

CLOUD IDENTITY SUMMIT '25

Identity Security Track

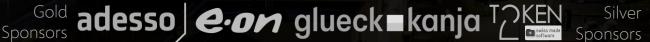
Lessons learned from many **Conditional Access implementations**

Kenneth van Surksum (Secure At Work)



























David O'Brien in • 1st

(edited) 4w

ARGOS writes your cloud audit report for you! | Founder of ARGOS ...

I mostly get it second hand now, through conversations with

cor cor

Christopher Brumm in • 1st



loc

are

Sander Berkouwer in • 1st



Entraordinary Identity Architect | DirTeam

A Conditional Access policy with:



Jop Gommans • 1st Technical project lead

Be careful with creating too many device filters in policies, they might not always work in the way (order) you might think.

Came across this is wanting to create a very explicit policy with a couple of exclusions/inclusions in the device type queries where it worked differently than expected, since those queries (each line) did an "or" instead of an "and"







- Naming
- Versioning
- Break Glass accounts
- Some "gotchas"





THE OBVIOUS

- Even though MS recommends less is better when it comes to CA policies, I prefer granularity
- Conditional Access policy per functionality
- For each Conditional Access policy there is a specific exclude group (which also includes the Breakglass accounts) – protect those groups with Restricted Management Administrative Units (RMUA)
- Therefore, if exceptions are made, they can be very specific
- Consider implementing access reviews on those exclude groups if you have Azure AD P2
- Naming convention is very important, follow MS best practices
 - <SN>- <Cloud app>: <Response> For <Principal> When <Conditions>
- The Conditional Access policies are numbered, and versioned
 - CAP = Conditional Access Prerequisite
 - CAU = Conditional Access User
 - CAD = Conditional Access Device
 - CAL = Conditional Access Location
 - CAC = Conditional Access Custom
- Example: CAD007-O365: Session set Sign-in Frequency for Apps for All users when Modern Auth Clients and Non-Compliant-v1.0







Did you know Terms of Use in conditional access does not work for GDAP access? (I didn't lol) This will result in a failure in the CA (I suppose it makes sense as the identity doesn't exist in Target tenant) - Screenshot in the comments of error.

If you are using Terms Of Use across all users then make sure to exclude service providers in User Tab and you can even whitelist by tenant here.

Did you also know that "Terms of Use" Grant can break some AiTMs (i.e. phishing) capable of "bypassing" MFA) that don't account for the terms of use challenge? I have seen this successfully cause attackers annoyance in the past but it is not substitute for stronger controls such as device compliance, #FIDO2, (or even blocking device code flow) but something to consider if you haven't reached that maturity. Bear in mind to scope any service accounts out (if you still haven't migrated) as it can affect their flow, for instance logic app/Power automate connector using on-behalf-of flow. As OnPrem Sync account is still a thing for now it will also need to be excluded. If you suddenly enforce Terms of Use for all users it will revoke tokens for all users so be careful!

Ref: https://lnkd.in/emTrpqYa

Using terms of use to give users instructions on how to enroll passkeys is a brilliant idea that I stole from Nathan McNulty and kills three birds with 1 stone.

#Entra #ConditionalAccess #Security

Include Exclude
Select the users and groups to exempt from the policy
Guest or external users ①
Service provider users
Specify external Microsoft Entra organizations
All Select

