4 - Modifying Jamf Connect to apply Azure Conditional Access Policies

Overview

Jamf Connect, being a desktop or native application, does not normally appear in the list of applications for Microsoft Azure Conditional Access policies. By adding a custom scope and a "private" application for Jamf Connect, we can apply a conditional access policy.

In this scenario, we want the non-interactive login (where Jamf Connect validates the user's local password matches the Azure password) to be exempt from a conditional access policy that requires multi-factor authentication (MFA) but to enforce MFA at the *interactive* login of a user logging into a macOS client with the Azure web interface.

Net result: When a user logs in and sees a Microsoft login webpage, they're asked to follow whatever conditional access rules the administrator has created. When Jamf Connect is simply checking the password silently in the background, the operation works without showing any errors in the login logs for the user, reducing the risk of marking a user's login session as a medium or high risk.

Workflow overview:

- Create a "private endpoint" application registration with a custom API
 - o With API permissions for "User.read"
 - With "Expose an API" scope created
- Create a "public endpoint" application registration for OIDC to call that custom API
 - Add API permission for "My APIs" for the name of the application created in first step and the scope created in first step
 - Define roles like "Admin" and "Standard" for elevating macOS account permissions
- Optional: Create an Azure Conditional Access policy to require multi-factor authentication

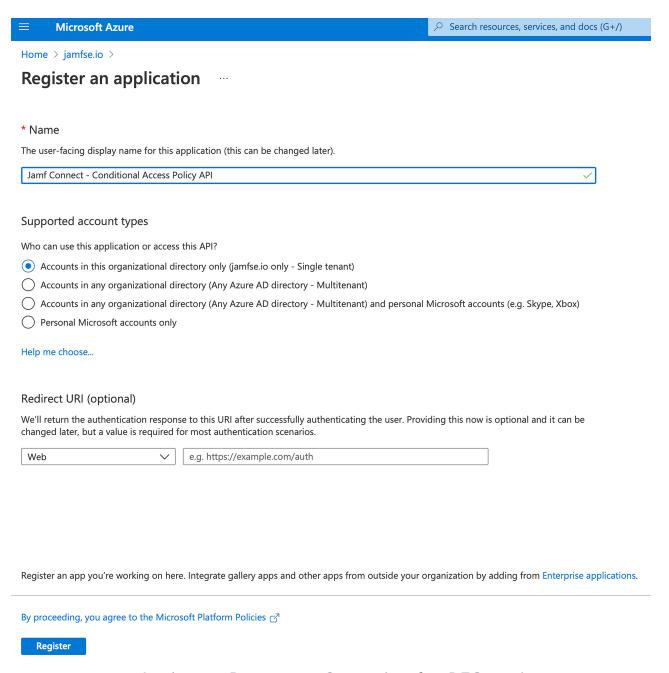
- Create an exception to Azure Conditional Access policies to exempt ROPG from requiring MFA
- Create a Jamf Connect Login configuration profile
 - o Azure as Identity Provider
 - Define a custom scope
 - o Test with Jamf Connect Configuration

Minimum system requirements

These instructions were written assuming you are using Jamf Connect version 2.17 or greater.

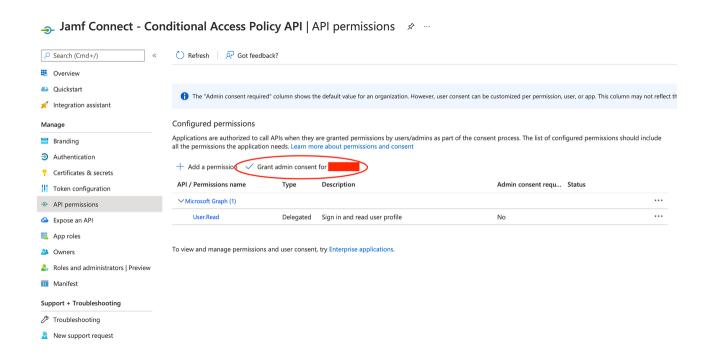
Step One: Create an application registration with a custom API

Navigate to portal.azure.com → Azure Active Directory → App Registrations. Create a new app registration. Name the application "Jamf Connect - Conditional Access Policy API". Select the supported account types to "Accounts in this organizational directory only". Leave Redirect URI section blank. Register the application.

