

Global

# Automation BOOTCAMP

5TH - 20TH FEBRUARY 2021

Solving real-world challenges with Power  
Automate and Graph API



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Jan Bakker  
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Powercommunity.com

# Nice to meet you



## Jan Bakker



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Content Hero



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<https://janbakker.tech>

**JANBAKKER.TECH**  
sharing is caring





# Solving real-world challenges

With Power Automate and Graph API

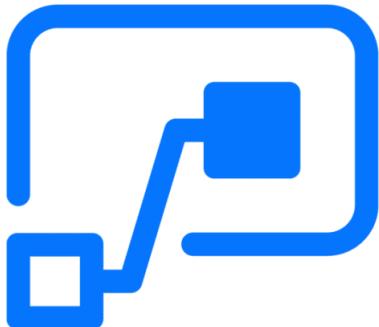


# What are you going to learn today?

- Why Power Automate?
- The Basics – How to start?
- Real-world challenge 1
- Real-world challenge 2
- Real-world challenge 3
- Bonus challenge



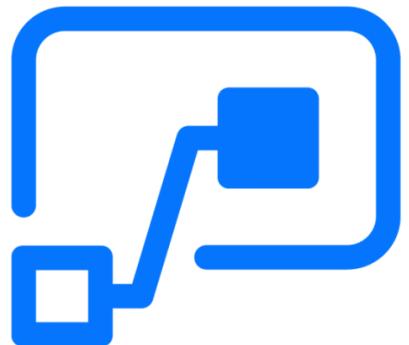
# Why Power Automate?



1. I am not good with PowerShell
2. Building scripts takes a lot of time
3. PowerShell is hard to learn
4. Power Automate eq Low code eq easy

# Power Automate & Graph API - The basics

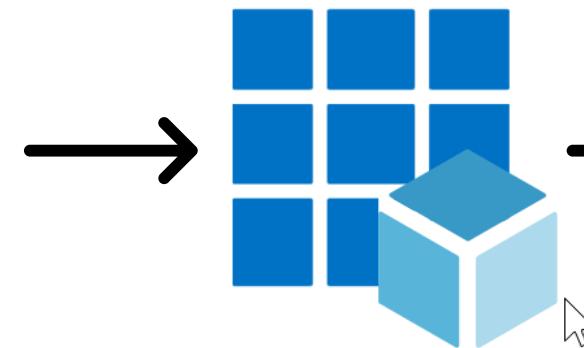
Power Automate platform



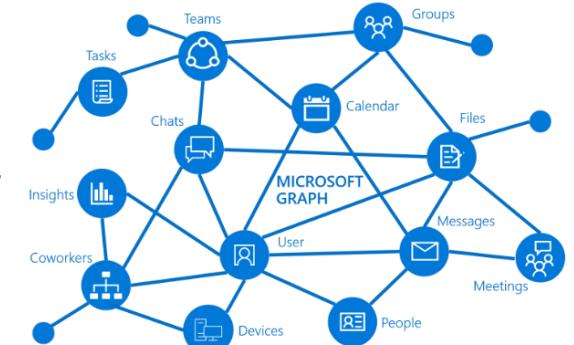
HTTP Connector



Azure AD app registration



Graph REST API



- REST API request
- REST API filter
- Authentication

- Permissions
- Secret
- App/Client ID
- Tenant ID

<https://graph.microsoft.com>

# Power Automate & Graph API - The basics

## HTTP Connector



TIP: Use Azure Key Vault for secrets

[Use Azure Key vault to avoid passing Credentials in Power Automate – Cloud Infrastructure Consultant \(wordpress.com\)](#)

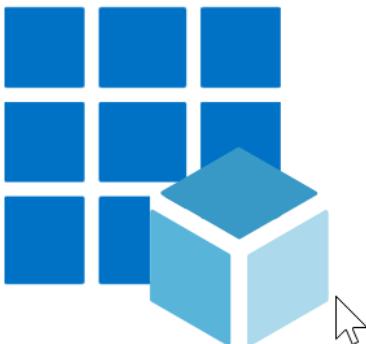
The screenshot shows the configuration of an 'HTTP' connector in Microsoft Power Automate. The configuration includes:

- Method:** GET
- URI:** https://graph.microsoft.com/beta/identity/conditionalAccess/policies
- Headers:** Enter key, Enter value
- Queries:** \$filter state eq 'enabled', Enter key, Enter value
- Body:** Enter request content
- Cookie:** Enter HTTP cookie
- Authentication:** Active Directory OAuth
- Authority:** Default: https://login.windows.net/
- Tenant:** [REDACTED]
- Audience:** https://graph.microsoft.com
- Client ID:** [REDACTED]
- Credential Type:** Secret
- Secret:** [REDACTED]

A 'Hide advanced options' button is located at the bottom left.

