Configure Multiple Tunnel Groups with SAML on ASA

Contents

Introduction

This document describes SAML Authentication with Azure Identity Provider for multiple tunnel groups on Cisco ASA.

Prerequisites

Requirements

Cisco recommends knowledge of these topics:

- Adaptive Security Appliance (ASA)
- Security Assertion Markup Language (SAML)
- Secure Socket Layer (SSL) Certificates
- Microsoft Azure

Components Used

The information in this document is based on these software and hardware versions:

- ASA 9.22(1)1
- Microsoft Azure Entra ID with SAML 2.0
- Cisco Secure Client 5.1.7.80

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Background Information

Microsoft Azure can support multiple applications for the same entity ID. Each application (mapped to a different tunnel group) requires a unique certificate. On ASA, multiple tunnel-groups can be configured to use different Override Identity Provider (IdP) protected applications because of the IdP Certificate Feature. This feature allows administrators to override the primary IdP certificate in the Single Sign-On (SSO) Server object with a specific IdP certificate for each tunnel group. This feature was introduced on ASA from 9.17.1 version onward.

SAML SP-Initiated SSO

When the end user initiates login by accessing the ASA, sign-on behavior proceeds as:

1. When the VPN user accesses or chooses a SAML enabled tunnel group, the end user is redirected to the SAML IdP for authentication. The user is prompted unless the user access the group-url directly, in which case the redirect is silent.

2. The ASA generates a SAML Authentication Request, which the browser redirects to the SAML IdP.

3. The IdP challenges the end user for credential and the end user logs in. The entered credentials must satisfy the IdP authentication configuration.

4. The IdP Response is sent back to the browser and posted to the ASA sign-in URL. The ASA verifies the response to complete the login.

Configurations

Add Cisco Secure Firewall - Secure Client from the Gallery

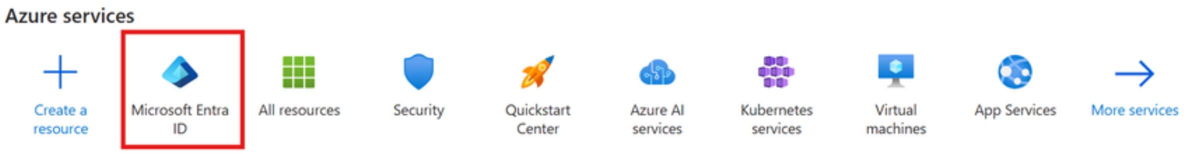
In this example, Microsoft Entra SSO integration with Cisco Secure Firewall - Secure Client on Azure is added for two tunnel groups configured on ASA:

- SAML1
- SAML2

In order to configure the integration of Cisco Secure Firewall - Secure Client into Microsoft Entra ID, you need to add Cisco Secure Firewall - Secure Client from the gallery to your list of managed SaaS apps.

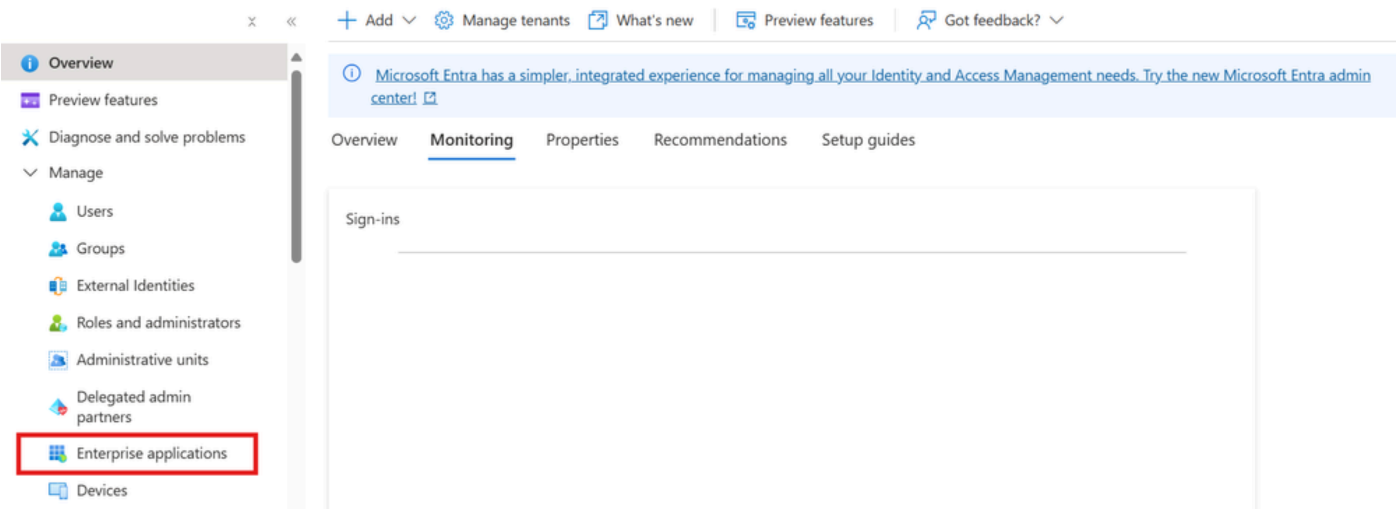
Note: These steps are for adding Cisco Secure Firewall - Secure Client to the gallery for the first tunnel group, SAML1.

Step 1. Log in to Azure Portal and choose **Microsoft Entra ID**.



Microsoft Entra ID

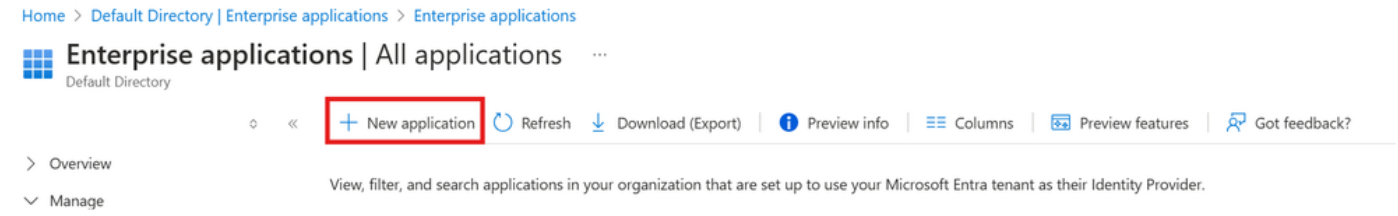
Step 2. As shown in this image, choose **Enterprise Applications**.



Microsoft Entra has a simpler, integrated experience for managing all your Identity and Access Management needs. Try the new Microsoft Entra admin center!