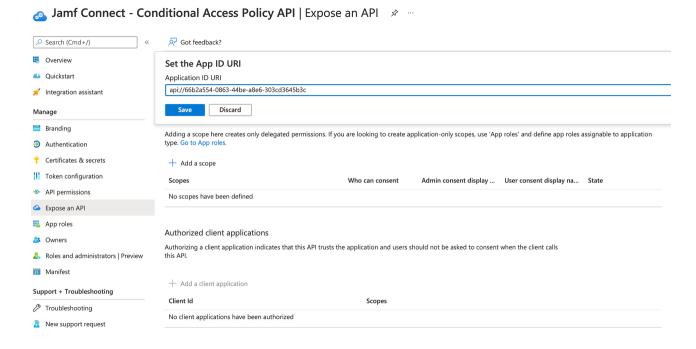


Application Registration Screen (as of 06DEC2021)

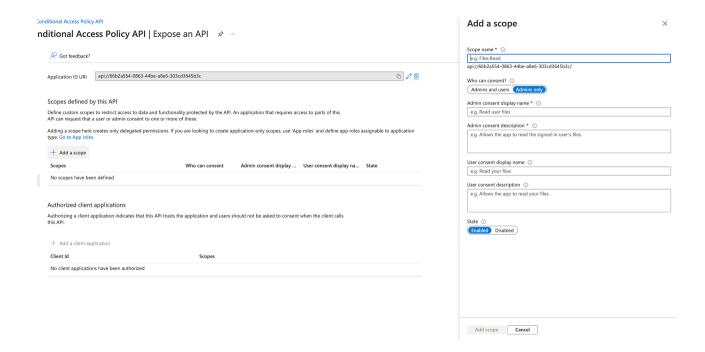
Navigate to API permissions on the left hand navigation bar. Grant admin consent for the organization.



Using the left hand navigation bar, select "Expose an API". Set the Application ID URI. A default entry will be created based on the pattern of api://[application ID]. This may be modified if desired but default entry is acceptable.

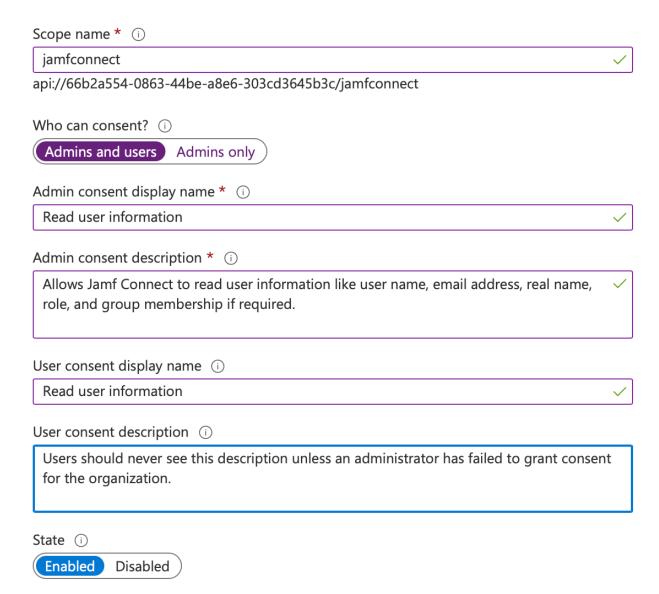


Select the option for "Add a scope"



Set the scope name to jamfconnect. "Who can consent" will be set to the default option "Admins" - you will consent on behalf of the users in the next step so this can be set either to "Admins and users" or "Admins only." Enter information into the Admin consent display name and Admin consent description. Any text is acceptable - this will be accepted by the admin in the next step. Press "Add scope" to save.

