Exploring 3rd party apps in Entra ID: Utilizing Free and Built-In Tools for Risk Assessment Process

Who am I

Lead Security Architect @ Storebrand

Education

Master of Science in Information Security

Consultant

10+ Years as consultant

MSUG

Part of Microsoft Security User Group Organizers

Hobbies

Gaming in winter and disc golf during summer

Security MVP

MVP

Agenda

- Landscape and current state
- Demo MFA
- Entra ID Applications overview
- Detection and protection options
- 3rd party consent app demo
- Where do I start?
- Demo on how to get insight and conduct risk analysis

Threat Landscape: identity

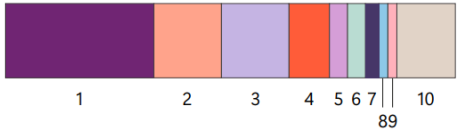
Russia

Nation state threat actor activity

Targeting by region

	Sector	Percentage
1	Europe & Central Asia	68%
2	North America	20%
3	Middle East & North Africa	5%
4	East Asia & Pacific	3%
5	Latin America & Caribbean	3%
6	South Asia	1%
7	Sub-Saharan Africa	1%

Most targeted sectors



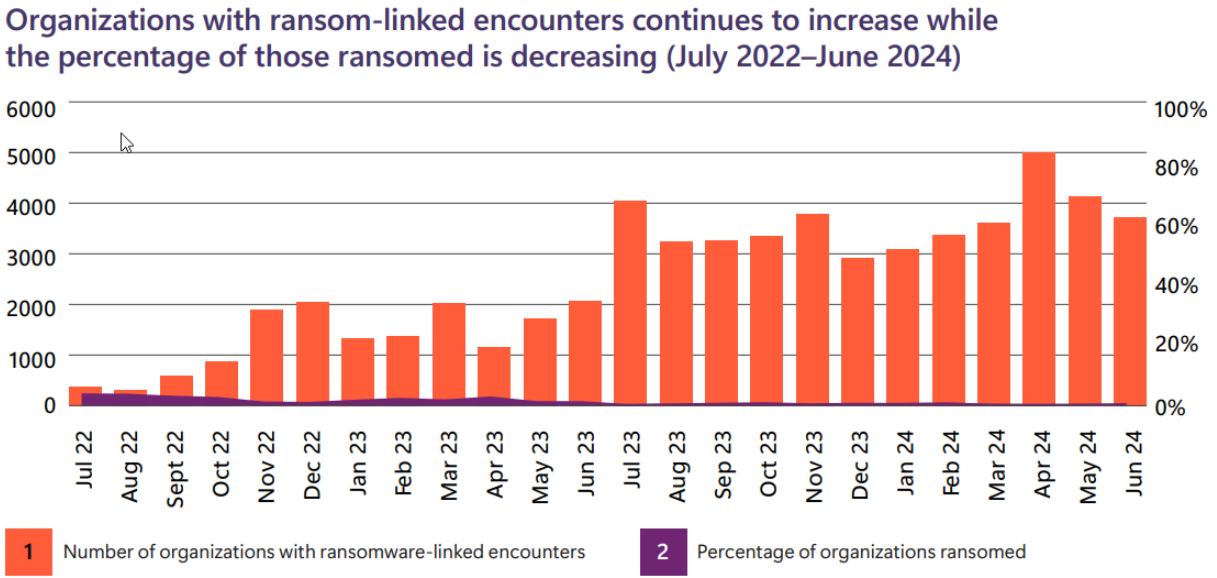
	Sector	Percentage
1	Government	33%
2	IT	15%
3	Think tanks and NGOs	15%
4	Education and Research	9%
5	Inter-governmental organization	4%
6	Defense Industry	4%
7	Transportation	3%
8	Energy	2%
9	Media	2%
10	All others	13%

600 million identity attacks per day. As multifactor authentication blocks most password-based attacks, threat actors are shifting their focus

2.6% of workload identity permissions were used and 51% of workload identities were completely inactive.

