client Administrator Guide, Release 2.5*, for information related to Windows Mobile devices.

AnyConnect Profile Editor, Server List

You can configure a list of servers that appear in the client GUI. Users can select servers in the list to establish a VPN connection.

Server List Table Columns:

- Hostname—The alias used to refer to the host, IP address, or Full-Qualified Domain Name (FQDN).
- Host Address—IP address or FQDN of the server.
- User Group—Used in conjunction with Host Address to form a group-based URL.
- Automatic SCEP Host—The Simple Certificate Enrollment Protocol specified for provisioning and renewing a certificate used for client authentication.
- CA URL—The URL this server uses to connect to certificate authority (CA).

Add/Edit—Launches the Server List Entry dialog where you can specify the above server parameters.

Delete—Removes the server from the server list.

Details—Displays more details about backup servers or CA URLs for the server.

Related Topics

[Configure VPN Connection Servers](#)

AnyConnect Profile Editor, Add/Edit a Server List

- **Host Display Name**—Enter an alias used to refer to the host, IP address, or Full-Qualified Domain Name (FQDN).
- **FQDN or IP Address**—Specify an IP address or an FQDN for the server.

- If you specify an IP address or FQDN in the Host Address Field, then the entry in the Host Name field becomes a label for the server in the connection drop-down list of the AnyConnect Client tray fly-out.
- If you only specify an FQDN in the Hostname field, and no IP address in the Host Address field, then the FQDN in the Hostname field will be resolved by a DNS server.
- If you enter an IP address, use the Public IPv4 or the Global IPv6 address of the secure gateway. Use of the link-local secure gateway address is not supported.

- **User Group**—Specify a user group.

The user group is used in conjunction with Host Address to form a group-based URL. If you specify the Primary Protocol as IPsec, the User Group must be the exact name of the connection profile (tunnel group). For SSL, the user group is the group-url of the connection profile.

- **Additional mobile-only settings**—Select to configure Apple iOS and Android mobile devices.

- **Backup Server List**

We recommend that you configure a list of backup servers the client uses in case the user-selected server fails. If the server fails, the client attempts to connect to the server at the top of the list first, and moves down the list, if necessary.



Note Conversely, the backup servers configured in [AnyConnect Profile Editor, Backup Servers, on page 9](#) are global entries for all connection entries. Any entries put in Backup Servers of the Profile Editor are overwritten with what is entered here in Backup Server List for an individual server list entry. This setting takes precedence and is the recommended practice.

- **Host Address**—Specifies an IP address or an FQDN to include in the backup server list. If the client cannot connect to the host, it attempts to connect to the backup server.
- **Add**—Adds the host address to the backup server list.
- **Move Up**—Moves the selected backup server higher in the list. If the user-selected server fails, the client attempts to connect to the backup server at the top of the list first, and moves down the list, if necessary.
- **Move Down**—Moves the selected backup server down in the list.
- **Delete**—Removes the backup server from the server list.

- **Load Balancing Server List**

If the host for this server list entry is a load balancing cluster of security appliances, and the Always-On feature is enabled, specify the backup devices of the cluster in this list. If you do not, Always-On blocks access to backup devices in the load balancing cluster.

- **Host Address**—Specifies an IP address or an FQDN of a backup device in a load-balancing cluster.
- **Add**—Adds the address to the load balancing backup server list.
- **Delete**—Removes the load balancing backup server from the list.

- **Primary Protocol**—Specifies the protocol for connecting to this server, either SSL or IPsec with IKEv2. The default is SSL.
- **Standard Authentication Only (IOS Gateways)**—When you select IPsec as the protocol, you are able to select this option to limit the authentication methods for connections to IOS servers.



Note If this server is an ASA, then changing the authentication method from the proprietary AnyConnect EAP to a standards-based method disables the ability of the ASA to configure session timeout, idle timeout, disconnected timeout, split tunneling, split DNS, MSIE proxy configuration, and other features.

- **Auth Method During IKE Negotiation** Select one of the standard-based authentication methods.
 - **IKE Identity**—If you choose a standards-based EAP authentication method, you can enter a group or domain as the client identity in this field. The client sends the string as the ID_GROUP type IDi payload. By default, the string is *\$AnyConnectClient\$*.
- **Automatic SCEP Host**—This host is used for legacy SCEP.
- **CA URL**—Specify the URL of the SCEP CA server. Enter an FQDN or IP Address. For example, <http://ca01.cisco.com>.
- **Prompt For Challenge PW**—Enable to let the user make certificate requests manually. When the user clicks Get Certificate, the client prompts the user for a username and one-time password.
- **CA Thumbprint**—The certificate thumbprint of the CA. Use SHA1 or MD5 hashes.