Add a scope



X

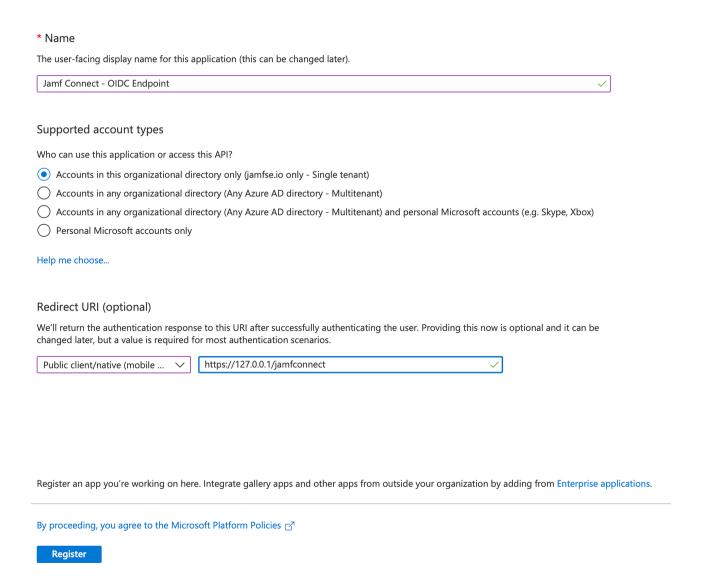


Copy the scope with the Copy button and save it for later. This will be used as the OIDCScopes later in Jamf Connect Configuration.

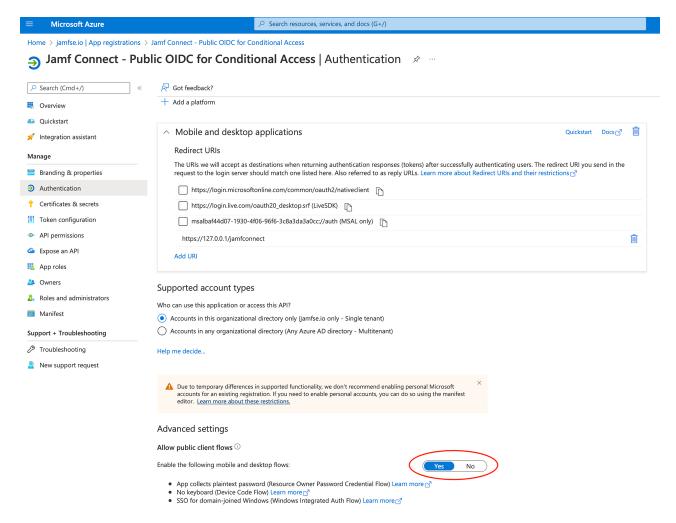
Step Two: Create an application registration that calls the custom scope

Return to Azure Active Directory → App Registrations. Create a new app registration. Name the app "Jamf Connect - OIDC Endpoint". Set Supported account types to "Accounts in this organizational directory only". Set Redirect URI to "Public client/native (mobile & desktop)" with the value https://127.0.0.1/jamfconnect. Register the application.

Register an application



Navigate to Authentication on the left hand navigation bar. Set "Allow public client flows" to "Yes." (This feature enables Resource Owner Password Grant or ROPG to validate passwords.)



Authentication page for an App registration (25AUG2022)

Navigate to API permissions. By default, the Microsoft Graph → User.Read permission is added. Use the "Grant admin consent for [domain]" button to grant permission to read the user information on behalf of the user.

Next, select "+ Add a permission". Select the "My APIs" tab. Select the name of the application you created in step 1.