2.75x increase in human-operated ransomware-linked encounters

Ransomware statistics



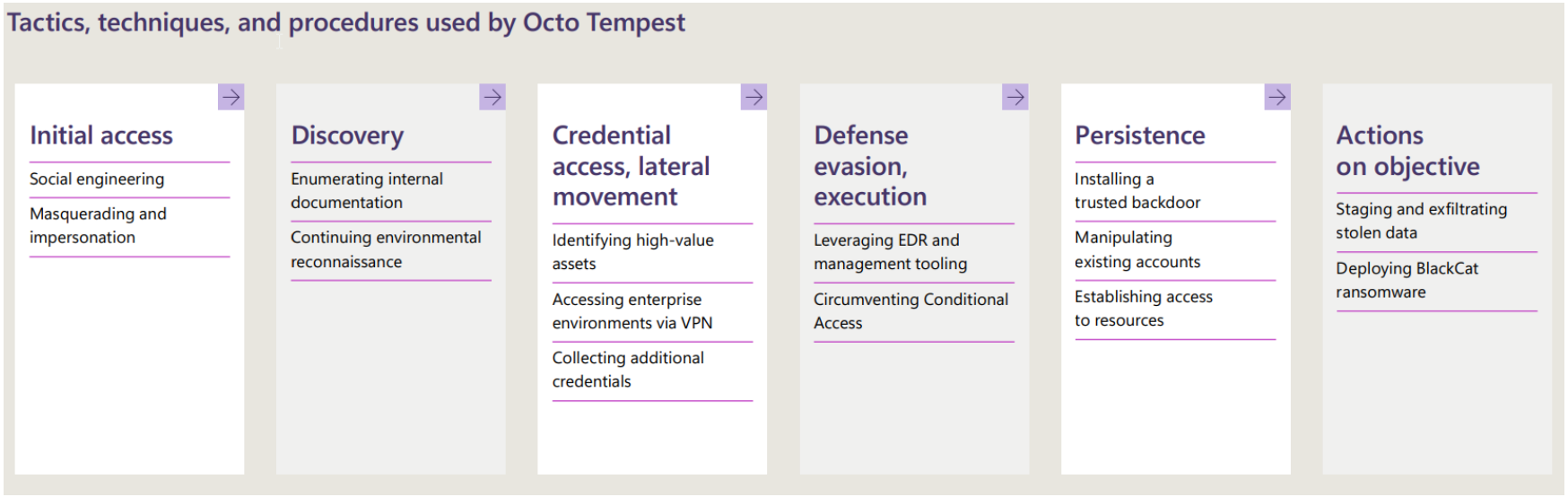
Although organizations with ransom-linked encounters continues to increase, the percentage that are ultimately ransomed (reaching encryption stage) decreased more than threefold over the past two years.

Microsoft Digital Defense report 2024

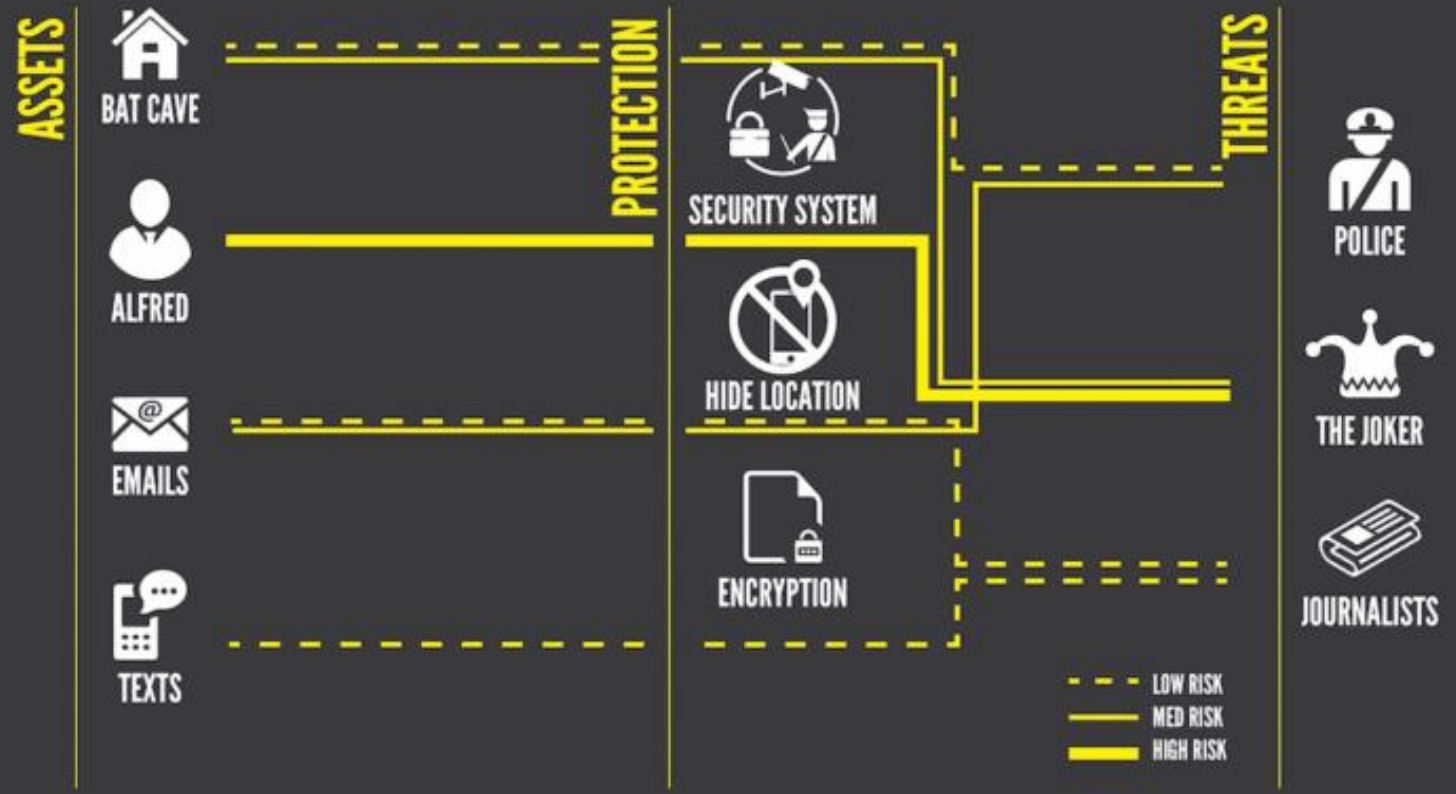
Case Study: Octo Tempest (aka Scattered Spider)