Enterprise Application

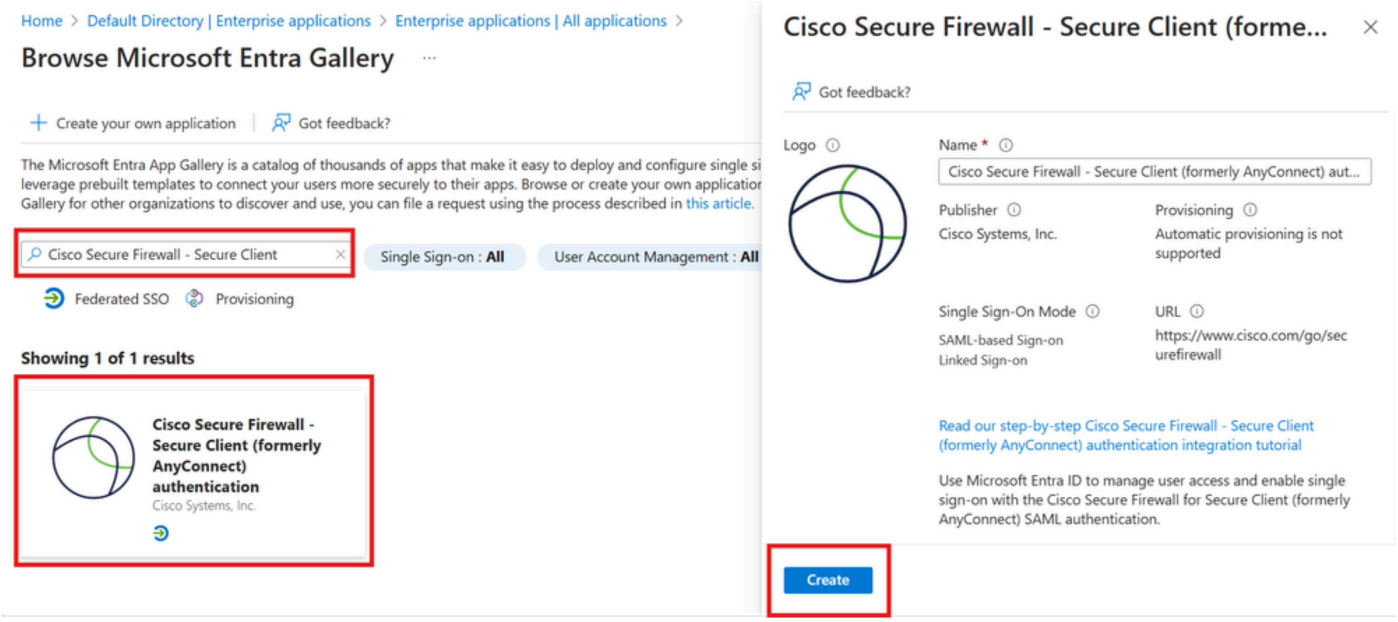
Step 3. Now, choose **New Application**, as shown in this image.


Home > Default Directory | Enterprise applications > Enterprise applications
Enterprise applications | All applications
Default Directory
New application
Refresh
Download (Export)
Preview info
Columns
Preview features
Got feedback?
Overview
Manage

View, filter, and search applications in your organization that are set up to use your Microsoft Entra tenant as their Identity Provider.

New Application

Step 4. In the **Add from the gallery** section, type **Cisco Secure Firewall - Secure Client** in the search box, choose **Cisco Secure Firewall - Secure Client** from the results panel, and then **add** the app.


Home > Default Directory | Enterprise applications > Enterprise applications | All applications >
Browse Microsoft Entra Gallery
Create your own application
Got feedback?
Single Sign-on : All
User Account Management : All
Federated SSO
Provisioning
Cisco Secure Firewall - Secure Client (forme...
Got feedback?
Logo
Create

The Microsoft Entra App Gallery is a catalog of thousands of apps that make it easy to deploy and configure single si leverage prebuilt templates to connect your users more securely to their apps. Browse or create your own applicatior Gallery for other organizations to discover and use, you can file a request using the process described in this article.

Cisco Secure Firewall - Secure Client

Showing 1 of 1 results

Cisco Secure Firewall - Secure Client (formerly AnyConnect) authentication
Cisco Systems, Inc.

Name *: Cisco Secure Firewall - Secure Client (formerly AnyConnect) aut...

Publisher: Cisco Systems, Inc.

Provisioning: Automatic provisioning is not supported

Single Sign-On Mode: SAML-based Sign-on, Linked Sign-on

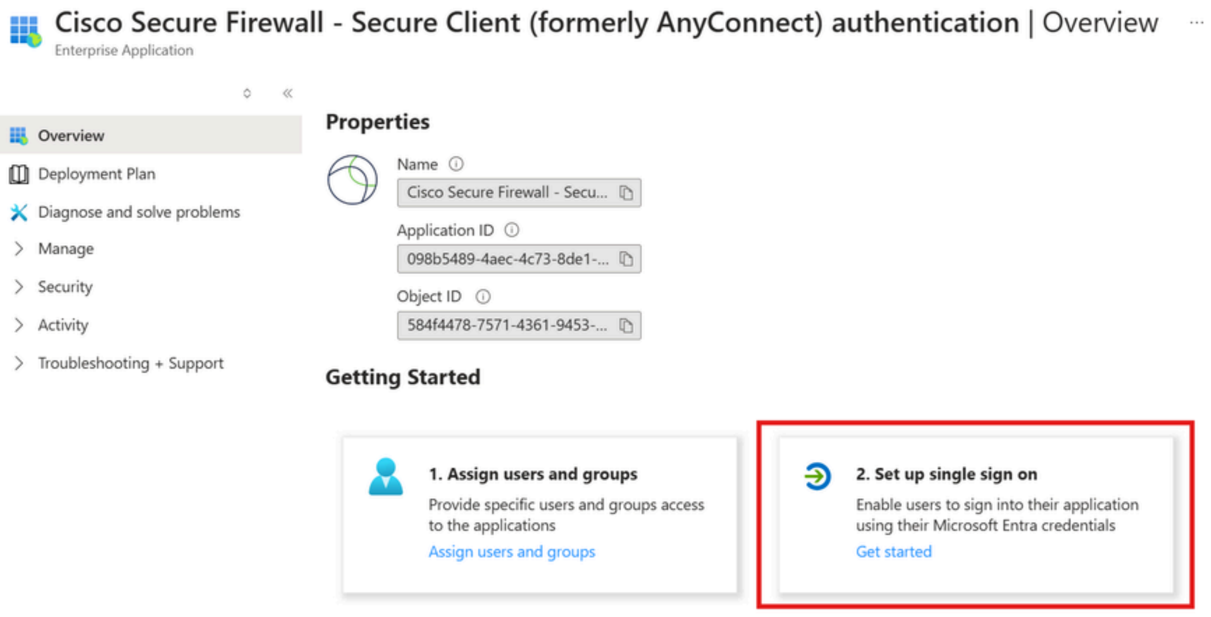
URL: https://www.cisco.com/go/securefirewall

Read our step-by-step Cisco Secure Firewall - Secure Client (formerly AnyConnect) authentication integration tutorial

Use Microsoft Entra ID to manage user access and enable single sign-on with the Cisco Secure Firewall for Secure Client (formerly AnyConnect) SAML authentication.