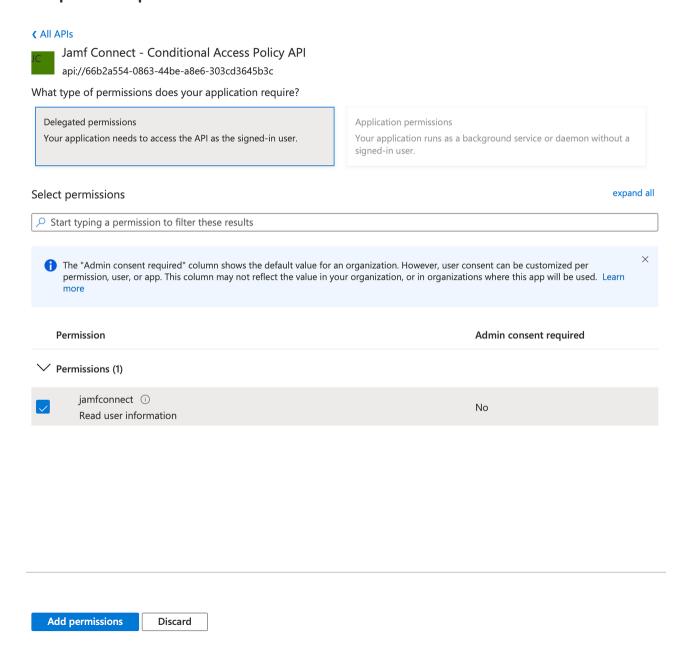
Request API permissions

Select an API

Microsoft APIs Applications that e	APIs my organization uses expose permissions are shown be	My APIs		
Name			Application (client) ID	
Jamf Setup - Ret	ail		3c272147-	
Jamf Connect - 0	Conditional Access Policy API		66b2a554-	
Jamf Connect - I	NFOSEC ONLY ACCESS		b92961e0-	

Select the option for "Delegated permissions" and check the box for "jamfconnect" - the only permission listed in the application. Use the "Add permissions" button to close the window.

Request API permissions



X

Use the "Grant admin consent for [domain]" to grant permission to access the API on behalf of users.

Optional: Use the "App roles" option to add a role for "Administrator" and "Standard". This will allow you to define users or groups of users directly in Azure who should have administrator rights on macOS client machines. "App roles" is located on the left hand navigation tool bar in the App registration - refer to https://docs.jamf.com/jamf-

connect/documentation/Login_Window_Preferences.html for more details on the OIDCAdminAttribute and OIDCAdmin settings for Jamf Connect.

Navigate to Overview. Record the Application (client) ID and the Directory (tenant) ID for later use with Jamf Connect Configuration.

↑ Essentials

Display name : Jamf Connect - OIDC Conditional Access

Application (client) ID : baf44d07-

Object ID : c520d014

Directory (tenant) ID : f83fb0da-

Supported account types: My organization only

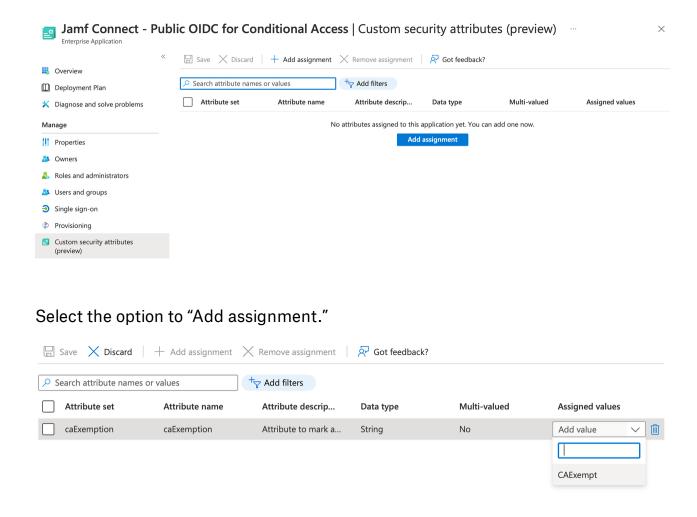
Navigate to Azure Active Directory → Enterprise Applications. Find the Jamf Connect - OIDC Endpoint application you created and assign users and roles to the application.

Step Three: Apply a custom security attribute to the Jamf Connect - OIDC Endpoint application

Follow the instructions in +Creating Custom Security Attributes in Microsoft Azure to create a custom security attribute.

Apply Custom Security Attribute to Enterprise application

Navigate to Azure Active Directory → Enterprise applications. Select the app you named "Jamf Connect - OIDC Endpoint" in step two. In the left hand navigation bar under the section "Manage", select the option for "Custom security attributes (preview)".



Select the options for the name of the attribute set you created and the attribute to mark the application exempt from Conditional Access policies.

Optional: Step Four: Create an Azure Conditional Access policy for Jamf Connect Login

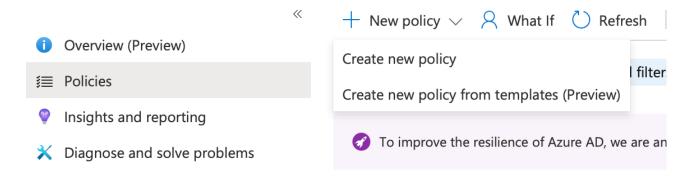
If you already have a policy scoped to the "Cloud apps or actions" of "All cloud apps" to enforce the conditional access rules you wish to use, you can skip this step.