- Octo Tempest is a financially motivated cybercriminal group known for wide-ranging campaigns that feature adversary-in-the-middle (AiTM)
- Octo Tempest uses extensive social engineering techniques, including researching an organization to identify targets and then impersonating employees or members on phone calls to trick technical administrators into performing password resets or resetting multifactor authentication (MFA) methods.
- Exfiltrates data with native tools (Data factory automated pipelines)

TTP: Octo Tempest (aka Scattered Spider)



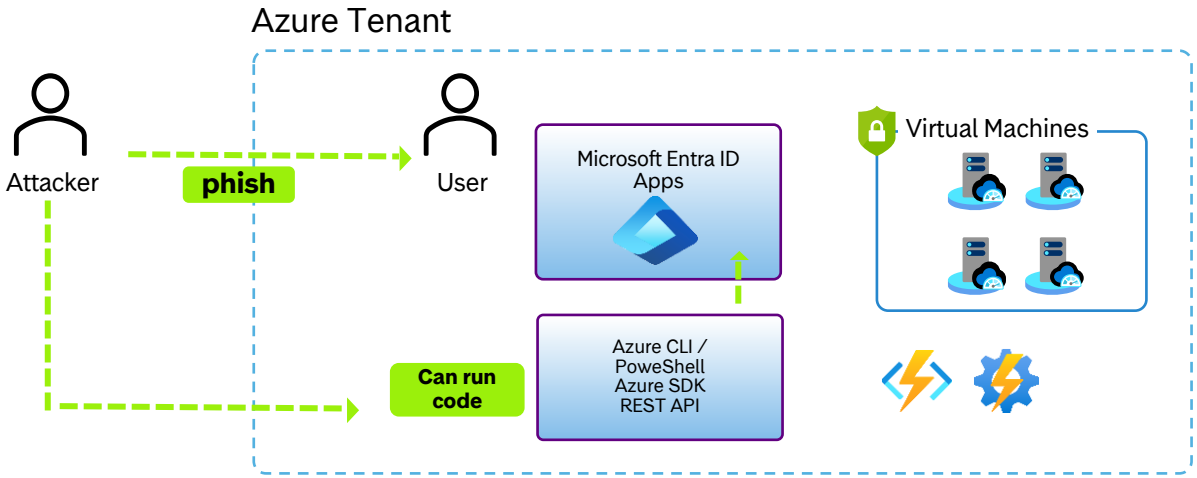
BRUCE WAYNE/BATMAN'S THREAT MODEL

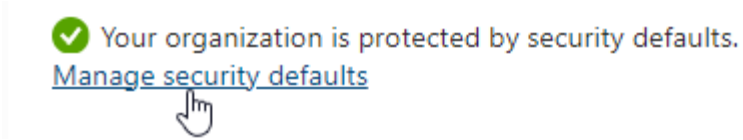


Understand your attack paths

Attack path MFA - Reconnaissance

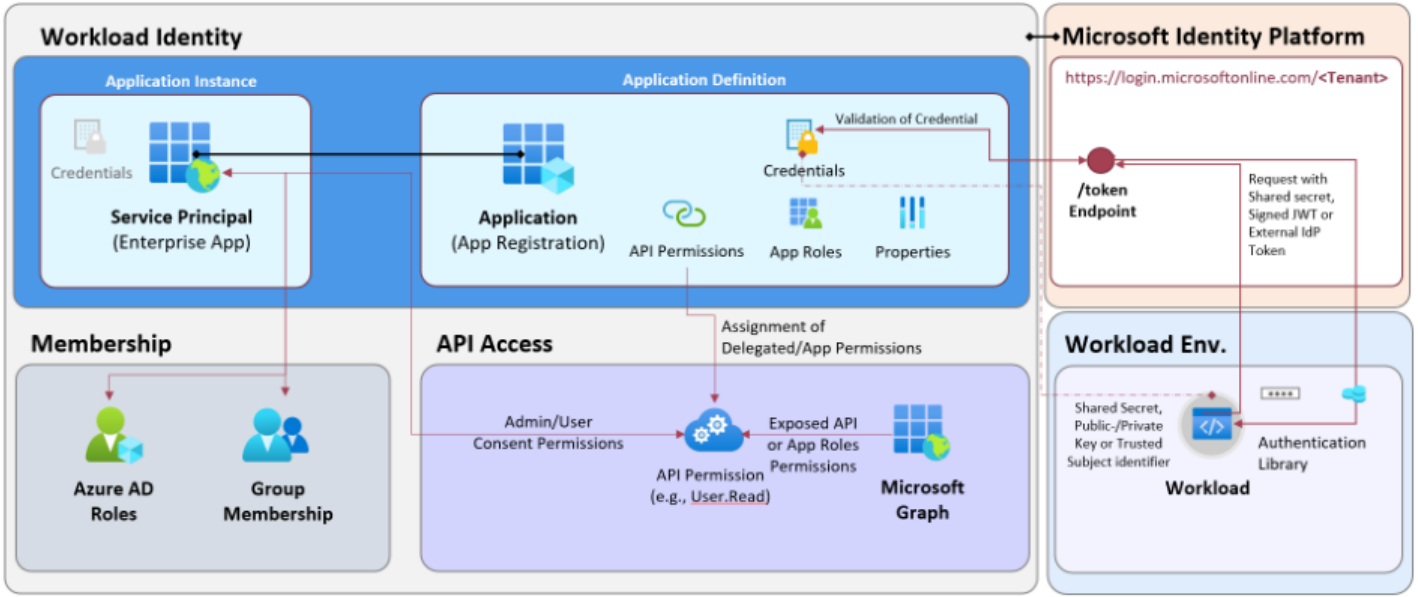
Passwords are strong enough?





Demo MFA

Entra ID Objects of Application Identities