# Power Automate & Graph API - The basics

## Azure AD app registration



Screenshot of the Microsoft Azure portal showing the Azure AD app registration page for "Power Automate - Graph API Demo".

The left sidebar shows the following navigation paths:

- Home > Contoso >
- Microsoft Azure
- Search (Ctrl+ /)
- Overview
- Quickstart
- Integration assistant
- Certificates & secrets** (highlighted with a red box)
- Token configuration** (highlighted with a red box)
- API permissions** (highlighted with a red box)
- Expose an API
- App roles | Preview
- Owners
- Roles and administrators | Preview
- Manifest
- Support + Troubleshooting
- Troubleshooting
- New support request

The main content area displays the app registration details:

- Display name:** Power Automate - Graph API Demo
- Application (client) ID:** [REDACTED] (highlighted with a red box)
- Directory (tenant) ID:** [REDACTED] (highlighted with a red box)
- Object ID:** f737b070-6722-4be0-86e2-35d4aea4a840
- Supported account types:** My organization only
- Redirect URIs:** Add a Redirect URI
- Application ID URI:** Add an Application ID URI
- Managed application in I...:** Power Automate - Graph API Demo

A note at the bottom states: "Starting June 30th, 2020 we will no longer add any new features to Azure Active Directory Authentication Library (ADAL) and Azure AD Graph. We will continue to provide technical support and security provide feature updates. Applications will need to be upgraded to Microsoft Authentication Library (MSAL) and Microsoft Graph. [Learn more](#)"

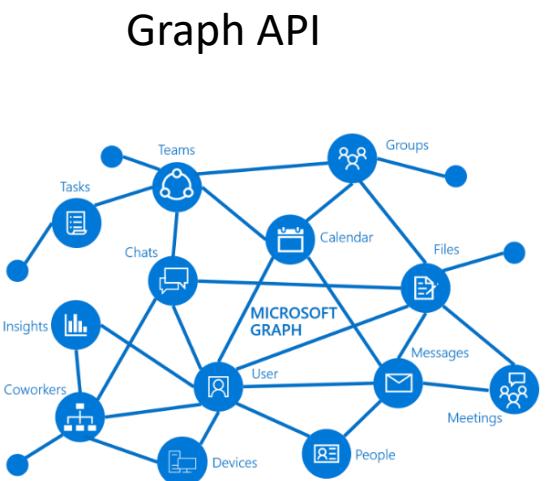
**Call APIs**: Icons for various Microsoft services including Cloud, Graph, SharePoint, OneDrive, Excel, Word, and Power BI.

**Documentation**:

- Microsoft identity platform
- Authentication scenarios
- Authentication libraries
- Code samples
- Microsoft Graph
- Glossary
- Help and Support

**View API permissions**

# Power Automate & Graph API - The basics



[Microsoft Graph REST API v1.0 reference - Microsoft Graph v1.0 | Microsoft Docs](#)

Microsoft | Docs Documentation Learn Q&A Code Samples

Microsoft Graph Guides API Reference Resources Developer Program

Microsoft Graph / v1.0 reference / Users / User / Get user

Version Microsoft Graph REST API v1.0

Filter by title

Overview

User

List users

Create user

**Get user**

Update user

Delete user

Get delta

App role assignments

Calendar

Contacts

Delegated permission grants

Get a user

12/01/2020 • 3 minutes to read • 5 people +4

Namespace: microsoft.graph

Retrieve the properties and relationships of user object.

Note: Getting a user returns a default set of properties only (`businessPhones`, `displayName`, `givenName`, `id`, `jobTitle`, `mail`, `mobilePhone`, `officeLocation`, `preferredLanguage`, `surname`, `userPrincipalName`). Use `$select` to get the other properties and relationships for the `user` object.

## Permissions

One of the following permissions is required to call this API. To learn more, including how to choose permissions, see [Permissions](#).

Permission type	Permissions (from least to most privileged)
Delegated (work or school account)	User.Read, User.ReadWrite, User.ReadBasic.All, User.Read.All, User.ReadWrite.All, Directory.Read.All, Directory.ReadWrite.All, Directory.AccessAsUser.All

Is this page helpful?