Note Your CA server administrator can provide the CA URL and thumbprint. The thumbprint should be retrieved directly from the server and not from a “fingerprint” or “thumbprint” attribute field in a certificate it issued.

Related Topics

[Configure VPN Connection Servers](#)

AnyConnect Profile Editor, Mobile Settings

Apple iOS / Android Settings

- **Certificate Authentication**—The Certificate Authentication policy attribute associated with a connection entry specifies how certificates are handled for this connection. Valid values are:
 - **Automatic**—AnyConnect automatically chooses the client certificate with which to authenticate when making a connection. In this case, AnyConnect views all the installed certificates, disregards those certificates that are out of date, applies the certificate matching criteria defined in VPN client profile, and then authenticates using the certificate that matches the criteria. This happens every time the device user attempts to establish a VPN connection.
 - **Manual**—AnyConnect searches for a certificate from the AnyConnect certificate store on the Android device when the profile is downloaded and does one of the following:

- If AnyConnect finds a certificate based on the certificate matching criteria defined in the VPN client profile, it assigns that certificate to the connection entry and uses that certificate when establishing a connection.
- If a matching certificate cannot be found, the Certificate Authentication policy is set to Automatic.
- If the assigned certificate is removed from the AnyConnect certificate store for any reason, AnyConnect resets the Certificate Authentication policy to Automatic.
- **Disabled**—A client certificate is not used for authentication.
- **Make this Server List Entry active when profile is imported**—Defines a server list entry as the default connection once the VPN profile has been downloaded to the device. Only one server list entry can have this designation. The default value is disabled.

Apple iOS Only Setting

- **Reconnect when roaming between 3G/Wifi networks**—When enabled (default), AnyConnect does not limit the time that it takes to try to reconnect after losing a connection, after the device wakes up, or after changes occur in the connection type (such as EDGE(2G), 1xRTT(2G), 3G, or Wi-Fi). This feature provides seamless mobility with a secure connection that persists across networks. It is useful for applications that require a connection to the enterprise, but consumes more battery life.

If Network Roaming is disabled and AnyConnect loses a connection, it tries to re-establish a connection for up to 20 seconds if necessary. If it cannot, the device user or application must start a new VPN connection if one is necessary.



Note Network Roaming does not affect data roaming or the use of multiple mobile service providers.

- **Connect on Demand (requires certificate authorization)**—This field allows you to configure the Connect on Demand functionality provided by Apple iOS. You can create lists of rules that are checked whenever other applications start network connections that are resolved using the Domain Name System (DNS).

Connect on Demand is an option only if the Certificate Authentication field is set to Manual or Automatic. If the Certificate Authentication field is set to Disabled, this check box is dimmed. The Connect on Demand rules, defined by the Match Domain or Host and the On Demand Action fields, can still be configured and saved when the check box is dimmed.

- **Match Domain or Host**—Enter the hostnames (host.example.com), domain names (.example.com), or partial domains (.internal.example.com) for which you want to create a Connect on Demand rule. Do not enter IP addresses (10.125.84.1) in this field.
- **On Demand Action** Specify one of the following actions when a device user attempts to connect to the domain or host defined in the previous step:
 - **Never connect**—iOS will never start a VPN connection when rules in this list are matched. Rules in this list take precedence over all other lists



Note When Connect On Demand is enabled, the application automatically adds the server address to this list. This prevents a VPN connection from being automatically established if you try accessing the server's clientless portal with a web browser. Remove this rule if you do not want this behavior.

- **Connect if Needed**—iOS will start a VPN connection when rules in this list are matched only if the system could not resolve the address using DNS.
- **Always Connect**—Always connect behaviour is release dependent:
 - On Apple iOS 6, iOS will always start a VPN connection when rules in this list are matched.
 - On iOS 7.x, Always Connect is not supported, when rules in this list are matched they behave as Connect If Needed rules.
 - On later releases, Always Connect is not used, configured rules are moved to the Connect If Needed list and behave as such.
- **Add or Delete**—Add the rule specified in the Match Domain or Host and On Demand Action fields to the rules table, or delete a selected rule from the rules table.

NVM Profile Editor

In the profile editor, configure the IP address or FQDN of the collection server. You can also customize the data collection policy choosing what type of data to send, and whether data is anonymized or not.