Source: cloud-architekt.net/

Application types

1st party apps

- Developed by Microsoft and are designed to work seamlessly with the Microsoft Ecosystem
- These apps tend to be forgotten but can have a quite large attack surface.
- These apps don't always result in a service principal being created in your tenant. This can lead to confusion.

Own applications

- Developed or created by the organization
- Typical misconfiguration issues with broad access (owners
- Poor credential management
- Conditional Access
- Lack of monitoring of these apps

3rd party apps

- Managing access can be more complex than 1st party.
- Supply chain review of 3rd party apps is rarely conducted. (NSM Report)
- Conditional Access policy misconfigurations.
- Too broad access
- Lack of risk detection and monitoring

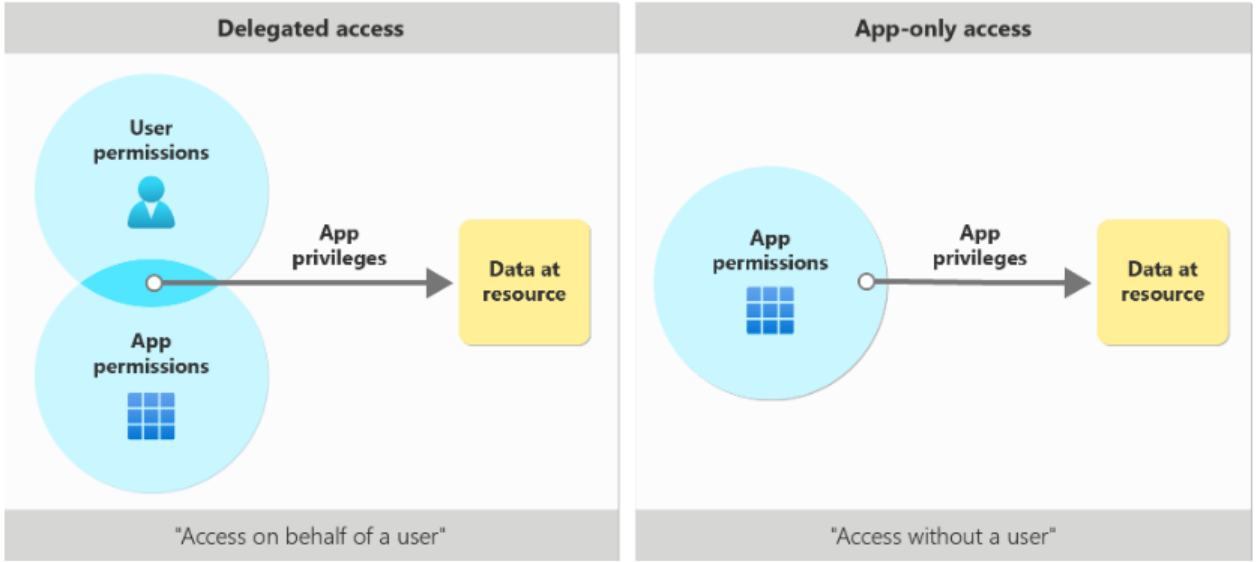
Apps we might want to limit or have control of.