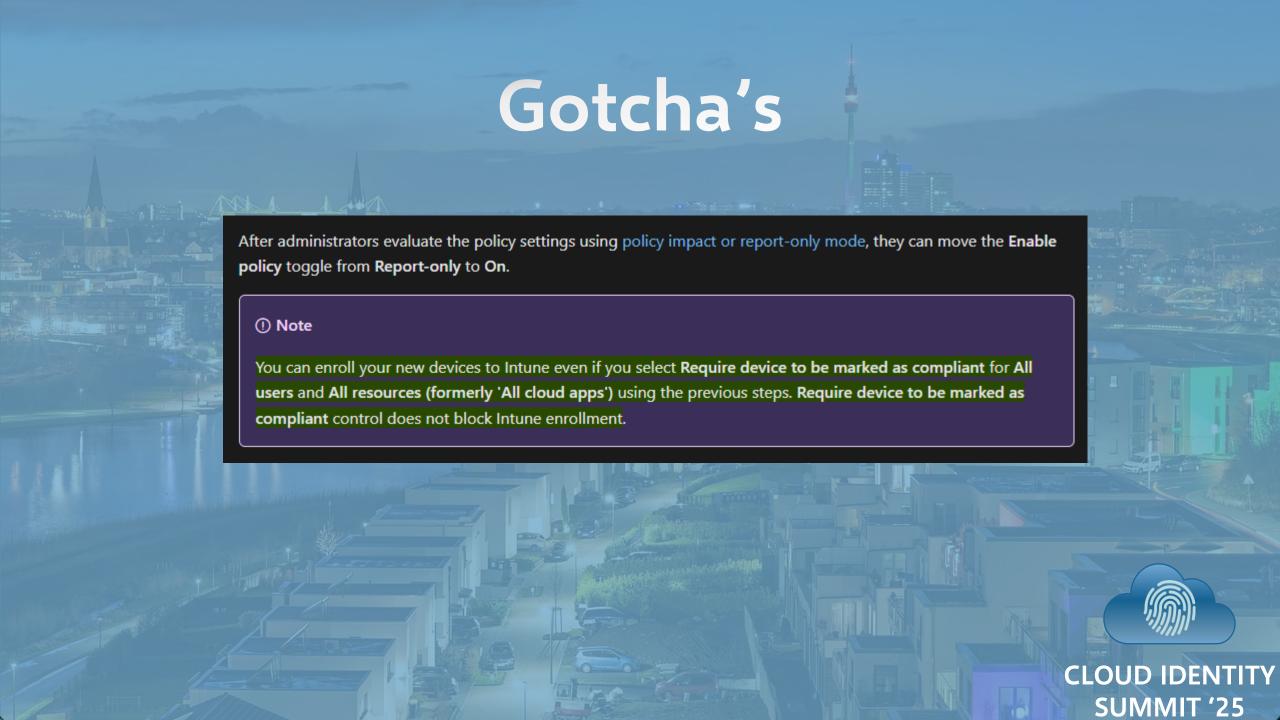
 The Intune Enrollment app must be excluded from any Conditional Access policy requiring Terms of Use because it isn't supported.

Source: Windows Autopilot known issues |
 Microsoft Learn

Delete O View policy information O	View policy impact	
ontrol access based on Conditional Access olicy to bring signals together, to make ecisions, and enforce organizational policies.	Control access based on all or specific apps, internet resources, actions, or authentication context. Learn more 🗗	
	Select what this policy applies to	
ame *	Resources (formerly cloud apps)	
CAU010-All: Grant Require ToU for All Users		
ssignments	Include Exclude	
sers or workload identities ①	Select the resources to exempt from the policy	
All users included and specific users excluded	○ None	
arget resources ①	All internet resources with Global Secure Access	
All resources (formerly 'All cloud apps') included and 2 resources excluded	Select resources	
	Edit filter	
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Not configured	Select	
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CLOUD IDENTITY

SUMMIT '25



Remote Help on Windows –

Building a Conditional Access policy

After the Remote Help service principal is created, learn more on how to set up a conditional access policy.

To apply conditional access policies to Remote Help, follow these steps:

- 1. Navigate to the conditional access policy that you created.
- 2. Select Target resources
 - a. Select Resources (formerly cloud apps) to specify what this policy applies to.
 - b. Select Exclude.
 - c. Select Select resources.
 - d. Under Select, check the RemoteAssistanceService with the app ID of 1dee7b72-b80d-4e56-933d-8b6b04f9a3e2

Source: Using Remote Help on Windows to assist authenticated users. - Microsoft Intune | Microsoft Learn



Teams Phones

When and when not to require compliant shared devices

① Note

Device compliance requires an Intune license.

When enrolling shared devices into Intune, you can configure dev that only compliant devices can access your corporate resources. Access policies based on device compliance. For more information

① Note

Shared devices being used for *hot-desking* should be excluded from compliance policies. Compliance policies prevent the devices from enrolling into the hot desk user account. **Instead, use named locations to secure these devices**. To increase security, you can also <u>require multi-factor authentication</u> for *hot-desking users / user accounts* in addition to the named location policies.

