

Microsoft Azure Developer: Integrating an App or Service with Microsoft Graph

CONFIGURING QUERIES ACROSS MULTIPLE PRODUCTS



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Areas of Interest



Office 365



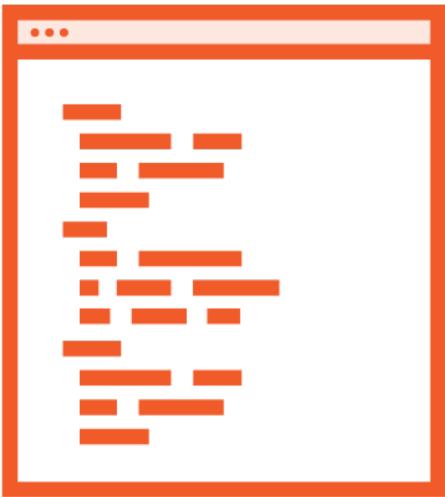
OAuth 2.0
OpenID Connect



Azure Active Directory
Microsoft Account



Download Exercise Files



Source Code



Resources.md



Overview



What is Microsoft Graph?

Securely Accessing the API

Building Solutions

Demo



What is Microsoft Graph?



Microsoft Graph

The API for Microsoft 365

<https://graph.microsoft.com>





Microsoft 365

A complete, intelligent solution, including Office 365, Windows 10, and Enterprise Mobility + Security, that empowers everyone to be creative and work together, securely.

FOR BUSINESS

FOR ENTERPRISE

FOR EDUCATION

Microsoft Graph

The API for Microsoft 365

A unified programmability model that you can use to take advantage of the tremendous amount of data in Office 365, Enterprise Mobility + Security, and Windows 10

<https://graph.microsoft.com>



Home - Microsoft Graph

https://developer.microsoft.com/en-us/graph

Microsoft | Microsoft Graph Solutions Graph Explorer Quick Starts Docs More All Microsoft Sign in

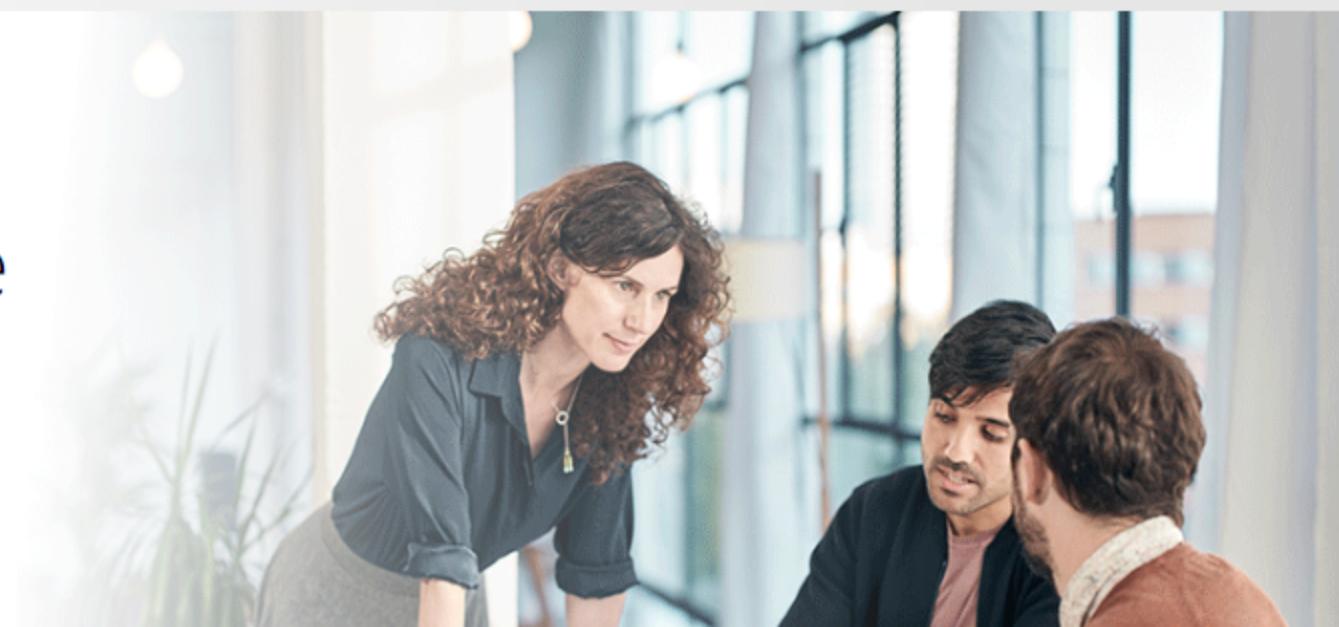
Office APP AWARDS 2018

Submit your 2018 App Award nominations by August 31st!
Winners announced at Microsoft Ignite.

SUBMIT NOMINATION >

Microsoft Graph is the API for Microsoft 365

Connect to Office 365, Windows 10, and Enterprise Mobility + Security to empower creativity and collaboration.



Graph Explorer - Micros X +

https://developer.microsoft.com/en-us/graph/graph-explorer#

Microsoft Graph

Graph Explorer

Authentication

You are currently using a sample account.
To access your own data:

Sign in with Microsoft

Sample Queries

Getting Started

Method	Endpoint	Description
GET	my profile	
GET	my photo	
GET	my mail	
GET	all the items in my drive	
GET	items trending around me	
GET	my manager	

show more samples

History

Request Body

Request Headers

Response Preview

Response Headers

Sample Categories

Category	Count	Status
Getting Started	6	On
Users	8	Off
Groups	8	Off
Outlook Mail	10	Off
Outlook Mail (beta)	1	Off
Outlook Calendar	6	Off
Personal Contacts	2	Off
OneDrive	5	Off
Excel	7	Off
Planner	13	Off
Insights	1	Off
Insights (beta)	3	Off
People	3	Off
Extensions	7	Off
OneNote	6	Off
SharePoint Sites	7	Off

Sign in

Securely Accessing the API



Azure Active Directory X +

https://docs.microsoft.com/en-us/azure/active-directory/develop/active-directory-appmodel-v2-overview

Contact Sales: 1-800-867-1389 Search Portal

Microsoft Azure

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Sign in Microsoft Account and Azure Active Directory users in a single application

04/30/2017 • 2 minutes to read • Contributors all

In the past, application developers who wanted to support both personal Microsoft accounts and work accounts from Azure Active Directory had to integrate with two separate systems. The Azure Active Directory (Azure AD) v2.0 endpoint introduces a new authentication API version that simplifies this process. The Azure AD v2.0 endpoint enables sign-in from both types of accounts by using a single integration. Applications that use the Azure AD v2.0 endpoint can also consume the REST APIs from the [Microsoft Graph API](#) by using either type of account.

Getting started

Choose your favorite platform from the following list to build an application by using the Microsoft identity library and Microsoft Authentication Library for .NET Core and ASP.NET Core.

In this article

Getting started

Learn more about the Azure AD v2.0 endpoint

Additional resources

Help and support

Is this page helpful? Yes No

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https://developer.microsoft.com/en-us/office

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 Global **Office 365**
Developer Bootcamp

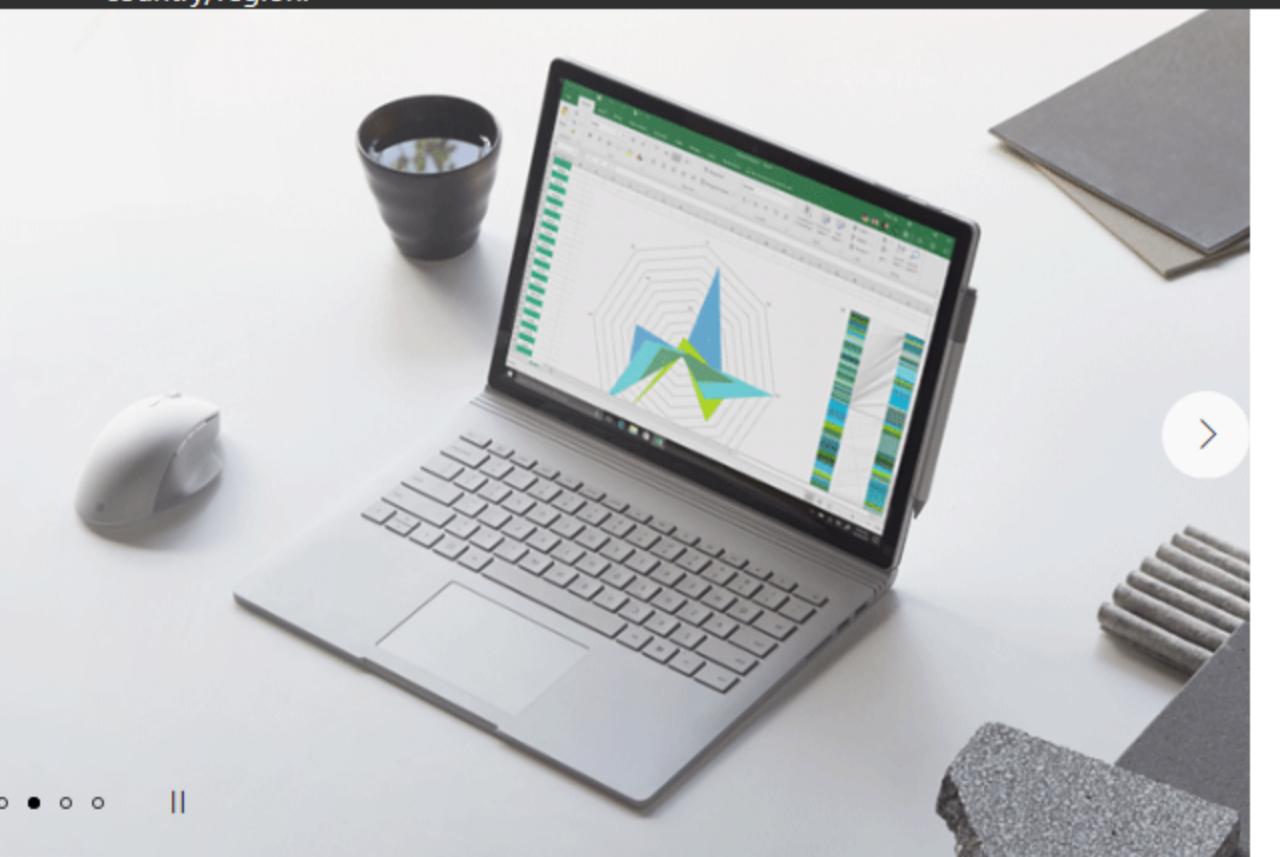
The 2018 Global Office 365 Developer Bootcamps are launching in October. Check back regularly to find Bootcamps in your country/region.