Cisco Secure Firewall - Secure Client

Step 5. Choose **Single Sign-on** menu item, as shown in this image.



Cisco Secure Firewall - Secure Client (formerly AnyConnect) authentication | Overview

Enterprise Application

Properties

Name: Cisco Secure Firewall - Secu...

Application ID: 098b5489-4aec-4c73-8de1-...

Object ID: 584f4478-7571-4361-9453-...

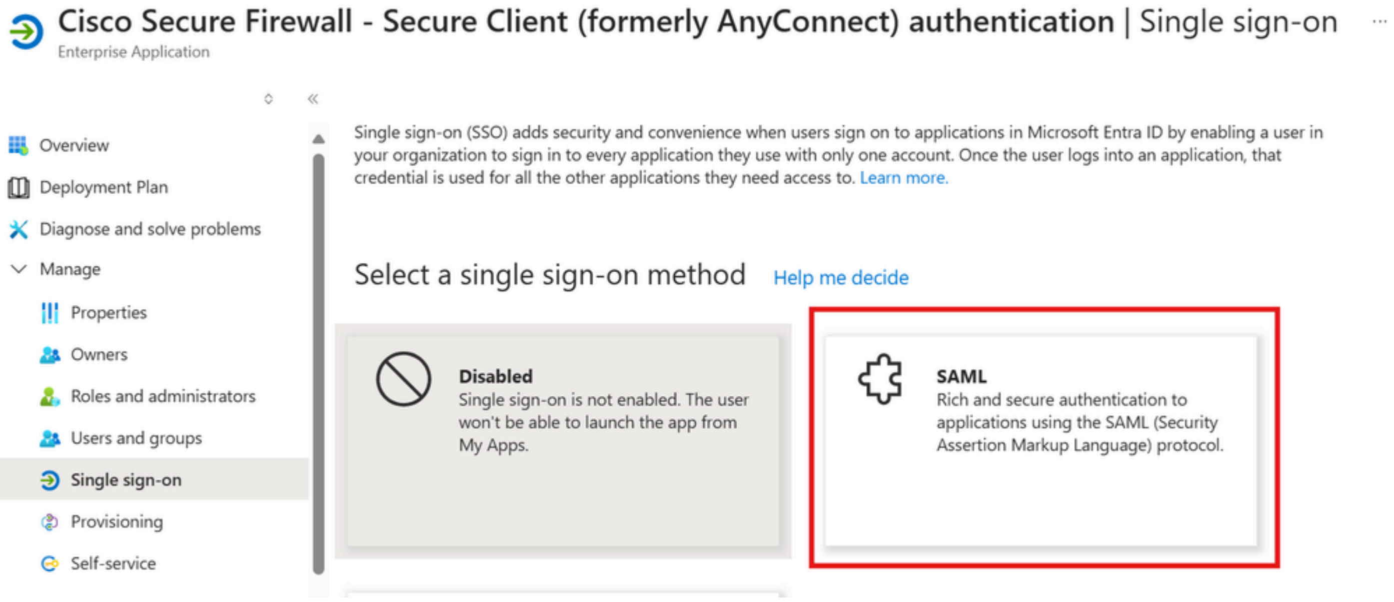
Getting Started

1. Assign users and groups
Provide specific users and groups access to the applications
Assign users and groups

2. Set up single sign on
Enable users to sign into their application using their Microsoft Entra credentials
Get started

Set Up Single Sign On

Step 6. On the**Select a single sign-on method**page, choose**SAML**.



Cisco Secure Firewall - Secure Client (formerly AnyConnect) authentication | Single sign-on

Enterprise Application

Single sign-on (SSO) adds security and convenience when users sign on to applications in Microsoft Entra ID by enabling a user in your organization to sign in to every application they use with only one account. Once the user logs into an application, that credential is used for all the other applications they need access to. Learn more.

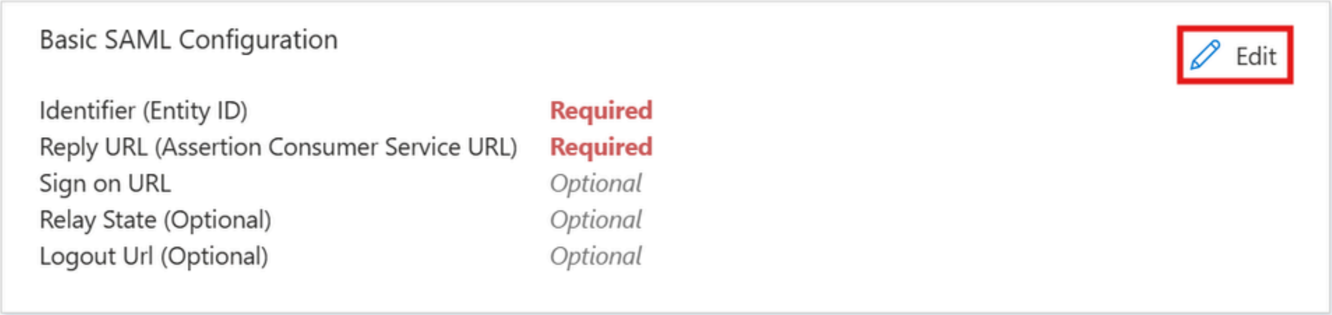
Select a single sign-on method Help me decide

Disabled
Single sign-on is not enabled. The user won't be able to launch the app from My Apps.

SAML
Rich and secure authentication to applications using the SAML (Security Assertion Markup Language) protocol.

SAML

Step 7. On the **Set up single sign-on with SAML** page, click the edit/pen icon for **Basic SAML Configuration** in order to edit the settings.