• Source: Authentication best practices for Teams phones - Microsoft Teams | Microsoft Learn

Exclude shared devices from sign-in frequency conditions

In Conditional Access, you can configure sign-in frequency to require users to sign in again to access a resource after a specified time period. If sign-in frequency is enforced for phone resource accounts, shared devices sign out until they're signed in again by an admin. Microsoft recommends excluding shared devices from any sign-in frequency policies.



Microsoft Defender for Endpoint

① Note

You can use the Microsoft Defender for Endpoint app along with the **Approved Client app**, **App Protection policy** and **Compliant Device** (Require device to be marked as compliant) controls in Microsoft Entra Conditional Access policies. There's no exclusion required for the Microsoft Defender for Endpoint app while setting up Conditional Access. Although Microsoft Defender for Endpoint on Android & iOS (App ID - dd47d17a-3194-4d86-bfd5-c6ae6f5651e3) isn't an approved app, it is able to report device security posture in all the three grant permissions.

However, internally Defender requests MSGraph/User.read scope and Intune Tunnel scope (in case of Defender+Tunnel scenarios). So these scopes must be excluded*. To exclude MSGraph/User.read scope, any one cloud app can be excluded. To exclude Tunnel scope, you need to exclude 'Microsoft Tunnel Gateway'. These permission and exclusions enables the flow for compliance information to Conditional Access.

Source: Configure Conditional Access in Microsoft Defender for Endpoint - Microsoft Defender for Endpoint | Microsoft Learn



Microsoft Defender mobile app

New-MgServicePrincipal

Microsoft Defender mobile app exclusion from Conditional Access (CA) Policies

The Microsoft Defender mobile app is a security app that needs to constantly be running in the background to report the device security posture. This security posture is used in the Compliance and App Protection policies to secure the managed apps and ensure that corporate data is accessed only in a secured device. However, with restrictive Conditional Access policies such as having Block policies based on certain locations, or enforcing frequent sign ins can result in Defender blocked from reporting posture. If the Defender app fails to report the device posture this can lead to situation where the device is under a threat, leading to vulnerability of corporate data on the device. To ensure seamless protection, we recommend excluding the Defender app from the blocking Conditional Access Policy.

Apps required to exclude

- 1. MicrosoftDefenderATP XPlat app (a0e84e36-b067-4d5c-ab4a-3db38e598ae2): MicrosoftDefenderATP XPlat app is the application responsible for forwarding Defender risk signals to the Defender backend. However, the presence of restrictive CA policies can result in Defender blocked from reporting signals. In these scenarios, we recommend excluding the MicrosoftDefenderATP XPlat app. Note, that MicrosoftDefenderATP XPlat app is also used by other platforms like Mac and Linux. So if the policy is same for these platforms, it is better to create a separate Conditional Access policy for Mobile.
- 2. Microsoft Defender for Mobile TVM app (e724aa31-0f56-4018-b8be-f8cb82ca1196): Microsoft Defender for Mobile TVM (Threat and Vulnerability Management) is the service, which provides the vulnerability assessment for the installed apps on the iOS devices. However, the presence of restrictive CA policies can result in Defender blocked from communicating the onboarding requests to the TVM backend services. This service should be excluded if MDVM (Vulnerability Assessment) is used in the organization.

Source: Resources for Microsoft Defender for Endpoint for mobile devices - Microsoft Defender for Endpoint | Microsoft Learn

Azure Virtual Desktop

(i) Important

- The clients used to access Azure Virtual Desktop use the Microsoft Remote Desktop Entra ID
 app to authenticate to the session host today. An upcoming change will transition the
 authentication to the Windows Cloud Login Entra ID app. To ensure a smooth transition, you
 need to add both Entra ID apps to your CA policies.
- Don't select the app called Azure Virtual Desktop Azure Resource Manager Provider (app ID 50e95039-b200-4007-bc97-8d5790743a63). This app is only used for retrieving the user feed and shouldn't have multifactor authentication.

Configure sign-in frequency

Sign-in frequency policies let you configure how often users are required to sign-in when accessing Microsoft Entrabased resources. This can help secure your environment and is especially important for personal devices, where the local OS may not require MFA or may not lock automatically after inactivity. Users are prompted to authenticate only when a new access token is requested from Microsoft Entra ID when accessing a resource.

