



>< AVD TECH FEST

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AVD Tech Fest 2025

Roll the Dice in Berlin!



The Graph API StarterKit for AVD and W365 Automation

Start 11:45

Esther Barthel



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numecent

UltrArmor

Sr. Solutions Architect
Sr. DevOps Engineer



Esther
Barthel

<https://www.linkedin.com/in/ebarthel/>



End User Computing





plex





AVD



W365 CloudPC



AVD



W365 CloudPC



AVD
(Infra-as-Code)



W365 CloudPC
(Config-as-Code)



Microsoft Azure
Resource Manager

AVD
(Infra-as-Code)

Microsoft Graph



W365 CloudPC
(Config-as-Code)

Every Bite a

Better Burger!

• Burger Pasta Salads



Beef Burger

Onion With Cheese
\$18.00



Chicken Burger

Cheese With Chicken
\$12.00



Classic Burger

Beef Wit Lottice
\$24.00



Grilled Burger

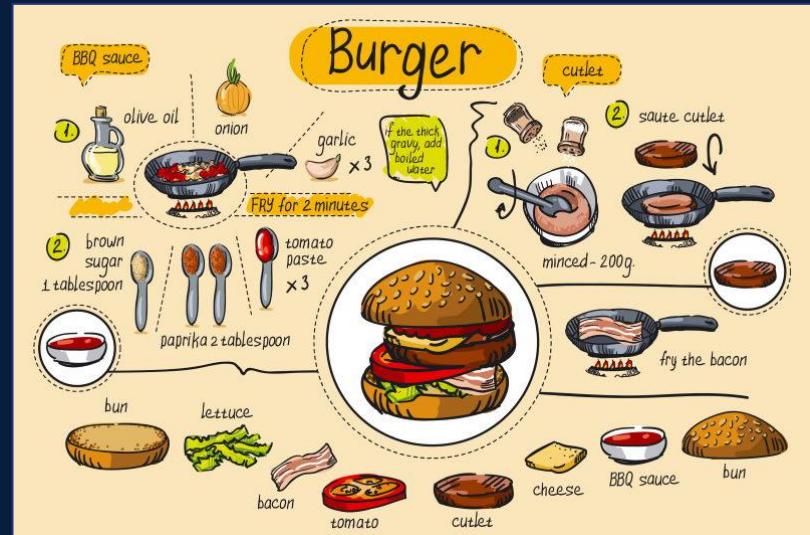
Griller Chicken
\$14.00



**Fresh Beef
Burger With Cheese...**

Beef burger With Fresh Cheese And Onion Served With Fries And Drink. Enjoy our 20% Off With New Promo Code.

Declarative code (templates)



Imperative code (scripts)

Every Bite a

Better Burger!

• Burger Pasta Salads



Beef Burger

Onion With Cheese
\$18.00



Chicken Burger

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Classic Burger

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\$24.00



Grilled Burger

Griller Chicken
\$14.00

Classic Burger

Beef Wit Lottice
\$24.00

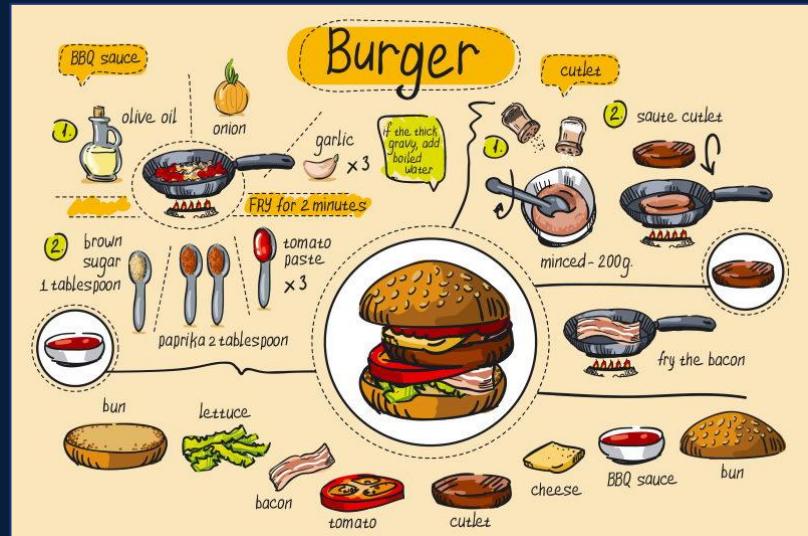
Grilled Burger

Griller Chicken
\$14.00



**Fresh Beef
Burger With Cheese...**

Beef burger With Fresh Cheese And Onion Served With Fries And Drink. Enjoy our 20% Off With New Promo Code.

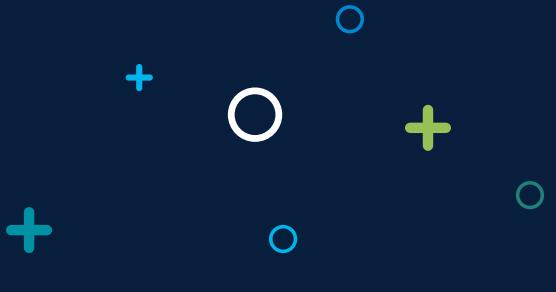


Declarative code
(templates)



Imperative code
(scripts)

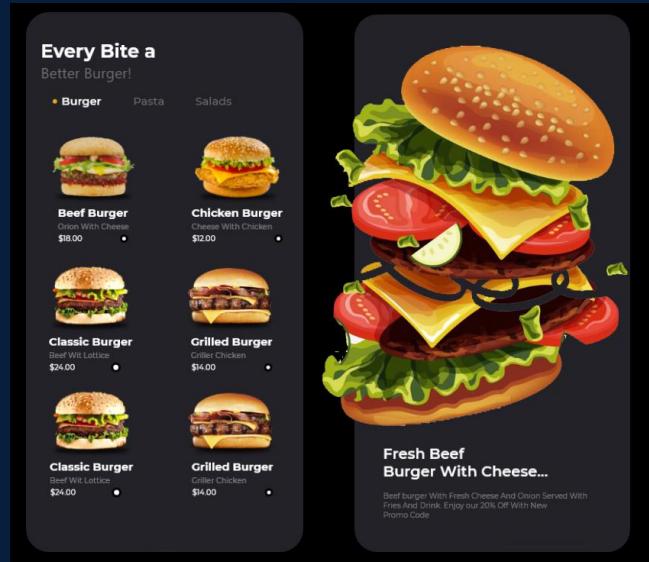
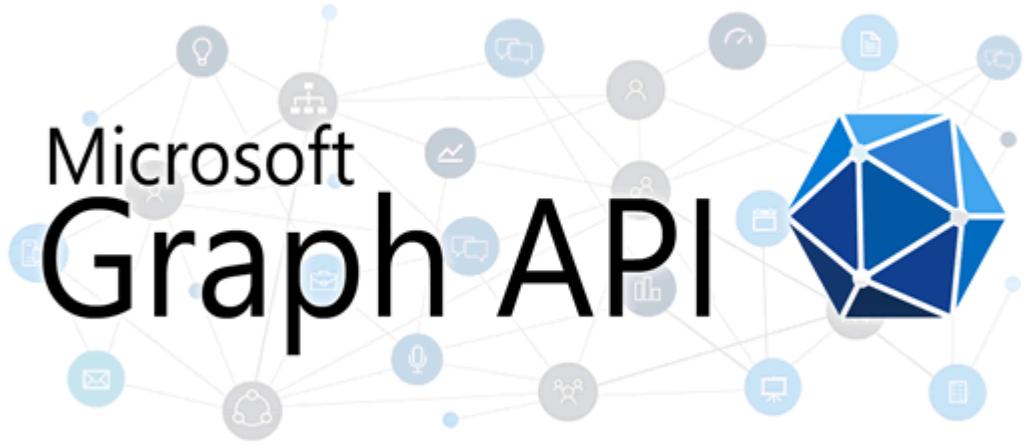