FIND BOOTCAMPS >

Extend Office 365 with Office Add-ins

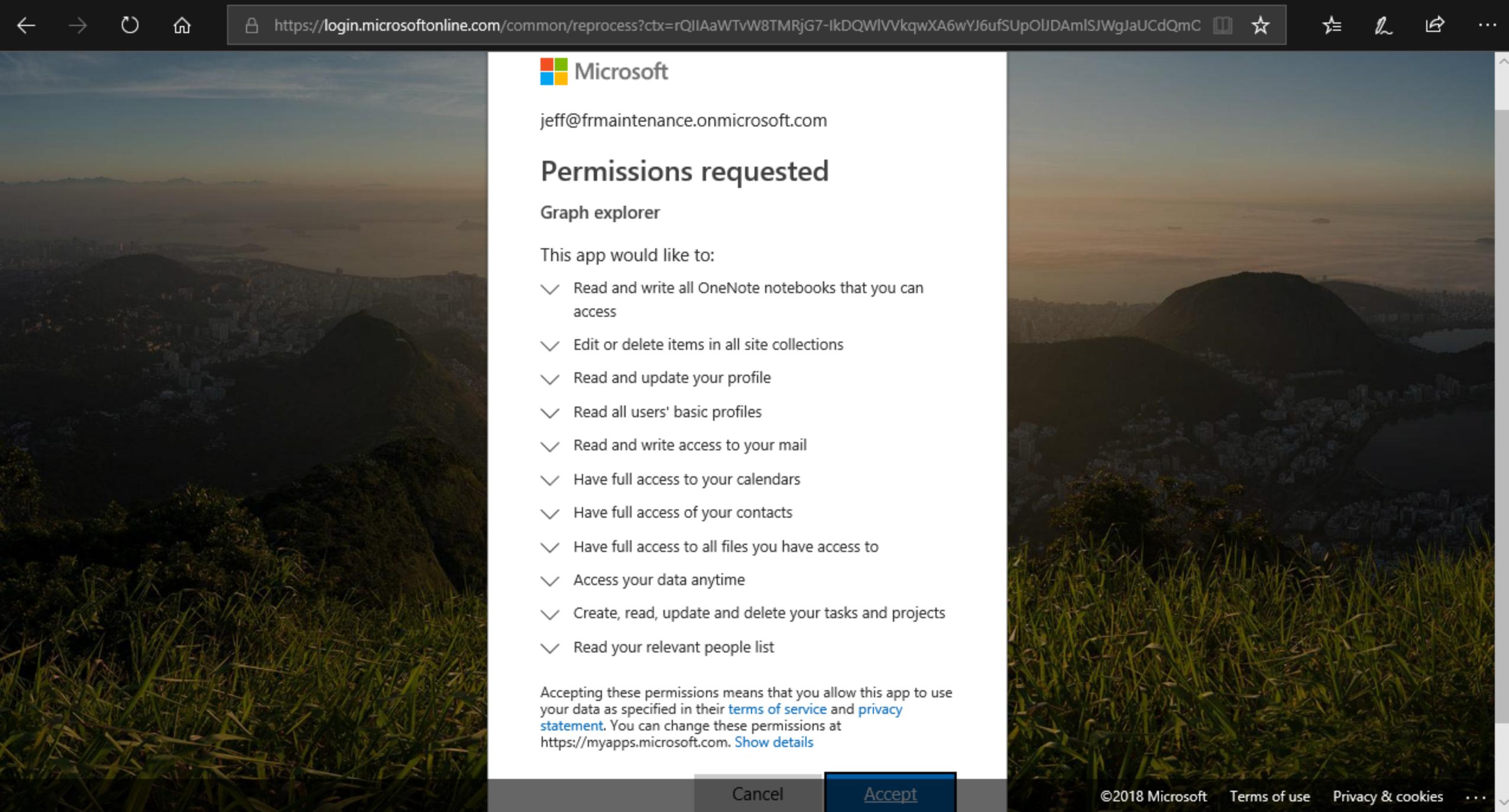
< Discover how to extend Office applications across platforms using Office Add-ins. >

LEARN MORE >



• • • • ||





https://login.microsoftonline.com/common/reprocess?ctx=rQIIAaWTvW8TMRjG7-1kDQWIVVkqwXA6wYJ6ufSUP0JDAmISJWgJaUCdQmC

 Microsoft

jeff@frmaintenance.onmicrosoft.com

Permissions requested

Graph explorer

This app would like to:

- ✓ Read and write all OneNote notebooks that you can access
- ✓ Edit or delete items in all site collections
- ✓ Read and update your profile
- ✓ Read all users' basic profiles
- ✓ Read and write access to your mail
- ✓ Have full access to your calendars
- ✓ Have full access of your contacts
- ✓ Have full access to all files you have access to
- ✓ Access your data anytime
- ✓ Create, read, update and delete your tasks and projects
- ✓ Read your relevant people list

Accepting these permissions means that you allow this app to use your data as specified in their [terms of service](#) and [privacy statement](#). You can change these permissions at <https://myapps.microsoft.com>. [Show details](#)

©2018 Microsoft Terms of use Privacy & cookies ...

Graph Explorer - Micros X +

https://developer.microsoft.com/en-us/graph/graph-explorer#access_token=eyJ0eXAiOiJKV1QiLCJub25jZSI6IkFRQUJBQUFBQUEWHPaM

Graph Explorer

Authentication

Jeff Hopper
jeff@frmaintenance.onmicrosoft.com

modify permissions sign out

Sample Queries

Getting Started

- GET my profile
- GET my photo
- GET my mail
- GET all the items in my drive
- GET items trending around me
- GET my manager

Outlook Mail

- GET my high important mail
- GET my mails from an address
- GET my mail that has 'Hello Worl...
- POST send an email

Request Body Request Headers

```
{  
  "message": {  
    "subject": "Meet for lunch?",  
    "body": {  
      "contentType": "Text",  
      "content": "The new cafeteria is open."  
    },  
    "toRecipients": [  
      {  
        "emailAddress": "jeff@frmaintenance.onmicrosoft.com"  
      }  
    ]  
  }  
}
```

Run Query

Update the Request Body and select Run Query.