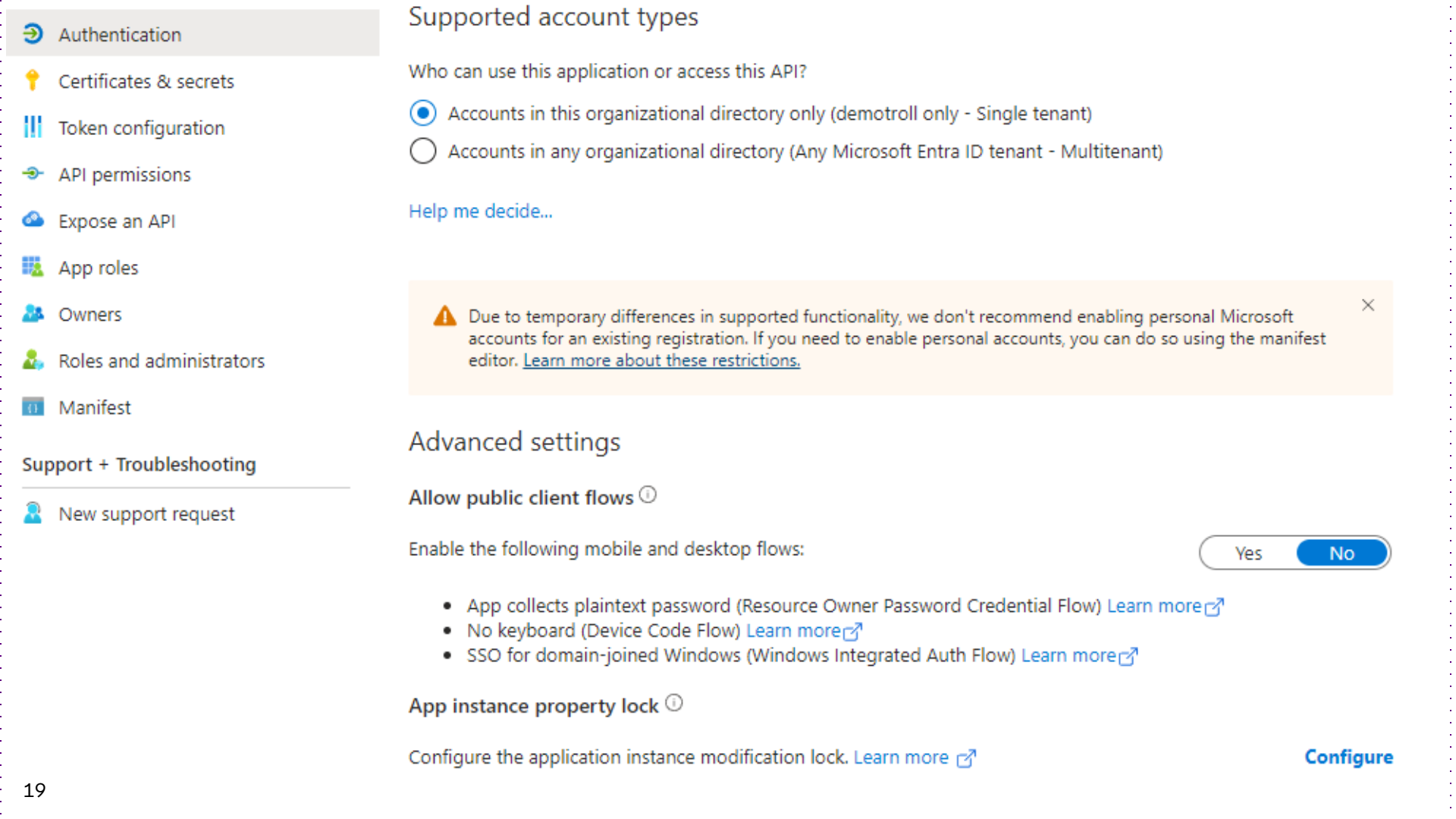
Microsoft Graph PowerShell / Microsoft Graph Command Line Tools (14d82eec-204b-4c2f-b7e8-296a70dab67e)	Azure Active Directory PowerShell (1b730954-1685-4b74-9bfd-dac224a7b894)	Microsoft Azure PowerShell (1950a258-227b-4e31-a9cf-717495945fc2)	Graph Explorer (de8bc8b5-d9f9-48b1-a8ad-b748da725064)
Microsoft Graph PowerShell (Recommended)	Planned for deprecation March 30! STILL HERE!	Planned for deprecation March 30! STILL HERE!	Powerful tool that allows you to make requests and see responses against Microsoft Graph