Sign-in frequency policies result in different behavior based on the Microsoft Entra app selected:

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App name	App ID	Behavior
Azure Virtual Desktop	9cdead84-a844-4324- 93f2-b2e6bb768d07	Enforces reauthentication when a user subscribes to Azure Virtual Desktop, manually refreshes their list of resources and authenticates to the Azure Virtual Desktop Gateway during a connection.
		Once the reauthentication period is over, background feed refresh and diagnostics upload silently fails until a user completes their next interactive sign in to Microsoft Entra.
Microsoft Remote Desktop	a4a365df-50f1-4397- bc59-1a1564b8bb9c	Enforces reauthentication when a user signs in to a session host when single sign-on is enabled.
· ·	270efc09-cd0d-444b- a71f-39af4910ec45	Both apps should be configured together as the Azure Virtual Desktop clients will soon switch from using the Microsoft Remote Desktop app to the Windows Cloud Login app to authenticate to the session host.

Source: Enforce Microsoft Entra multifactor authentication for Azure Virtual Desktop using Conditional Access - Azure | Microsoft Learn



Microsoft Purview

Conditional Access policies and encrypted documents

If your organization has implemented Microsoft Entra Conditional Access policies that include **Microsoft Rights**Management Services and the policy extends to external users who need to open documents encrypted by your organization:

- For external users who have a Microsoft Entra account in their own tenant, we recommend you use External Identities cross-tenant access settings to configure trust settings for MFA claims from one, many, or all external Microsoft Entra organizations.
- For external users not covered by the previous entry, for example, users who don't have a Microsoft Entra
 account or you haven't configured cross-tenant access settings for trust settings, these external users must have
 a guest account in your tenant.

Without one of these configurations, external users can't open the encrypted content and see an error message. The message text might inform them that their account needs to be added as an external user in the tenant, with the incorrect instruction for this scenario to Sign out and sign in again with a different Microsoft Entra user account.

If you can't meet these configuration requirements for external users who need to open content encrypted by your organization, you must either remove Microsoft Rights Management Services from the Conditional Access policies, or exclude external users from the policies.

For more information, see the frequently asked question, I see Azure Information Protection is listed as an available cloud app for conditional access—how does this work?

- Source: Microsoft Entra configuration for content encrypted by Microsoft Purview Information Protection | Microsoft Learn
- & Conditional Access MFA Gives Outlook Desktop a Problem



Subscription Activation

Subscription activation

Organizations that use the Subscription Activation feature to enable users to "step-up" from one version of Windows to another and use Conditional Access policies to control access need to exclude one of the following cloud apps from their Conditional Access policies using **Select Excluded Cloud Apps**:

- Universal Store Service APIs and Web Application, AppID 45a330b1-b1ec-4cc1-9161-9f03992aa49f.
- Windows Store for Business, AppID 45a330b1-b1ec-4cc1-9161-9f03992aa49f.

Although the app ID is the same in both instances, the name of the cloud app depends on the tenant.

When a device is offline for an extended period of time, the device might not reactivate automatically if this Conditional Access exclusion isn't in place. Setting this Conditional Access exclusion ensures that Subscription Activation continues to work seamlessly.

Starting with Windows 11, version 23H2 with KB5034848 or later, users are prompted for authentication with a toast notification when Subscription Activation needs to reactivate. The toast notification shows the following message:

Your account requires authentication

Please sign in to your work or school account to verify your information.

Additionally, in the Activation pane, the following message might appear:

Please sign in to your work or school account to verify your information.

The prompt for authentication usually occurs when a device is offline for an extended period of time. This change eliminates the need for an exclusion in the Conditional Access policy for Windows 11, version 23H2 with KB5034848 or later. A Conditional Access policy can still be used with Windows 11, version 23H2 with KB5034848 or later if the prompt for user authentication via a toast notification isn't desired.

Source: Require compliant, hybrid joined devices, or MFA - Microsoft Entra ID | Microsoft Learn & Subscription activation Issues and the Windows Store API



Defender for Cloud Apps

Internal Session Controls application notice

The Enterprise application 'Microsoft Defender for Cloud Apps – Session Controls' is used internally by the Conditional Access App Control service.

