



Customize and Localize the AnyConnect Client and Installer

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Modify AnyConnect Installation Behavior

Guidelines

- Web deployment uses AnyConnect web launch, which is part of the Clientless SSL portal. The Clientless SSL portal can be customized, but the AnyConnect parts of the portal cannot. For example, the Start AnyConnect button cannot be customized.

Disable Customer Experience Feedback

The Customer Experience Feedback module is enabled by default. This module provides Cisco with anonymous information about what features and modules customers have enabled and are using. This information gives us insight into the user experience so that Cisco can continue to improve quality, reliability, performance, and user experience.

To manually disable the Customer Experience Feedback module, create a `CustomerExperience_Feedback.xml` file using the standalone profile editor. You must stop the AnyConnect service, name the file `CustomerExperience_Feedback.xml`, and put it in the `C:\ProgramData\Cisco\Cisco AnyConnect Secure Mobility Client\CustomerExperienceFeedback\` directory. When the file is created with the disable flag set, you can manually deploy this to AnyConnect. To check the results, open the AnyConnect About menu and verify that the Customer Experience Feedback module is not listed in the Installed Module section.

You can disable the Customer Experience Feedback module using:

- A Customer Feedback Experience module client profile—Uncheck Enable Customer Experience Feedback Service, and distribute the profile.
- An MST file—Extract anyconnect-win-disable-customer-experience-feedback.mst from sampleTransforms-X.X.xxxxx.zip.

Modify Installation Behavior, Windows

Use the following Windows installer properties to modify AnyConnect installation behavior. In the ISO image, the installer program setup.hta is HTML and can be edited.

- Command-Line Parameters—One or more properties are passed as parameters on the command-line installer, msixexec. This method is for predeployment; it is not supported by web deployment.
- Installer Transform—You can modify the installer property table with a transform. Several tools are available to create transforms; one common tool is Microsoft Orca. The Orca tool is part of the Microsoft Windows Installer Software Development Kit (SDK), which is included in the Microsoft Windows SDK. To get the Windows SDK, browse to <http://msdn.microsoft.com>, and search for the SDK for your version of Windows.

Transforms can be used for predeploy and web deploy. Transforms can be passed to the command line as a parameter, or they can be uploaded to the Adaptive Security Appliance: (**Configuration** > **Remote Access VPN** > **Network (Client) Access** > **AnyConnect Customization/Localization** > **Customized Installer Transforms**) for web deployment.

Limitations

The AnyConnect uninstall prompt is not customizable.

Windows Installer Properties That Customize Client Installations

The following Windows installer properties customize AnyConnect installations. Bear in mind that there are many other Windows installer properties supported by Microsoft that you can use.

- Resetting the System MTU—When the VPN installer property (RESET_ADAPTER_MTU) is set to 1, the installer resets all Windows network adapter MTU settings to their default value. The system must be rebooted for the changes to take effect.
- Setting Windows Lockdown—Cisco recommends that end users be given limited rights to the Cisco AnyConnect Secure Mobility Client on their device. If an end user warrants additional rights, installers can provide a lockdown capability that prevents users and local administrators from switching off or stopping the AnyConnect services. You can also stop the services from the command prompt with the service password.

The MSI installers for VPN and Network Access Manager support a common property (LOCKDOWN). When LOCKDOWN is set to a non-zero value, Windows service(s) associated with that installer cannot be controlled by users or local administrators on the endpoint device. We recommend using the sample transform that we provide to set this property, and apply the transform to each MSI installer that you want to have locked down. You can download the sample transforms from the Cisco AnyConnect Secure Mobility Client software download page.

The MSI installers for VPN, Network Access Manager, Network Visibility Module, and Umbrella Roaming Security Module support a common property (LOCKDOWN). When LOCKDOWN is set to a non-zero value, Windows service(s) associated with that installer cannot be controlled by users or local

administrators on the endpoint device. We recommend using the sample transform that we provide to set this property, and apply the transform to each MSI installer that you want to have locked down. You can download the sample transforms from the Cisco AnyConnect Secure Mobility Client software download page.

If you deploy the core client plus one or more optional modules, you must apply the LOCKDOWN property to each of the installers. This operation is one way only and cannot be removed unless you re-install the product.



Note The AMP Enabler installer is coupled with the VPN installer.

- Turning on ActiveX Control—Previous versions of the AnyConnect predeploy VPN package installed the VPN WebLaunch ActiveX control by default. Starting in AnyConnect 3.1, installation of the VPN ActiveX control is turned off by default. This change was made so that the most secure configuration is the default.

When predeploying AnyConnect client and optional modules, if you require the VPN ActiveX control to be installed with AnyConnect, you must use the NOINSTALLACTIVEX=0 option with msixec or a transform.

- Hiding AnyConnect from the Add/Remove Program List—You can hide the installed AnyConnect modules from a user's Add/Remove Programs list in the Windows Control Panel. Passing ARPSYSTEMCOMPONENT=1 to the installer prevents that module from appearing in the list of installed programs.

We recommend that you use the sample transform we provide to set this property, applying the transform to each MSI installer for each module that you want to hide. You can download the sample transforms from the Cisco AnyConnect Secure Mobility Client software download page.

Windows Installer Properties for AnyConnect Modules

The following table provides examples of MSI install command-line calls and the locations to deploy profiles.

Module Installed	Command and Log File
AnyConnect core client without VPN capability (Use when installing stand-alone modules)	msiexec /package anyconnect-win-ver-pre-deploy-k9.msi /norestart /passive PRE_DEPLOY_DISABLE_VPN=1 /lvx* anyconnect-win-<version>-pre-deploy-k9-install-datetimestamp.log
AnyConnect core client with VPN capability	msiexec /package anyconnect-win-ver-pre-deploy-k9.msi /norestart /passive /lvx* anyconnect-win-<version>-pre-deploy-k9-install-datetimestamp.log

Module Installed	Command and Log File
Customer Experience Feedback	<pre>msiexec /package anyconnect-win-ver-pre-deploy-k9.msi /norestart /passive DISABLE_CUSTOMER_EXPERIENCE_FEEDBACK=1 /lvx* anyconnect-win-<version>-pre-deploy-k9-install-datetimestamp.log</pre>
Diagnostic and Reporting Tool (DART)	<pre>msiexec /package anyconnect-dart-win-ver-k9.msi /norestart /passive /lvx* anyconnect-dart-<version>-pre-deploy-k9-install-datetimestamp.log</pre>
SBL	<pre>msiexec /package anyconnect-gina-win-ver-k9.msi /norestart /passive /lvx* anyconnect-gina-<version>-pre-deploy-k9-install-datetimestamp.log</pre>
Network Access Manager	<pre>msiexec /package anyconnect-nam-win-ver-k9.msi /norestart /passive /lvx* anyconnect-nam-<version>-pre-deploy-k9-install-datetimestamp.log</pre>
Posture	<pre>msiexec /package anyconnect-posture-win-ver-pre-deploy-k9.msi /norestart/passive /lvx* anyconnect-posture-<version>-pre-deploy-k9-install-datetimestamp.log</pre>
	<pre>msiexec /package anyconnect-iseposture-win-ver-pre-deploy-k9.msi /norestart/passive /lvx* anyconnect-iseposture-<version>-pre-deploy-k9-install-datetimestamp.log</pre>