Verify first-party Microsoft applications

Navigating Entra ID: Consents

Delegated vs application



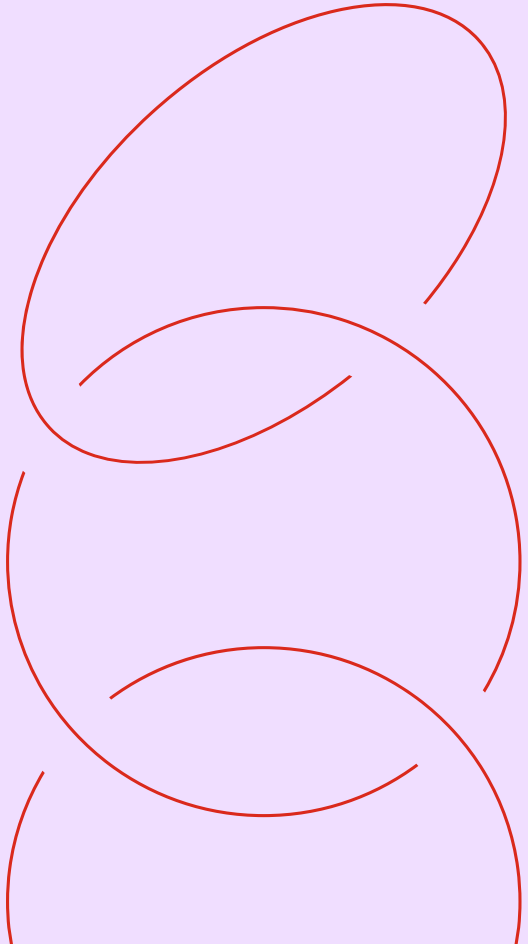

Authentication
Certificates & secrets
Token configuration
API permissions
Expose an API
App roles
Owners
Roles and administrators
Manifest
Support + Troubleshooting
New support request
Supported account types
Who can use this application or access this API?
Accounts in this organizational directory only (demotroll only - Single tenant)
Accounts in any organizational directory (Any Microsoft Entra ID tenant - Multitenant)
Help me decide...
Due to temporary differences in supported functionality, we don't recommend enabling personal Microsoft accounts for an existing registration. If you need to enable personal accounts, you can do so using the manifest editor. Learn more about these restrictions.
Advanced settings
Allow public client flows
Enable the following mobile and desktop flows:
Yes
No
App collects plaintext password (Resource Owner Password Credential Flow) Learn more
No keyboard (Device Code Flow) Learn more
SSO for domain-joined Windows (Windows Integrated Auth Flow) Learn more
App instance property lock
Configure the application instance modification lock. Learn more
Configure

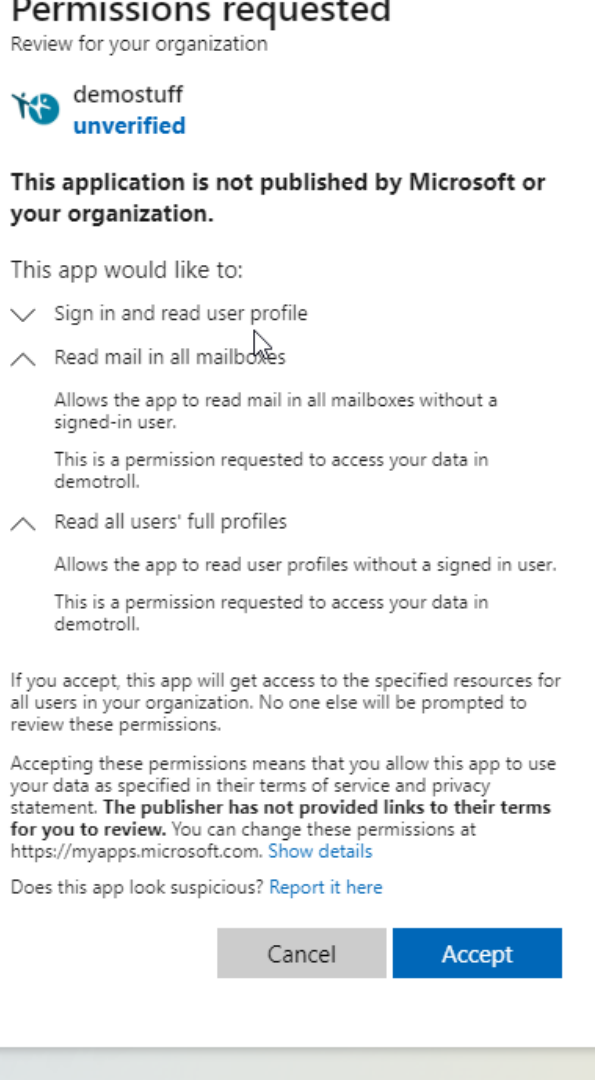
Resource lock on 3rd party apps:

- Application instance lock is a feature in Microsoft Entra ID that allows sensitive properties of a multitenant application object to be locked for modification after the application is provisioned in another tenant.