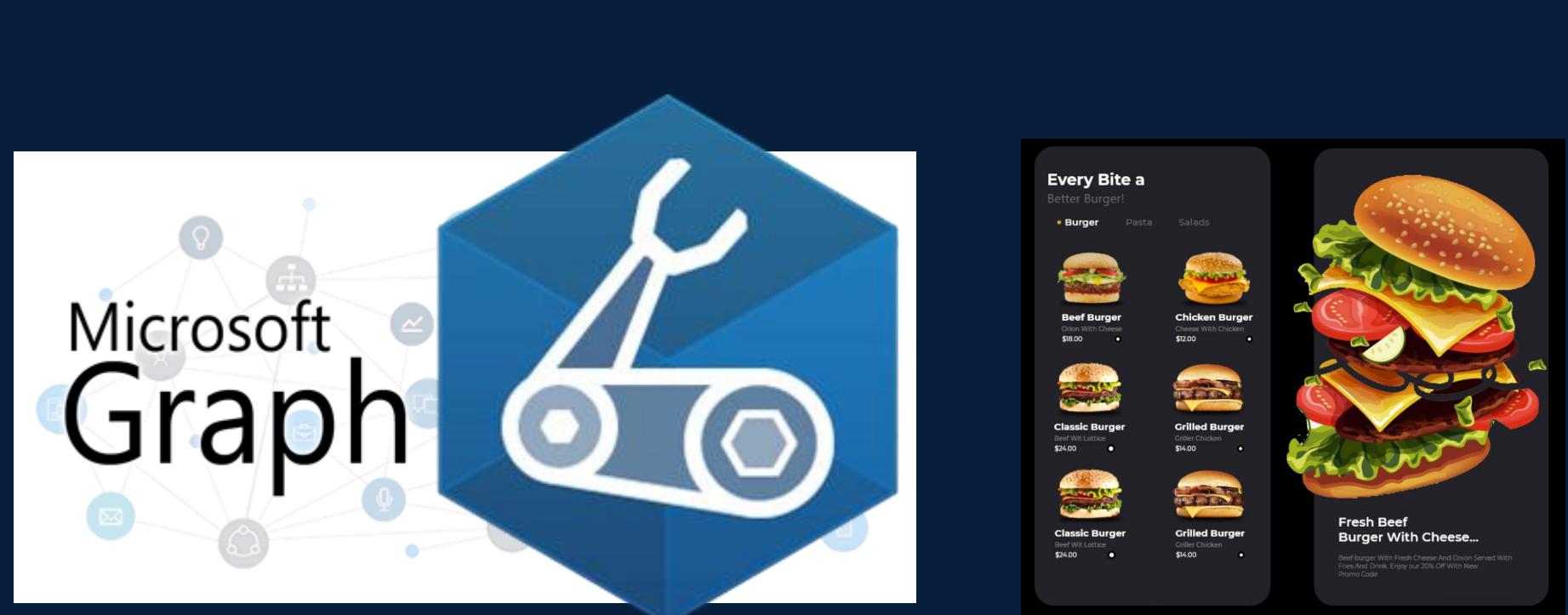
Getting Started with the Graph API



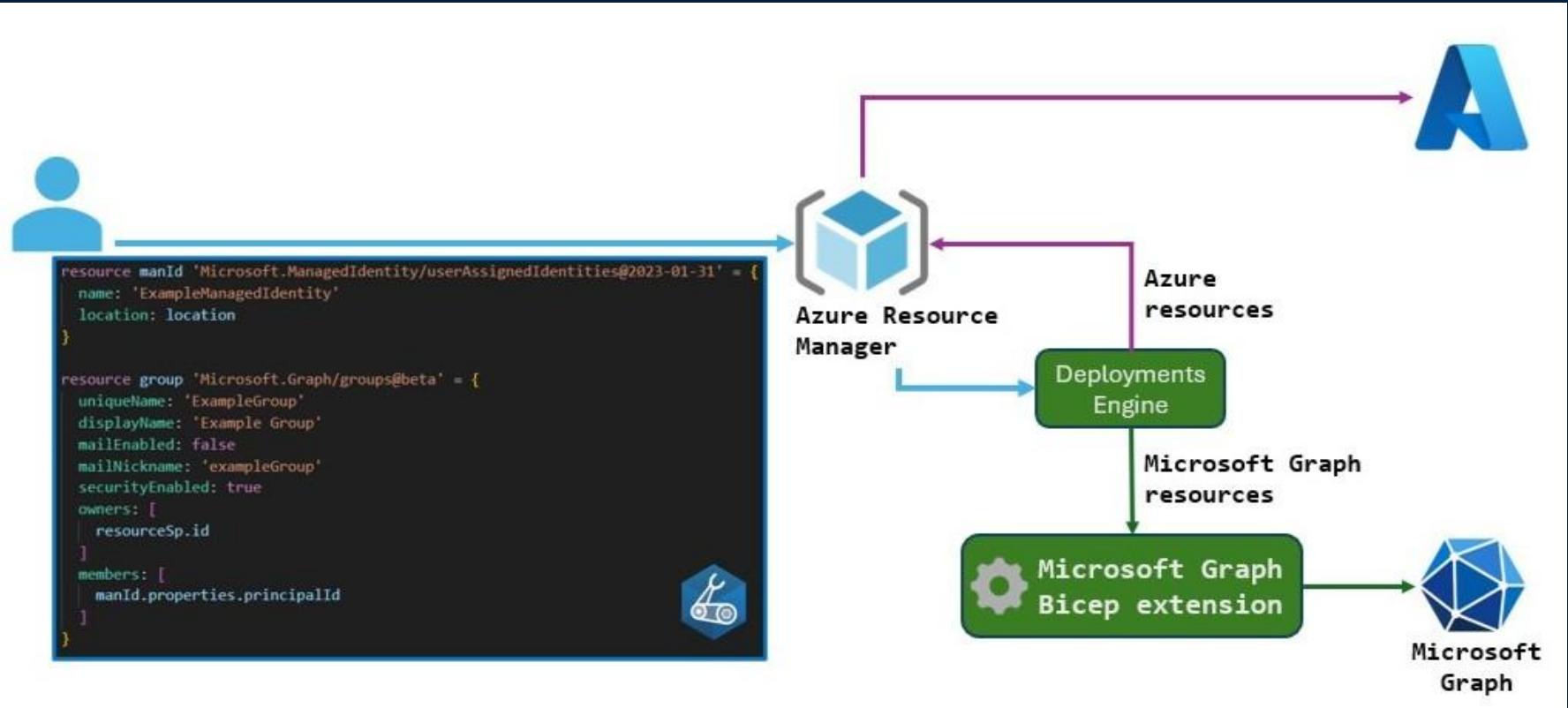
Microsoft Graph API



Declarative code (templates)



Declarative code (templates)



Version

Microsoft Graph Bicep v1.0



Filter by title

Bicep templates for Microsoft Graph documentation

> Overview

› Microsoft Graph Bicep v1.0 reference

Overview

Applications

Federated identity credentials

App role assigned to

Groups

Oauth2 permission grants

Service principals

Users

Supported resources

The following Microsoft Graph Bicep types are available for use in your Bicep files.

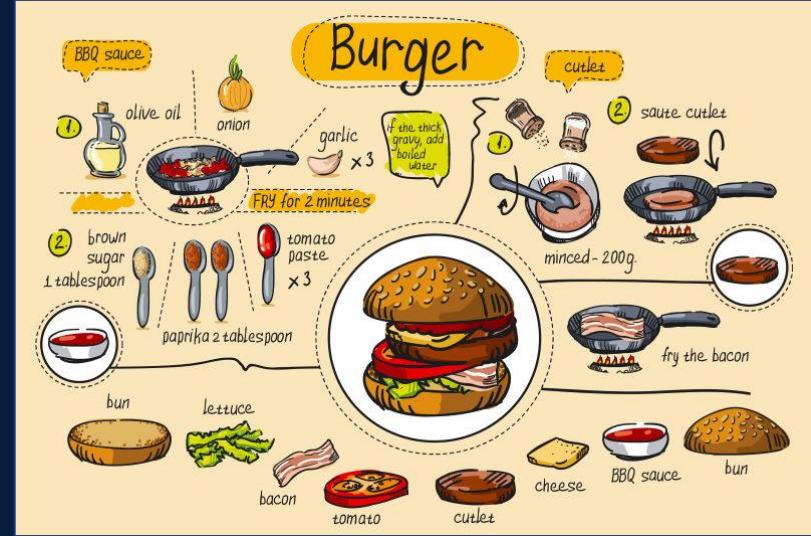
| Service | Microsoft Graph Bicep resource type |
|---|---|
| Applications | Microsoft.Graph/applications |
| App role assignments | Microsoft.Graph/appRoleAssignedTo |
| Federated identity credentials | Microsoft.Graph/applications/federatedIdentityCredentials |
| Groups | Microsoft.Graph/groups |
| OAuth2 permission grants (delegated permission grants) | |
| Service principals | |
| Users | |

Read existing resources only

Choose the least privileged permission from the following table to read a Microsoft.Graph/groups resource using the `existing` keyword.