Import a Customized Installer Transform to the Adaptive Security Appliance

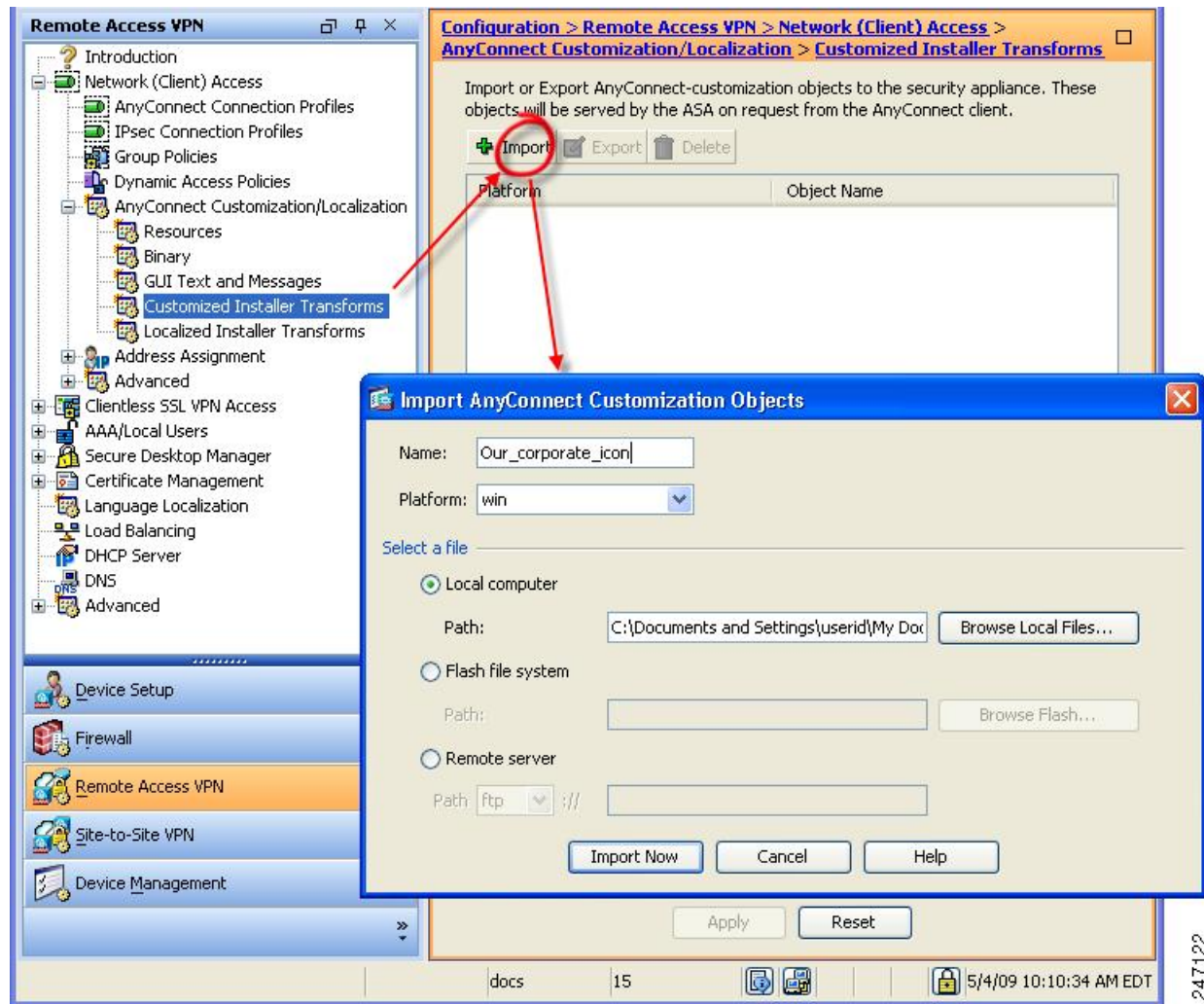
Importing a Cisco provided Windows transform to the Adaptive Security Appliance allows you to use it for web deployment.

Procedure

Step 1 In ASDM go to **Configuration > Remote Access VPN > Network (Client) Access > AnyConnect Customization/Localization > Customized Installer Transforms**.

Step 2 Click **Import**.

The Import AnyConnect Customization Objects windows displays:



- Step 3** Enter the name of the file to import. The name of the transform file determines to which module the installer transform file applies. You can apply transforms globally or per module with the following syntax:
- a) *_name.mst*: applied to all installers
 - b) *<moduleid>_name.mst*: applied to a single module installer
 - c) *name.mst*: applied to the VPN installer only
- Step 4** Select a platform and specify the file to import. Click **Import Now**. The file now appears in the table of installer transforms.

Sample Transform to Customize the AnyConnect UI

Although offering a tutorial on creating transforms is beyond the scope of this document, the text below is representative of some entries in a transform. This example replaces `company_logo.bmp` with a local copy and installs the custom profile `MyProfile.xml`.

```
DATA CHANGE - Component ComponentId
+ MyProfile.xml {39057042-16A2-4034-87C0-8330104D8180}
```

```

Directory_ Attributes Condition KeyPath
Profile_DIR 0 MyProfile.xml

DATA CHANGE - FeatureComponents Feature_ Component_
+ MainFeature MyProfile.xml

DATA CHANGE - File File Component_ FileName FileSize Version Language Attributes Sequence
+ MyProfile.xml MyProfile.xml MyProf~1.xml|MyProfile.xml 601 8192 35
<> company_logo.bmp 37302{39430} 8192{0}

DATA CHANGE - Media DiskId LastSequence DiskPrompt Cabinet VolumeLabel Source
+ 2 35

```

Localize the AnyConnect Installer Screens

You can translate the messages displayed by the AnyConnect installer. The ASA uses a transform to translate the messages displayed by the installer. The transform alters the installation but leaves the original security-signed MSI intact. These transforms only translate the installer screens and do not translate the client GUI screens.



Note

Every release of AnyConnect includes a localized transform that administrators can upload to the Adaptive Security Appliance whenever they upload AnyConnect packages with new software. If you are using our localization transform, make sure to update them with the latest release from cisco.com whenever you upload a new AnyConnect package.

You can edit a transform with a transform editor such as Orca to change the message strings, and import the transform to the ASA. When the user downloads the client, the client detects the preferred language of the computer (the locale is specified during installation of the operating system) and applies the appropriate transform.

We currently offer transforms for 30 languages. These transforms are available in the following .zip file on the AnyConnect software download page at cisco.com:

```
anyconnect-win-<VERSION>-web-deploy-k9-lang.zip
```

In this file, <VERSION> is the version of AnyConnect release (for example 4.3.xxxxx).

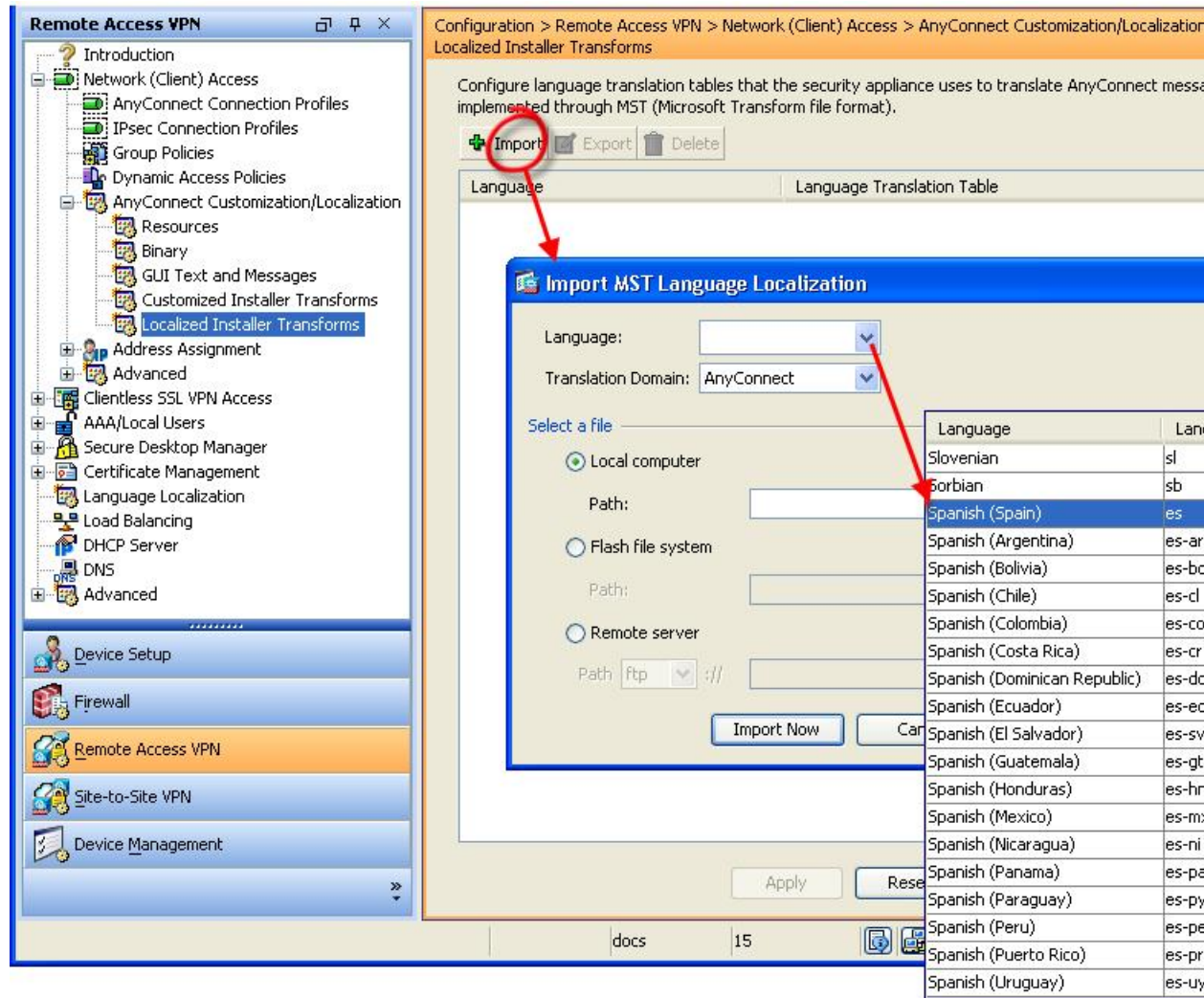
The archive contains the transforms (.mst files) for the available translations. If you need to provide a language to remote users that is not one of the 30 languages we provide, you can create your own transform and import it to the ASA as a new language. With Orca, the database editor from Microsoft, you can modify existing installations and new files. Orca is part of the Microsoft Windows Installer Software Development Kit (SDK) which is included in the Microsoft Windows SDK.