Yes No

In this article

- Permissions
- HTTP request
- Optional query parameters
- Request headers
- Request body
- Response
- Examples

# Real-world challenge

1



“Dynamic” groups in  
Azure Active Directory

`(user.department -eq "Sales") -or (user.department -eq "Marketing")`

# THE CHALLENGE

*Create a Azure Active Directory group with all the users that are enrolled for MFA*



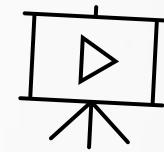
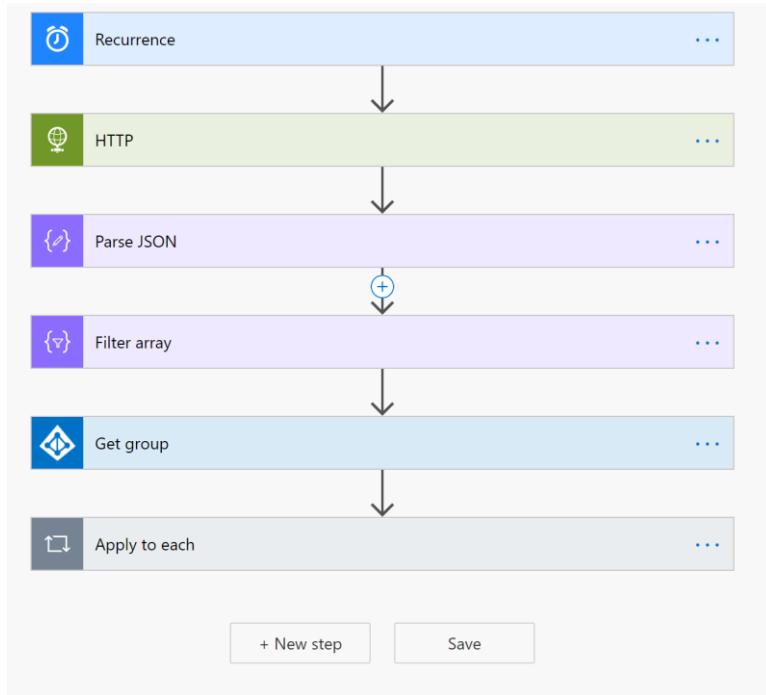
# THE SOLUTION

GET https://graph.microsoft.com/beta/reports/credentialUserRegistrationDetails?\$filter=isRegistered eq true

```
{  
  "id": "d11995c9-5093-4398-bf03-3677627efc56",  
  "userPrincipalName": "AdeleV@M365x482316.OnMicrosoft.com",  
  "userDisplayName": "Adele Vance",  
  "isRegistered": true,  
  "isEnabled": true,  
  "isCapable": true,  
  "isMfaRegistered": true,  
  "authMethods": [  
    "email",  
    "mobilePhone",  
    "officePhone",  
    "alternateMobilePhone"  
  ]  
}
```



# DEMO



Showtime!



Real-world  
challenge  
2A

Microsoft 365  
Licensing struggles

# THE CHALLENGE

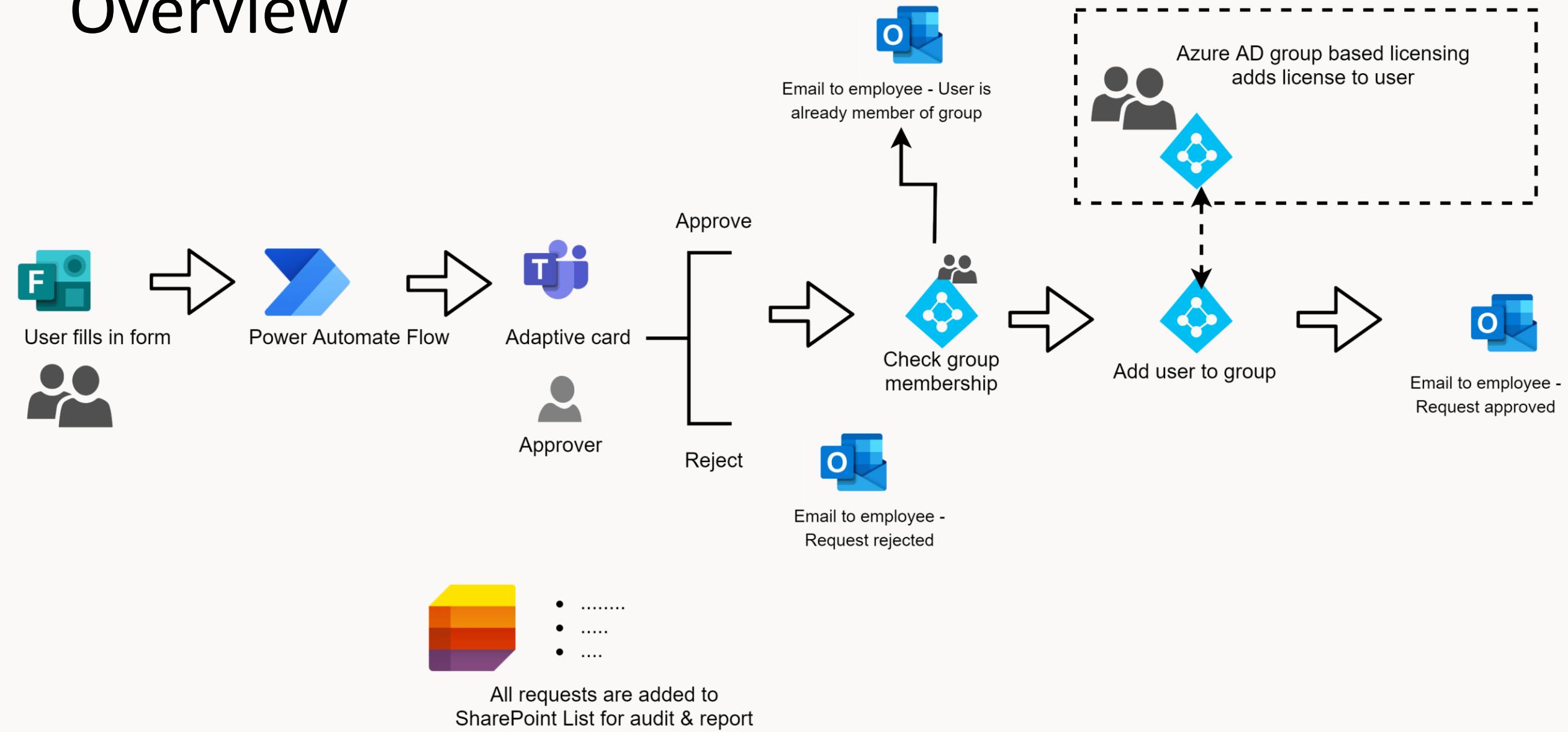
*Create a self-service Office 365  
license request with approval  
from manager*