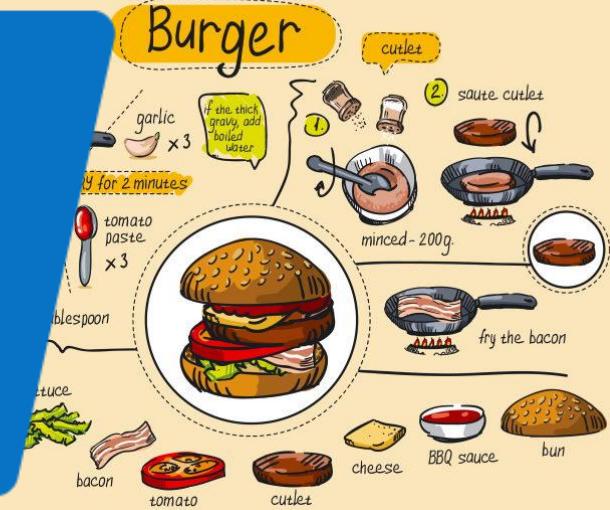
| Permission type | Least privileged permissions | Higher privileged permissions |
|--|------------------------------|--|
| Delegated (work or school account) | GroupMember.Read.All | Group.ReadWrite.All, Directory.Read.All, Directory.ReadWrite.All, Group.Read.All |
| Delegated (personal Microsoft account) | Not supported. | Not supported. |
| Application | GroupMember.Read.All | Group.ReadWrite.All, Directory.Read.All, Directory.ReadWrite.All, Group.Read.All |

Microsoft Graph API



Imperative code (scripts)

Microsoft Graph API



Imperative code (scripts)



Coding skills loading



Rest(full) API

PowerShell SDK

Microsoft Graph



Windows 365 Cloud PC Management PowerShell Module

Description

This PowerShell module allows you to manage your Windows 365 environment from the command line. It provides a set of cmdlets that allow you to perform various tasks, such as creating, modifying and deleting policies, managing Cloud PCs, and more.



Getting Started

```
Install-Module -Name PSCloudPC -Verbose
```

Then import the module into your session

```
Import-Module PSCloudPC -Verbose -Force
```

Stefan Dingemanse, Niels Kok

Graph Explorer

Sample queries

Resources

Search resources

Switch to beta Off

Resources available

groups (8)

GET

POST

> {group-id} (46)

> \$count (1)

GET

v1.0

https://graph.microsoft.com/v1.0/groups?\$filter=startswith(displayName, 'grp-sec')&\$select=id,displayName,description

Run query

Request body

Request headers

Modify permissions

Access token

OK - 200 - 333 ms

Response preview

Response headers

Code snippets

Toolkit component

Adaptive cards

```
{  
  "@odata.context": "https://graph.microsoft.com/v1.0/$metadata#groups(id,displayName,description)",  
  "value": [  
    {  
      "id": "redacted",  
      "displayName": "grp-sec-AVDUsers",  
      "description": "AVD Users group"  
    }  
  ]  
}
```

Response preview

Response headers

Code snippets

Toolkit component

Adaptive cards

C#

CLI

Go

Java

JavaScript

PHP

PowerShell

Python

Leverage the power of our client libraries. Download the PowerShell client library here <https://aka.ms/pshellssdk>
To read more about our SDKs, go to the documentation page at <https://aka.ms/pshellsdkdocs>

Import-Module Microsoft.Graph.Groups

```
Get-MgGroup -Filter "startswith(displayName, 'grp-sec')" -Property "id,displayName,description"
```

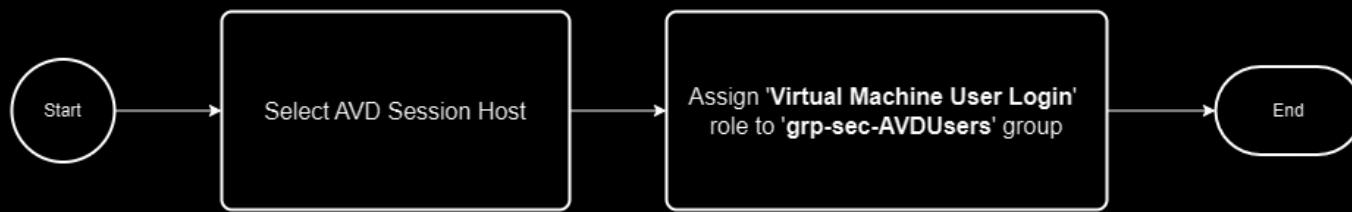
IT Processes



Graph API Example: Azure Virtual Desktop



Assign 'Virtual Machine User Login' role for a group to an AVD Session Host



Screenshot of the Azure portal showing the IAM role assignments for a virtual machine named "vm-avd-demo-0".

The left sidebar shows the following navigation options:

- Overview
- Activity log
- Access control (IAM)** (selected)
- Tags
- Diagnose and solve problems
- Connect

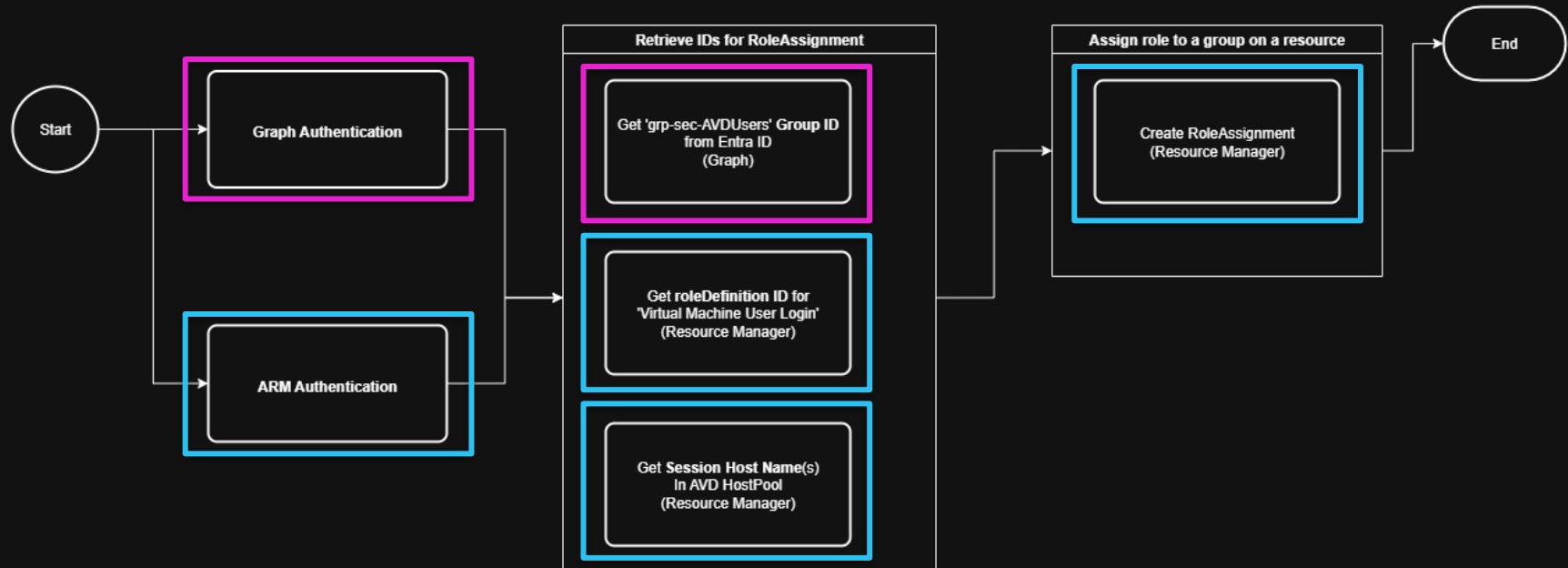
The main content area displays the "Role assignments" tab of the Access control (IAM) blade.

| Name | Type | Role | Scope | Condition |
|--------------------------------|-------|----------------------------|---------------|-----------|
| Virtual Machine User Login (1) | Group | Virtual Machine User Login | This resource | None |

The "Role assignments" tab includes the following buttons and links:

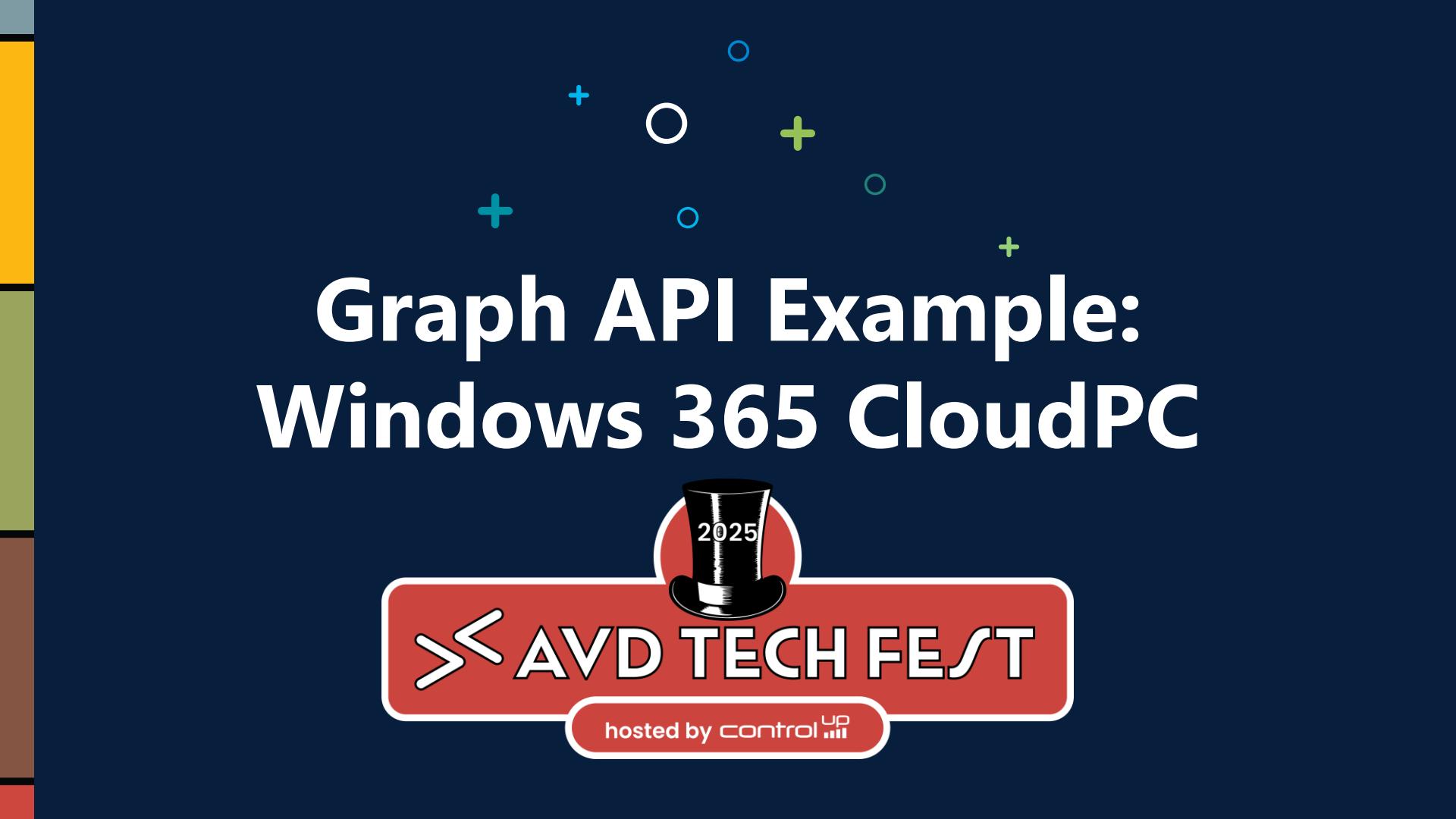
- Add
- Download role assignments
- Edit columns
- Refresh
- Remove
- Check access
- Roles
- Deny assignments
- Classic administrators

Assign 'Virtual Machine User Login' role for a group to an AVD Session Host



_ExpertsLive > Demos > 01_Assign_AIM_Role_To_Group.ps1 > ...

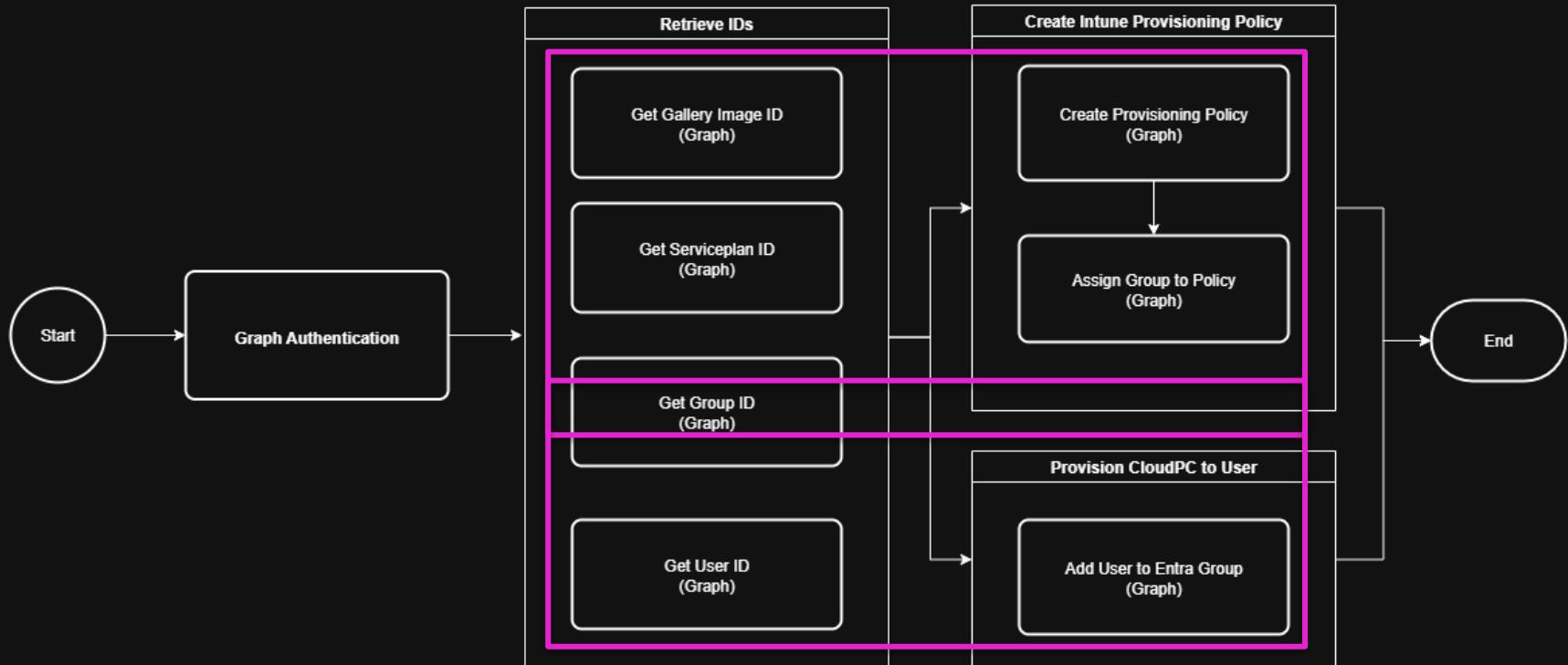
```
1 > #region Get Credentials from Azure Key Vault...
10 #endregion
11
12 > #region Step 00 - Connect to Azure Resource Manager API, using REST API (retrieve bearer token) ...
35 #endregion
36
37 > #region Step 00 - Connect to Microsoft Graph API (retrieve bearer token) ...
60 #endregion
61
62 > #region Step 01 - Get the Entra Group ID ...
86 #endregion
87
88 > #region Step 02 - Get roleDefinition ID ...
113 #endregion
114
115 > #region Step 03 - Get Session Host Name ...
143 #endregion
144
145 > #region Step 04 - Assign Role to Entra Group...
183 #endregion
184
185
```



Graph API Example: Windows 365 CloudPC



Provision Windows 365 CloudPC to User



```
11  > #region Step 00 - Connect to Microsoft Graph API (retrieve bearer token) ...
36  #endregion
37
38  > #region Step 01 - Get the Entra Group ID ...
62  #endregion
63
64  > #region Step 02 - Get the Gallery Image ID ...
87  #endregion
88
89  > #region Step 03 - Get the CloudPC Serviceplan ID ...
113 #endregion
114
115 > #region Step 04 - Create CloudPC Provisioning Policy ...
163 #endregion
164
165 > #region Step 05 - Assign Entra Group and Serviceplan to CloudPC Provisioning Policy ...
199 #endregion
200
```

_ExpertsLive > Demos > 03_W365_Provision_CloudPC_to_User.ps1 > ...

```
11  > #region Step 00 - Connect to Microsoft Graph API (retrieve bearer token) ...
34  endregion
35
36  > #region Step 01 - Get the Entra Group ID...
60  endregion
61
62  > #region Step 02 - Get the Entra User ID...
85  endregion
86
87  > #region Step 03 - Add Member to Group...
112 endregion
113
114
```

Graph API reference doc



Use the Microsoft Graph API

Microsoft Graph is a RESTful web API that enables you to access Microsoft Cloud service resources. After you [register your app](#) and [get authentication tokens](#) for a user or service, you can make requests to the Microsoft Graph API.

Call a REST API method

To read from or write to a resource such as a user or an email message, you construct a request that looks like the following:

HTTP

 Copy

```
{HTTP method} https://graph.microsoft.com/{version}/{resource}?{query-parameters}
```

4. Request an access token

In the OAuth 2.0 client credentials grant flow, you use the application ID and client secret values that you saved when you registered your app to request an access token directly from the Microsoft identity platform /token endpoint.

You specify the preconfigured permissions by passing <https://graph.microsoft.com/.default> as the value for the scope parameter in the token request.

Send a POST request to the /token identity platform endpoint to acquire an access token. In this request, the client uses the client secret.