Import a Localized Installer Transform to the Adaptive Security Appliance

The following procedure shows how to import a transform to the ASA using ASDM.

Procedure

- Step 1** In ASDM go to **Configuration > Remote Access VPN > Network (Client) Access > AnyConnect Customization/Localization > Localized Installer Transforms**.
- Step 2** Click **Import**. The Import MST Language Localization window opens:



- Step 3** Click the **Language** drop-down list to choose a language (and the industry-recognized abbreviation) for this transform. If you enter the abbreviation manually, be sure to use an abbreviation recognized by browsers and operating systems.
- Step 4** Click **Import Now**.
A message displays saying you successfully imported the table.
- Step 5** Click **Apply** to save your changes.

In this procedure we specified the language as Spanish (es). The following illustration shows the new transform for Spanish in the list of Languages for AnyConnect.



Modify Installation Behavior, macOS

The AnyConnect installer cannot be localized. The strings used by the installer come from the macOS installer application, not the AnyConnect installer.



Note You cannot manipulate the optional module selection that is seen by the user in the installer UI. Changing the default optional module selection in the installer UI requires editing of the installer, which would then invalidate the signature.

Customize Installer Behavior on macOS with ACTransforms.xml

No standard way to customize .pkg behavior is provided for macOS, so we created ACTransforms.xml. When this XML file is positioned with the installer, the installer reads this file before running the installation. You must place the file in a specific location relative to the installer. The installer searches in this order to see if a modification is found:

1. In a “Profile” directory in the same directory as the .pkg installer file.
2. In a “Profile” directory in the root of a mounted disk image volume.
3. In a “Profile” directory in the root of a mounted disk image volume.

The XML file has this format:

```
<ACTransforms>
<PropertyName1>Value</PropertyName1>
<PropertyName2>Value</PropertyName2>
</ACTransforms>
```

For example, the macOS ACTransforms.xml property is DisableVPN to create a “stand-alone” deployment of NVM. ACTransforms.xml is in the Profiles directory in the DMG file.

Disable the Customer Experience Feedback Module

The Customer Experience Feedback module is enabled by default. To switch this feature off on macOS:

Procedure

Step 1 Convert the dmg package from read-only to read-write using Disk Utility or hdiutil. For example:

```
hdiutil convert anyconnect-macosx-i386-ver-k9.dmg -format UDRW -o
anyconnect-macosx-i386-ver-k9-rw.dmg
```


Step 2 Edit ACTransforms.xml, and set or add the following value, if it is not already set.

```
<DisableCustomerExperienceFeedback>>false</DisableCustomerExperienceFeedback>
```

Modify Installation Behavior, Linux

Customizing Installer Behavior on Linux with ACTransform.xml

No standard way to customize .pkg behavior is provided for Linux, so we created ACTransforms.xml. When this XML file is positioned with the installer, the installer reads this file before running the installation. You must place the file in a specific location relative to the installer. The installer searches in this order to see if a modification is found:

- In a “Profile” directory in the same directory as the .pkg installer file
- In a “Profile” directory in the root of a mounted disk image volume
- In a “Profile” directory in the same directory as the .dmg file

The XML file, ACTransforms.xml, in the Profiles directory in the predeployment package has this format:

```
<ACTransforms>
<PropertyName1>Value</PropertyName1>
<PropertyName2>Value</PropertyName2>
</ACTransforms>
```

Customize the AnyConnect GUI Text and Messages

The Adaptive Security Appliance (ASA) uses translation tables to translate user messages displayed by AnyConnect. The translation tables are text files with strings of translated message text. You can edit existing messages or add additional languages using ASDM or using transforms (for Windows).

The following Windows sample transforms for localization are available on www.cisco.com:

- Language localization transform files for predeploy package for Windows platforms
- Language localization transform files for web-deploy package for Windows platforms

The AnyConnect package file for Windows contains a default English language template for AnyConnect messages. The ASA automatically imports this file when you load the AnyConnect package on the ASA. This template contains the latest changes to message strings in the AnyConnect software. You can use it to create new translation tables for other languages, or you can import one of the following translation tables available on www.cisco.com (see [Import Translation Tables to the Adaptive Security Appliance, on page 13](#)):

- Chinese (Simplified)
- Chinese (Traditional)
- Czech
- Dutch
- French

- French (Canadian)
- German
- Hungarian
- Italian
- Japanese
- Korean
- Polish
- Portuguese (Brazil)
- Russian
- Spanish (Latin American)

The following sections contain procedures for translating GUI text and messages if the desired languages are not available or if you wish to further customize imported translation tables:

- [Add or Edit the AnyConnect Text and Messages](#). You can make changes to the message file by adding or editing the file to change message text for one or more message IDs in one of the following ways:
 - Typing your changes into the text in the open dialog.
 - Copying the text in the open dialog to a text editor, making your changes, and pasting the text back into the dialog.
- [Import Translation Tables to the Adaptive Security Appliance, on page 13](#). You can export the message file by clicking Save to File, editing the file, and importing it back into the ASDM.

After you update the translation table on the ASA, the updated messages are not applied until the client is restarted and makes another successful connection.

**Note**

If you are not deploying the client from the ASA and are using a corporate software deployment system such as Altiris Agent, you can manually convert the AnyConnect translation table (anyconnect.po) to a .mo file using a catalog utility such as Gettext and install the .mo file to the proper folder on the client computer. See [Create Message Catalogs for Enterprise Deployment](#) for more information.

Guidelines and Limitations

AnyConnect is not fully compliant with all internationalization requirements, exceptions include:

- Date/Time formats do not always follow locale requirements.
- Right to left languages are not supported.
- Some strings are truncated in the UI due to hardcoded field lengths.
- A few hardcoded English strings remain such as:
 - Status messages, when updating.

- Untrusted server messages.
- Deferred update messages.

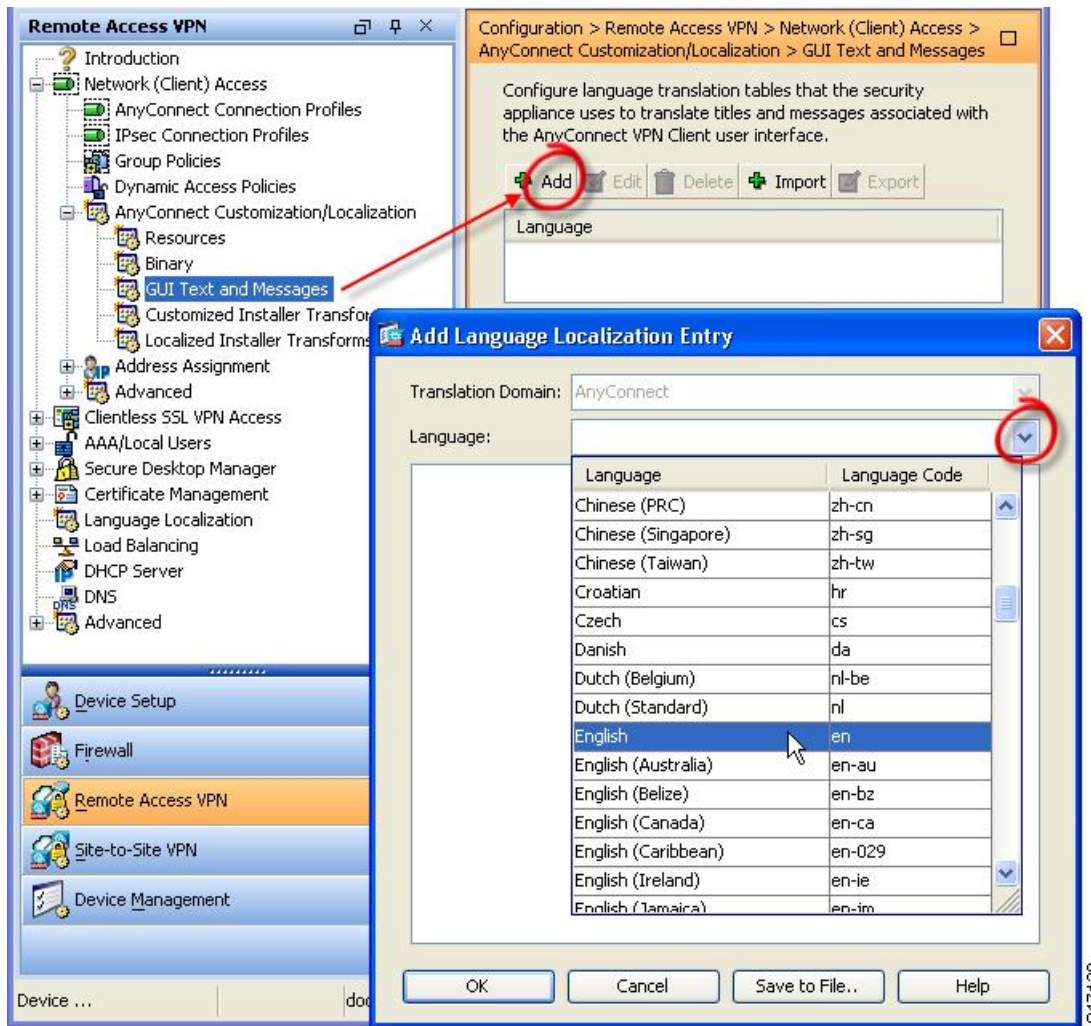
Add or Edit the AnyConnect Text and Messages