Response Preview Response Headers

Graph Explorer - Micros X +

https://developer.microsoft.com/en-us/graph/graph-explorer#access_token=eyJ0eXAiOiJKV1QiLCJub25jZSI6IkFRQUJBQUFBQUEWHPaM

Graph Explorer

GET v1.0 https://graph.microsoft.com/v1.0/me/messages Run Query

Authentication

Jeff Hopper jeff@frmaintenance.onmicrosoft.com

modify permissions sign out

Sample Queries

Getting Started

- GET my profile
- GET my photo
- GET my mail
- GET all the items in my drive
- GET items trending around me
- GET my manager

Outlook Mail

- GET my high important mail
- GET my mails from an address
- GET my mail that has 'Hello Worl...
- POST send an email
- POST forward mail

Request Body Request Headers

Success - Status Code 200, 500ms

Response Preview Response Headers

```
changeKey: "CQAAABYAAACePXdGtAisSphjWHqKkOurAAALwKnt",
categories: [],
receivedDateTime: "2018-08-29T18:53:56Z",
sentDateTime: "2018-08-29T18:53:54Z",
hasAttachments: false,
internetMessageId: "<SN6PR06MB3839C6BD53B9000E85C116E088090@SN6PR06MB3839.namprd06.prod.outlook.com>",
subject: "Meet for lunch?",
bodyPreview: "The new cafeteria is open.",
importance: "normal",
parentFolderId: "AQMkADBmMTEANGYxZS1jZDA3LTQ5YTUtYmRjMS0yMWU4MTdkMDcyNGYALgAAA69LDFVu-SNN10qk41T4KyMBAJ49d0a0CKxKmGNYe",
conversationId: "AAQkADBmMTE0ZjF1LWNkMDctND1hNS1iZGMxLTIxZTgxN2QwNzI0ZgAQAJMVj4_GP9tKvwvkJUMQ0Jc=",
isDeliveryReceiptRequested: false,
isReadReceiptRequested: false,
isRead: true,
isDraft: false,
webLink: "https://outlook.office365.com/owa/?ItemID=AAMkADBmMTE0ZjF1LWNkMDctND1hNS1iZGMxLTIxZTgxN2QwNzI0ZgBGAAAAAACvSw",
inferenceClassification: "focused",
```

Sign in to your account | Users - Documentation - M | Learn about the authorization

List messages - Document

https://developer.microsoft.com/en-us/graph/docs/api-reference/v1.0/api/user_list_messages

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- Identity and access

List messages

Edit in GitHub

Get the messages in the signed-in user's mailbox (including the Deleted Items and Clutter folders).

Currently, this operation returns message bodies in only HTML format.

Get messages in another user's message folder

If you have application permissions, or if you have the appropriate delegated [permissions](#) from one user, it's possible to get messages from another user's message folder. This section focuses on scenarios that involve delegated permissions.

For example, your app has acquired delegated permissions from the user, John. Suppose another user, Garth, has shared a message folder with John. You can get the messages in that shared folder by specifying Garth's user ID (or user principal name) in the example query shown below.

```
GET /users/{Garth-id | Garth-userPrincipalName}/messages
```

This capability applies to all the supported GET messages operations for an individual user, as listed in the [HTTP request](#) section below. It also applies if Garth has delegated his entire mailbox to John.

If Garth has not shared his message folder with John, nor has he delegated his mailbox to John, specifying Garth's user ID or user principal name in those GET operations will return an error. In such cases, specifying a user ID or user principal name only works for getting messages in the signed-in user's own message folders, and the query is equivalent to using the /me shortcut:

Graph Explorer - Microsoft | List messages - Document

https://developer.microsoft.com/en-us/graph/docs/api-reference/v1.0/api/user_list_messages

Optional query parameters

This method supports the [OData Query Parameters](#) to help customize the response.

Request headers

Name	Type	Description
Authorization	string	Bearer {token}. Required.
Prefer: outlook.body-content-type	string	The format of the body and uniqueBody properties to be returned in. Values can be "text" or "html". If the header is not specified, the body and uniqueBody properties are returned in HTML format. Optional.

Request body

Do not supply a request body for this method.

Response

If successful, this method returns a **200 OK** response code and collection of Message objects in the response body.

The default page size for this request is 10 messages.

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- Workbooks and charts

EXCEL

DEVELOP

- Get auth tokens
- Use the API
- v1.0 reference
 - Users
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 - Calendar
 - Contacts
 - Directory objects
 - Drive
 - Groups
 - Mail

List messages

Create message

Personal contacts

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Reports

> Security (preview)

Sites and lists

SHAREPOINT

> Social intelligence

Tasks and plans

PLANNER

Teamwork (preview)

MICROSOFT TEAMS

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EXCEL

DEVELOP

> Get auth tokens

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Paging

Use query parameters

Batch requests

Microsoft Graph provides optional query parameters that you can use to specify and control the amount of data returned in a response. The following query parameters are supported.

Note: Click the examples to try them in [Graph Explorer](#).

Name	Description	Example
\$count	Retrieves the total count of matching resources.	/me/messages?\$top=2&\$count=true
\$expand	Retrieves related resources.	/groups?\$expand=members
\$filter	Filters results (rows).	/users?\$filter=startswith(givenName, 'J')
\$format	Returns the results in the specified media format.	/users?\$format=json
\$orderby	Orders results.	/users?\$orderby=displayName_desc
\$search	Returns results based on search criteria. Currently supported on messages and person collections.	/me/messages?\$search=pizza
\$select	Filters properties (columns).	/users?\$select=givenName,surname
\$skip	Indexes into a result set. Also used by some APIs to implement paging and can be used together with \$top to manually page results.	/me/messages?\$skip=11
	Retrieves the next page of results from result	/users?\$skiptoken=X%27445370740200

Graph Explorer - Microsoft | List messages - Documenta | Use query parameters - X +

https://developer.microsoft.com/en-us/graph/docs/concepts/query_parameters#filter-parameter

Find on page contain 1 of 7 < > Options

Personal contacts
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Paging

Use query parameters

filter parameter

Use the `$filter` query parameter to retrieve just a subset of a collection.

For example, to find users whose display name starts with the letter 'J', use `startswith`.

```
GET https://graph.microsoft.com/v1.0/users?$filter=startswith(displayName, 'J')
```

[Try in Graph Explorer](#)

Support for `$filter` operators varies across Microsoft Graph APIs. The following logical operators are generally supported:

- equals (`eq`)
- not equals (`ne`)
- greater than (`gt`)
- greater than or equals (`ge`)
- less than (`lt`), less than or equals (`le`)
- and (`and`)
- or (`or`)
- not (`not`)

The `startswith` string operator is often supported. The `any` lambda operator is supported for some APIs. For some usage examples, see the following table. For more details about `$filter` syntax, see the [OData protocol](#).

The following table shows some examples that use the `$filter` query parameter.

[https://developer.microsoft.com/graph/graph-explorer?request=users?\\$filter=startswith\(givenName,'J'\)&method=GET&8](https://developer.microsoft.com/graph/graph-explorer?request=users?$filter=startswith(givenName,'J')&method=GET&8)

Graph Explorer - Micros X +

https://developer.microsoft.com/en-us/graph/graph-explorer#

Graph Explorer

GET v1.0 https://graph.microsoft.com/v1.0/me/messages?\$filter=startswith(subject, 'meet for lunch') Run Query

Authentication

Jeff Hopper jeff@frmaintenance.onmicrosoft.com

modify permissions sign out

Sample Queries

Getting Started

- GET my profile
- GET my photo
- GET my mail
- GET all the items in my drive
- GET items trending around me
- GET my manager

show more samples

History

- GET /v1.0/me/messages?\$filter=start... 200 a few seconds ago 240 ms
- GET /v1.0/me/messages 200 a minute ago 301 ms
- GET /v1.0/me/messages

Request Body Request Headers

Success - Status Code 200, 240ms

Response Preview Response Headers

```
changeKey": "CQAAABYAAACePXdGtAisSphjWHqKkOurAAALwKnp",
"categories": [],
"receivedDateTime": "2018-08-29T18:53:55Z",
"sentDateTime": "2018-08-29T18:53:54Z",
"hasAttachments": false,
"internetMessageId": "<SN6PR06MB3839C6BD53B9000E85C116E088090@SN6PR06MB3839.namprd06.prod.outlook.com>",
"subject": "Meet for lunch?",
"bodyPreview": "The new cafeteria is open.",
"importance": "normal",
"parentFolderId": "AQMkADBmMTEANGYxZS1jZDA3LTQ5YTUtYmRjMS0yMjU4MTdkMDcyNGYALgAAA69LDFVu-SNN10qk41T4KyMBAJ49d0a0CKxKmGNYe",
"conversationId": "AAQkADBmMTE0ZjF1LWNkMDctND1hNS1iZGMxLTIxZTgxN2QwNzI0ZgAQAJMVj4_GP9tKvwvkJUMQ0Jc=",
"isDeliveryReceiptRequested": false,
"isReadReceiptRequested": false,
"isRead": false,
"isDraft": false,
"webLink": "https://outlook.office365.com/owa/?ItemID=AAMkADBmMTE0ZjF1LWNkMDctND1hNS1iZGMxLTIxZTgxN2QwNzI0ZgBGAAAAAACvSw",
"inferenceClassification": "focused",
```

Securely Accessing the API: Admin Consent



Graph Explorer - Micros X +

https://developer.microsoft.com/en-us/graph/graph-explorer#

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Graph Explorer

GET v1.0 https://graph.microsoft.com/v1.0/groups Run Query

Authentication

John Doe
john_doe@frmaintenance.onmicrosoft.com
[modify permissions](#) [sign out](#)

Sample Queries

Groups

GET all groups in my organization □
GET all groups I belong to □
GET group members □
GET group's conversations □
GET group's events □
POST add favorite group □
GET items in a group drive □
GET track group changes □

show more samples

Failure - Status Code 403, 174ms Looks like you may not have the permissions for this call. Please [modify your permissions](#). X

Response Preview Response Headers ↗

```
{ "error": { "code": "Authorization_RequestDenied", "message": "Insufficient privileges to complete the operation.", "innerError": { "request-id": "5814b3f4-456b-472c-bb20-347b1050d983", "date": "2018-08-29T20:00:23" } }}
```

History

Graph Explorer - Microsoft | Groups - Documentation

https://developer.microsoft.com/en-us/graph/docs/concepts/office365-groups-concept-overview

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Overview of Office 365 groups in Microsoft Graph

Edit in GitHub

Office 365 groups provide the foundational membership service for users to share conversations, files, notes, calendars, plans, and many other assets.