Enable property lock	Specifies if the property locks are enabled.
All properties	Locks all sensitive properties without needing to select each property scenario.
Credentials used for verification	Locks the ability to add or update credential properties used for verification.
Credentials used for signing tokens	Locks the ability to add or update credential properties used for signing tokens.
Token Encryption KeyId	Locks the ability to change the tokenEncryptionKeyId property.

Demo 3rd party app rights




Permissions requested
Review for your organization
demostuff
unverified
This application is not published by Microsoft or your organization.
This app would like to:
Sign in and read user profile
Read mail in all mailboxes
Allows the app to read mail in all mailboxes without a signed-in user.
This is a permission requested to access your data in demotroll.
Read all users' full profiles
Allows the app to read user profiles without a signed in user.
This is a permission requested to access your data in demotroll.
If you accept, this app will get access to the specified resources for all users in your organization. No one else will be prompted to review these permissions.
Accepting these permissions means that you allow this app to use your data as specified in their terms of service and privacy statement. The publisher has not provided links to their terms for you to review. You can change these permissions at https://myapps.microsoft.com. Show details
Does this app look suspicious? Report it here
Cancel
Accept

Where do I start?

- Inventory off applications is key
- Legal obligations to Dora
- Start with tier O rights
- Check if you have broad email send rights
- Use Role based access for application in Exchange online.
- When creating apps, use least privileged scopes
- Create gallery applications if possible

Demo: Insights in apps and risk process

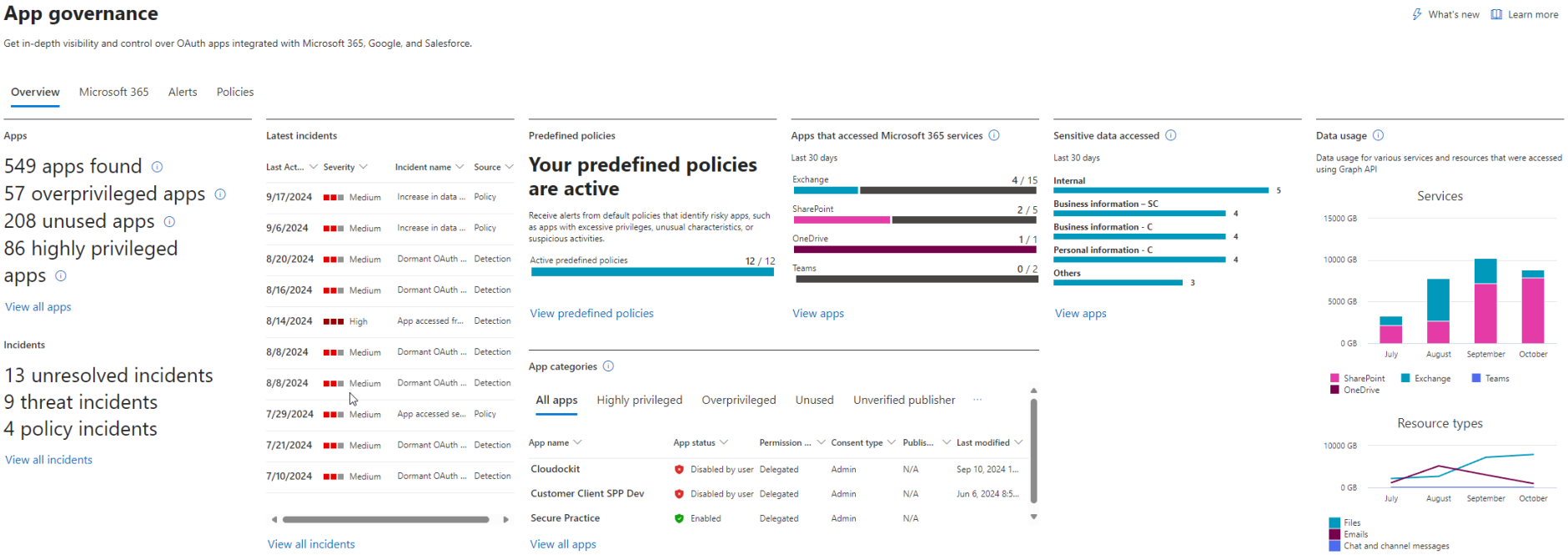
Setup basic application governance

Setup Entra ID User settings

- **Only administrators are Allowed to register applications.**
- **Only administrators are allowed to consent to applications.**
- **An admin consent workflow be configured for applications.**
- **Group owners should not be allowed to consent to applications.**

⊗ Caution

Using the **Restrict access to Microsoft Entra administration portal** switch **is NOT a security measure**. For more information on the functionality, see the table below.



Security portal – must be turned on

Navigating Entra ID: Detection and OPS

Detection with log analytics –> Monitor alert, Sentinel incident or hunting

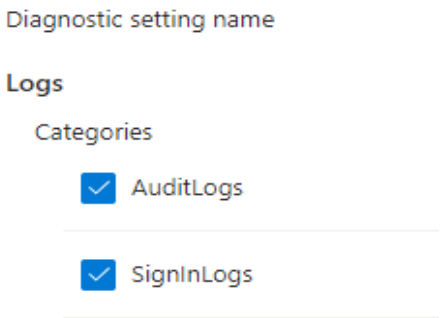
Costs graph activity of this log?