HTTP

cURL

HTTP

Copy

request, the client uses the client secret.

HTTP

cURL

HTTP

Copy

// Line breaks are for legibility only.

```
POST https://login.microsoftonline.com/{tenant}/oauth2/v2.0/token HTTP/1.1
Host: login.microsoftonline.com
Content-Type: application/x-www-form-urlencoded
```

```
client_id=535fb089-9ff3-47b6-9bfb-4f1264799865
&scope=https%3A%2F%2Fgraph.microsoft.com%2F.default
&client_secret=qWgdYA....L1qKv5bPX
&grant_type=client_credentials
```

request, the client uses the client secret.

HTTP

cURL

HTTP

Copy

// Line breaks are for legibility only.

POST https://login.microsoftonline.com/{tenant}/oauth2/v2.0/token HTTP/1.1

Host: login.microsoftonline.com

Content-Type: application/x-www-form-urlencoded

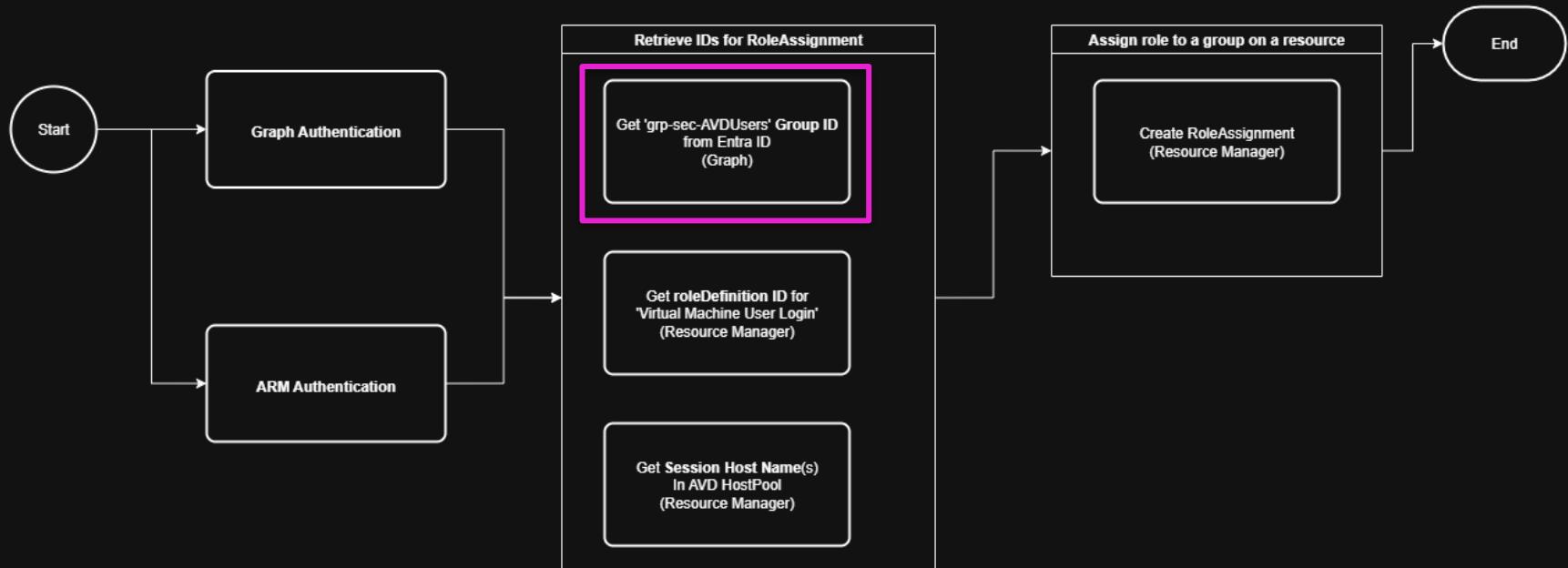
client_id=535fb089-9ff3-47b6-9bfb-4f1264799865

&scope=https%3A%2F%2Fgraph.microsoft.com%2F.default

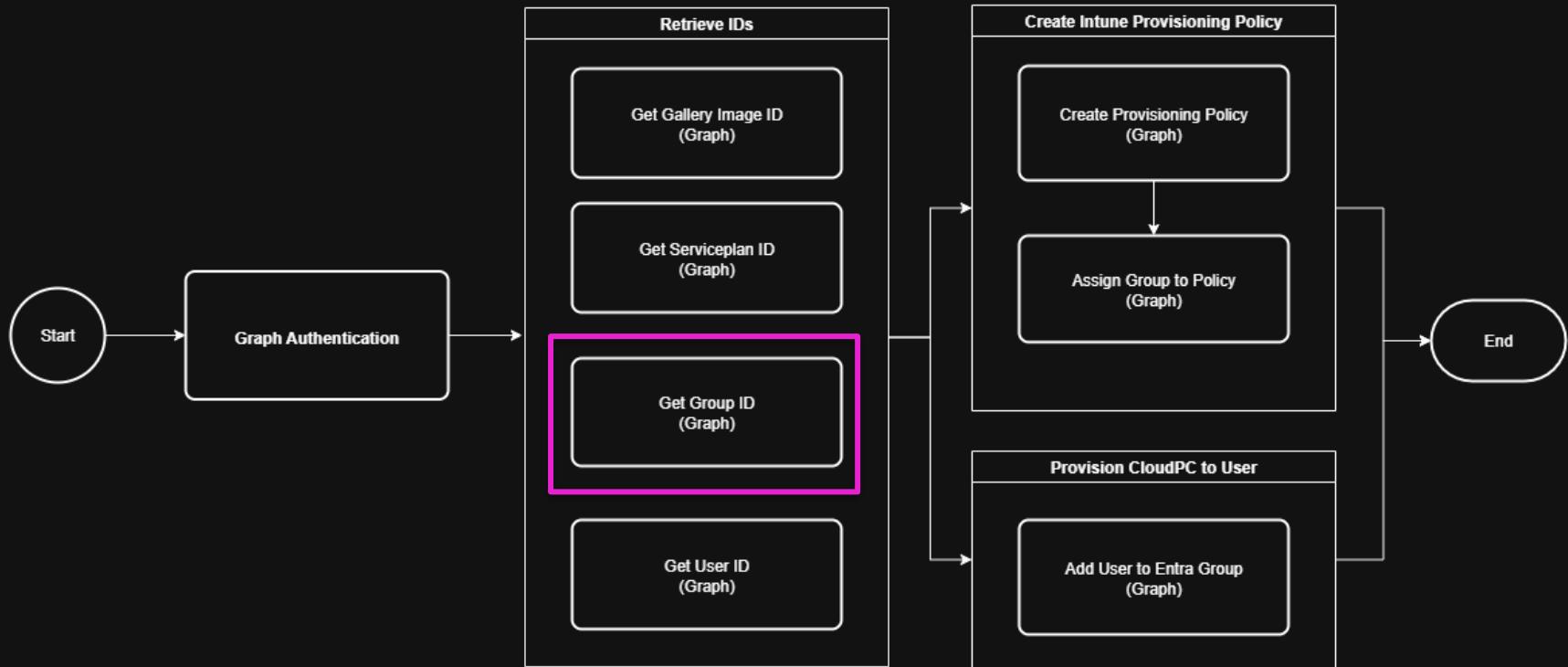
&client_secret=qWgdYA....L1qKv5bPX

&grant_type=client_credentials

Assign 'Virtual Machine User Login' role for a group to an AVD Session Host



Provision Windows 365 CloudPC to User



List groups

Article • 05/23/2024 • 20 contributors

 Feedback

Namespace: microsoft.graph

List all the groups available in an organization, excluding dynamic distribution groups. To retrieve dynamic distribution groups, use the Exchange admin center.

Permissions

Choose the permission or permissions marked as least privileged for this API. Use a higher privileged permission or permissions only if your app requires it. For details about delegated and application permissions, see [Permission types](#). To learn more about these permissions, see the [permissions reference](#).

Permission types

Least privileged

Higher privileged permissions

Permissions

Choose the permission or permissions marked as least privileged for this API. Use a higher privileged permission or permissions only if your app requires it. For details about delegated and application permissions, see [Permission types](#). To learn more about these permissions, see the [permissions reference](#).

| Permission type | Least privileged permissions | Higher privileged permissions |
|--|------------------------------|--|
| Delegated (work or school account) | GroupMember.Read.All | Group.ReadWrite.All, Directory.Read.All, Directory.ReadWrite.All, Group.Read.All |
| Delegated (personal Microsoft account) | Not supported. | Not supported. |
| Application | GroupMember.Read.All | Directory.Read.All, Directory.ReadWrite.All, Group.Read.All, Group.ReadWrite.All |

HTTP request

HTTP

 Copy

GET /groups

Request headers

| Name | Description |
|------------------|---|
| Authorization | Bearer {token}. Required. Learn more about authentication and authorization. |
| ConsistencyLevel | eventual. This header and <code>\$count</code> are required when using <code>\$search</code> , or in specific usage of <code>\$filter</code> . For more information about the use of ConsistencyLevel and <code>\$count</code> , see Advanced query capabilities on directory objects. |

HTTP request

HTTP

 Copy

GET /groups

Request headers

| Name | Description |
|------------------|---|
| Authorization | Bearer {token}. Required. Learn more about authentication and authorization. |
| ConsistencyLevel | eventual. This header and <code>\$count</code> are required when using <code>\$search</code> , or in specific usage of <code>\$filter</code> . For more information about the use of ConsistencyLevel and <code>\$count</code> , see Advanced query capabilities on directory objects. |

Request body

Don't supply a request body for this method.