Ensure there's no CA policy restricting access to this application. For policies that restrict all or certain applications, ensure this application is listed as an exception or confirm that the blocking policy is deliberate.

For more information, see Sample: Create Microsoft Entra ID Conditional Access policies for use with Defender for Cloud Apps.

For more information, see Conditional Access policies and Building a Conditional Access policy.

① Note

Microsoft Defender for Cloud Apps utilizes the application **Microsoft Defender for Cloud Apps - Session Controls** as part of the Conditional Access App Control service for user sign-in. This application is located within the 'Enterprise Applications' section of Entra ID. To protect your SaaS applications with Session Controls, you must allow access to this application.

If you have any Conditional Access policies that have "Block Access" selected in the "Grant Access" Control under a Microsoft Entra ID Conditional Access policy scoped to this app, end users will not be able to access the protected applications under session controls.

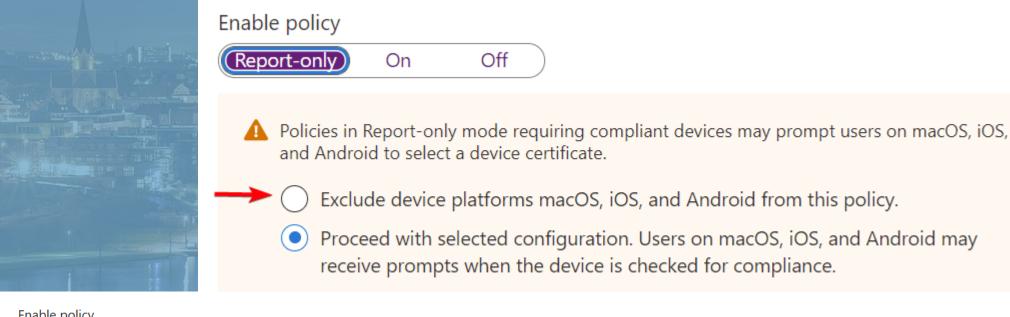
It's important to ensure that this application isn't unintentionally restricted by any Conditional Access policies. For policies that restrict all or certain applications, please ensure this application is listed as an exception in the **Target resources** or confirm that the blocking policy is deliberate.

To ensure your location-based conditional access policies function correctly, include the **Microsoft Defender for Cloud Apps – Session Controls** application in those policies.

Source: What's new - Microsoft Defender for Cloud Apps | Microsoft Learn & Create session policies - Microsoft Defender for Cloud Apps | Microsoft Learn