# THE SOLUTION



# Overview



# Preperations



# Group based licensing

Building on strong features

Enterprise Mobility + Security E5

Enterprise Mobility + Security E5 | Licensed groups

« + Assign 🗑 Remove license ⏪ Refresh | ⚒ Columns

Name

Search by name

Name



L-

License - Enterprise Mobility + Security E5

# Office 365 Forms

Easy peasy

## Office 365 license request form

Request your Office 365 license

Hi MOD, when you submit this form, the owner will be able to see your name and email address.

\* Required

1. What license do you need? \*

- Power BI Pro
- Microsoft Power Apps Plan 1
- Project Plan 1
- Visio Plan 1



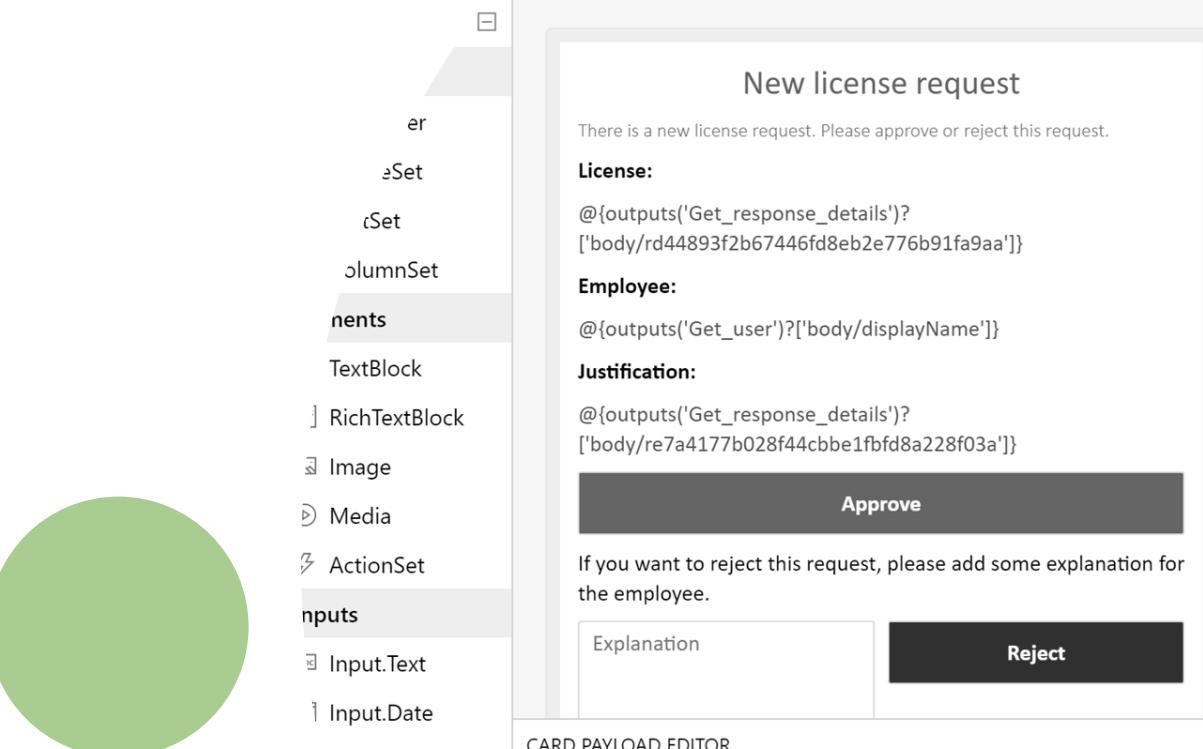
2. Please add some justification \*

Enter your answer

Exit

# Adaptive card designer

<https://www.adaptivecards.io/designer/>



```
1  {
2    "type": "AdaptiveCard",
3    "body": [
4      {
5        "type": "TextBlock",
6        "text": "New license request",
7        "wrap": true,
8        "isVisible": true,
9        "size": "Large",
10       "color": "Good",
11       "separator": true,
12       "horizontalAlignment": "Center"
13     },
14     {
15       "type": "Container",
16       "items": [
17         {
18           "type": "Container"
```

# SharePoint Lists

For reporting and auditing

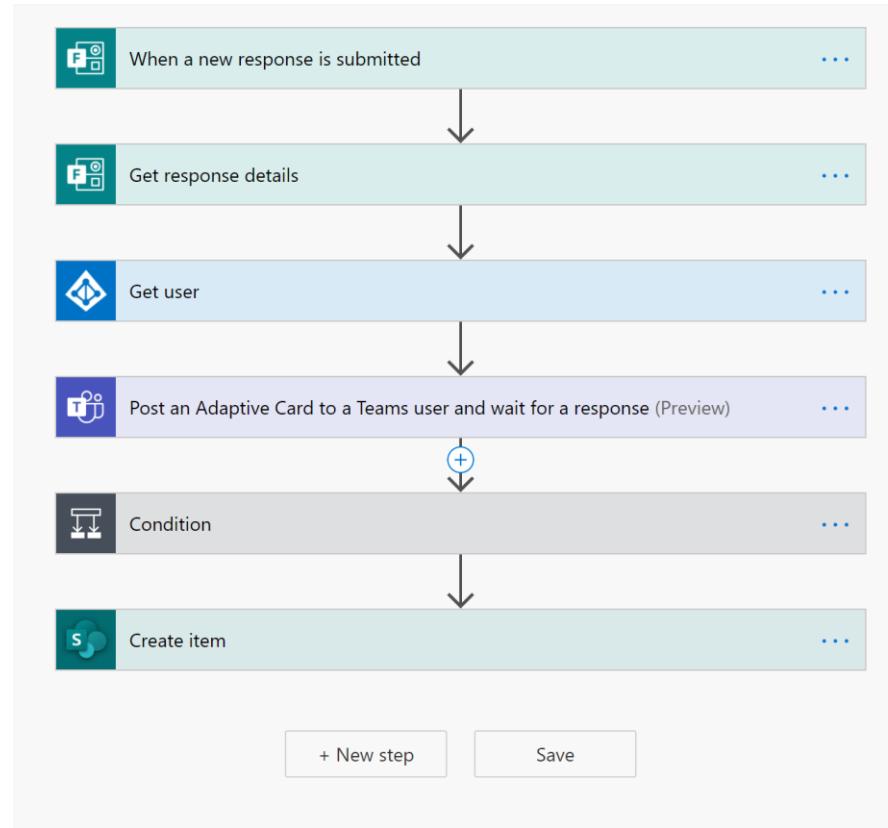
am