To make a conditional access policy for the Jamf Connect application, continue.

Navigate to portal.azure.com → Azure Conditional Access. Create a new policy.

Home > Conditional Access

Conditional Access | Policies ...



Name the policy as desired. The sample will name the policy "Jamf Connect - Require Multifactor Authentication"

Home > Conditional Access >

New

Conditional Access policy

Control access based on Conditional Access policy to bring signals together, to make decisions, and enforce organizational policies. Learn more

Name * Jamf Connect - Require Multifactor Auth... < Assignments Users or workload identities (i) 0 users or workload identities selected Cloud apps or actions ① No cloud apps, actions, or authentication contexts selected Conditions (i) 0 conditions selected Access controls Grant (i) 0 controls selected Session (i) 0 controls selected

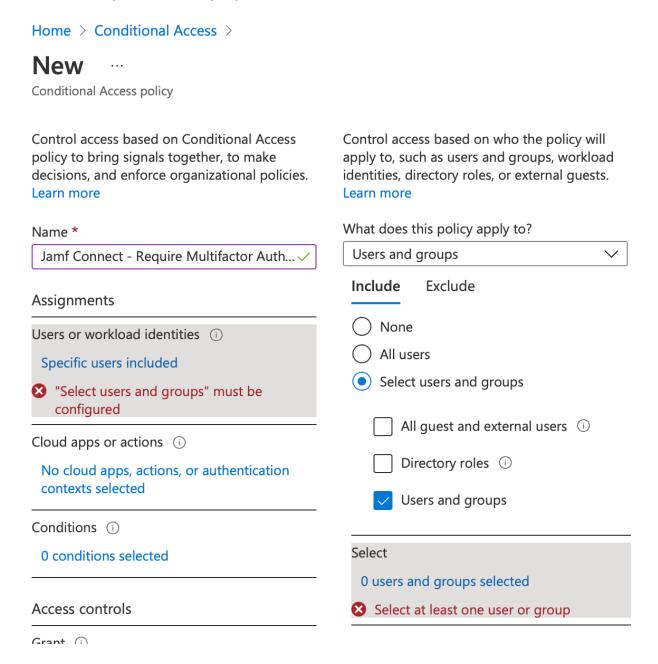




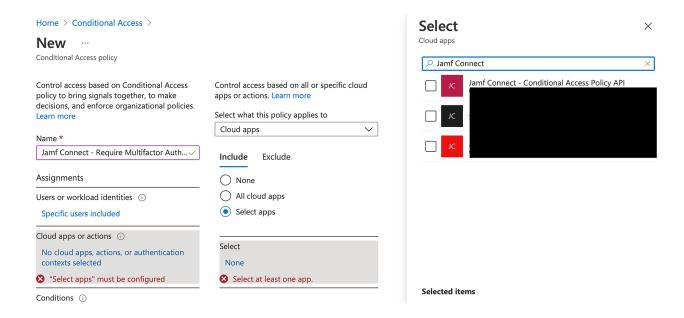
⚠ Do not block yourself out! This policy impacts the Azure portal and other clients that do not support CAE today.

Create

Select "Users or workload identities". Select a test user to test your conditional access policy before applying to all users.



Select "Cloud apps or actions". Select the "Jamf Connect - Conditional Access Policy API" app registration you created in step one.



Select "Grant". Check the options you wish to enforce as part of this policy. Set Enable policy to "On" and "Create" to save the policy.

Note: Some policies may lock users out of client macOS devices. It is not advised to apply a policy grant that requires a device to be marked as compliant or AD joined. If a device becomes non-compliant, it will be impossible to log into the device to bring it back into compliance. Similarly applying a "Condition" like being in a specific named IP address range may restrict users from logging into a macOS device to connect it to a specific network.