Why integrate with Office 365 groups?

Groups form the foundation that enables user collaboration and integration across services to support rich scenarios in task planning, teamwork, education, and more. When you integrate with Office 365 groups, your application can support millions of users as they transition across various experiences in the Office 365 suite and beyond.

Create groups to facilitate teamwork across services

You can use the Microsoft Graph API to create, manage, or delete groups throughout the lifecycle of collaboration. For example, you can do the following:

- Use the [Create group API](#) to provision a new group. The group is then made available in a range of applications, such as Outlook, SharePoint, Microsoft Teams, Planner, and even Microsoft Stream. Microsoft Graph synchronizes across these connected services to seamlessly provide access to all group members.

Every Office 365 group is integrated with a default set of Office 365 services

Calendar Files

Building Solutions: Quick Start



Home - Microsoft Graph

https://developer.microsoft.com/en-us/graph

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Global Office 365 Developer Bootcamp

The 2018 Global Office 365 Developer Bootcamp will take place in October. Check back regularly to see where and when the next bootcamp will be held.

API Reference

Samples & SDKs

Blog

Support

My Apps

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Microsoft Graph is the API for Microsoft 365

Connect to Office 365, Windows 10, and Enterprise Mobility + Security to empower creativity and collaboration.

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A photograph showing three people in an office environment. A woman in a grey top is leaning over a desk, looking at a laptop screen. Two men, one in a black jacket and another in a brown sweater, are seated at the desk, looking at the screen together. They appear to be discussing something on the laptop, which displays a grid of icons. On the desk, there's also a notebook and a cup holding several pencils or pens.

Quick Start - Microsoft | +

https://developer.microsoft.com/en-us/graph/quick-start

To learn more about the quick starts, see the quick start FAQ.

1 Pick your platform

 Android	 Angular	 ASP.NET MVC	iOS	iOS	 Node.js
 PHP	 Python	 Ruby	 Universal Windows Platform (.NET)	 Xamarin	

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Quick Start - Microsoft

https://developer.microsoft.com/en-us/graph/quick-start

Platform (.NET)

Get set up for ASP.NET MVC development

If you haven't already, install [Visual Studio Community 2017](#) or [Visual Studio Enterprise 2017](#).

Note: To see how this sample was created, please see our getting started walkthrough.

2 Get an app ID and secret

Select the **Get an app ID and secret** button to automatically register a new application in the Microsoft Application Registration portal and embed the app ID into your sample. You will need either a [school or work](#) or Microsoft account.

When you use the Microsoft Graph API, you agree to the [Microsoft Graph Terms of Use](#) and the [Microsoft Privacy Statement](#).

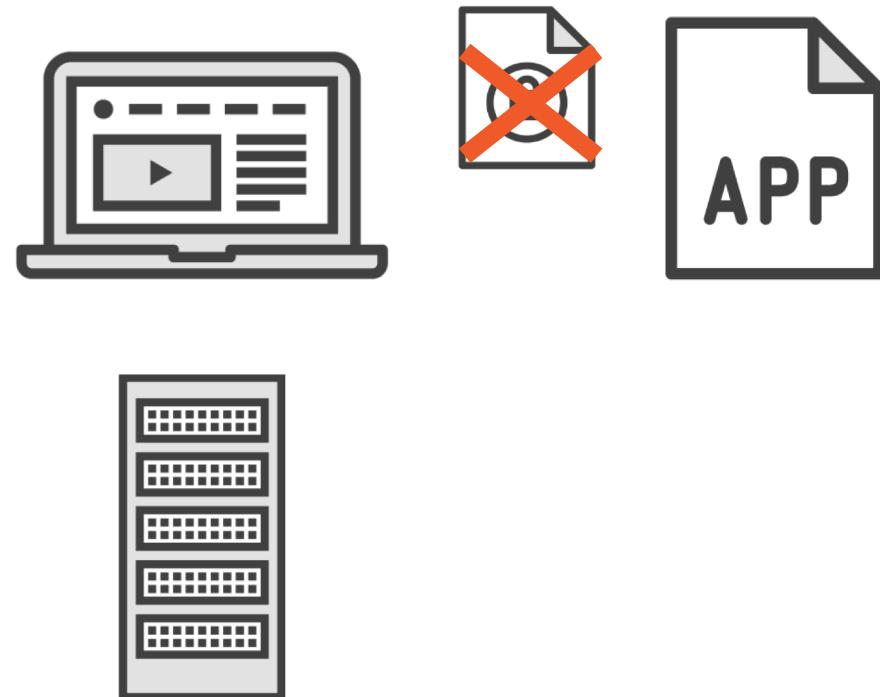
Get an app ID and secret →

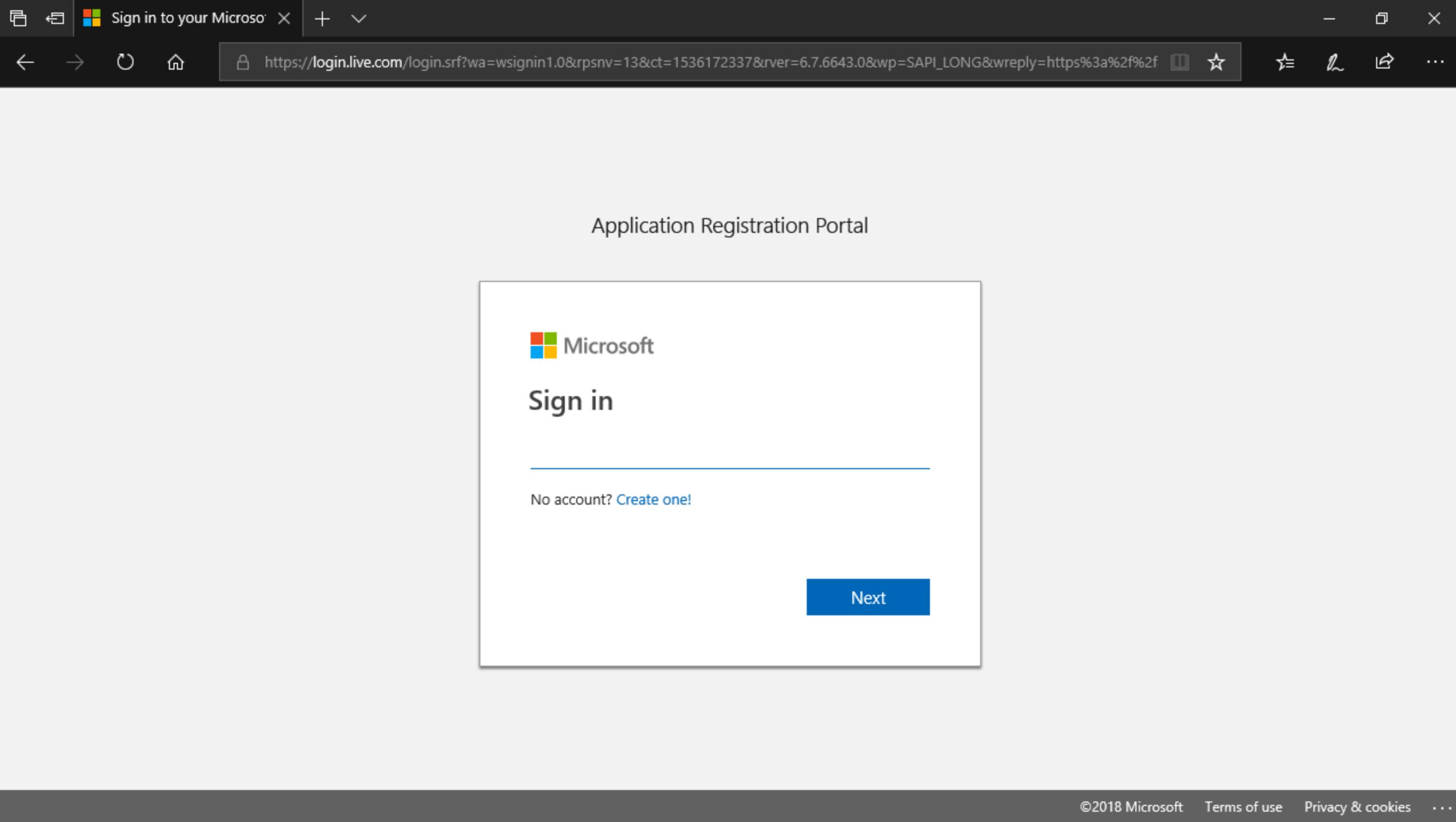
File Types

ASP.NET MVC – Trusted Client



Angular SPA – Public Client





My applications

https://apps.dev.microsoft.com/?referrer=https%3a%2f%2fdeveloper.microsoft.com%2fen-us%2fgraph%2fquick-start#/quickstart/graphi

Microsoft Application Registration Portal Tools

Please save your app secret

This is the only time the app secret will be displayed. Please save it securely. You will also be asked to re-enter it before you download your sample.

c.....