You can make changes to the English messages displayed on the AnyConnect GUI by adding or editing the English translation table and changing message text for one or more message IDs. After you open the message file, you can edit it by:

- Typing your changes into the text in the open dialog.
- Copying the text in the open dialog to a text editor, making your changes, and pasting the text back into the dialog.
- Exporting the message file by clicking Save to File, editing the file, and importing it into the ASDM.

Procedure

- Step 1** In ASDM go to **Configuration > Remote Access VPN > Network (Client) Access > AnyConnect Customization/Localization > GUI Text and Messages**.
- Step 2** Click **Add**. The Add Language Localization Entry window displays.

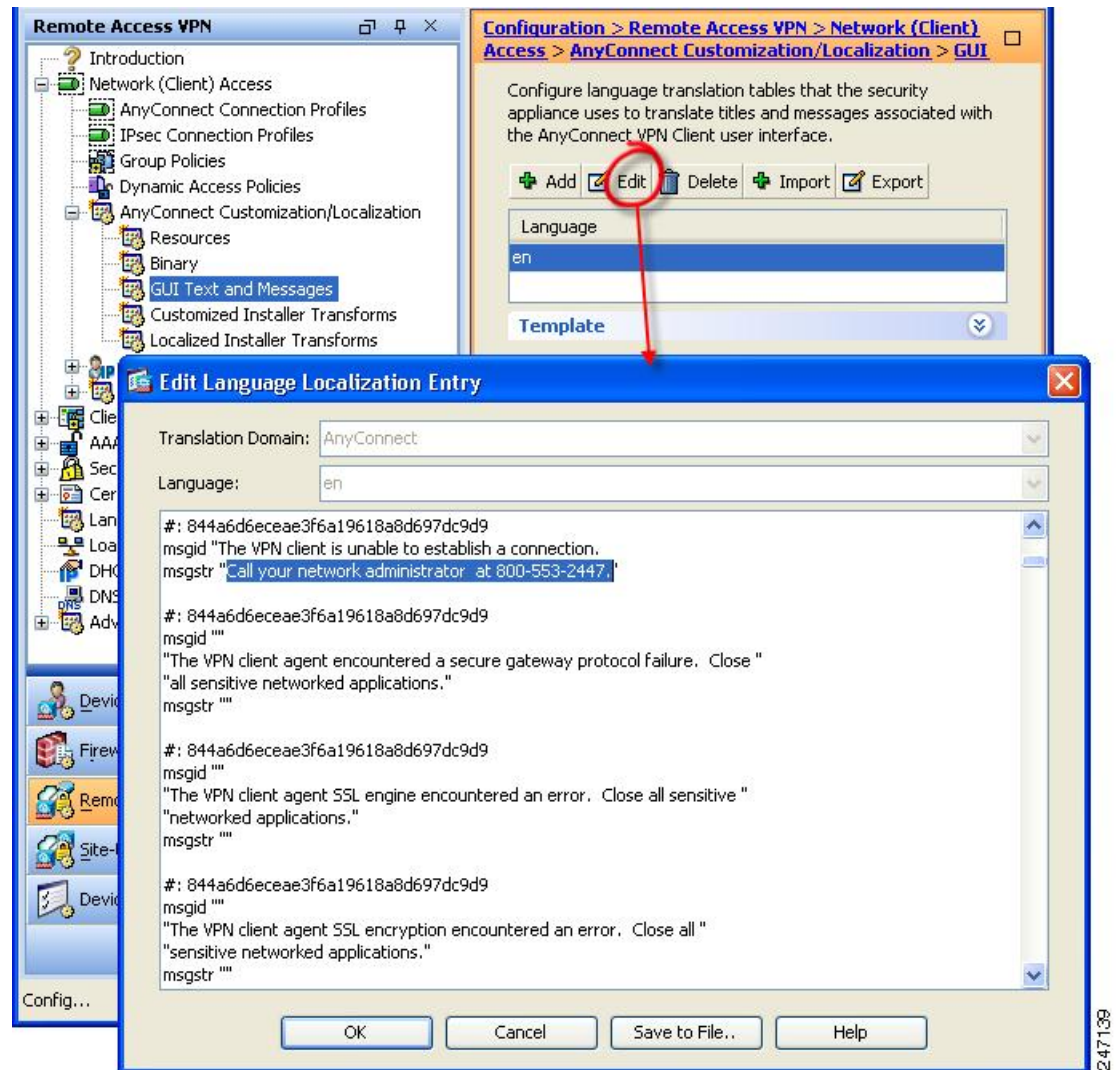


Step 3 Click the Language drop-list and specify the language as English (en). The translation table for English displays in the list of languages in the pane.

Step 4 Click **Edit** to begin editing the messages.

The Edit Language Localization Entry window displays. The text between the quotes of msgid is the default English text displayed by the client and must not be changed. The msgstr string contains text that the client uses to replace the default text in msgid. Insert your own text between the quotes of the msgstr.

In the example below, we insert “Call your network administrator at 800-553-2447.”



Step 5 Click **OK** and then **Apply** to save your changes.

Import Translation Tables to the Adaptive Security Appliance

Procedure

- Step 1** Download the desired translation table from www.cisco.com.
- Step 2** In ASDM go to **Configuration > Remote Access VPN > Network (Client) Access > AnyConnect Customization/Localization > GUI Text and Messages**.
- Step 3** Click **Import**. The Import Language Localization Entry window displays.
- Step 4** Choose the appropriate Language from the drop-down list.
- Step 5** Specify where the translation table will be imported from.

- Step 6** Click **Import Now**. This translation table will be deployed to AnyConnect clients with this preferred language. Localization will be applied after AnyConnect restarts and connects.



- Note** For AnyConnect running on non-mobile devices, the Cisco Secure Desktop translation table must also be imported onto the Adaptive Security Appliance for HostScan messages to be localized, even if Cisco Secure Desktop is not being used.

Create Message Catalogs for Enterprise Deployment

If you are not deploying the client with the ASA, and are using an enterprise software deployment system such as Altiris Agent, you can manually convert the AnyConnect translation table to a message catalog using a utility such as Gettext. After converting the table from a .po file to a .mo file, you then place the file in the proper folder on the client computer.



- Note** GetText and PoeEdit are third-party software applications. The recommended method for AnyConnect GUI customization is to take the default .mo file from the ASA and edit it as necessary for any deployments to the client. Using the default .mo avoids potential conversion issues resulting from third-party applications such as GetText and PoeEdit.

Gettext is a utility from The GNU Project and runs in the command window. See the GNU website at gnu.org for more information. You can also use a GUI-based utility that uses Gettext, such as Poedit. This software is available at poedit.net. This procedure creates a message catalog using Gettext:

AnyConnect Message Template Directories

AnyConnect message templates are located in the folders listed below for each operating system:



- Note** The \110n directory is part of each directory path listed below. The directory name is spelled: lower case l (“el”), one, zero, lower case n.

- For Windows— <DriveLetter>:\ProgramData\Cisco\Cisco AnyConnect Secure Mobility Client\110n\<LANGUAGE-CODE>\LC_MESSAGES
- For macOS and Linux— /opt/cisco/anyconnect/110n/<LANGUAGE-CODE>/LC_MESSAGES

Procedure

- Step 1** Download the Gettext utilities from <http://www.gnu.org/software/gettext/> and install Gettext on a computer that you use for administration (not a remote user computer).
- Step 2** Retrieve a copy of the AnyConnect message template AnyConnect.po on a computer with AnyConnect installed.
- Step 3** Edit the AnyConnect.po file (use notepad.exe or any plain text editor) to change strings as desired.

- Step 4** Run the Gettext message file compiler to create the .mo file from the .po file:
msgfmt -o AnyConnect.mo AnyConnect.po
- Step 5** Place a copy of the .mo file in the correct message template directory on the user's computer.