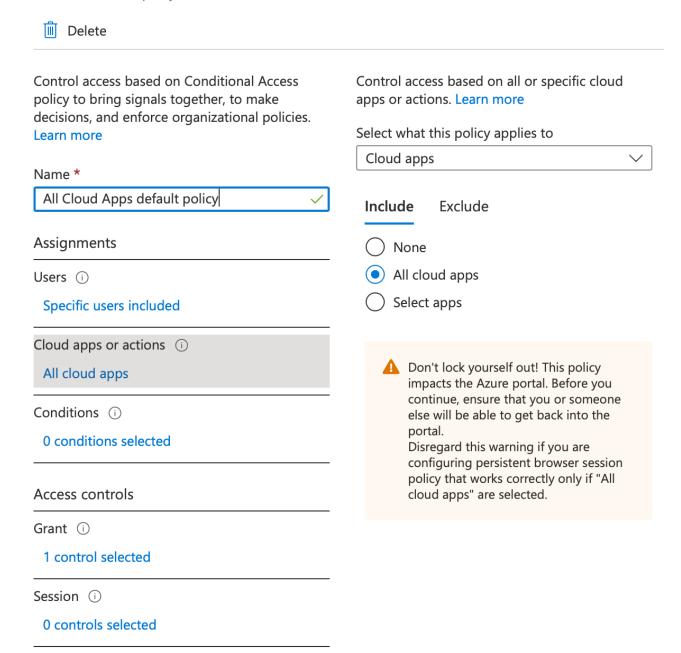
Home > Conditional Access > **Grant** X New Conditional Access policy Control access enforcement to block or grant access. Learn more Control access based on Conditional Access policy to bring signals together, to make **Block access** decisions, and enforce organizational policies. Grant access Learn more Name * Require multi-factor authentication Jamf Connect - Require Multifactor Auth... < (i) Require device to be marked as Assignments compliant (i) Users or workload identities (i) Require Hybrid Azure AD joined Specific users included device (i) Require approved client app ① Cloud apps or actions (i) See list of approved client apps 1 app included Require app protection policy (i) Conditions (i) See list of policy protected client apps 0 conditions selected Require password change ① Access controls RequireDuoMfa Grant (i) 0 controls selected For multiple controls Session (i) Require all the selected controls 0 controls selected Require one of the selected controls **Enable policy Report-only** On Off Do not block yourself out! This policy impacts the Azu today. Select Create

Step Five: Apply exclusion policy to any Conditional Access policies scoped to All cloud apps

Search your Azure Conditional Access policy list for any policies that are scoped to "All cloud apps."

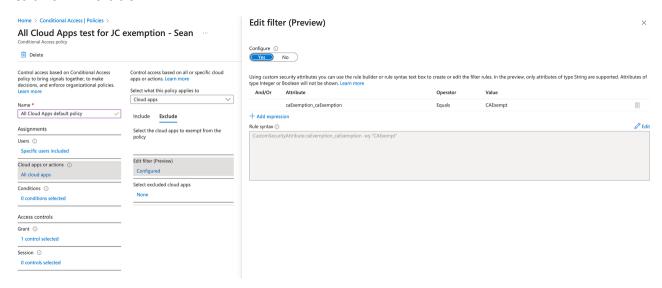
All Cloud Apps test for JC exemption - Sean

Conditional Access policy

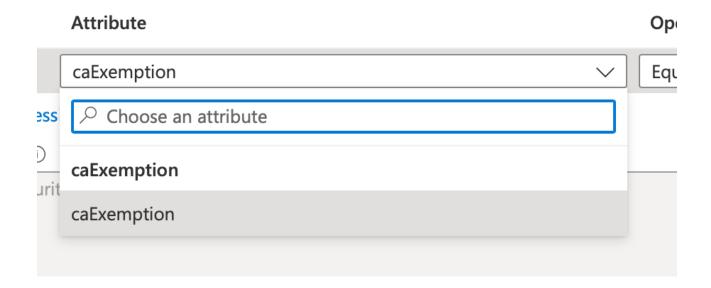


When a policy is applied to "All cloud apps," any login request using the openid scope will also be included in this policy. By adding an Exclude policy, we will eliminate the need for MFA and errors in logs for the ROPG portion of the Jamf Connect application.

Select the policy and select the section "Cloud apps or actions". Select the option "Cloud apps" for the pulldown option "Select what this policy applies to". Select the tab for "Exclude"

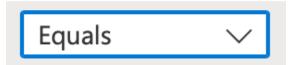


Select the option for "Edit filter (Preview)" and a new slideout window will appear. Select the option for "Configure" to "Yes". In the Attribute column, select the custom security attribute you created to exempt an app from multi-factor authentication.