Response

If successful, this method returns a `200 OK` response code and collection of `group` objects in the response body. The response includes only the default properties of each group.

Request body

Don't supply a request body for this method.

Response

If successful, this method returns a `200 OK` response code and collection of `group` objects in the response body. The response includes only the default properties of each group.

Postman



POST 00. Graph: Get Bearer 1 +

HTTP 00. GraphAPI Demos / Windows365 / 01. Create W365 CloudPC Provisioning Policy / **00. Graph: Get Bearer Token (oAuth)**

POST

https://login.microsoftonline.com/{{w365_tenant_id}}/oauth2/v2.0/token

Params

Authorization

Headers (11)

Body

Scripts

Settings

none form-data x-www-form-urlencoded raw binary GraphQL

Key

Value

grant_type

client_credentials

client_id

[{{w365_client_id}}](#)

client_secret

[{{w365_client_secret}}](#)

scope

<https://graph.microsoft.com/.default>

Key

Value

Body

Cookies (3)

Headers (16)

Test Results (1/1)



{ } JSON

Preview

Visualize

POST 00. Graph: Get Bearer 1 +

HTTP 00. GraphAPI Demos / Windows365 / 01. Create W365 CloudPC Provisioning Policy / 00. Graph: Get Bearer Token (oAuth)

POST https://login.microsoftonline.com/ {{w365_tenant_id}} /oauth2/v2.0/token

Params Authorization Headers (11) Body Scripts Settings

none form-data x-www-form-urlencoded raw binary GraphQL

| Key | Value |
|---|--------------------------------------|
| <input checked="" type="checkbox"/> grant_type | client_credentials |
| <input checked="" type="checkbox"/> client_id | {{w365_client_id}} |
| <input checked="" type="checkbox"/> client_secret | {{w365_client_secret}} |
| <input checked="" type="checkbox"/> scope | https://graph.microsoft.com/.default |

Body Cookies (3) Headers (16) Test Results (1/1) ⏱

{ } JSON ▾ Preview ⚡ Visualize | ▾

- Home
- Collections
- Environments
- Flows
- APIs
- Mock servers
- Monitors
- History

POST 00. Graph: Get Bearer 1 + 00. GraphAPI Demos / Windows365 / 01. Create W365 CloudPC Provisioning Policy / **00. Graph: Get Bearer Token (oAuth)****POST**https://login.microsoftonline.com/{{w365_tenant_id}}/oauth2/v2.0/token[Params](#) [Authorization](#) [Headers \(11\)](#) [Body](#) ● [Scripts](#) ● [Settings](#)

Pre-request

```
1 // post-request script to store the Graph BearerToken into a global variable
2 pm.test(pm.info.requestName, () => {
3     pm.response.to.not.be.error;
4     pm.response.to.not.have.jsonBody('error');
5 });
6 pm.globals.set("graphBearerToken", pm.response.json().access_token);
7
8 // output to console
9 console.log('Graph BearerToken: ' + pm.response.json().access_token.substring(0,25) + '...');
```

Post-response

[Body](#) [Cookies \(3\)](#) [Headers \(16\)](#) [Test Results \(1/1\)](#)

{ } JSON

Preview

Visualize

- POST 00. Graph: Get Bearer 1 +
- Collections
- Environments
- Flows
- APIs
- Mock servers
- Monitors
- History

HTTP 00. GraphAPI Demos / Windows365 / 01. Create W365 CloudPC Provisioning Policy / 00. Graph: Get Bearer Token (oAuth)

POST https://login.microsoftonline.com/{{w365_tenant_id}}/oauth2/v2.0/token

Params Authorization Headers (11) Body Scripts Settings

Pre-request

```
1 // post-request script to store the Graph BearerToken into a global variable
2 pm.test(pm.info.requestName, () => {
3     pm.response.to.not.be.error;
4     pm.response.to.not.have.jsonBody('error');
5 });
6 pm.globals.set("graphBearerToken", pm.response.json().access_token);
7
8 // output to console
9 console.log('Graph BearerToken: ' + pm.response.json().access_token.substring(0,25) + '...');
```

Post-response

Body Cookies (3) Headers (16) Test Results (1/1) ⏱

{ } JSON ▷ Preview ⚡ Visualize ▾

GET

https://graph.microsoft.com/v1.0/groups?\$filter=startswith(displayName, 'grp-sec-W365Users')&\$top=1&\$select=id, displayName,description

Params • Authorization Headers (9) Body Scripts • Settings

Headers 7 hidden

| | Key | Value | Description |
|-------------------------------------|---------------|-----------------------------|-------------|
| <input checked="" type="checkbox"/> | Authorization | Bearer {{graphBearerToken}} | |
| <input checked="" type="checkbox"/> | Content-Type | application/json | |

Body Cookies Headers (12) Test Results (1/1) ⏪

200 OK

{ } JSON ▾

```
1  {
2      "@odata.context": "https://graph.microsoft.com/v1.0/$metadata#groups(id,displayName,description)",
3      "value": [
4          {
5              "id": "715b1ead-7ea8-4803-94b5-b13788c6a9db",
6              "displayName": "grp-sec-W365Users",
7              "description": "Windows 365 Frontline Users"
8          }
9      ]
10 }
```

GET

[https://graph.microsoft.com/v1.0/groups?\\$filter=startswith\(displayName, 'grp-sec-W365Users'\)&\\$top=1&\\$select=id, displayName,description](https://graph.microsoft.com/v1.0/groups?$filter=startswith(displayName, 'grp-sec-W365Users')&$top=1&$select=id, displayName,description)

Params • Authorization Headers (9) Body Scripts • Settings

Headers 7 hidden

| Key | Value | Description |
|---|-----------------------------|-------------|
| <input checked="" type="checkbox"/> Authorization | Bearer {{graphBearerToken}} | |
| <input checked="" type="checkbox"/> Content-Type | application/json | |

Body Cookies Headers (12) Test Results (1/1)

200 OK

{ } JSON ▾

▷ Preview

Visualize ▾

```
1  {
2      "@odata.context": "https://graph.microsoft.com/v1.0/\$metadata#groups\(id,displayName,description\)",
3      "value": [
4          {
5              "id": "715b1ead-7ea8-4803-94b5-b13788c6a9db",
6              "displayName": "grp-sec-W365Users",
7              "description": "Windows 365 Frontline Users"
8          }
9      ]
10 }
```

GET

[https://graph.microsoft.com/v1.0/groups?\\$filter=startswith\(displayName, 'grp-sec-W365Users'\)&\\$top=1&\\$select=id, displayName,description](https://graph.microsoft.com/v1.0/groups?$filter=startswith(displayName, 'grp-sec-W365Users')&$top=1&$select=id, displayName,description)

Params • Authorization Headers (9) Body Scripts • Settings

Headers 7 hidden

| | Key | Value | Description |
|-------------------------------------|---------------|-----------------------------|-------------|
| <input checked="" type="checkbox"/> | Authorization | Bearer {{graphBearerToken}} | |
| <input checked="" type="checkbox"/> | Content-Type | application/json | |

Body Cookies Headers (12) Test Results (1/1)

200 OK

{ } JSON ▾

▷ Preview

Visualize ▾

```
1  {
2      "@odata.context": "https://graph.microsoft.com/v1.0/\$metadata#groups\(id,displayName,description\)",
3      "value": [
4          {
5              "id": "715b1ead-7ea8-4803-94b5-b13788c6a9db",
6              "displayName": "grp-sec-W365Users",
7              "description": "Windows 365 Frontline Users"
8          }
9      ]
10 }
```

GET

[https://graph.microsoft.com/v1.0/groups?\\$filter=startswith\(displayName, 'grp-sec-W365Users'\)&\\$top=1&\\$select=id, displayName,description](https://graph.microsoft.com/v1.0/groups?$filter=startswith(displayName, 'grp-sec-W365Users')&$top=1&$select=id, displayName,description)

Params • Authorization Headers (9) Body Scripts • Settings

Query Params



Key

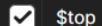
Value

Description



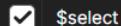
\$filter

startswith(displayName, 'grp-sec-W365Users')