Merge New Messages into a Customized Translation Table on the ASA

New user messages are added to some releases of AnyConnect. To enable translation of these new messages, new message strings are added to the translation template that is packaged with the latest client image. If you have created translation tables based on the template included with the previous client, the new messages are not automatically displayed to remote users. You must merge the latest template with your translation table to ensure your translation table has these new messages.

There are free third party tools to perform the merge. Gettext utilities from The GNU Project is available for Windows and runs in the command window. See the GNU website at gnu.org for more information. You can also use a GUI-based utility that uses Gettext, such as Poedit. This software is available at poedit.net. Both methods are covered in the procedure below.



Note This procedure assumes that you have already loaded the latest AnyConnect image package to the ASA. The template is not available for export until you do.

Procedure

- Step 1** Export the latest AnyConnect Translation Template from **Remote Access VPN > Language Localization > Templates**. Export the template with the filename as `AnyConnect.pot`. This filename ensures that the `msgmerge.exe` program recognizes the file as a message catalog template.
- Step 2** Merge the AnyConnect Template and Translation Table.

If you are using the Gettext utilities for Windows, open a command prompt window and run the following command. The command merges the AnyConnect translation table (.po) and the template (.pot), creating the new `AnyConnect_merged.po` file:

```
msgmerge -o AnyConnect_merged.po AnyConnect.po AnyConnect.pot
```

The following example shows the results of the command:

```
C:\Program Files\GnuWin32\bin> msgmerge -o AnyConnect_merged.po AnyConnect.po AnyConnect.pot
..... done.
```

If you are using Poedit, first open the `AnyConnect.po` file; go to **File > Open > <AnyConnect.po>**. Then merge it with the template; go to **Catalog > Update** from POT file `<AnyConnect.pot>`. Poedit displays an Update Summary window with both new and obsolete strings. Save the file, which you will import in the next step.

- Step 3** Import the merged translation table to **Remote Access VPN > Language Localization**. Click **Import**, specify a language, and select **AnyConnect** as the Translation Domain. Specify the file to import as `AnyConnect_merged.po`.

Select the Default Language for Windows on the Client

When the remote user connects to the ASA and downloads the client, AnyConnect detects the preferred language of the computer and applies the appropriate translation table by detecting the specified system locale.

To view or change the specified system locale on Windows:

Procedure

- Step 1** Navigate to the **Control Panel > Region and Languages** dialog box. If you are viewing your Control Panel by Category, choose **Clock, Language, and Region > Change display language**.
- Step 2** Specify the language/locale setting, and specify that these setting should be used as the default for all user accounts.



Note If a location is not specified, AnyConnect will default to just the language. For example, if the “fr-ca” directory is not found, AnyConnect will check for the “fr” directory. You do not need to change the display language, location, or keyboard to see the translations.

Create Custom Icons and Logos for the AnyConnect GUI

The tables in this section list the AnyConnect files that you can replace for each operating system. The images in the tables are used by AnyConnect VPN Client and Network Access Manager module.

Restrictions

- The filenames of your custom components must match the filenames used by the AnyConnect GUI, which are different for each operating system and are case sensitive for macOS and Linux. For example, if you want to replace the corporate logo for Windows clients, you must import your corporate logo as `company_logo.png`. If you import it as a different filename, the AnyConnect installer does not change the component. However, if you deploy your own executable to customize the GUI, the executable can call resource files using any filename.
- If you import an image as a resource file (such as `company_logo.bmp`), the image that you import customizes AnyConnect until you reimport another image using the same filename. For example, if you replace `company_logo.bmp` with a custom image and then delete the image, the client continues to display your image until you import a new image (or the original Cisco logo image) using the same filename.

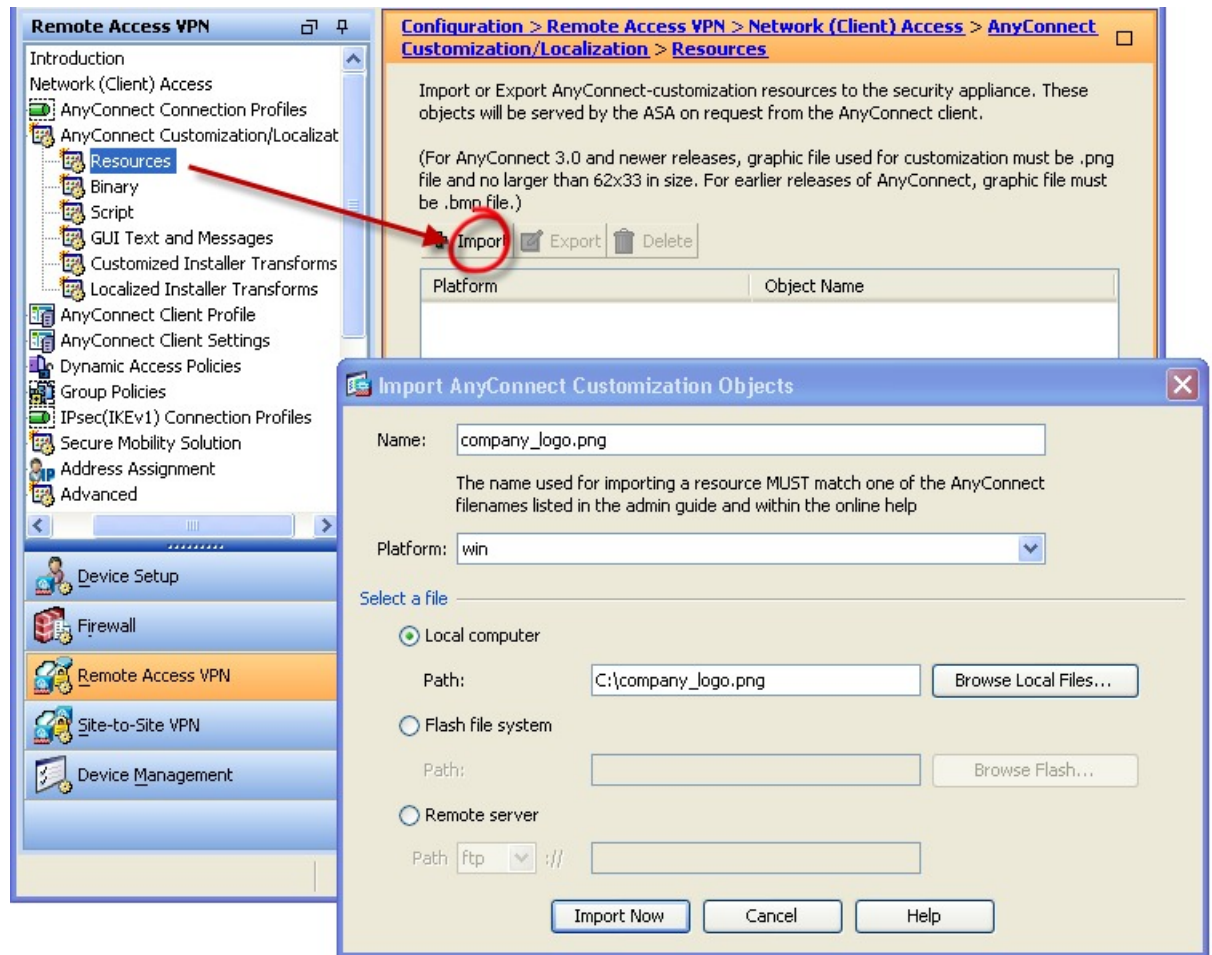
Replace AnyConnect GUI Components

You can customize AnyConnect by importing your own custom files to the security appliance, which deploys the new files with the client.

Procedure

Step 1 In ASDM go to **Configuration > Remote Access VPN > Network (Client) Access > AnyConnect Customization/Localization > Resources**.

Step 2 Click **Import**. The **Import AnyConnect Customization Objects** window displays.



Step 3 Enter the name of the file to import.

Step 4 Select a platform and specify the file to import. Click **Import Now**. The file now appears in the list of objects.





AnyConnect Icons and Logos for Windows





All files for Windows are located in:





```
%PROGRAMFILES%\Cisco\Cisco AnyConnect Secure Mobility Client\res\
```




Note %PROGRAMFILES% refers to the environment variable by the same name. In most Windows installations, this is C:\Program Files.