 Copy to clipboard

Got it, take me back to the quick start



English

Contact us

Terms of use

Privacy statement

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Quick Start - Microsoft

https://developer.microsoft.com/en-us/graph/quick-start?appID=62556834-82c0-4236-ab1f-e37ae56aa9f3&appName=My%20ASP.NET

2 Registration Successful!

Thanks for registering your app. We've configured the app ID (also called client ID) and redirect URI in the code sample.

Please enter the generated app secret that you saved:

c [REDACTED]

App Name ?

My ASP.NET App

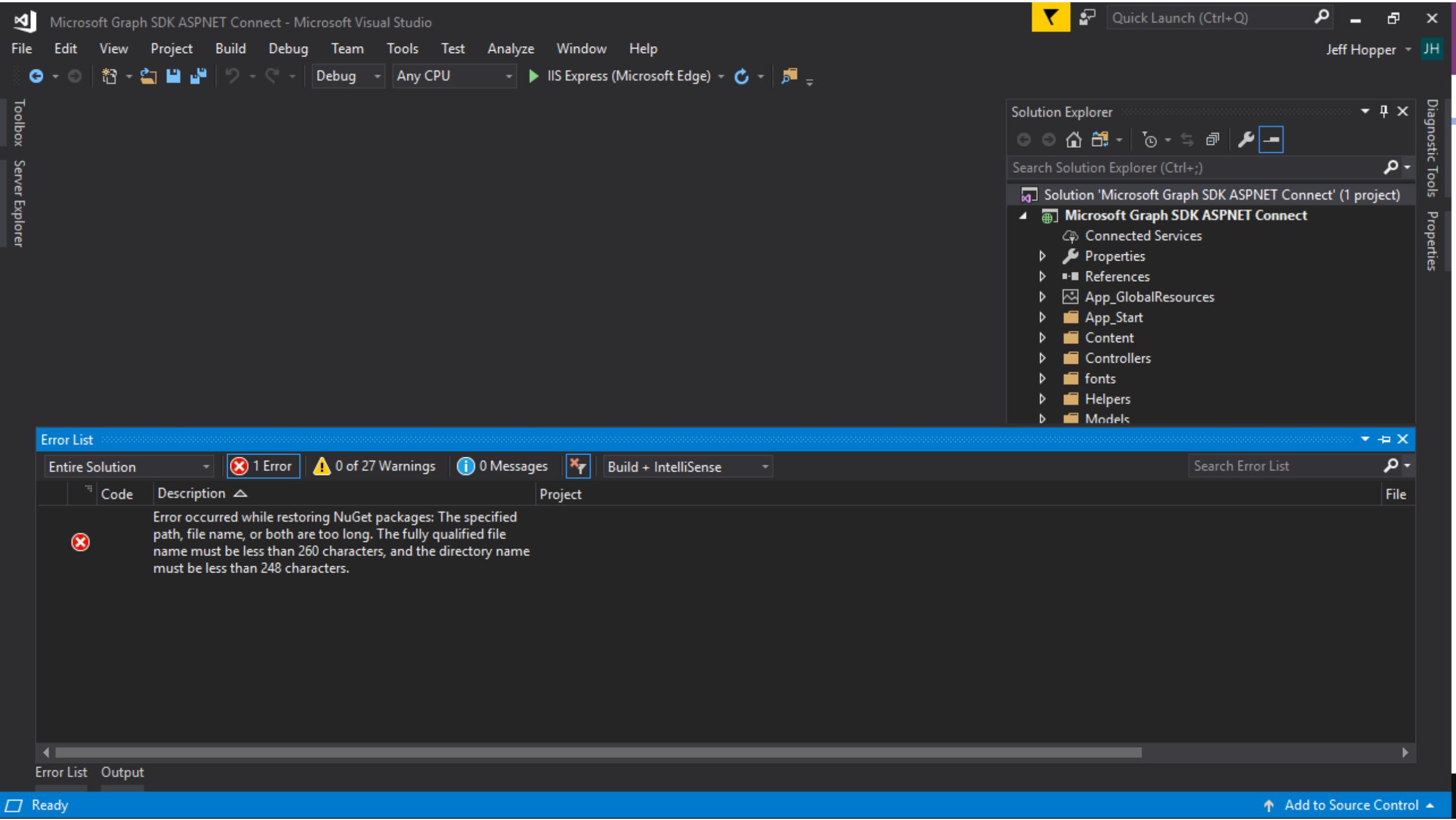
App ID (or Client ID) ?

62556834-82c0-4236-ab1f-e37ae56aa9f3

3 Start coding

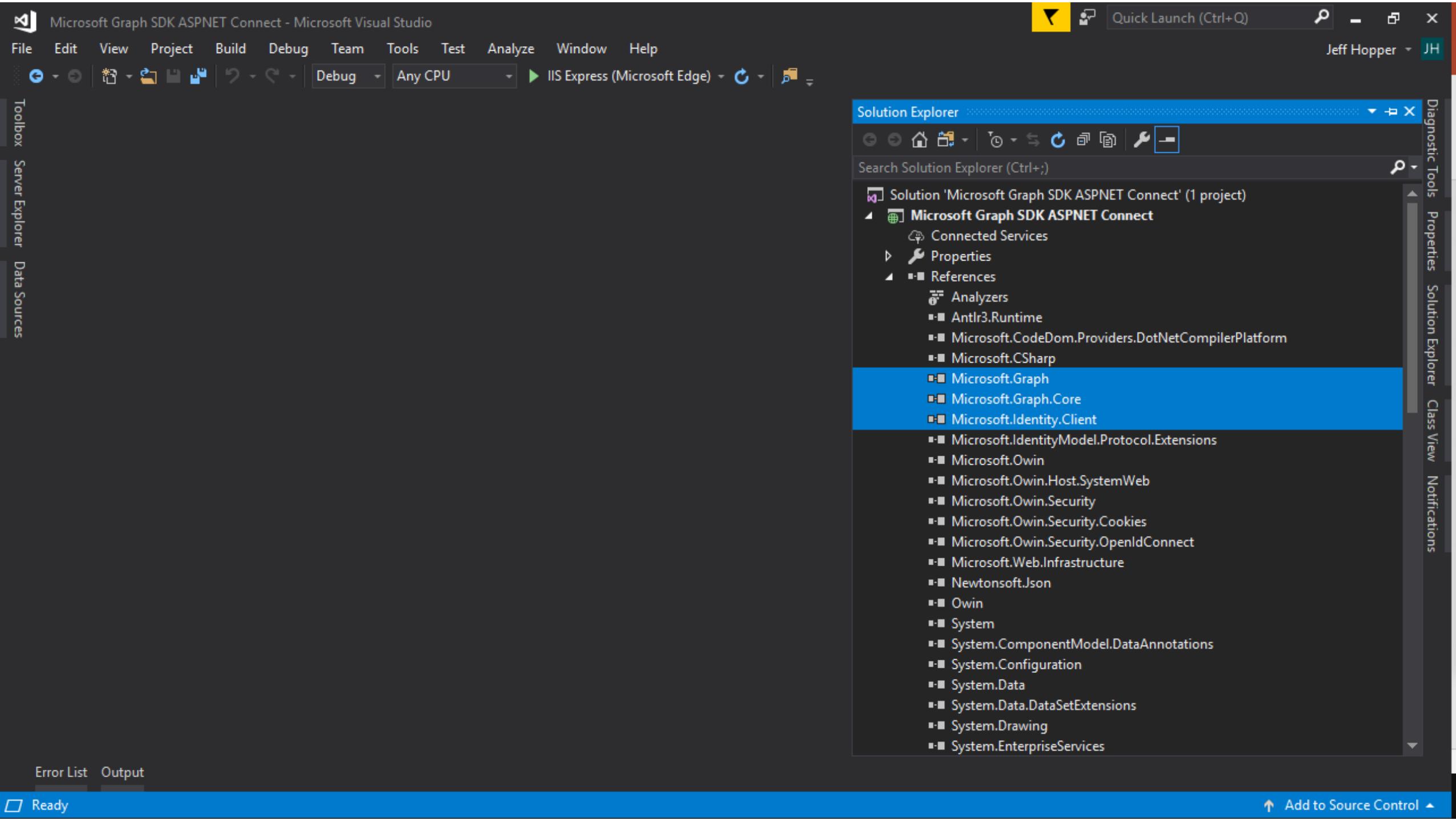
Download our code sample to get going. This sample will introduce you to authentication and send an email from your account.