\$top

1



\$select

id, displayName,description

Key

Value

Description

Body Cookies Headers (12) Test Results (1/1) ↻

200 OK • 627 ms

{ } JSON ▾

▷ Preview

✖ Visualize

```
1 {  
2     "@odata.context": "https://graph.microsoft.com/v1.0/\$metadata#groups\(id,displayName,description\)" ,  
3     "value": [  
4         {  
5             "id": "715b1ead-7ea8-4803-94b5-b13788c6a9db",  
6             "displayName": "grp-sec-W365Users",  
7             "description": "Windows 365 Frontline Users"  
8         }  
9     ]  
10 }
```

GET

https://graph.microsoft.com/v1.0/groups?\$filter=startswith(displayName, 'grp-sec-W365Users')&\$top=1&\$select=id, displayName,description

Params • Authorization Headers (9) Body Scripts • Settings

Pre-request

```
1 // post-request script to store the CloudPC Entra Group ID into an environment variable
2 pm.test(pm.info.requestName, () => {
3     pm.response.to.not.be.error;
4     pm.response.to.not.have.jsonBody('error');
5 });
6 pm.environment.set("cpc-group-id", pm.response.json().value[0].id);
7
8 // output to console
9 console.log('CloudPC Group ID: ' + pm.response.json().value[0].id);
```

Body Cookies Headers (12) Test Results (1/1) ⏱

200 OK

{ } JSON ▾

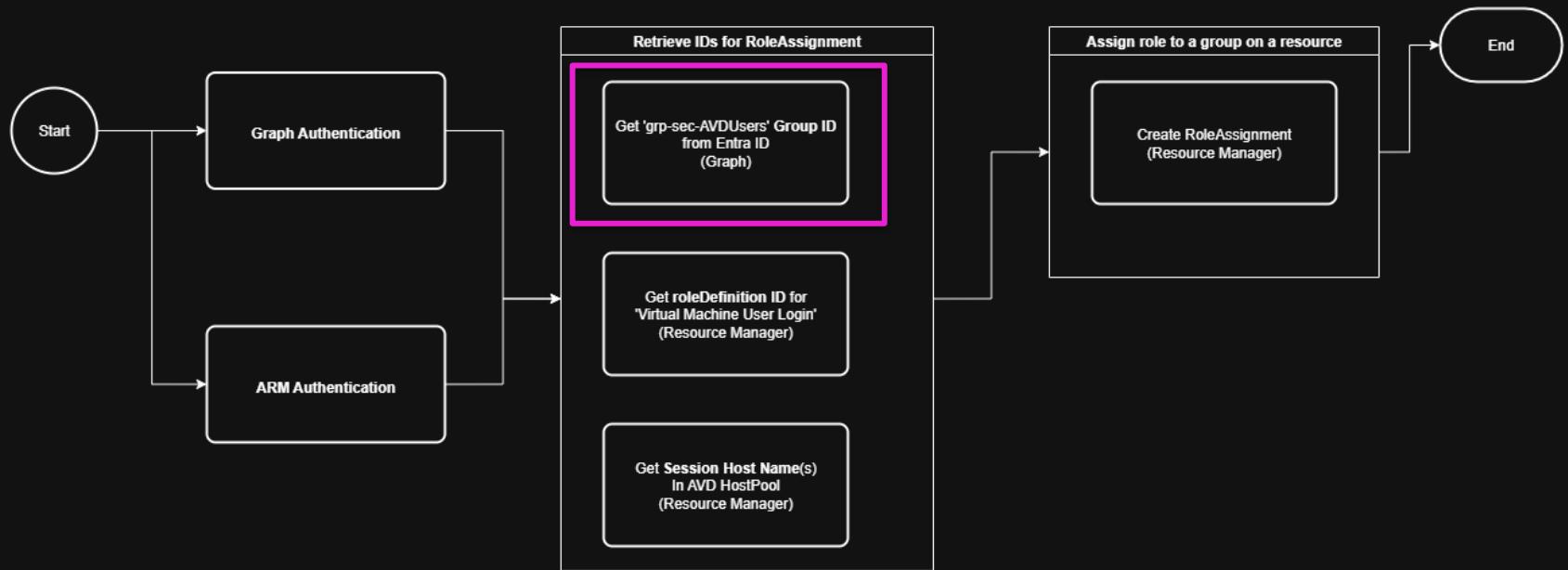
▷ Preview ⚡ Visualize ▾

```
1 {
2     "@odata.context": "https://graph.microsoft.com/v1.0/$metadata#groups(id,displayName,description)",
3     "value": [
4         {
5             "id": "715b1ead-7ea8-4803-94b5-b13788c6a9db",
6             "displayName": "grp-sec-W365Users",
7             "description": "Windows 365 Frontline Users"
8         }
9     ]
10 }
```

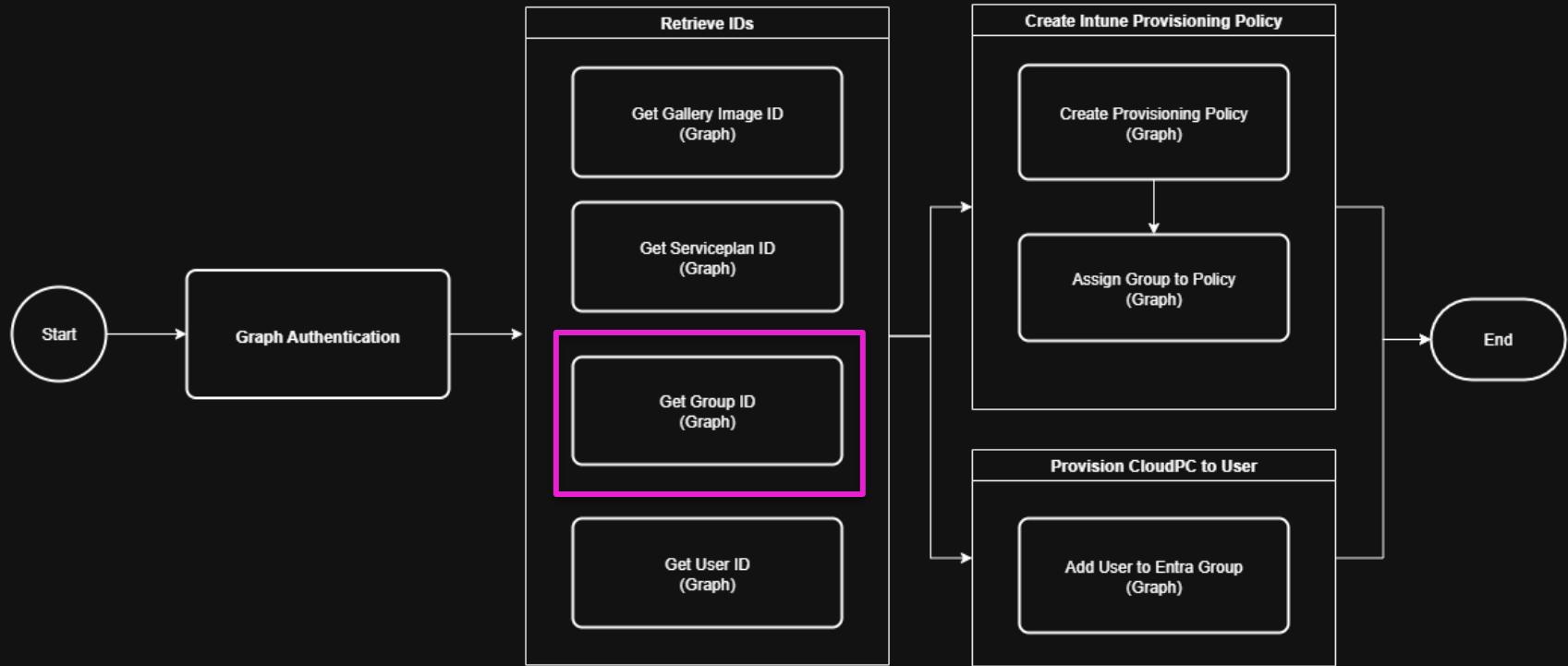
PowerShell & REST API



Assign 'Virtual Machine User Login' role for a group to an AVD Session Host



Provision Windows 365 CloudPC to User



```
11 > #region Step 00 - Connect to Microsoft Graph API (retrieve bearer token) ...
36 #endregion
37
38 > #region Step 01 - Get the Entra Group ID ...
62 #endregion
63
64 > #region Step 02 - Get the Gallery Image ID ...
87 #endregion
88
89 > #region Step 03 - Get the CloudPC Serviceplan ID ...
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112
113 > #region Step 04 - Create CloudPC Provisioning Policy ...
163 #endregion
164
165 > #region Step 05 - Assign Entra Group and Serviceplan to CloudPC Provisioning Policy ...
199 #endregion
200
```