Filename and Description in Windows Installation	Image Size (Pixels, L x H) and Type
<p>about.png</p> <p>The About button in the upper-right corner of the Advanced dialog.</p> <p>The size is not adjustable.</p> 	<p>24 x 24</p> <p>PNG</p>
<p>about_hover.png</p> <p>The About button in the upper-right corner of the Advanced dialog.</p> <p>The size is not adjustable.</p> 	<p>24 x 24</p> <p>PNG</p>
<p>app_logo.png</p> <p>128 x 128 is the maximum size. If your custom file is not that size, it is resized to 128 x 128 in the application. If it is not in the same ratio, it is stretched.</p> 	<p>128 x 128</p> <p>PNG</p>
<p>attention.ico</p> <p>System tray icon alerting the user to a condition requiring attention or interaction. For example, a dialog about the user credentials.</p> <p>The size is not adjustable.</p> 	<p>16 x 16</p> <p>ICO</p>

Filename and Description in Windows Installation	Image Size (Pixels, L x H) and Type
<p>company_logo.png</p> <p>The company logo displayed in the top-left corner of the tray flyout and Advanced dialog.</p> <p>97 x 58 is the maximum size. If your custom file is not that size, it is resized to 97 x 58 in the application. If it is not in the same ratio, it is stretched.</p> 	<p>97 x 58 (maximum)</p> <p>PNG</p>
<p>company_logo_alt.png</p> <p>The company logo displayed in the bottom-right corner of the About dialog.</p> <p>97 x 58 is the maximum size. If your custom file is not that size, it is resized to 97 x 58 in the application. If it is not in the same ratio, it is stretched.</p> 	<p>97 Xx58</p> <p>PNG</p>
<p>cues_bg.jpg</p> <p>The background image for the tray flyout, Advanced window, and About dialog.</p> <p>Because images are not stretched, using a replacement image that is too small results in black space.</p> 	<p>1260 x 1024</p> <p>JPEG</p>
<p>error.ico</p> <p>System tray icon alerting the user that something is critically wrong with one or more components.</p> <p>The size is not adjustable.</p> 	<p>16 x 16</p> <p>ICO</p>

Filename and Description in Windows Installation	Image Size (Pixels, L x H) and Type
<p>neutral.ico</p> <p>System tray icon indicating that client components are operating correctly.</p> <p>The size is not adjustable.</p> 	<p>16 x 16</p> <p>ICO</p>
<p>transition_1.ico</p> <p>System tray icon that displays along with transition_2.ico and transition_3.ico indicating that one or more client components are in transition between states (for example, when the VPN is connecting or when Network Access Manager is connecting). The three icon files display in succession, appearing to be a single icon bouncing from left to right.</p> <p>The size is not adjustable.</p> 	<p>16 x 16</p> <p>ICO</p>
<p>transition_2.ico</p> <p>System tray icon that displays along with transition_1.ico and transition_3.ico indicating that one or more client components are in transition between states (for example, when the VPN is connecting or when Network Access Manager is connecting). The three icon files display in succession, appearing to be a single icon bouncing from left to right.</p> <p>The size is not adjustable.</p> 	<p>16 x 16</p> <p>ICO</p>
<p>transition_3.ico</p> <p>System tray icon that displays along with transition_1.ico and transition_2.ico indicating that one or more client components are in transition between states (for example, when the VPN is connecting or when the Network Access Manager is connecting). The three icon files display in succession, appearing to be a single icon bouncing from left to right.</p> <p>The size is not adjustable.</p> 	<p>16 x 16</p> <p>ICO</p>






Filename and Description in Windows Installation	Image Size (Pixels, L x H) and Type
vpn_connected.ico System tray icon indicating that the VPN is connected. The size is not adjustable. 	16 x 16 ICO







AnyConnect Icons and Logos for Linux

All files for Linux are located in:

`/opt/cisco/anyconnect/pixmaps`

The following table lists the files that you can replace and the client GUI area that is affected.

Filename and Description in Linux Installation	Image Size (Pixels, L x H) and Type
company-logo.png Corporate logo that appears on each tab of the user interface. For AnyConnect 3.0 and later, use PNG images no bigger than 62x33 pixels. 	142 x 92 PNG
cvc-about.png Icon that appears on the About tab. 	16 x 16 PNG
cvc-connect.png Icon that appears next to the Connect button, and on the Connection tab. 	16 x 16 PNG
cvc-disconnect.png Icon that appears next to the Disconnect button. 	16 x 16 PNG
cvc-info.png Icon that appears on the Statistics tab. 	16 x 16 PNG





Filename and Description in Linux Installation	Image Size (Pixels, L x H) and Type
systray_connected.png Tray icon that displays when the client is connected. 	16 x 16 PNG
systray_notconnected.png Tray icon that displays when the client is not connected. 	16 x 16 PNG
systray_disconnecting.png Tray icon that displays when the client is disconnecting. 	16 x 16 PNG
systray_quarantined.png Tray icon that displays when the client is quarantined. 	16x16 PNG
systray_reconnecting.png Tray icon that displays when the client is reconnecting. 	16 x 16 PNG
vpnui48.png Main program icon. 	48 x 48 PNG

AnyConnect Icons and Logos for macOS

All files for macOS are located in:

/Cisco AnyConnect Secure Mobility Client/Contents/Resources

The following table lists the files that you can replace and the client GUI area that is affected.

Filename and Description in macOS Installation	Image Size (Pixels, L x H)
bubble.png Notification bubble that appears when the client connects or disconnects. 	142 x 92 PNG
logo.png Logo icon that appears on the main screen in the top-right corner. 	50 x 33 PNG
vpngui.icns macOS icon file format that is used for all icon services, such as Dock, Sheets, and Finder. 	128 x 128 ICNS
macOS status icon. 	16 x 16 PNG

Create and Upload an AnyConnect Client Help File

To provide AnyConnect users with help, create a help file with instructions about your site and load it on the Adaptive Security Appliance. When users connect with AnyConnect, AnyConnect downloads the help file, and displays the help icon on the AnyConnect user interface. When the user clicks the help icon, the browser opens the help file. PDF and HTML files are supported.

Procedure

-
- Step 1** Create an HTML file named `help_AnyConnect.html`.
 - Step 2** In ASDM go to **Configuration > Remote Access VPN > Network (Client) Access > AnyConnect Customization/Localization > Binary**.
 - Step 3** Import the **help_AnyConnect.xxx** file. The supported formats are: PDF, HTML, HTM, and MHT.
 - Step 4** On a PC, bring up AnyConnect and connect to your Adaptive Security Appliance. The help file will be downloaded to the client PC.
You should see that the help icon is added to the UI automatically.
 - Step 5** Click the help icon to open the help file in the browser.

If the help icon does not appear, check the help directory to see if the AnyConnect downloader was able to retrieve the help file.

The “help_” part of the filename is removed by the downloader, so you should see AnyConnect.html in one of the following directories, depending on the operating system:

- Windows—C:\ProgramData\Cisco\Cisco AnyConnect Secure Mobility Client\Help
- macOS—/opt/cisco/anyconnect/help

Write and Deploy Scripts

AnyConnect lets you download and run scripts when the following events occur:

- Upon the establishment of a new client VPN session with the security appliance. We refer to a script triggered by this event as an *OnConnect* script because it requires this filename prefix.
- Upon the tear-down of a client VPN session with the security appliance. We refer to a script triggered by this event as an *OnDisconnect* script because it requires this filename prefix.

The establishment of a new client VPN session initiated by Trusted Network Detection triggers the OnConnect script (assuming the requirements are satisfied to run the script), but the reconnection of a persistent VPN session after a network disruption does not trigger the OnConnect script.

Some examples that show how you might want to use this feature include:

- Refreshing the group policy upon VPN connection.
- Mapping a network drive upon VPN connection, and un-mapping it after disconnection.
- Logging on to a service upon VPN connection, and logging off after disconnection.

AnyConnect supports script launching during WebLaunch and stand-alone launches.

These instructions assume you know how to write scripts and run them from the command line of the targeted endpoint to test them.



Note

The AnyConnect software download site provides some example scripts; if you examine them, remember that they are only examples. They may not satisfy the local computer requirements for running them and are unlikely to be usable without customizing them for your network and user needs. Cisco does not support example scripts or customer-written scripts.

Scripting Requirements and Limitations

Be aware of the following requirements and limitations for scripts:

- Number of Scripts Supported—AnyConnect runs only one OnConnect and one OnDisconnect script; however, these scripts may launch other scripts.

- **File Formats**—AnyConnect identifies the OnConnect and onDisconnect script by the filename. It looks for a file whose name begins with OnConnect or OnDisconnect regardless of file extension. The first script encountered with the matching prefix is executed. It recognizes an interpreted script (such as VBS, Perl, or Bash) or an executable.
- **Script Language**—The client does not require the script to be written in a specific language but does require an application that can run the script to be installed on the client computer. Thus, for the client to launch the script, the script must be capable of running from the command line.
- **Restrictions on Scripts by the Windows Security Environment**—On Microsoft Windows, AnyConnect can only launch scripts after the user logs onto Windows and establishes a VPN session. Thus, the restrictions imposed by the user's security environment apply to these scripts; scripts can only execute functions that the user has rights to invoke. AnyConnect hides the cmd window during the execution of a script on Windows, so executing a script to display a message in a .bat file for testing purposes does not work.
- **Enabling the Script**—By default, the client does not launch scripts. Use the AnyConnect profile EnableScripting parameter to enable scripts. The client does not require the presence of scripts if you do so.
- **Client GUI Termination**—Client GUI termination does not necessarily terminate the VPN session; the OnDisconnect script runs after session termination.
- **Running Scripts on 64-bit Windows**—The AnyConnect client is a 32-bit application. When running on a 64-bit Windows version, it uses the 32-bit version of cmd.exe.