Note The Network Visibility Module sends flow information only when it is on the trusted network. By default, no data is collected. Data is collected only when configured as such in the profile, and the data continues to be collected when the endpoint is connected. If collection is done on an untrusted network, it is cached and sent when the endpoint is on a trusted network. If you are sending collection data to Stealthwatch 7.3.1 and prior releases (or something other than Splunk or similar SIEM tool), cache data is sent once on a trusted network but not processed. For Stealthwatch applications, refer to the [Stealthwatch Enterprise Endpoint License and NVM Configuration Guide](#).

- **Desktop or Mobile**—Determines whether you are setting up NVM on a desktop or mobile device. **Desktop** is the default.
- **Collector Configuration**
 - **Port**—Specifies at which port number the collector is listening.
- **Cache Configuration**
 - **Max Size**—Specify the maximum size the database can reach. The cache size previously had a pre-set limit, but you can now configure it within the profile. The data in the cache is stored in an encrypted format, and only processes with root privileges are able to decrypt the data. Once a size limit is reached, the oldest data is dropped from the space for the most recent data.

- **Max Duration**—Specify how many days of data you want to store. If you also set a max size, the limit which reaches first takes precedence.

Once the day limit is reached, the oldest day's data is dropped from the space for the most recent day. If only Max Duration is configured, there is no size cap; if both are disabled, the size is capped at 50MB.

- **Periodic Flow Reporting**(Optional, applies to desktop only)—Click to enable periodic flow reporting. By default, NVM sends information about the flow at the end of connection (when this option is disabled). If you need periodic information on the flows even before they are closed, set an interval in seconds here. The value of 0 means the flow information is sent at the beginning and at the end of each flow. If the value is n , the flow information will be sent at the beginning, every n seconds, and at the end of each flow. Use this setting for tracking long-running connections, even before they are closed.
- **Throttle Rate**—Throttling controls at what rate to send data from the cache to the collector so that the end user is minimally impacted. You can apply throttling on both real time and cached data, as long as there is cached data. Enter the throttle rate in Kbps. The default is 500 Kbps.
The cached data is exported after this fixed period of time. Enter 0 to disable this feature.
- **Collection Mode**—Specify when data from the endpoint should be collected by choosing collection mode is off, trusted network only, untrusted network only, or all networks.
- **Collection Criteria**— You can reduce unnecessary broadcasts during data collection so that you have only relevant data to analyze. Control collection of data with the following options:
 - **Broadcast packets** and **Multicast packets** (Applies to desktop only)—By default, and for efficiency, broadcast and multicast packet collection are turned off so that less time is spent on backend resources. Click the check box to enable collection for broadcast and multicast packets and to filter the data.
 - **KNOX only** (Optional and mobile specific)—When checked, data is collected from the KNOX workspace only. By default, this field is not checked, and data from inside and outside the workspace is collected.
- **Data Collection Policy**—You can add data collection policies and associate them with a network type or connectivity scenario. You can apply one policy to VPN and another to non-VPN traffic since multiple interfaces can be active at the same time.

When you click Add, the Data Collection Policy window appears. Keep these guidelines in mind when creating policies:

- By default, all fields are reported and collected if no policy is created or associated with a network type.
- Each data collection policy must be associated with at least one network type, but you cannot have two policies for the same network type.
- The policy with the more specific network type takes precedence. For example, since VPN is part of the trusted network, a policy containing VPN as a network type takes precedence over a policy which has trusted as the network specified.
- You can only create a data collection policy for the network that applies based on the collection mode chosen. For example, if the **Collection Mode** is set to **Trusted Network Only**, you cannot create a **Data Collection Policy** for an **Untrusted Network Type**.
- **Name**—Specify a name for the policy you are creating.

- **Network Type**—Determine the collection mode, or the network to which a data collection policy applies, by choosing VPN, trusted, or untrusted. If you choose trusted, the policy applies to the VPN case as well.
- **Include/Exclude**
 - **Type**—Determine which fields you want to **Include** or **Exclude** in the data collection policy. The default is **Exclude**. All fields not checked are collected. When no fields are checked, all fields are collected.
 - **Fields**—Determine what information to receive from the endpoint and which fields will be part of your data collection to meet policy requirements. Based on the network type and what fields are included or excluded, NVM collects the appropriate data on the endpoint.

For AnyConnect release 4.4 (and later), you can now choose Interface State and SSID, which specifies whether the network state of the interface is trusted or untrusted.
 - **Optional Anonymization Fields**—If you want to correlate records from the same endpoint while still preserving privacy, choose the desired fields as anonymized, and they are sent as the hash of the value rather than actual values. A subset of the fields is available for anonymization.