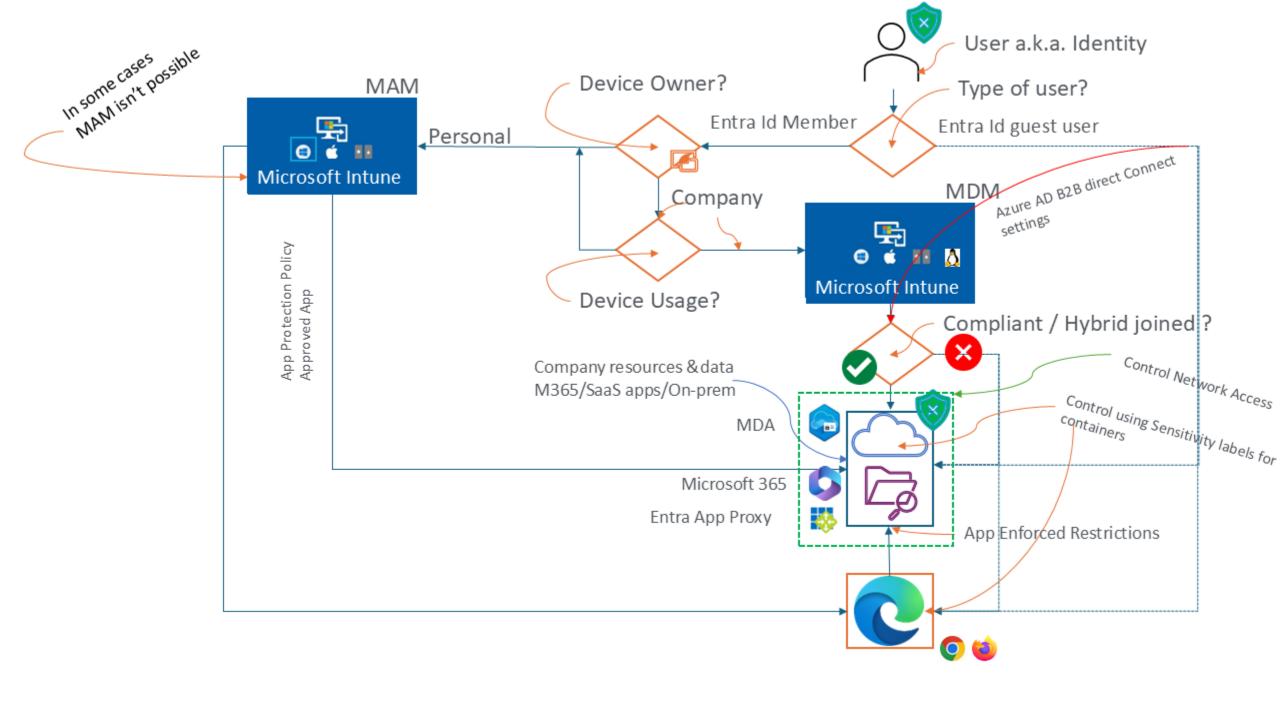


THE OBVIOUS





- Don't lock yourself out! We recommend applying a policy to a small set of users first to verify it behaves as expected. We also recommend excluding at least one administrator from this policy. This ensures that you still have access and can update a policy if a change is required. Please review the affected users and apps. <u>Learn more</u>
 - Exclude current user, admin-kenneth@itgration.onmicrosoft.com, from this policy.
 - I understand that my account will be impacted by this policy. Proceed anyway.





- Approach
 - Make a copy of every CA policy and make it a Learn policy, which stays in Report-only mode during your migration, this policy is scoped to All Users
 - You can now target Groups in your CA Policies which you are going to activate



MONITORING

- Workbooks
 - Advanced Workbooks for Conditional Access | by Christopher Brumm | Medium
- Maester





MONITORING

Member added to group starting with AAD_UA_CA

```
AuditLogs
where OperationName == "Add member to group"
extend Type = tostring(TargetResources[o].type)
where Type == "User"
extend ['GroupName'] = tostring(parse_json(tostring(TargetResources[o].modifiedProperties))[1].newValue)))
where ['GroupName'] startswith "AAD_UA_CA"
extend UserAdded = tostring(TargetResources[o].userPrincipalName)
where isnotempty(UserAdded)
summarize ['UsersAdded']=make_set(UserAdded) by ['GroupName'], startofday(TimeGenerated)
sort by ['GroupName'] asc, TimeGenerated desc
```



MONITORING

 Member added to group with name AAD_UA_ConAcc_Breakglass AuditLogs where OperationName == "Add member to group" extend Type = tostring(TargetResources[o].type) where Type == "User" | extend ['GroupName'] = tostring(parse_json(tostring(parse_json(tostring(TargetResources[o].modifiedProperties))[1].newValue))) where ['GroupName'] startswith "AAD_UA_ConAcc-Breakglass" extend UserAdded = tostring(TargetResources[o].userPrincipalName) where isnotempty(UserAdded) summarize ['UsersAdded']=make_set(UserAdded) by ['GroupName'], startofday(TimeGenerated) sort by ['GroupName'] asc, TimeGenerated desc

FILTERS

You cannot filter on device properties you don't receive in the first place

① Note

Microsoft Entra ID uses device authentication to evaluate device filter rules. For a device that is unregistered with Microsoft Entra ID, all device properties are considered as null values and the device attributes cannot be determined since the device does not exist in the directory. The best way to target policies for unregistered devices is by using the negative operator since the configured filter rule would apply. If you were to use a positive operator, the filter rule would only apply when a device exists in the directory and the configured rule matches the attribute on the device.