Basic SAML Configuration

Identifier (Entity ID)	Required
Reply URL (Assertion Consumer Service URL)	Required
Sign on URL	*Optional*
Relay State (Optional)	*Optional*
Logout Url (Optional)	*Optional*

Basic Saml Configuration

Step 8. On the **Set up single sign-on with SAML** page, enter the values for these fields:

a. In theIdentifiertext box, type a URL using this pattern:

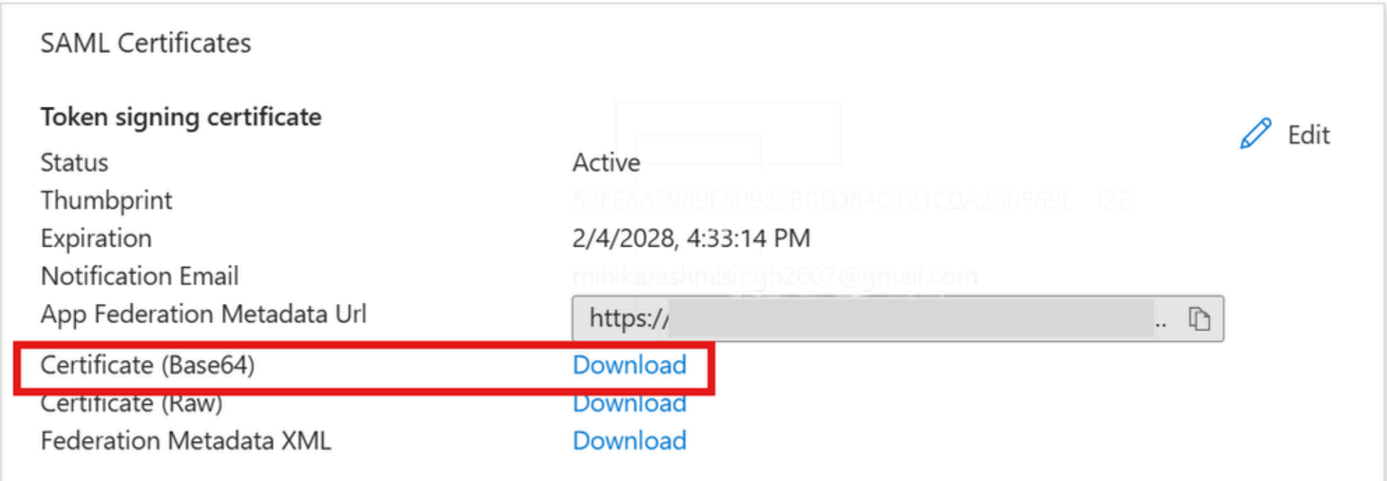
https://<VPN URL>/saml/sp/metadata/<Tunnel_Group_Name>

b. In theReply URL text box, type a URL using this pattern:

https://<VPN URL>/+CSCOE+/saml/sp/acs?tgname=<Tunnel_Group_Name>   [Tunnel_Group_Name = SAML1]

Note: Tunnel_Group_Name is case-sensitive and the value must not contain dots '.' and slashes '/'.

Step 9. On the **Set up single sign-on with SAML** page, in the **SAML Signing Certificate** section, find **Certificate (Base64)** and choose **Download** in order to download the certificate file and save it on your computer.



SAML Certificates

Token signing certificate

Status Active

Thumbprint [redacted]

Expiration 2/4/2028, 4:33:14 PM

Notification Email [redacted]

App Federation Metadata Url https://[redacted]..

Certificate (Base64) Download

Certificate (Raw) Download

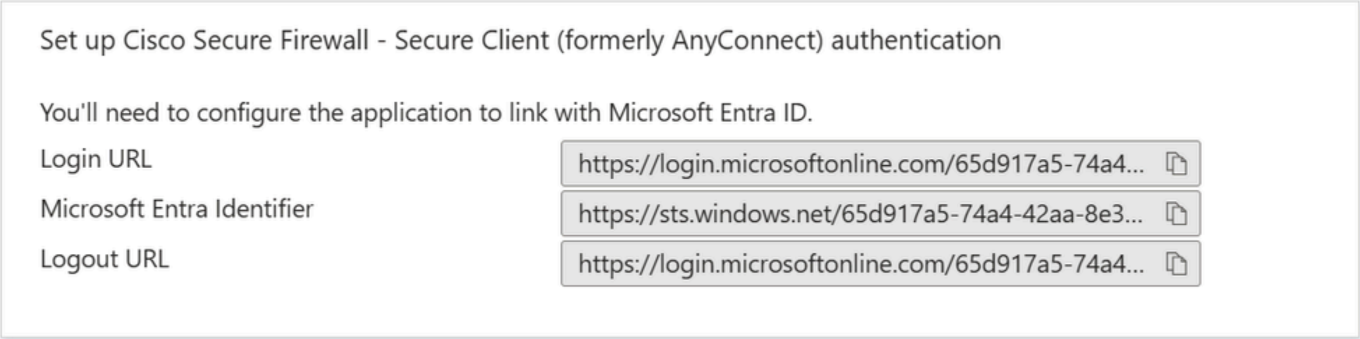
Federation Metadata XML Download

Certificate(Base64) Download

Note: This downloaded certificate is imported into the ASA trustpoint AzureAD-AC-SAML1. Refer to the ASA Configuration section for more details.

Step 10. On the **Set up Cisco Secure Firewall - Secure Client** section, copy the appropriate URL(s) based on your requirement. These URL(s) is used to configure SSO Server object on ASA.

- Microsoft Entra Identifier - This is the SAML idp in the VPN configuration.
- Login URL - This is the URL sign-in.
- Logout URL - This is the URL sign-out.



Set up Cisco Secure Firewall - Secure Client (formerly AnyConnect) authentication

You'll need to configure the application to link with Microsoft Entra ID.

Login URL	https://login.microsoftonline.com/65d917a5-74a4...
Microsoft Entra Identifier	https://sts.windows.net/65d917a5-74a4-42aa-8e3...
Logout URL	https://login.microsoftonline.com/65d917a5-74a4...

SSO URL

Note: Repeat the earlier configuration steps in order to add Cisco Secure Firewall - Secure Client app from the gallery for second tunnel group. The second tunnel group name in this case is SAML2.