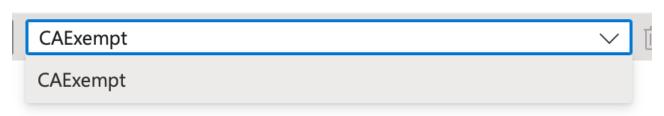
In the Operator column, select "Equals".

Operator



In the Value column, select your attribute that marks an application as exempt from MFA.

Value



Select the "Done" option to close the slideout for Edit filter. Select the "Save" button to save the conditional access policy.

Repeat this process for any conditional access policy with "All cloud apps" as a target.

Step Six: Create a Jamf Connect Configuration Profile

Use the Jamf Connect Configuration app included in the Jamf Connect software distribution disk image which you can download from account.jamf.com with your Jamf Nation credentials.

On the Identity Provider tab, set:

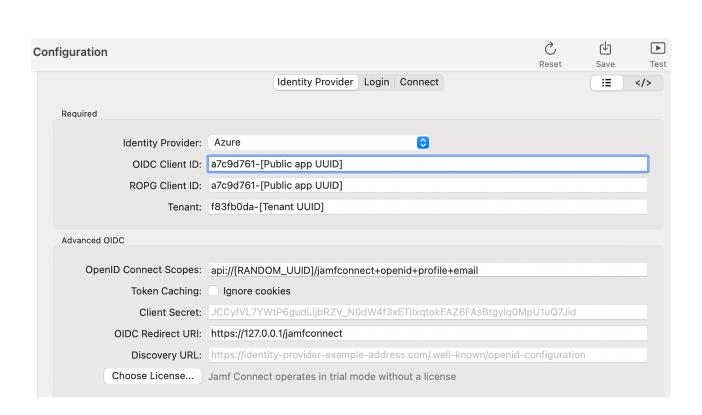
- Identity Provider: Azure
- OIDC Client ID: The application ID of the PUBLIC application you created in Step Two
- ROPG Client ID: The same application ID

- Scopes: Combine the scope you saved in Step One with +openid+profile+email to look similar to: api://[RANDOM UUID
 STRING]/jamfconnect+openid+profile+email
- Tenant: Enter the UUID of the tenant of your Azure instance. This can be found under the "Overview" tab of either of the App registrations made in Step One or Step Two.
- OIDC Redirect URI: (optional) Set to https://127.0.0.1/jamfconnect
- ROPGScopes: Set to openid+email+profile

Note: The following step is required for Jamf Connect version 2.17. Greater versions will have the ROPGScopes key in the GUI.

The configuration profile will need to be manually edited to include the following keys:

<key>ROPGScopes</key>
<string>openid+email+profile</string>



OPTIONAL: If you want to define a role for users to be made administrators on a macOS client device, on the Login tab, set:

- User Creation → Admin Roles: The value of the administrator App role you created in Step Two
- User Creation → Admin Attribute: roles

On the Connect tab, set:

- Authentication
 - ROPG Client ID: This should auto populate from your entry on the Identity Provider screen
 - ROPG Tenant: The UUID of the Azure tenant
 - ROPG Scopes: Set value to openid+email+profile

Test your configuration with the test user via OIDC. Make sure MFA was required. Validate the login in the Azure portal under Azure Active Directory → Sign-in logs. Note that there is a delay of 5-15 minutes between sign-in and the logs updating. Look for the Authentication Requirement to be "Multi-factor authentication".

Testing ROPG will require installing the configuration on a non-production test machine. Save the Jamf Connect menu bar configuration as a .mobileconfig on a non-production test machine. Install the .mobileconfig manually into System Preferences. Install the Jamf Connect.pkg from the Jamf Connect software distribution image (DMG). Log in to the Jamf Connect menu bar.

Validate in the Azure portal under Azure Active Directory → Sign-in logs that the authentication was successful. Look for the Authentication Requirement to be "Single-factor authentication". The Basic tab will show something like:

Basic info	Location	Device info	Authentication Details	Conditic	
Date		1/13/20	22, 1:00:07 PM		
Request ID		1d80175	59-1eea-416e-a079-1a862b49	5d00	
Correlation	ID	1a51280	a-b717-4dd9-ba49-39823d0d	:e55f	
Authentication requirement		ent Single-fa	Single-factor authentication		
Status		Success			

The Conditional Access tab should show that no policy was applied to the login.