Download the SDK-based code sample



Building Solutions: Code Review







Quick Start - Microsoft Graph My ASP.NET App Registratio

https://apps.dev.microsoft.com/#/application/62556834-82c0-4236-ab1f-e37ae56aa9f3

Microsoft Application Registration Portal Tools Docs Feedback

My applications / My ASP.NET App

My ASP.NET App Registration

[Click here for help integrating your application with Microsoft.](#)

This application will be registered in the Azure Active Directory instance used to manage your jeff@frmaintenance.onmicrosoft.com account. X

Properties

Name

My ASP.NET App

Application Id

62556834-82c0-4236-ab1f-e37ae56aa9f3

Application Secrets

[Generate New Password](#)

[Generate New Key Pair](#)

[Upload Public Key](#)

Quick Start - Microsoft Graph My ASP.NET App Registratio

https://apps.dev.microsoft.com/#/application/62556834-82c0-4236-ab1f-e37ae56aa9f3

Application Secrets

Generate New Password | Generate New Key Pair | Upload Public Key

Type	Password/Public Key	Created	
Password	ooL*****	Sep 5, 2018 1:52:39 PM	Delete

Platforms

Add Platform

Web	Delete
-----	--------

Allow Implicit Flow

Redirect URLs i Add URL
http://localhost:55065

Logout URL i
e.g. https://myapp.com/end-session

Microsoft Graph Conne X + ⌂ - ⌂ ×

localhost:55065/

Microsoft Graph Connect sample Home About Sign in with Microsoft

Microsoft Graph Connect sample for ASP.NET 4.6

Get email address

Choose the **Get email address** button to get the current user's email address:

Get email address

Current user's email address

Send an email

After you get the email address, optionally change the following fields and then choose the **Send email** button:

Recipient email addresses, separated by a semicolon

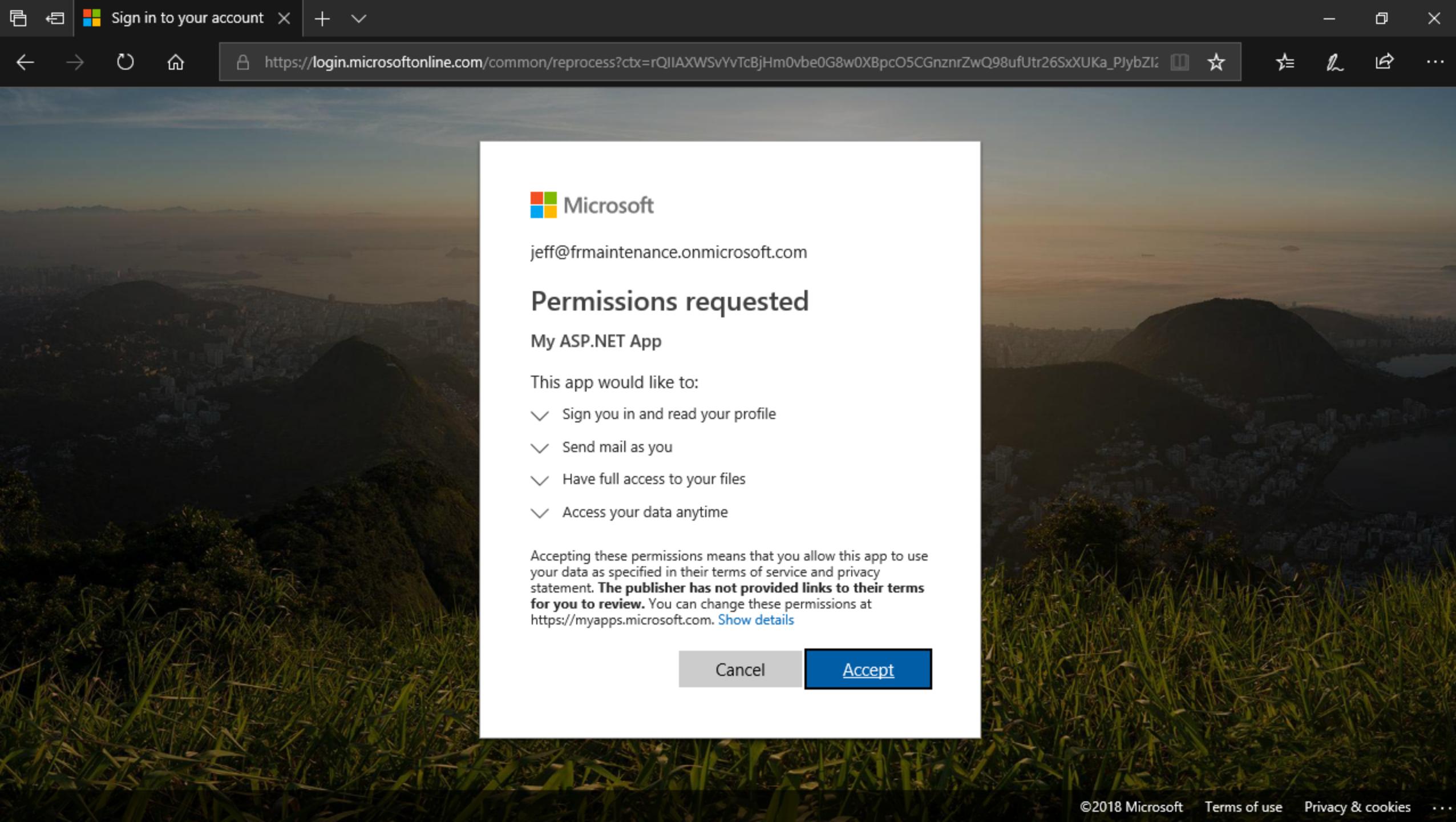
Subject of email

Sent from the Microsoft Graph Connect sample

Send email

© 2018 - Microsoft Graph Connect sample for ASP.NET 4.6

http://localhost:55065/



Microsoft Graph Conne X + -

localhost:55065/Home/GetMyEmailAddress

Microsoft Graph Connect sample Home About Hello, jeff@frmaintenance.onmicrosoft.com Sign out

Microsoft Graph Connect sample for ASP.NET 4.6

Get email address

Choose the **Get email address** button to get the current user's email address:

Get email address

Current user's email address

jeff@frmaintenance.onmicrosoft.com

Send an email

After you get the email address, optionally change the following fields and then choose the **Send email** button:

Recipient email addresses, separated by a semicolon

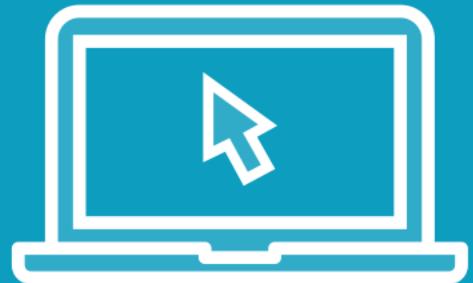
jeff@frmaintenance.onmicrosoft.com

Subject of email

Sent from the Microsoft Graph Connect sample

Send email

Demo



Meet the Demo Client



GroupMail - jeff@frmmail X +

https://outlook.office.com/owa/?realm=frmaintenance.onmicrosoft.com&exsvurl=1&ll-cc=1033&modurl=0&path=/group/maintenance

Office 365 | Outlook

S B G ? JD 2 members

Search Maintenance

M Maintenance

Conversations Files Calendar ...

Private group Following JD 2 members

+ New Reply all Forward

Yesterday

Fabrikam Resident House needs painted Wed 1:42p
Can you please come paint my house. The paint is peel...

Last week

Jeff Hopper; Fabrikam Resident My water faucet is broken Wed 9/5
Hello Mr Resident, We have received your maintenanc...

House needs painted

Maintenance; Fabrikam Resident;

FR Fabrikam Resident <fabrikam.resident1@gmail.com>
Wed 9/12/2018 1:42 PM
Can you please come paint my house. The paint is peeling.
thank you

Like

Reply all

GroupMail - jeff@frmainten Maintenance Plan - Plan

https://tasks.office.com/frmaintenance.onmicrosoft.com/EN-US/Home/Planner#/plantaskboard?groupId=278fd709-df33-4b6f-a530-8b6!

Office 365 Planner

M Maintenance Plan ☆ Private

Board Charts Schedule ...

Members Filter (0) Group by Bucket

+

New plan

○

Planner hub

👤

My tasks

Favorites

Recent plans

M Maintenance Plan



Maintenance Plan ☆

Private

Board

Charts

Schedule

...

Members

Filter (0)

Group by Bucket

To do



Requests



Active Projects



20180903-My Water Faucet is Broken

1 0/1

JD John Doe

Get the Planner app

GroupMail - jeff@frmainten Maintenance Plan - Plan https://tasks.office.com/frmaintenance.onmicrosoft.com/EN-US/Home/Planner#/plantaskboard?groupId=278fd709-df33-4b6f-a530-8b6! ...