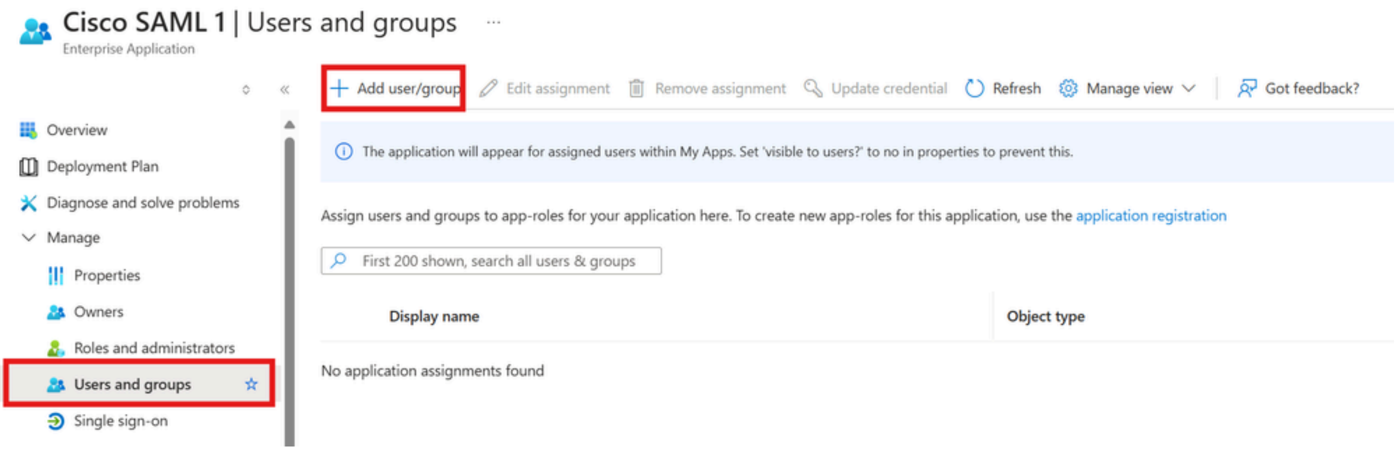
Note: While adding the Cisco Secure Firewall - Secure Client app for the second tunnel group (SAML 2), the azure certificate downloaded in Step 8. is imported into the ASA trustpoint AzureAD-AC-SAML2.

Assign Azure AD Users to the App

In this section, Test1 and Test2 is enabled to use Azure SSO, as you grant access to the Cisco Secure Client app.

For First IdP Application:

Step 1. In the first IdP application overview page, choose **Users and groups**, and then **Add user**.



The application will appear for assigned users within My Apps. Set 'visible to users?' to no in properties to prevent this.

Assign users and groups to app-roles for your application here. To create new app-roles for this application, use the application registration

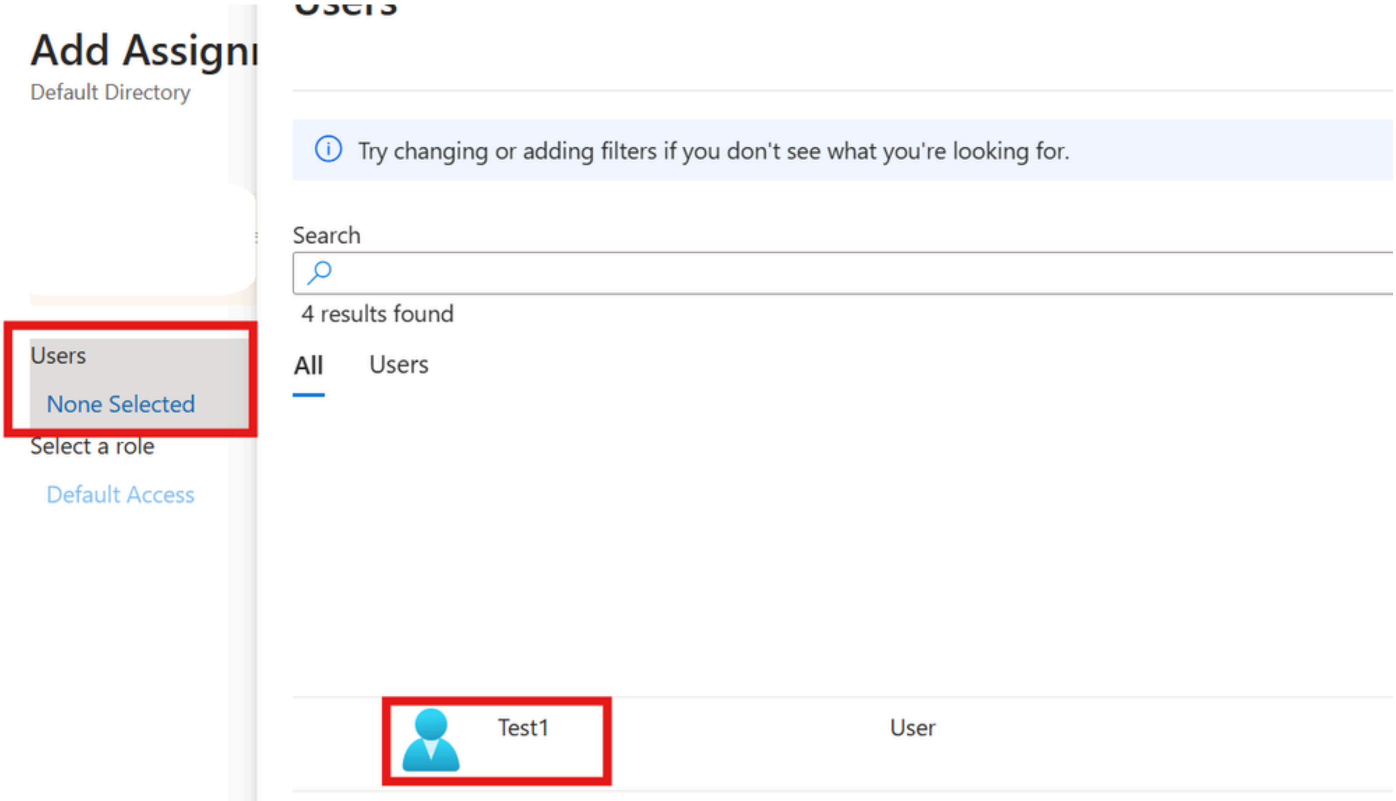
First 200 shown, search all users & groups

Display name	Object type

No application assignments found

User and Groups

Step 2. Choose **Users or groups** in the Add Assignment dialog.