Because the 32-bit cmd.exe lacks some commands that the 64-bit cmd.exe supports, some scripts could stop executing when attempting to run an unsupported command, or run partially and stop. For example, the msg command, supported by the 64-bit cmd.exe, may not be understood by the 32-bit version of Windows 7 (found in %WINDIR%\SysWOW64).

Therefore, when you create a script, use commands supported by the 32-bit cmd.exe.

Write, Test, and Deploy Scripts

Write and test your scripts on the targeted operating system. If a script cannot run properly from the command line on the native operating system, then AnyConnect cannot run it properly.

Procedure

-
- Step 1** Write and test your scripts.
- Step 2** Choose how to deploy the scripts:

- Use ASDM to import the script as a binary file to the ASA.

Go to **Network (Client) Access > AnyConnect Customization/Localization > Script**.

If you use ASDM version 6.3 or later, the ASA adds the prefix scripts_ and the prefix OnConnect or OnDisconnect to your filename to identify the file as a script. When the client connects, the security appliance downloads the script to the proper target directory on the remote computer, removes the scripts_ prefix and leaves the OnConnect or OnDisconnect prefix. For example, if you import the script myscript.bat, the script appears on the security appliance as scripts_OnConnect_myscript.bat. On the remote computer, the script appears as OnConnect_myscript.bat.

If you use an ASDM version earlier than 6.3, you must import the scripts with the following prefixes:

- scripts_OnConnect
- scripts_OnDisconnect

To ensure the scripts run reliably, configure all ASAs to deploy the same scripts. If you modify or replace a script, use the same name as the previous version and assign the replacement script to all of the ASAs that the users might connect to. When the user connects, the new script overwrites the one with the same name.

- Use an enterprise software deployment system to deploy scripts manually to the VPN endpoints.

If you use this method, use the script filename prefixes below:

- OnConnect
- OnDisconnect

Install the scripts in the following directory:

Table 1: Required Script Locations

OS	Directory
Microsoft Windows	%ALLUSERSPROFILE%\Cisco\Cisco AnyConnect Secure Mobility Client\Script
Linux (On Linux, assign execute permissions to the file for User, Group and Other.)	/opt/cisco/anyconnect
macOS	/opt/cisco/anyconnect/script

Configure the AnyConnect Profile for Scripting

Procedure

- Step 1** Open the VPN Profile Editor and choose **Preferences (Part 2)** from the navigation pane.
- Step 2** Check **Enable Scripting**. The client launches scripts on connecting or disconnecting the VPN connection.
- Step 3** Check **User Controllable** to let users enable or disable the running of On Connect and OnDisconnect scripts.
- Step 4** Check **Terminate Script On Next Event** to enable the client to terminate a running script process if a transition to another scriptable event occurs. For example, the client terminates a running On Connect script if the VPN session ends and terminates a running OnDisconnect script if AnyConnect starts a new VPN session. On Microsoft Windows, the client also terminates any scripts that the On Connect or OnDisconnect script launched, and all their script descendents. On macOS and Linux, the client terminates only the On Connect or OnDisconnect script; it does not terminate child scripts.

- Step 5** Check **Enable Post SBL On Connect Script** (enabled by default) to let the client launch the On Connect script (if present) if SBL establishes the VPN session.



Note Be sure to add the client profile to the ASA group policy to download it to the VPN endpoint.

Troubleshoot Scripts

If a script fails to run, try resolving the problem as follows:

Procedure

- Step 1** Make sure that the script has an `OnConnect` or `OnDisconnect` prefix name. [Write, Test, and Deploy Scripts](#) shows the required scripts directory for each operating system.
- Step 2** Try running the script from the command line. The client cannot run the script if it cannot run from the command line. If the script fails to run on the command line, make sure the application that runs the script is installed, and try rewriting the script on that operating system.
- Step 3** Verify that there is only one `OnConnect` script and only one `OnDisconnect` script in the scripts directory on the VPN endpoint. If the client downloads an `OnConnect` script from an ASA, then downloads a second `OnConnect` script with a different filename suffix for another ASA, then the client might not run the script you intended to run. If the script path contains more than one `OnConnect` or `OnDisconnect` script, and you are using the ASA to deploy scripts, then remove the contents of the scripts directory and re-establish a VPN session. If the script path contains more than one `OnConnect` or `OnDisconnect` script, and you are using the manual deployment method, then remove the unwanted scripts and re-establish a VPN session.
- Step 4** If the operating system is Linux, make sure that the script file permissions are set to execute.
- Step 5** Make sure that the client profile has scripting enabled.

Write and Deploy Custom Applications with the AnyConnect API

For Windows, Linux, and macOS computers, you can develop your own executable User Interface (UI) with the AnyConnect API. Deploy your UI by replacing the AnyConnect binary files.

The following table lists the filenames of the client executable files for the different operating systems.

Client OS	Client GUI File	Client CLI File
Windows	vpnui.exe	vpnccli.exe
Linux	vpnui	vpn

Client OS	Client GUI File	Client CLI File
macOS	Not supported by the ASA deployment. However, you can deploy an executable for the macOS that replaces the client GUI using other means, such as Altiris Agent.	vpn

Your executable can call any resource files that you import to the ASA, such as logo images. When you deploy your own executable, you can use any filenames for your resource files.

Restrictions

- You cannot deploy updated AnyConnect software from the Adaptive Security Appliance. If you place an updated version of the AnyConnect package on the Adaptive Security Appliance, the AnyConnect client downloads the update, which replaces your custom UI. You must manage distribution of your custom client and related AnyConnect software. Even though ASDM allows you to upload binaries to replace the AnyConnect client, this deployment function is not supported when using custom applications.
- If you deploy Web Security or the Network Access Manager, use the Cisco AnyConnect Secure Mobility Client GUI.
- Start Before Logon is not supported.

Use the AnyConnect CLI Commands

The Cisco AnyConnect VPN Client provides a command line interface (CLI) for users who prefer to enter client commands instead of using the graphical user interface. The following sections describe how to launch the CLI command prompt and the commands available through the CLI:

- [Launch the Client CLI Prompt, on page 28](#)
- [Use the Client CLI Commands, on page 29](#)
- [Prevent a Windows Popup Message When ASA Terminates a Session, on page 30](#)



Note In Windows and macOS, the same downloader is used for profile updates in both VPN UI or CLI connections. In Linux, the downloader for the VPN UI can display warnings and popups, such as the Untrusted Certificate warning we often see when connecting or when downloading a profile or other component. However, a second Linux downloader for the VPN CLI is not capable of displaying such popups and warnings, and you receive a connection failure message as expected behavior.

Launch the Client CLI Prompt

To launch the CLI command prompt:

- (Windows) Locate the file *vpncli.exe* in the Windows folder *C:/Program Files/Cisco/Cisco AnyConnect Secure Mobility Client*. Double click *vpncli.exe*.

- (Linux and macOS) Locate the file `vpn` in the folder `/opt/cisco/anyconnect/bin/`. Execute the file `vpn`.

Use the Client CLI Commands

If you run the CLI in interactive mode, it provides its own prompt. You can also use the command line.

- `connect IP address or alias`—Client establishes a connection to a specific ASA
- `disconnect`—Client closes a previously established connection
- `stats`—Displays statistics about an established connection
- `quit`—Exits the CLI interactive mode
- `exit`—Exits the CLI interactive mode

The following examples show the user establishing and terminating a connection from the command line:

Windows

```
connect 209.165.200.224
```

Establishes a connection to a security appliance with the address 209.165.200.224. After contacting the requested host, the AnyConnect client displays the group to which the user belongs and asks for the user's username and password. If you have specified that an optional banner be displayed, the user must respond to the banner. The default response is `n`, which terminates the connection attempt. For example:

```
VPN > connect 209.165.200.224
>>contacting host (209.165.200.224) for login information...
>>Please enter your username and password.
Group: testgroup
Username: testuser
Password: *****
>>notice: Please respond to banner.
VPN>
STOP! Please read. Scheduled system maintenance will occur tonight from 1:00-2:00 AM for
one hour.
The system will not be available during that time.

accept? [y/n] y
>> notice: Authentication succeeded. Checking for updates...
>> state: Connecting
>> notice: Establishing connection to 209.165.200.224.
>> State: Connected
>> notice: VPN session established.
VPN>
```

stats

Displays statistics for the current connection; for example:

```
VPN > stats
[Tunnel information]

Time Connected: 01:17:33
Client Address: 192.168.23.45
Server Address: 209.165.200.224

[Tunnel Details]

Tunneling Mode: All traffic
```

```

Protocol: DTLS
Protocol Cipher: RSA_AES_256_SHA1
Protocol Compression: None

[Data Transfer]

Bytes (sent/received): 1950410/23861719
Packets (sent/received): 18346/28851
Bypassed (outbound/inbound): 0/0
Discarded (outbound/inbound): 0/0

[Secure Routes]

Network Subnet
0.0.0.0 0.0.0.0
VPN>