+ New Edit in grid view Share Export to Excel Power Apps Autom

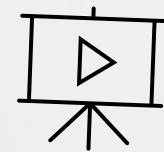
## Office 365 License requests

License	Justification	Requested by
Power BI Pro	I need Power BI Pro for my upcoming security project. Please approve this request. Thanks!	Allan Deyoung
Power BI Pro	I need Power BI Pro for my upcoming security project. Please approve this request. Thanks!	Allan Deyoung
Power BI Pro	I need Power BI Pro for my upcoming security project. Please approve this request. Thanks!	Allan Deyoung
Power BI Pro	I need this license	Allan Deyoung

# DEMO



Showtime!



Real-world  
challenge  
2B

Microsoft 365  
Licensing struggles

# THE CHALLENGE

*I want to be alerted when I'm  
(almost) out of licenses*



# THE SOLUTION

GET https://graph.microsoft.com/v1.0/subscribedSkus

```
{  
  "capabilityStatus": "Enabled",  
  "consumedUnits": 20,  
  "id": "39a5568b-aaf8-430a-a6a5-715bd29ce240_b05e124f-  
c7cc-45a0-a6aa-8cf78c946968",  
  "skuId": "b05e124f-c7cc-45a0-a6aa-8cf78c946968",  
  "skuPartNumber": "EMSPREMIUM",  
  "appliesTo": "User",  
  "prepaidUnits": {  
    "enabled": 20,  
    "suspended": 0,  
    "warning": 0  
  }  
}
```



# DEMO

If yes

 Send an email notification (V3)

\* To: MOD Administ... ;

\* Subject: Oh no! You're almost out of licenses for {v} skuPartNumber x

\* Body:

Hi!