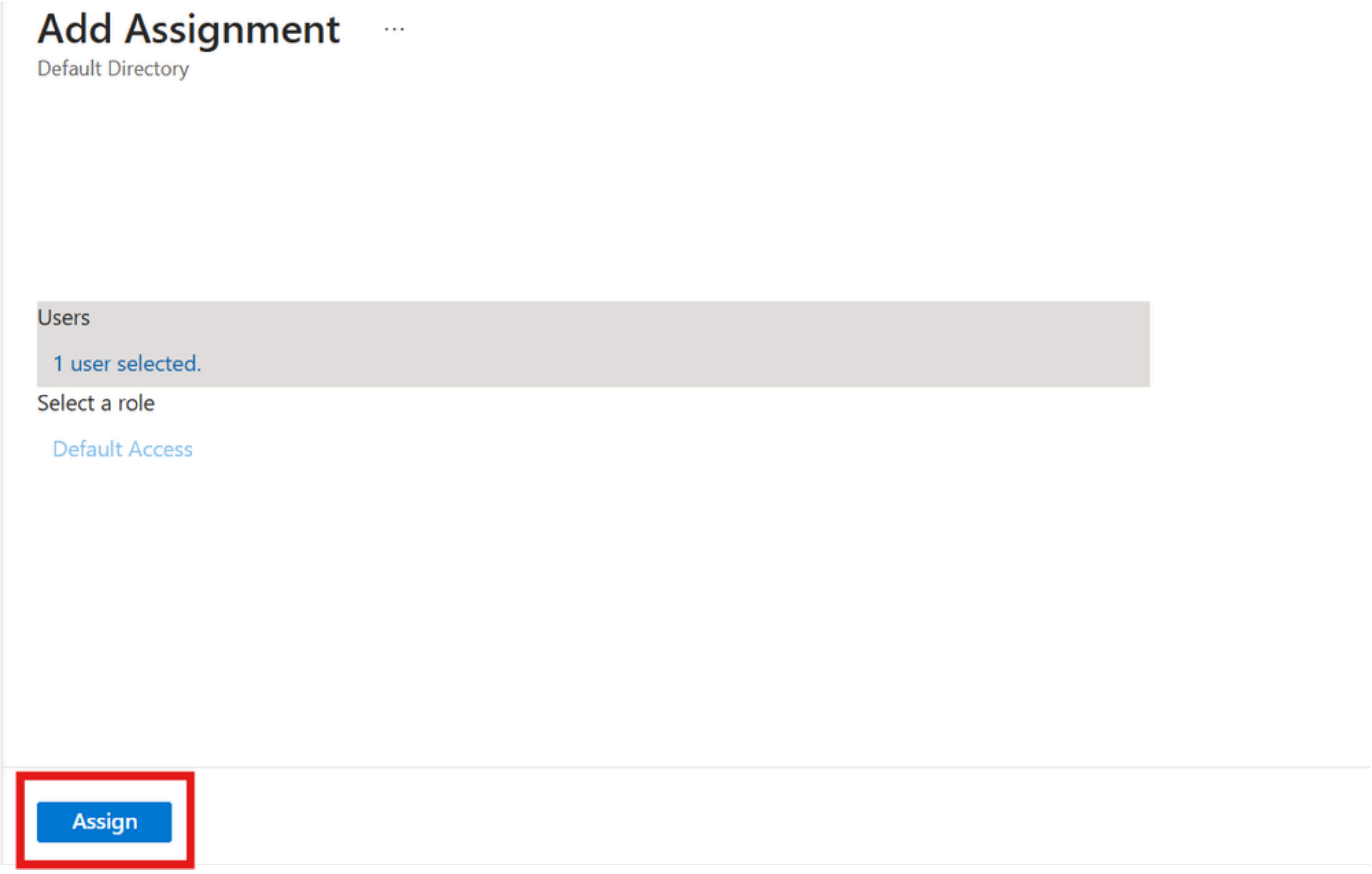
Try changing or adding filters if you don't see what you're looking for.

4 results found

Test1	User

Add Assignment 1

Step 3. In the **Add Assignment** dialog, click the **Assign** button.



Add Assignment

Default Directory

Users

1 user selected.

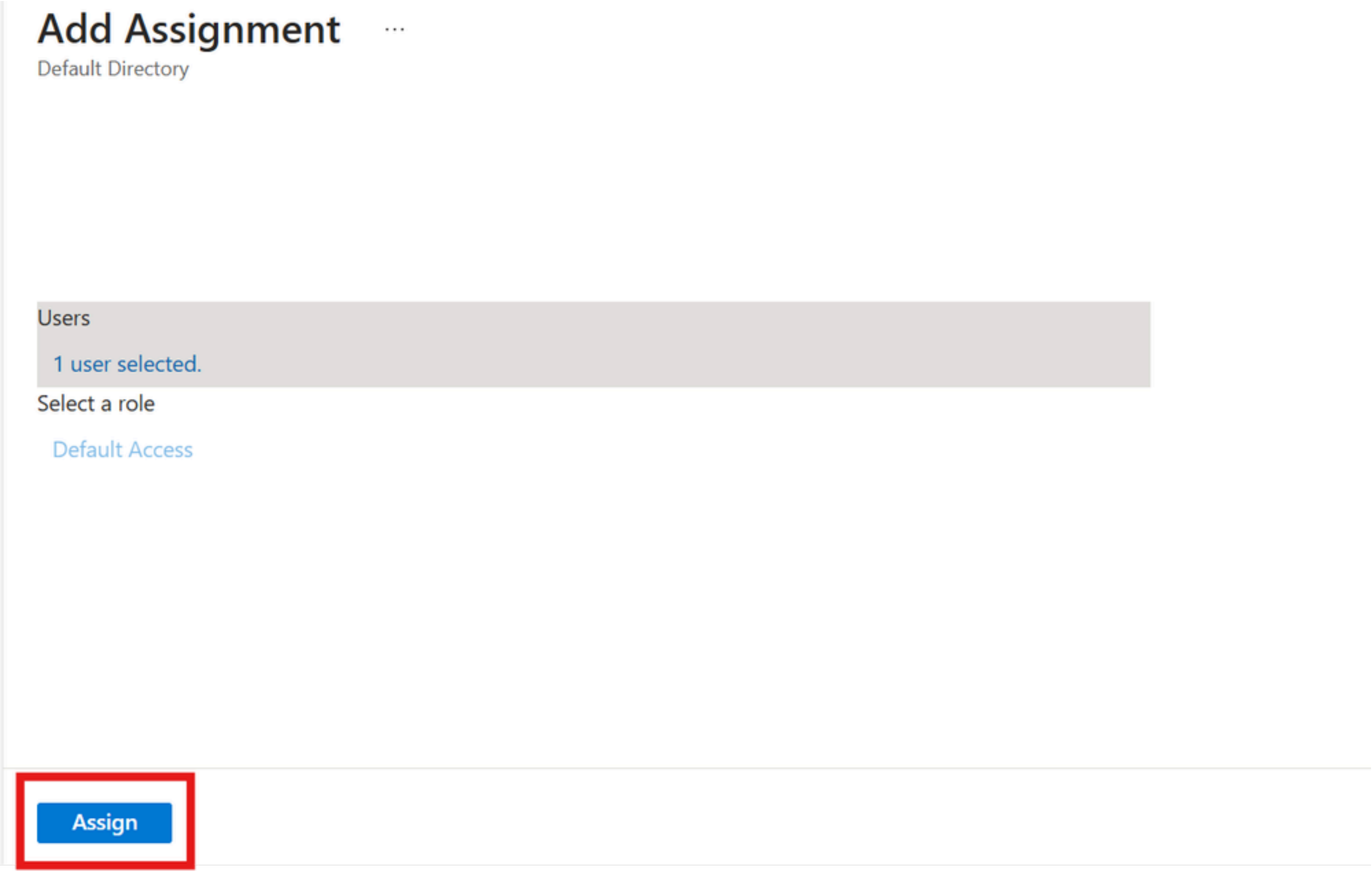
Select a role

Default Access

Test1 User Assign

For Second IdP Application:

Repeat the earlier steps for Second Idp Application as show in these images.