Office 365 Planner

+ New plan M i To do

○ Planner hub

My tasks

Favorites

Recent plans

M Maintenance Plan

Get the Planner app

20180903-My Water Faucet is Broken

JD John Doe

Bucket: Active Projects Progress: In progress Start date: 09/04/2018

Due date: Due anytime

Description: Type your description of the task here

Checklist 0 / 1 Show on card

Schedule time with customer

Add an item

Attachments

Add attachment

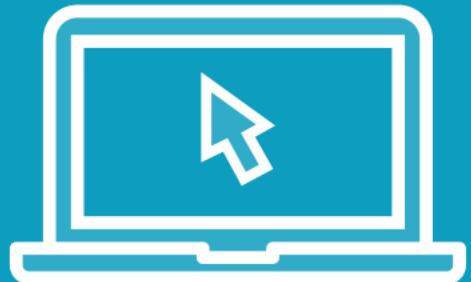
20180903-My Water Faucet is Broken.xlsx

Members Filter (0) Group by Bucket

0180903-My Water Faucet is Broken

JD John Doe

Demo



Meet the Demo Client

Configuration

List Maintenance Requests

- aka Group Conversations
- Introduce Graph SDK

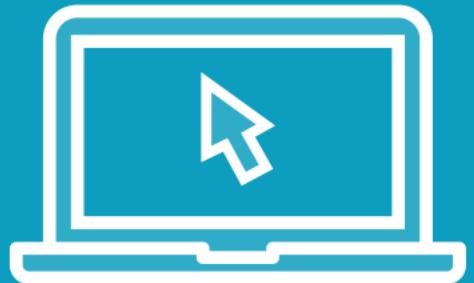
Accepting the Request

- Create a Planner Task
- Create duplicate of maintenance spreadsheet
- Reply to Conversation

Admin Consent



Demo



Configuration

- Add required Permission



Microsoft Graph API Reference - List groups

The Microsoft Graph API reference provides detailed information about the Microsoft Graph API, including endpoints, request and response formats, and authentication requirements.

Table of Contents

- Use the API
- v1.0 reference
 - Users
 - Groups
 - Group
 - Add favorite
 - Add member
 - Add owner
 - Check member groups
 - Create group
 - Delete group
 - Get group
 - Get member groups
 - Get member objects
 - List groups

List groups

Edit in GitHub

List all the groups available in an organization, including but not limited to Office 365 Groups. The **default properties** of each group are returned.

To list only Office 365 Groups (aka unified groups), apply a filter on **groupTypes**:

```
GET https://graph.microsoft.com/v1.0/groups?$filter=groupTypes/any(c:c+eq+'Unified')
```

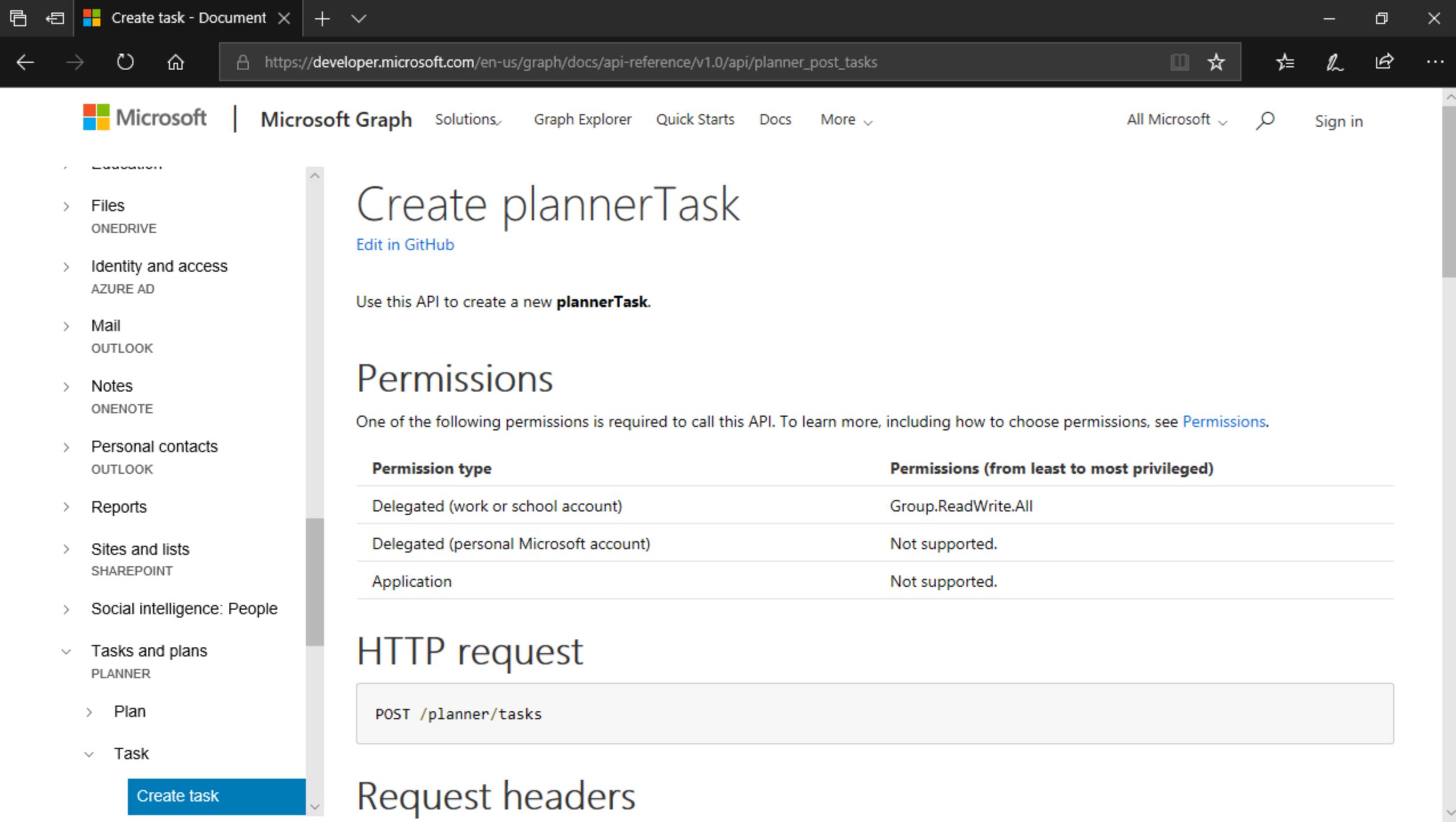
You can use the OData query option **\$orderby** to sort groups in an organization by the **displayName** values, as shown in the following example:

```
GET https://graph.microsoft.com/v1.0/groups?$orderby=displayName
```

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)	Group.Read.All, Group.ReadWrite.All
Delegated (personal Microsoft account)	Not supported.



Demo

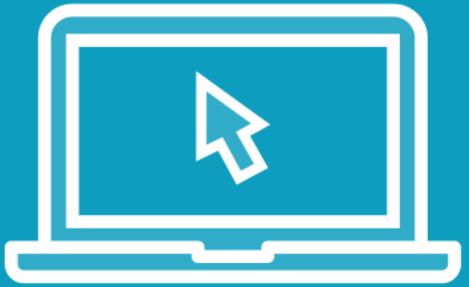


Configuration

- Add required Permission
- Review Controller Changes
- Introduce GroupService Class



Demo



List Maintenance Requests

- aka Group Conversations
- Introduce .Net SDK
 - Request Builder
 - QueryOption for filtering



List conversations - Doc X +

https://developer.microsoft.com/en-us/graph/docs/api-reference/v1.0/api/group_list_conversations

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Tasks and plans PLANNER

Teamwork (preview) MICROSOFT TEAMS

Workbooks and charts EXCEL

DEVELOP

Get auth tokens

Use the API

v1.0 reference

Users

Groups

Group

Attachment

Calendar

Conversation

List conversations

List conversations

Edit in GitHub

Retrieve the list of conversations in this group.

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)	Group.Read.All, Group.ReadWrite.All
Delegated (personal Microsoft account)	Not supported.
Application	Not supported.

HTTP request

```
GET /groups/{id}/conversations
```

Optional query parameters

List groups - Document

https://developer.microsoft.com/en-us/graph/docs/api-reference/v1.0/api/group_list

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Use the API v1.0 reference > Users Groups > Group Add favorite Add member Add owner Check member groups Create group Delete group Get group Get member groups Get member objects List groups

List groups

Edit in GitHub

List all the groups available in an organization, including but not limited to Office 365 Groups. The **default properties** of each group are returned.

To list only Office 365 Groups (aka unified groups), apply a filter on **groupTypes**:

```
GET https://graph.microsoft.com/v1.0/groups?$filter=groupTypes/any(c:c+eq+'Unified')
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GET https://graph.microsoft.com/v1.0/groups?$orderby=displayName
```

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Permission type	Permissions (from least to most privileged)
Delegated (work or school account)	Group.Read.All, Group.ReadWrite.All
Delegated (personal Microsoft account)	Not supported.