Fields marked for include or exclude are not available for anonymization; likewise, fields marked for anonymization are not available for include or exclude.
- **Data Collection Policy for Knox (Mobile Specific)**—Option to specify data collection policy when mobile profile is selected. To create Data Collection Policy for Knox Container, choose the **Knox-Only** checkbox under Scope. Data Collection policies applied under Device Scope applies for Knox Container traffic also, unless a separate Knox Container Data Collection policy is specified. To add or remove Data Collection Policies, see Data Collection Policy description above. You can set a maximum of 6 different Data Collection Policies for mobile profile: 3 for Device, and 3 for Knox.

The AnyConnect Local Policy

AnyConnectLocalPolicy.xml is an XML file on the client containing security settings. This file is not deployed by the ASA. You must install it manually or deploy it to a user computer using an enterprise software deployment system. If you make changes to an existing local policy file on a user's system, that system should be rebooted.

Local Policy Preferences

You can specify the following preferences in the VPN Local Policy Editor to be included in the AnyConnectLocalPolicy.xml file.

Change Local Policy Parameters Manually

Procedure

Step 1 Retrieve a copy of the AnyConnect Local Policy file (AnyConnectLocalPolicy.xml) from a client installation.

Table 1: Operating System and AnyConnect Local Policy File Installation Path

Operating System	Installation Path
Windows	C:\ProgramData\Cisco\Cisco AnyConnect Secure Mobility Client
Linux	/opt/cisco/anyconnect
macOS	/opt/cisco/anyconnect

Step 2 Edit the parameter settings. You can either edit the AnyConnectLocalPolicy file manually, or use the VPN Local Policy editor, which is distributed with the AnyConnect Profile Editor installer.

Step 3 Save the file as AnyConnectLocalPolicy.xml and deploy the file to remote computers using a corporate software deployment system.

Step 4 Reboot the remote computers so that the changes to the local policy file take effect.

Enable Local Policy Parameters in an MST File

See [Local Policy Preferences](#) for the descriptions and values that you can set.

Create an MST file to change local policy parameters. The MST parameter names correspond to the parameters in AnyConnect Local Policy file (AnyConnectLocalPolicy.xml):

- LOCAL_POLICY_BYPASS_DOWNLOADER
- LOCAL_POLICY_FIPS_MODE
- LOCAL_POLICY_RESTRICT_PREFERENCE_CACHING
- LOCAL_POLICY_RESTRICT_TUNNEL_PROTOCOLS
- LOCAL_POLICY_RESTRICT_WEB_LAUNCH
- LOCAL_POLICY_STRICT_CERTIFICATE_TRUST



Note AnyConnect installation does not automatically overwrite an existing local policy file on the user computer. You must delete the existing policy file on user computers first, so the client installer can create a new policy file.



Note Any changes to the local policy file require the system to be rebooted.

Enable Local Policy Parameters with the Enable FIPS Tool

For all operating systems, you can use Cisco's Enable FIPS tool to create an AnyConnect Local Policy file with FIPS enabled. The Enable FIPS tool is a command line tool that runs on Windows using administrator privileges or as a root user for Linux and macOS.

For information about where you can download the Enable FIPS tool, see the licensing information you received for the FIPS client.

You run the Enable FIPS tool by entering the command `EnableFIPS <arguments>` from the command line of the computer. The following usage notes apply to the Enable FIPS tool:

- If you do not supply any arguments, the tool enables FIPS and restarts the `vpnagent` service (Windows) or the `vpnagent daemon` (macOS and Linux).
- Separate multiple arguments with spaces.

The following example shows the Enable FIPS tool command, run on a Windows computer:

```
EnableFIPS rwl=false sct=true bd=true fm=false
```

The next example shows the command, run on a Linux or macOS computer:

```
./EnableFIPS rwl=false sct=true bd=true fm=false
```

The next table shows the policy settings you can configure with the Enable FIPS tool. The arguments match the parameters in the AnyConnect local policy file.

Policy Setting	Argument and Syntax
FIPS mode	<code>fm=[true false]</code>
Bypass downloader	<code>bd=[true false]</code>
Restrict weblaunch	<code>rwl=[true false]</code>
Strict certificate trust	<code>sct=[true false]</code>
Restrict preferences caching	<code>rpc=[Credentials Thumbprints CredentialsAndThumbprints All false]</code>
Exclude FireFox NSS certificate store (Linux and macOS)	<code>efn=[true false]</code>
Exclude PEM file certificate store (Linux and macOS)	<code>epf=[true false]</code>
Exclude Mac native certificate store (macOS only)	<code>emn=[true false]</code>