The license count for {v} skuPartNumber x is running low!

Here's some more details:

License: {v} skuPartNumber x

Total amount: {v} enabled x

Currently in use: {v} consumedUnits x

{x} Percentage x % of the licenses are currently used.

Your threshold is configured to alert at {x} Threshold x %

Show advanced options ▾



# Real-world challenge

3

Guard your  
Conditional Access  
policies

# Conditional Access

Best = deploy as code  
Reality = Most admins create them manually



# THE CHALLENGE

*I want to make sure that Conditional Access policies are created the right way.*



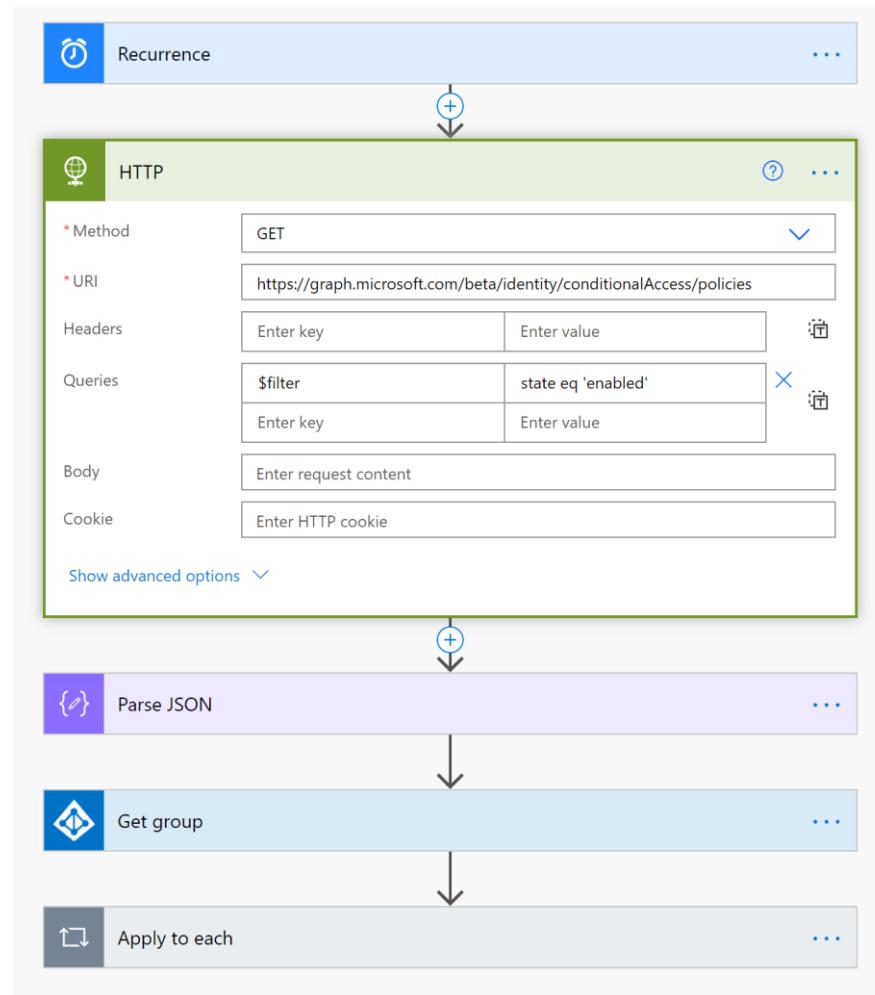
# THE SOLUTION

*GET https://graph.microsoft.com/beta/identity/conditionalAccess/policies*

```
{  
  "id": "3a1b0cc3-5d99-4ba9-98e0-7330f6eb4afb",  
  "displayName": "Real World Example Policy",  
  "createdDateTime": "2021-01-30T11:19:22.5441917Z",  
  "modifiedDateTime": null,  
  "state": "enabledForReportingButNotEnforced",  
  "sessionControls": null,  
  "conditions": {  
    "userRiskLevels": [],  
    "signInRiskLevels": [],  
    "clientAppTypes": [  
      "all"  
    ],  
    "platforms": null,  
    "locations": null,  
    "deviceStates": null,  
    "devices": null,  
    "clientApplications": null,  
    "applications": {  
      "includeApplications": [  
        "Office365"  
      ],  
      "excludeApplications": [],  
      "includeUserActions": []  
    },  
    "users": {  
      "includeUsers": [  
        "e1cdabe4-48fe-413d-b34c-477d6a39f570"  
      ],  
      "excludeUsers": [],  
      "includeGroups": [],  
      "excludeGroups": [],  
      "includeRoles": [],  
      "excludeRoles": []  
    }  
  },  
  "state": "enabledForReportingButNotEnforced",  
  "sessionControls": null,  
  "conditions": {  
    "userRiskLevels": [],  
    "signInRiskLevels": [],  