Graph Explorer - Micros X +

https://developer.microsoft.com/en-us/graph/graph-explorer#access_token=eyJ0eXAiOiJKV1QiLCJub25jZSI6IkFRQUJBQUFBQUEWHPaM

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Graph Explorer

GET v1.0 https://graph.microsoft.com/v1.0/groups Run Query

Authentication

Jeff Hopper jeff@frmaintenance.onmicrosoft.com

modify permissions sign out

Sample Queries

Groups

GET all groups in my organization □
GET all groups I belong to □
GET group members □
GET group's conversations □
GET group's events □
POST add favorite group □
GET items in a group drive □
GET track group changes □

show more samples

History

Request Body Request Headers

Success - Status Code 200, 181ms

Response Preview Response Headers

```
{ "@odata.context": "https://graph.microsoft.com/v1.0/$metadata#groups", "value": [ { "id": "278fd709-df33-4b6f-a530-8b65b5051d51", "deletedDateTime": null, "classification": null, "createdDateTime": "2018-08-10T18:47:43Z", "creationOptions": [], "description": "Maintenance", "displayName": "Maintenance", "groupTypes": [ ] } ] }
```

Graph Explorer - Micros X +

https://developer.microsoft.com/en-us/graph/graph-explorer#access_token=eyJ0eXAiOiJKV1QiLCJub25jZSI6IkFRQUJBQUFBQUEWHPaM

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Graph Explorer

GET v1.0 https://graph.microsoft.com/v1.0/groups?\$filter=displayname eq 'maintenance' Run Query

Authentication

Jeff Hopper jeff@frmaintenance.onmicrosoft.com

modify permissions sign out

Sample Queries

Groups

- GET all groups in my organization
- GET all groups I belong to
- GET group members
- GET group's conversations
- GET group's events
- POST add favorite group
- GET items in a group drive
- GET track group changes

show more samples

Success - Status Code 200, 152ms

Response Preview Response Headers

```
{ "@odata.context": "https://graph.microsoft.com/v1.0/$metadata#groups", "value": [ { "id": "278fd709-df33-4b6f-a530-8b65b5051d51", "deletedDateTime": null, "classification": null, "createdDateTime": "2018-08-10T18:47:43Z", "creationOptions": [], "description": "Maintenance", "displayName": "Maintenance", "groupTypes": [ ] } ] }
```

Reply to conversation t1

https://developer.microsoft.com/en-us/graph/docs/api-reference/v1.0/api/conversationthread_reply

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Users Groups Group Attachment Calendar Conversation Conversation thread

List threads Create thread Get conversation thread Update conversation thread Delete conversation thread

Reply to conversation thread

conversationThread: reply

Edit in GitHub

Reply to a thread in a group conversation and add a new post to it. You can specify the parent conversation in the request, or, you can specify just the thread without the parent conversation.

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)	Group.ReadWrite.All
Delegated (personal Microsoft account)	Not supported.
Application	Group.ReadWrite.All

HTTP request

```
POST /groups/{id}/threads/{id}/reply  
POST /groups/{id}/conversations/{id}/threads/{id}/reply
```

New tab Maintenance Request X + ▾

localhost:55065/Requests/Conversation?groupId=278fd709-df33-4b6f-a530-8b65b5051d51&conversationId=AAQkADkwNml0NDgzLTU1

FR Maintenance Home About Maintenance Requests Hello, jeff@frmaintenance.onmicrosoft.com Sign out

Maintenance Request

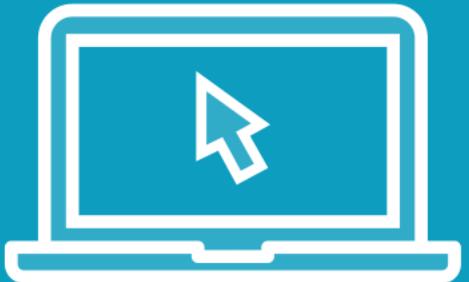
Create Project

Issue:
House needs painted

Senders:
Fabrikam Resident

Request Message:
Can you please come paint my house. The paint is peeling.
thank you

Demo



Accepting the Request

- Create a Planner Task
- Create duplicate of maintenance spreadsheet
- Adding a Checklist Item
- Reply to Conversation



New tab Maintenance Request X + ▾

localhost:55065/Requests/Conversation?groupId=278fd709-df33-4b6f-a530-8b65b5051d51&conversationId=AAQkADkwNml0NDgzLTU1

FR Maintenance Home About Maintenance Requests Hello, jeff@frmaintenance.onmicrosoft.com Sign out

Maintenance Request

Create Project

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House needs painted

Senders:
Fabrikam Resident

Request Message:
Can you please come paint my house. The paint is peeling.
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GroupMail - jeff@frmainten Maintenance Plan - Plan

https://tasks.office.com/frmaintenance.onmicrosoft.com/EN-US/Home/Planner#/plantaskboard?groupId=278fd709-df33-4b6f-a530-8b6!

Office 365 Planner

M Maintenance Plan ☆ Private

Board Charts Schedule ...

Members Filter (0) Group by Bucket

+ New plan

○ Planner hub

👤 My tasks

Favorites

Recent plans

M Maintenance Plan

To do Requests Active Projects

20180903-My Water Faucet is Broken

JD John Doe

Get the Planner app

https://www.office.com/?auth=2&home=1&from=ShellLogo

Get task details - Docur X +

https://developer.microsoft.com/en-us/graph/docs/api-reference/v1.0/api/plannertaskdetails_get

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Mail OUTLOOK Notes ONENOTE Personal contacts OUTLOOK Reports Security Sites and lists SHAREPOINT Social intelligence: People Tasks and plans PLANNER Plan Task Task details Get task details Update task details

Get plannerTaskDetails

Edit in GitHub

Retrieve the properties and relationships of **plannertaskdetails** 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)	Group.Read.All, Group.ReadWrite.All
Delegated (personal Microsoft account)	Not supported.
Application	Not supported.

HTTP request

```
GET /planner/tasks/{id}/details
```

Request headers

Update task details - Doc

https://developer.microsoft.com/en-us/graph/docs/api-reference/v1.0/api/plannertaskdetails_update

HTTP request

PATCH /planner/tasks/{id}/details

Optional request headers

Name	Description
Authorization	Bearer {token}. Required.
If-Match	Last known ETag value for the plannerTaskDetails to be updated. Required.

Request body

In the request body, supply the values for relevant fields that should be updated. Existing properties that are not included in the request body will maintain their previous values or be recalculated based on changes to other property values. For best performance you shouldn't include existing values that haven't changed.

Property	Type	Description
checklist	plannerChecklistItems	The collection of checklist items on the task.
description	String	Description of the task
previewType	string	This sets the type of preview that shows up on the task. The possible values are: automatic, noPreview, checklist, description, reference. When set to

Mail
OUTLOOK

Notes
ONENOTE

Personal contacts
OUTLOOK

Reports

Security

Sites and lists
SHAREPOINT

Social intelligence: People

Tasks and plans
PLANNER

Plan

Task

Task details

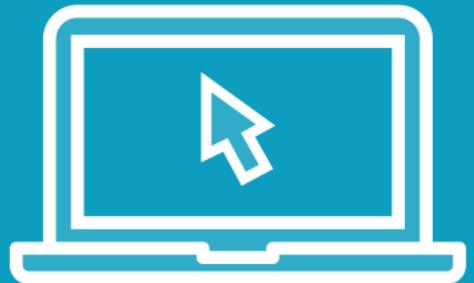
Get task details

Update task details

Plan details

...
...

Demo



Admin Consent



Use Azure AD v2.0 to ac X +

https://docs.microsoft.com/en-us/azure/active-directory/develop/v2-oauth2-client-creds-grant-flow#request-the-permissions-from-a-dii

Filter by title

Get direct authorization

Get a token

Use a token

Code sample

Protocol diagram

In this article

GET https://login.microsoftonline.com/{tenant}/adminconsent?
client_id=6731de76-14a6-49ae-97bc-6eba6914391e
&state=12345
&redirect_uri=http://localhost/myapp/permissions

// Pro tip: Try pasting the following request in a browser!

https://login.microsoftonline.com/common/adminconsent?client_id=6731de76-14a6-49ae-97bc-6eba6914391e&state=12345&redirect_uri=http://localhost/myapp/permissions

Parameter	Condition	Description
tenant	Required	The directory tenant that you want to request permission from. This can be in GUID or friendly name format. If you don't know which tenant the user belongs to and you want to let them sign in with any tenant, use common .
client_id	Required	The Application ID that the Application Registration Portal assigned to your app.
redirect_uri	Required	The redirect URI where you want the response to be sent for your app to handle. It must exactly match one of the redirect URLs that you registered in the portal, except that it must be URL encoded, and it can have additional path segments.

Is this page helpful? Yes No

My ASP.NET App Registrations

https://apps.dev.microsoft.com/#/application/eada12af-ccbd-41da-93c0-a3b5e20295b4

Platforms

Add Platform

Web	Delete
<input checked="" type="checkbox"/> Allow Implicit Flow	
Redirect URLs	Add URL
http://localhost:55065/Account/AdminConsentGranted	
http://localhost:55065	
Logout URL	e.g. https://myapp.com/end-session

Owners

Add Owner

Name	Email
------	-------

Summary



What Microsoft Graph Provides

How to Securely Access the API

How to Build a Solution

- Graph API SDK
- Including Admin Consent