• Source: Filter for devices as a condition in Conditional Access policy - Microsoft Entra ID | Microsoft Learn



Control access based on all or specific apps, internet resources, actions, or authentication context. Learn more

Select what this policy applies to

Resources (formerly cloud apps)

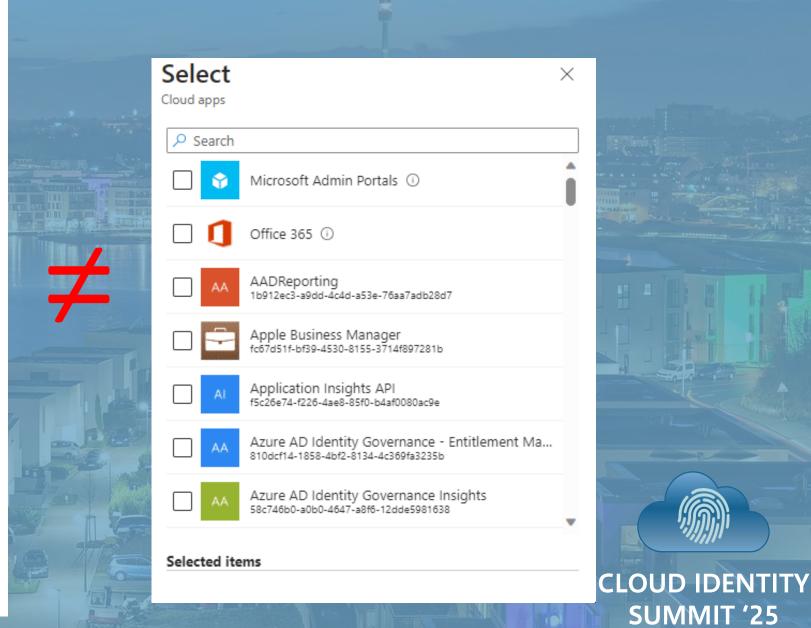
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Include Exclude

- None
- All internet resources with Global Secure Access
- All resources (formerly 'All cloud apps')
- Select resources
 - Don't lock yourself out! This policy impacts the Azure portal. Before you continue, ensure that you or someone else will be able to get back into the portal.

Disregard this warning if you are configuring persistent browser session policy that works correctly only if "All resources" are selected. <u>Learn more</u>

To create a Conditional Access policy targeting members in your tenant with Global Secure Access (GSA) as a resource, make sure GSA is deployed in your tenant. Learn more ☑



ALL RESOURCE (ALL CLOUD APPS) AND BLOCK CHALLENGES

Requested scenario's

- Only give Guest users access to Office 365
- Only allow access to CloudPC from unmanaged device

After administrators evaluate the policy settings using policy impact or report-only mode, they can move the **Enable policy** toggle from **Report-only** to **On**.

① Note

You can enroll your new devices to Intune even if you select Require device to be marked as compliant for All users and All resources (formerly 'All cloud apps') using the previous steps. Require device to be marked as compliant control does not block Intune enrollment.



ALL RESOURCE (ALL CLOUD APPS) AND BLOCK CHALLENGES

Conditional Access behavior when an all resources policy has an app exclusion

Most apps have a similar dependency, which is why these low privilege scopes are automatically excluded whenever there's an app exclusion in an **All resources** policy. These low privilege scope exclusions don't allow data access beyond basic user profile and group information. The excluded scopes are listed as follows, consent is still required for apps to use these permissions.

- Native clients and Single page applications (SPAs) have access to the following low privilege scopes:
 - Azure AD Graph: email, offline_access, openid, profile, User.Read
 - Microsoft Graph: email, offline_access, openid, profile, User.Read, People.Read
- Confidential clients have access to the following low privilege scopes, if they're excluded from an All resources
 policy:
 - Azure AD Graph: email, offline_access, openid, profile, User.Read, User.Read.All,User.ReadBasic.All
 - Microsoft Graph: email, offline_access, openid, profile, User.Read, User.Read.All, User.ReadBasic.All,
 People.Read, People.Read.All, GroupMember.Read.All, Member.Read.Hidden

For more information on the scopes mentioned, see Microsoft Graph permissions reference and Scopes and permissions in the Microsoft identity platform.