    "clientAppTypes": [  
      "all"  
    ],  
    "platforms": null,  
    "locations": null,  
    "deviceStates": null,  
    "devices": null,  
    "clientApplications": null,  
    "applications": {  
      "includeApplications": [  
        "Office365"  
      ],  
      "excludeApplications": [],  
      "includeUserActions": []  
    },  
    "users": {  
      "includeUsers": [  
        "e1cdabe4-48fe-413d-b34c-477d6a39f570"  
      ],  
      "excludeUsers": [],  
      "includeGroups": [],  
      "excludeGroups": [],  
      "includeRoles": [],  
      "excludeRoles": []  
    }  
  }  
}
```



# DEMO





Real-world  
challenge

4

Enable Azure MFA  
during COVID-19

# THE CHALLENGE

*How to do a Azure MFA roll-out with low impact when everybody is working from home*

- *Unmanaged devices*
- *Untrusted locations*
- *Account may already be compromised*
- *More pressure on IT helpdesk*
- *More pressure on employees*



# THE SOLUTION

*POST https://graph.microsoft.com/beta/me/authentication/phoneMethods*

```
{  
  "id": "3179e48a-750c-4061-897c-87b7720928f7",  
  "phoneNumber": "+31 612345678",  
  "phoneType": "mobile",  
  "smsSignInState": "notAllowedByPolicy"  
}
```

- 1. Onboard users with their mobile phone number*
- 2. If possible, let them install Microsoft Authenticator and set as default method*



# Azure MFA authentication methods

Microsoft Azure

Search resources, services, and docs (G+)

Home > Contoso > Users > Grady Archie

## Grady Archie | Authentication methods

User

Add authentication method | Reset password | Require re-registration

Diagnose and solve problems

Manage

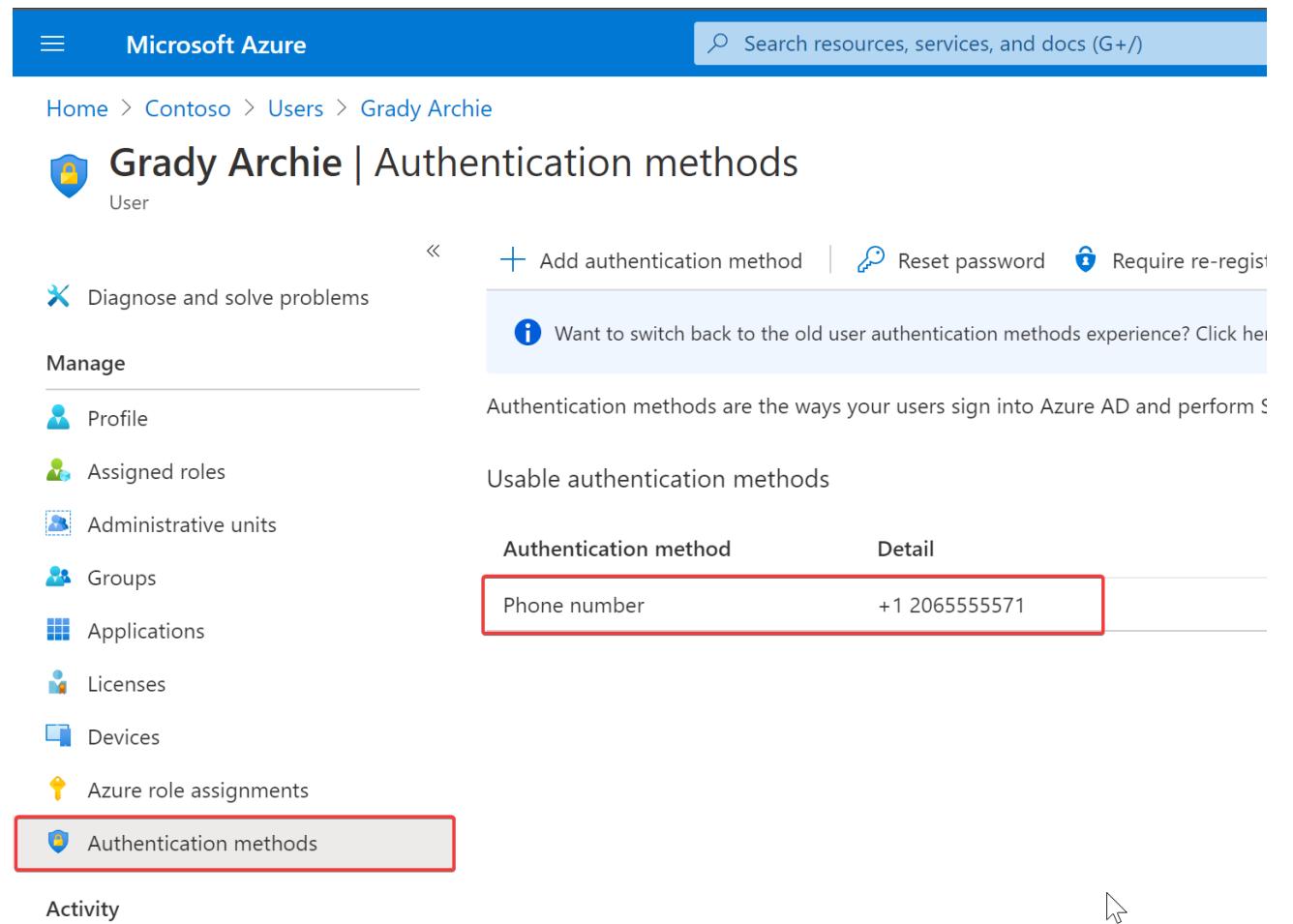
- Profile
- Assigned roles
- Administrative units
- Groups
- Applications
- Licenses
- Devices
- Azure role assignments
- Authentication methods**