```

disconnect

Closes a previously established connection; for example:

```

VPN > disconnect
>> state: Disconnecting
>> state: Disconnected
>> notice: VPN session ended.
VPN>

```

quit or exit

Either command exits the CLI interactive mode; for example:

```

quit
goodbye
>>state: Disconnected

```

Linux or macOS

```
/opt/cisco/anyconnect/bin/vpn connect 1.2.3.4
```

Establishes a connection to an ASA with the address 1.2.3.4

```
/opt/cisco/anyconnect/bin/vpn connect some_asa_alias
```

Establishes a connection to an ASA by reading the profile and looking up the alias *some_asa_alias* in order to find its address

```
/opt/cisco/anyconnect/bin/vpn stats
```

Displays statistics about the vpn connection

```
/opt/cisco/anyconnect/bin/vpn disconnect
```

Disconnect the vpn session if it exists

Prevent a Windows Popup Message When ASA Terminates a Session

If you terminate an AnyConnect session by issuing a session reset from the ASA, the following Windows popup message displays to the end user:

```
The secure gateway has terminated the vpn connection. The following message was received
for the gateway: Administrator Reset
```

You may not want this message to appear (for example, when the VPN tunnel is initiated using the CLI command). You can prevent the message from appearing by restarting the client CLI after the client connects. The following example shows the CLI output when you do this:

```
C:/Program Files (x86)\Cisco\Cisco AnyConnect Secure Mobility Client>vpncli
Cisco AnyConnect Secure Mobility Client (version 4.x).
Copyright (c) 2016 Cisco Systems, Inc.
All Rights Reserved.
>> state: Connected
>> state: Connected
>> notice: Connected to asa.cisco.com.
>> notice: Connected to asa.cisco.com.
>> registered with local VPN subsystem.
>> state: Connected
>> notice: Connected to asa.cisco.com.
>> state: Disconnecting
>> notice: Disconnect in progress, please wait...
>> state: Disconnected
>> notice: On a trusted network.
>> error: The secure gateway has terminated the VPN connection.
The following message was received from the secure gateway: Administrator Reset
VPN>
```

Alternatively, in the Windows registry, you can create a 32-bit double value with the name SuppressModalDialogs on the endpoint device in the following locations. The client checks for the name but ignores its value:

- 64-bit Windows:

HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Cisco\Cisco AnyConnect Secure Mobility Client

- 32-bit Windows:

HKEY_LOCAL_MACHINE\SOFTWARE\Cisco\Cisco AnyConnect Secure Mobility Client

Prepare AnyConnect Customizations and Localizations for ISE Deployment

Prepare an AnyConnect Localization Bundle

An AnyConnect Localization Bundle is a zip file containing translation table files and installer transform files used to localize AnyConnect. This zip file is part of an ISE AnyConnect resource that is used to deploy AnyConnect from your ISE to your users. The contents of this zip file are defined by the languages you support in your AnyConnect deployment as described in this procedure.

Before you begin

The ISE requires compiled, binary translation tables in its AnyConnect localization bundle. In gettext there are two file formats: a text .po format used for editing and a compiled, binary .mo format used at runtime. Compiling is done with the gettext tool msgfmt. Download the Gettext utilities from <http://www.gnu.org/software/gettext/> and install Gettext on a local computer you use for administration (not a remote user computer).

Procedure

Step 1

Obtain and prepare the translation table files used by your AnyConnect deployment.

- a) From the Cisco AnyConnect Secure Mobility Client Software Download page on www.cisco.com, download and open the `AnyConnect-translations- (date) .zip` file.
This zip file contains *.po files for all language translations provided by Cisco.
- b) (Optional) Locate any other translation table files (*.po files) that you have customized or created for your own environment.
- c) Run the gettext message file compiler to create a *.mo file from each *.po file you are using:
msgfmt -o AnyConnect.mo AnyConnect.po

Step 2

Assemble the translation table files used by your AnyConnect deployment.

- a) Create a directory named `l10n` in a working area on your local computer.
- b) Create a directory under `l10n` for each language you want to include whose name is the language code.
For example `fr-ch` for French (Canadian).
- c) Put each compiled translation table file that you want to include into the appropriately named directory.
Do NOT put any *.po files in the compiled translation table. Only *.mo files should go into this file.

Your directory structure will be similar to the following which includes translation tables for French (Canadian), Hebrew, and Japanese:

```
l10n\fr-ch\AnyConnect.mo
    \he\AnyConnect.mo
    \ja\AnyConnect.mo
```

Step 3

(Windows only) Obtain and prepare the language localization transform files used by your AnyConnect deployment.

- a) From the Cisco AnyConnect Secure Mobility Client Software Download page on www.cisco.com, download and open the zip file containing the language localization transform files that apply to your deployment.

The zip file is named `anyconnect-win- (version) -web-deploy-k9-lang.zip` or `anyconnect-gina-win- (release) -web-deploy-k9-lang.zip`.

Note The version of the language localization files must match the version of AnyConnect used in your environment. When upgrading to a new version of AnyConnect, you must also upgrade the language localization files used in the localization bundle to the same version.

- b) Locate any language localization transform files that you have customized or created for your own environment.

Step 4

(Windows only) Assemble the language localization files used by your AnyConnect deployment.

- a) Create a directory named `mst` in the same working area on your local computer.
- b) Create a directory under `mst` for each language you want to include whose name is the language code.
For example `fr-ch` for French (Canadian).
- c) Put each language localization file that you want to include into the appropriately named directory.
Your directory structure will now be similar to the following:

```
l10n\fr-ch\AnyConnect.mo
```



```
\he\AnyConnect.mo
\ja\AnyConnect.mo
mst\fr-ch\AnyConnect_fr-ca.mst
\he\AnyConnect_he.mst
\ja\AnyConnect_ja.mst
```

- Step 5** Zip up this directory structure using a standard compression utility into an appropriately named file, such as `AnyConnect-Localization-Bundle- (release) .zip`, to create an AnyConnect Localization Bundle.

What to do next

Upload the AnyConnect Localization Bundle onto the ISE as part of an ISE AnyConnect resource used to deploy AnyConnect to your users.

Prepare an AnyConnect Customization Bundle

An AnyConnect Customization Bundle is a zip file containing custom AnyConnect GUI resources, a custom help file, VPN scripts, and installer transforms. This zip file is part of an ISE AnyConnect resource that is used to deploy AnyConnect from your ISE to your users. It has the following directory structure:

```
win\resource\
  \binary
  \transform
mac-intel\resource
  \binary
  \transform
```

Customized AnyConnect components are included in the `resource`, `binary` and `transform` sub-directories for Windows and macOS platforms as follows:

- Each `resource` sub-directory contains all the custom AnyConnect GUI components for that platform.
To create these resources see [Create Custom Icons and Logos for the AnyConnect GUI, on page 16](#).
- Each `binary` sub-directory contains the custom help file and VPN scripts for that platform.
 - To create the AnyConnect help file, see [Create and Upload an AnyConnect Client Help File, on page 23](#).
 - To create VPN scripts, see [Write and Deploy Scripts, on page 24](#).
- Each `transform` sub-directory contains the installer transforms for that platform.
 - To create Windows Customized Installer Transforms, see [Modify Installation Behavior, Windows, on page 2](#)
 - To create macOS Installer Transforms, see [Customize Installer Behavior on macOS with ACTransforms.xml, on page 8](#)

Before you begin

Create all the necessary custom components before preparing the AnyConnect Customization Bundle.

Procedure

- Step 1** Create the described directory structure in a working area of your local computer.
 - Step 2** Populate the `resources` directories with your custom AnyConnect GUI files for each platform. Verify files are all named appropriately and icons and logos are sized appropriately.
 - Step 3** Populate the `binary` directories with your custom `help_AnyConnect.html` file.
 - Step 4** Populate the `binary` directories with your VPN `OnConnect` and `OnDisconnect` scripts, and any additional scripts they call.
 - Step 5** Populate the `transform` directories with your platform specific installer transforms.
 - Step 6** Zip up this directory structure using a standard compression utility into an appropriately named file, such as `AnyConnect-Customization-Bundle.zip`, to create an AnyConnect Customization Bundle.
-

What to do next

Upload the AnyConnect Customization Bundle onto the ISE as part of an ISE AnyConnect resource used to deploy AnyConnect to your users.