Add Assignment

Default Directory

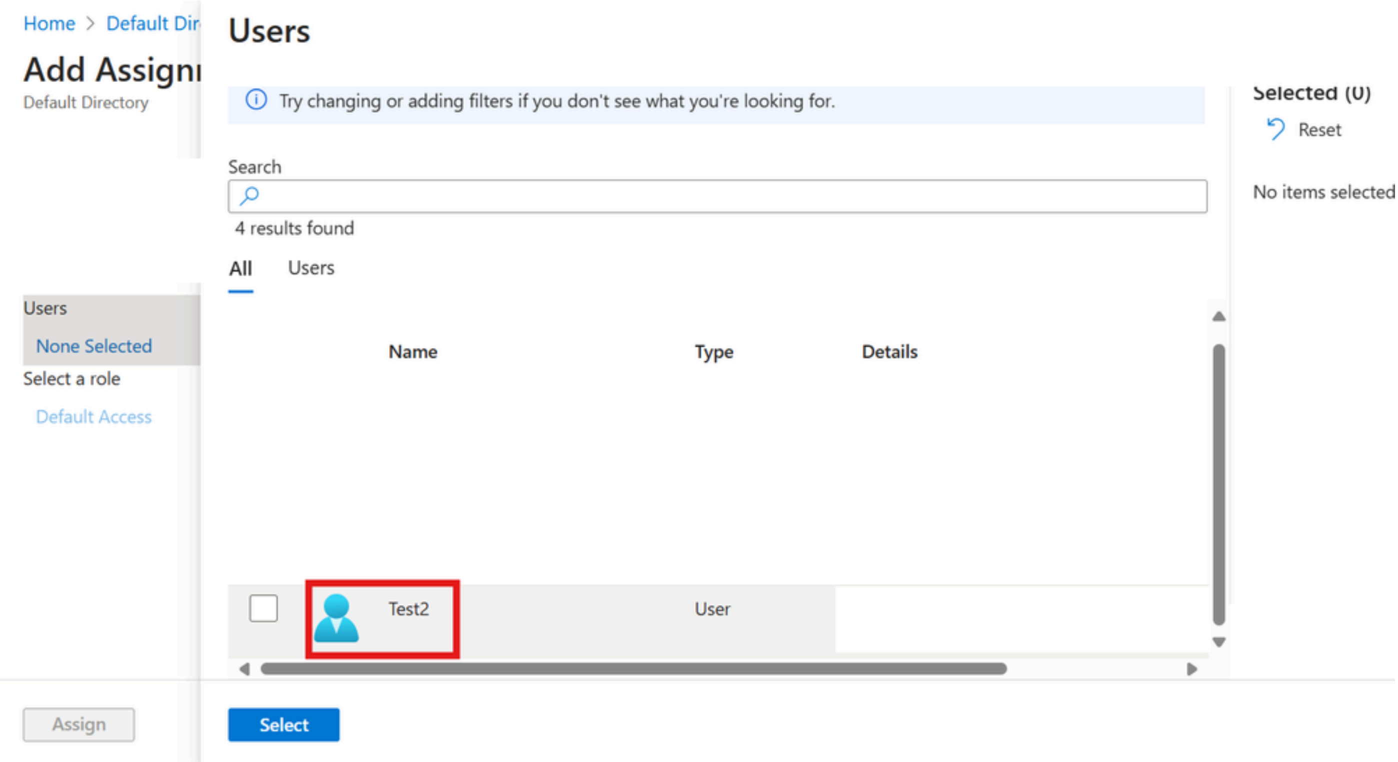
Users

1 user selected.

Select a role

Default Access

Add Assignment 2



Home > Default Dir

Add Assignı

Default Directory

Users

None Selected

Select a role

Default Access

Users

Try changing or adding filters if you don't see what you're looking for.

Search

4 results found

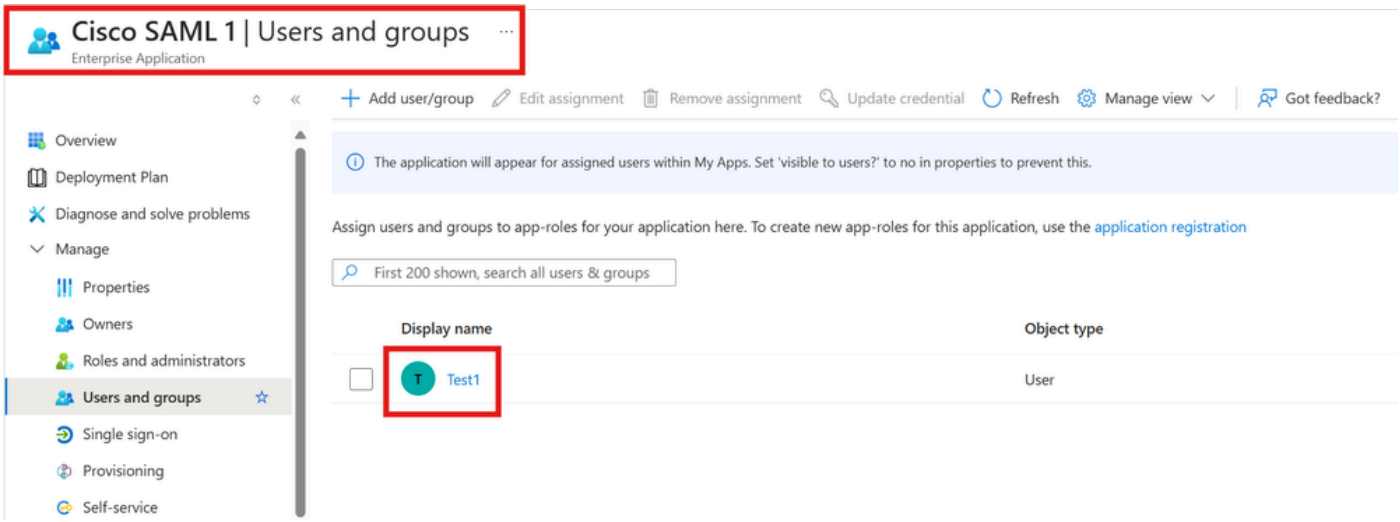
	Name	Type	Details
□	Test2	User	

Selected (0)

No items selected

Test2 User Assign

Test1 User Assignment:



Cisco SAML 1 | Users and groups ···

Enterprise Application

ⓘ The application will appear for assigned users within My Apps. Set 'visible to users?' to no in properties to prevent this.