Corp A 200 users

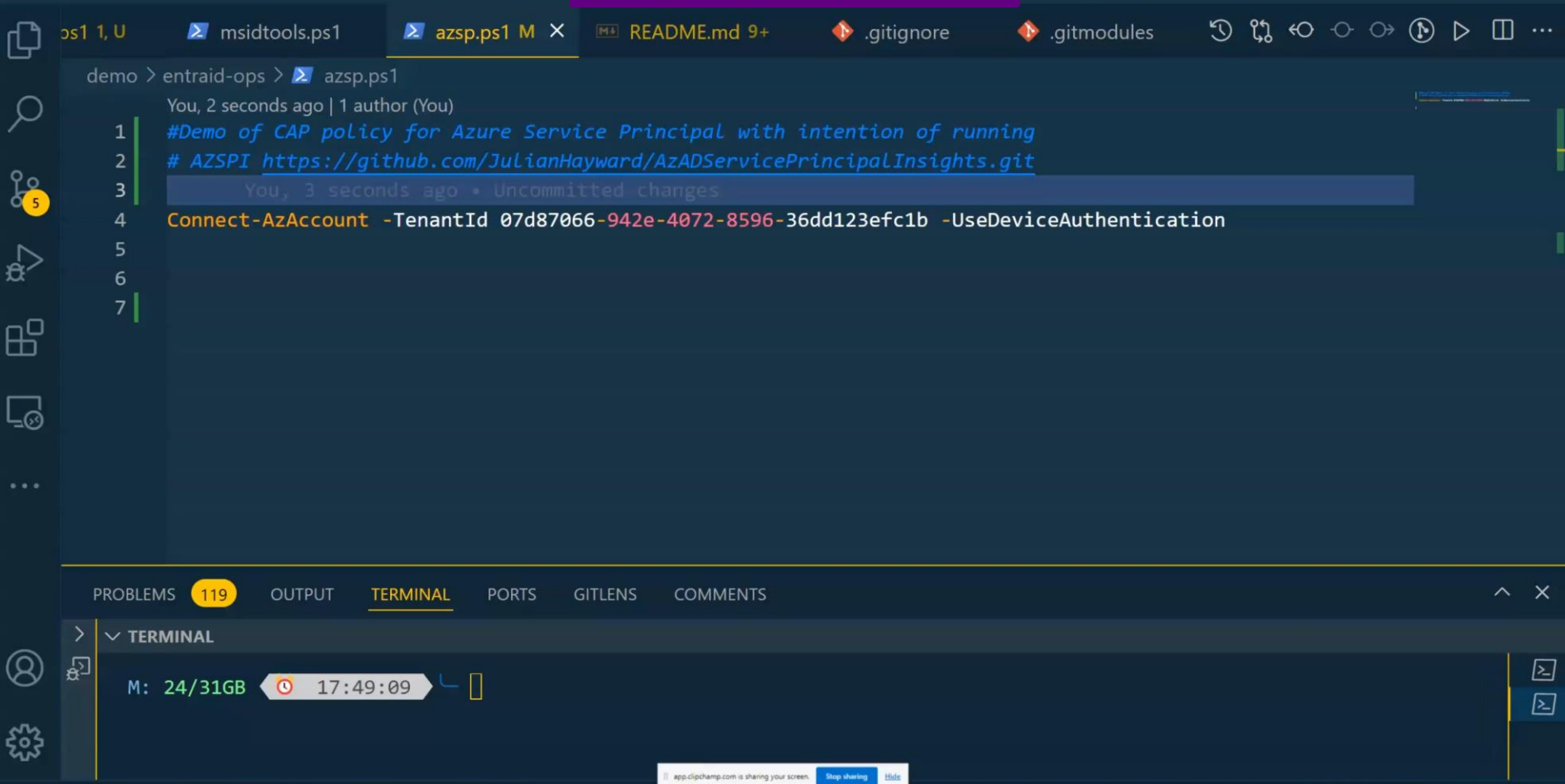
Corp B 40K users

Corp Finance

Table	Ingestion Volume
MicrosoftGraphActivityLogs	38.27MB
MicrosoftGraphActivityLogs	1.12GB
MicrosoftGraphActivityLogs	2.69GB



Conditional Access Policy



References / Tools

AzureAD/MSIdentityTools: PowerShell modules Entra ID
https://graphpermissions.merill.net/
MFASweep: A tool for checking if MFA status
Microsoft Digital Defense Report 2024
aka.ms/AzADSPI - Insights and change tracking on Microsoft Entra ID Service Principals
AppConsent

DO YOU HAVE ANY

QUESTIONS?