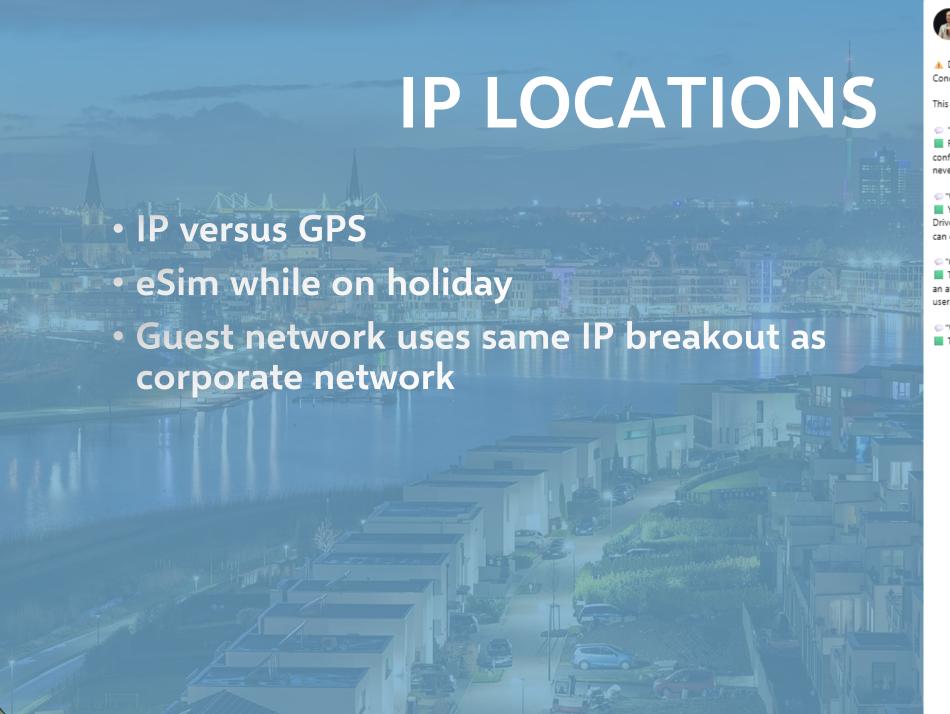
All resources

Applying a Conditional Access policy to **All resources (formerly 'All cloud apps')** without any app exclusions enforces the policy for all token requests from websites and services, including Global Secure Access traffic forwarding profiles. This option includes applications that aren't individually targetable in Conditional Access policy, such as Windows Azure Active Directory (00000002-0000-0000-0000-00000000000).

(i) Important

Microsoft recommends creating a baseline multifactor authentication policy targeting all users and all resources (without any app exclusions), like the one explained in <u>Require multifactor authentication for all users</u>.



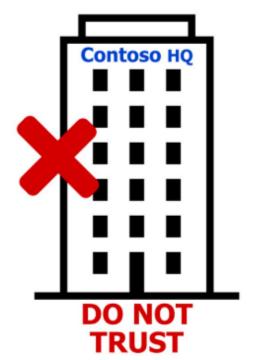




▲ Do not set your Office's IP address as a "Trusted Location" in your Entra Conditional Access policies and use it to bypass MFA ▲

This is by far the most common and dangerous CA mishap I come across.

- "We keep getting prompted for MFA"
- Review your policies for any session controls that might be improperly configured. A device using Windows Hello as the primary sign in method will almost never prompt for additional MFA, as Windows Hello counts as MFA
- "We build laptops frequently, so exclude the IT or service accounts"
- You are making the most privileged users the weakest ones. Autopilot **User-Driven** should be completed by the end user who that laptop is for, where they can complete MFA and Windows Hello config as part of the OOBE
- "Our internal network is one we trust, because we have a Next-Gen Firewall"
- Trusting the internal network is inherently against "Zero Trust" principles, and if an attacker gained remote or even physical persistence to that network, all your users are at-risk
- "We've always done it this way, since Office 365 became a thing"
- This is never an acceptable reason to continue doing anything



Thank You

Kenneth van Surksum



Kenneth van Surksum

We provide MSPs with secure Microsoft 365 baselines for use in your automation tooling...



• Latest CA Policy baseline: GitHub - kennethvs/cabaseline202503: Conditional Access baseline for March 2025



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