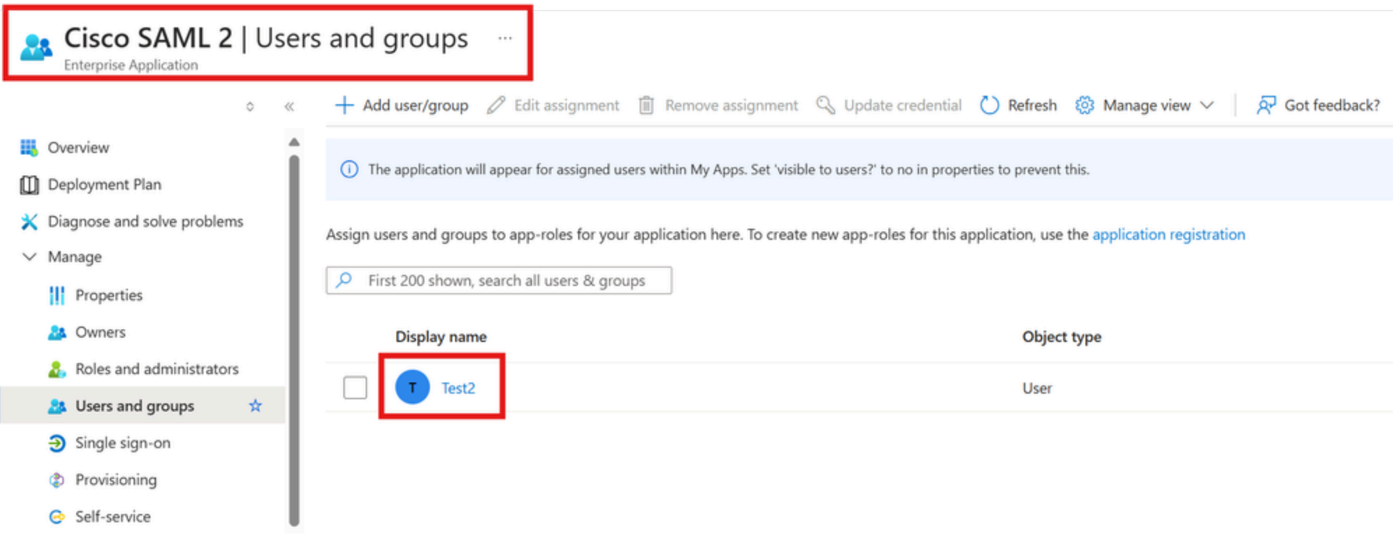
Assign users and groups to app-roles for your application here. To create new app-roles for this application, use the application registration

First 200 shown, search all users & groups

	Display name	Object type
□	T Test1	User

Test 1 User Assignment

Test2 User Assignment:



Cisco SAML 2 | Users and groups ···

Enterprise Application

ⓘ The application will appear for assigned users within My Apps. Set 'visible to users?' to no in properties to prevent this.

Assign users and groups to app-roles for your application here. To create new app-roles for this application, use the application registration

First 200 shown, search all users & groups

	Display name	Object type
□	T Test2	User

Test 2 User Assignment

ASA Configuration via CLI

Step 1. Create Trustpoints and Import SAML Certificates.

Configure two Trustpoints and import the respective SAML certificates for each tunnel group.

<#root>

```
config t

 crypto ca trustpoint

AzureAD-AC-SAML1


   revocation-check none
   no id-usage
   enrollment terminal
   no ca-check
 crypto ca authenticate
```

```
AzureAD-AC-SAML1


 -----BEGIN CERTIFICATE-----
 …
 PEM Certificate Text you downloaded from AzureAD goes here
 …
 -----END CERTIFICATE-----
 quit

!
!

crypto ca trustpoint

AzureAD-AC-SAML2


   revocation-check none
   no id-usage
   enrollment terminal
   no ca-check
 crypto ca authenticate

AzureAD-AC-SAML2


 -----BEGIN CERTIFICATE-----
 …
 PEM Certificate Text you downloaded from AzureAD goes here
 …
 -----END CERTIFICATE-----
 quit
```

Step 2. Configure the SAML IdP.

Use these commands to provision the SAML IdP settings.

```
webvpn

 saml idp https://xxx.windows.net/xxxxxxxxxxxxx/ - [Azure AD Identifier]
 url sign-in https://login.microsoftonline.com/xxxxxxxxxxxxxxxxxxxxxx/saml2 - [Login URL]
 url sign-out https://login.microsoftonline.com/xxxxxxxxxxxxxxxxxxxxx/saml2  – [Logout URL]
 trustpoint idp AzureAD-AC-SAML1 - [IdP Trustpoint]
 trustpoint sp ASA-EXTERNAL-CERT - [SP Trustpoint]
 no force re-authentication
 no signature
 base-url https://asa.example.com
```

Step3. Apply SAML Authentication to the first VPN Tunnel Group.

Configure the SAML1 tunnel group with AzureAD-AC-SAML1 IdP trustpoint.

<#root>

```
tunnel-group SAML1 webvpn-attributes
```

```
authentication saml
group-alias SAML1 enable
saml identity-provider https://xxx.windows.net/xxxxxxxxxxxxx/

saml idp-trustpoint AzureAD-AC-SAML1 <---- Overrides the primary IDP certificate in the Single Sign-On (
```

Step 4. Apply SAML Authentication to the second VPN Tunnel Group.

Configure the SAML2 tunnel group with AzureAD-AC-SAML2 IdP trustpoint.

<#root>

```
tunnel-group SAML2 webvpn-attributes
authentication saml
group-alias SAML2 enable
saml identity-provider https://xxx.windows.net/xxxxxxxxxxxxx/

saml idp-trustpoint AzureAD-AC-SAML2 <---- Overrides the primary IDP certificate in the Single Sign-On (
```

Step 5: Save the Configuration.

```
write memory
```

Note: If you make changes to the IdP configuration, you need to remove the SAML identity-provider configuration from your Tunnel Group, and re-apply it for the changes to become effective.

Verify

Test AnyConnect with SAML Authentication.

Step 1. **Connect** to your VPN URL and input your log in **Azure AD details**.

Step 2. (Optional) **Approve** sign-in request.

Step 3. AnyConnect is Connected.

Troubleshoot

Most SAML troubleshoots involve a misconfiguration that can be found when the SAML configuration is checked, or debugs are run. **debug webvpn saml 255** can be used to troubleshoot most issues, however, in scenarios where this debug does not provide useful information, additional debugs can be run:

```
debug webvpn saml 255
debug webvpn 255
debug webvpn session 255
debug webvpn request 255
```

Related Information

- Configure ASA AnyConnect VPN with Microsoft Azure MFA through SAML
- Technical Support & Documentation - Cisco Systems