Want to switch back to the old user authentication methods experience? Click here

Authentication methods are the ways your users sign into Azure AD and perform SSO.

Authentication method	Detail
Phone number	+1 2065555571

Activity

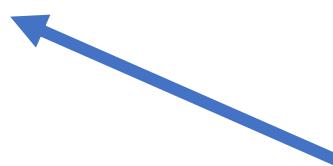


# Overview of the solution

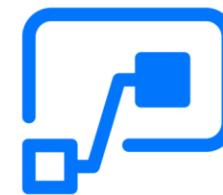


SharePoint

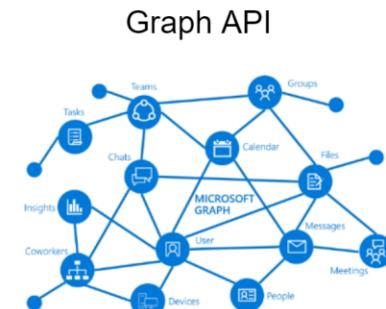
userPrincipalName	telephoneNumber
AdeleV@M365x482316.OnMicrosoft.com	+1 2065555553
AlexW@M365x482316.OnMicrosoft.com	+1 2065555554



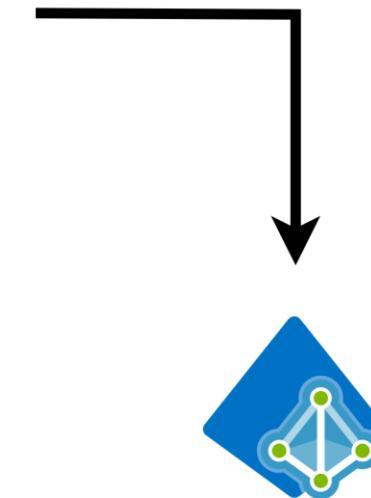
Custom Connector



Power Automate



Graph API



Azure Active Directory

# DEMO

List rows present in a table

\* Location Group - Mark 8 Project Team

\* Document Library Documents

\* File /MFA project/Book1.xlsx

\* Table Table4

Show advanced options

Apply to each

Select an output from previous steps

value

Create phoneAuthenticationMethod

\* userID userPrincipalN...

phoneNumber telephoneNum...

phoneType mobile

Add an action



# Step-by-step tutorials

1

[Use Power Automate for your custom "dynamic" groups -](#)  
[JanBakker.tech](#)

2

A [License on-demand with Power Automate and Azure AD -](#)  
[JanBakker.tech](#)

B

[Use Power Automate or Logic Apps to keep an eye on your licenses -](#)  
[JanBakker.tech](#)

3

[Use Power Automate as your Conditional Access Police Department -](#)  
[JanBakker.tech](#)

4

[Prepopulate phone methods for MFA and SSPR using Graph API -](#)  
[JanBakker.tech](#)

[Prepopulate phone methods using a Custom Connector in Power Automate -](#)  
[JanBakker.tech](#)

[Build a custom connector for Microsoft Graph API - Power Platform Community](#)



# Thanks!

Stay safe!