_ExpertsLive > Demos > 02_W365_Create_Provisioning_Policy.ps1 > ...

```
11 > #region Step 00 - Connect to Microsoft Graph API (retrieve bearer token) ...
36 #endregion
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165 > #region Step 05 - Assign Entra Group and Serviceplan to CloudPC Provisioning Policy ...
199 #endregion
200
```

```
37 #region Step 00 - Connect to Microsoft Graph API (retrieve bearer token)
38 # URL for the REST API call
39 $restUri = "https://login.microsoftonline.com/$tenantId/oauth2/v2.0/token"
40 # Method for the REST API call
41 $restMethod = "POST"
42 # Body for the REST API call
43 $restBody = @{
44     grant_type      = "client_credentials"
45     client_id       = $clientId
46     client_secret   = $clientSecret
47     scope           = "https://graph.microsoft.com/.default"
48 }
49 # Parameters for the REST API call
50 $restParams = @{
51     Uri            = $restUri
52     Method         = $restMethod
53     Body           = $restBody
54     ContentType    = "application/x-www-form-urlencoded"
55 }
56 # Make the REST API call to retrieve the token response and store it in a variable
57 $restResponse = Invoke-RestMethod @restParams
58 # Store the access token for the Microsoft Graph API in a variable
59 $graphBearerToken = $restResponse.access_token
60 #endregion
61
```

```
37 #region Step 00 - Connect to Microsoft Graph API (retrieve bearer token)
38 # URL for the REST API call
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43 $restBody = @{
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47     scope           = "https://graph.microsoft.com/.default"
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49 # Parameters for the REST API call
50 $restParams = @{
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_ExpertsLive > Demos > ➔ 02_W365_Create_Provisioning_Policy.ps1 > ...

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11 > #region Step 00 - Connect to Microsoft Graph API (retrieve bearer token) ...
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163 #endregion
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165 > #region Step 05 - Assign Entra Group and Serviceplan to CloudPC Provisioning Policy ...
199 #endregion
200
```

```
62 #region Step 01 - Get the Entra Group ID
63 # URL for the REST API call
64 $restUri = "https://graph.microsoft.com/v1.0/groups"
65 $restUri += "?`$filter=startswith(displayName, 'grp-sec')" # filter
66 $restUri += "&`$top=1&`$select=id, displayName,description" # select
67 # Method for the REST API call
68 $restMethod = "GET"
69 # NO Body for a REST API call with Method GET
70 $restHeaders = @{
71     "Authorization"="Bearer $graphBearerToken";
72     "Content-Type" = "application/json"
73 }
74 # Parameters for the REST API call
75 $restParams = @{
76     Uri          = $restUri
77     Method       = $restMethod
78     Headers      = $restHeaders
79 }
80 # Make the REST API call to retrieve the token response and store it in a variable
81 $restResponse = Invoke-RestMethod @restParams
82 # Output the REST API call results
83 $groupId = $restResponse.value.id
84 Write-Host "Step 01 - groupId: " -NoNewline -ForegroundColor Yellow
85 Write-Host "$($groupId) (GRAPH API)" -ForegroundColor Cyan
86 #endregion
```

```
62 #region Step 01 - Get the Entra Group ID
63 # URL for the REST API call
64 $restUri = "https://graph.microsoft.com/v1.0/groups"
65 $restUri += "?`$filter=startswith(displayName, 'grp-sec')"    # filter
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81 $restResponse = Invoke-RestMethod @restParams
82 # Output the REST API call results
83 $groupId = $restResponse.value.id
84 Write-Host "Step 01 - groupId: " -NoNewline -ForegroundColor Yellow
85 Write-Host "$($groupId) (GRAPH API)" -ForegroundColor Cyan
86 #endregion
```

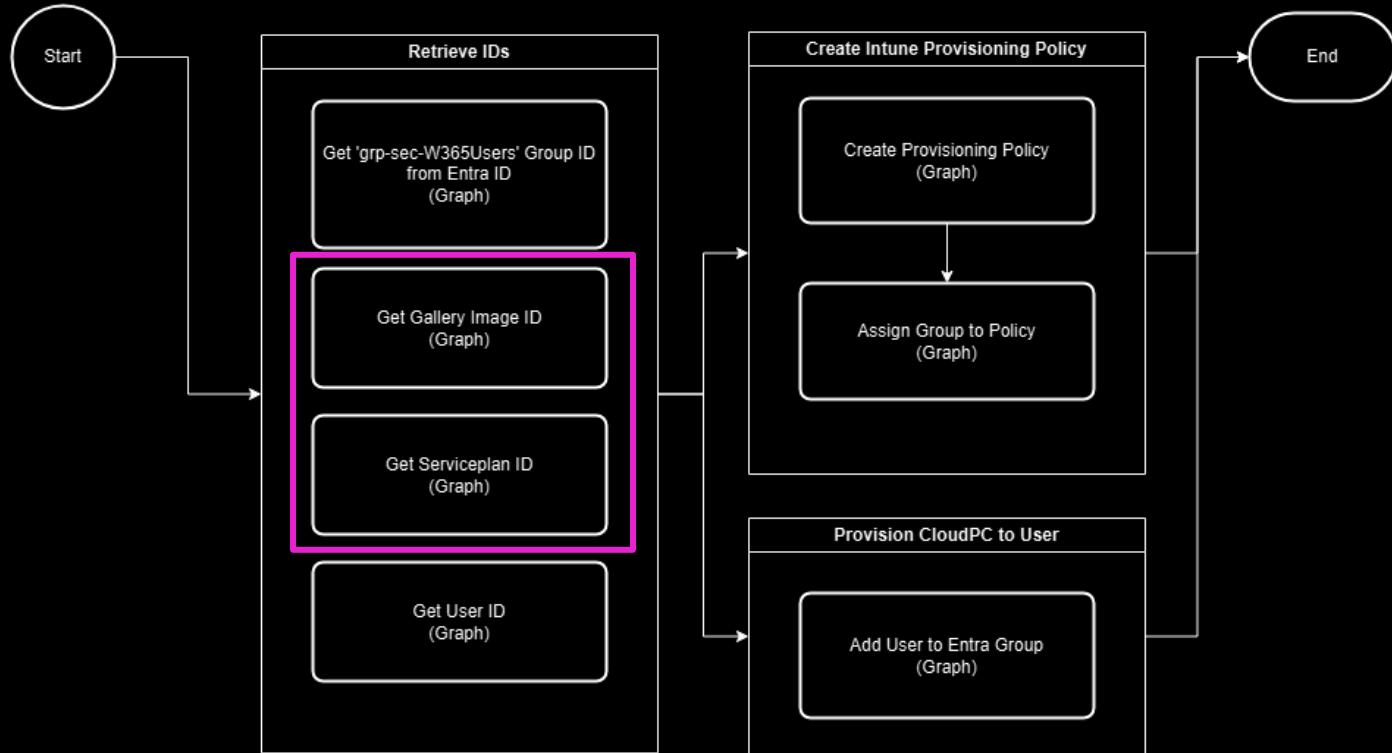
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62 #region Step 01 - Get the Entra Group ID
63 # URL for the REST API call
64 $restUri = "https://graph.microsoft.com/v1.0/groups"
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81 $restResponse = Invoke-RestMethod @restParams
82 # Output the REST API call results
83 $groupId = $restResponse.value.id
84 Write-Host "Step 01 - groupId: " -NoNewline -ForegroundColor Yellow
85 Write-Host "$($groupId) (GRAPH API)" -ForegroundColor Cyan
86 #endregion
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62 #region Step 01 - Get the Entra Group ID
63 # URL for the REST API call
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81 $restResponse = Invoke-RestMethod @restParams
82 # Output the REST API call results
83 $groupId = $restResponse.value.id
84 Write-Host "Step 01 - groupId: " -NoNewline -ForegroundColor Yellow
85 Write-Host "$($groupId) (GRAPH API)" -ForegroundColor Cyan
86 #endregion
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62 #region Step 01 - Get the Entra Group ID
63 # URL for the REST API call
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80 # Make the REST API call to retrieve the token response and store it in a variable
81 $restResponse = Invoke-RestMethod @restParams
82 # Output the REST API call results
83 $groupId = $restResponse.value.id
84 Write-Host "Step 01 - groupId: " -NoNewline -ForegroundColor Yellow
85 Write-Host "$($groupId) (GRAPH API)" -ForegroundColor Cyan
86 #endregion
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62 #region Step 01 - Get the Entra Group ID
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79 }
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81 $restResponse = Invoke-RestMethod @restParams
82 # Output the REST API call results
83 $groupId = $restResponse.value.id
84 Write-Host "Step 01 - groupId: " -NoNewline -ForegroundColor Yellow
85 Write-Host "$($groupId) (GRAPH API)" -ForegroundColor Cyan
86 #endregion
```

Provision Windows 365 CloudPC to User



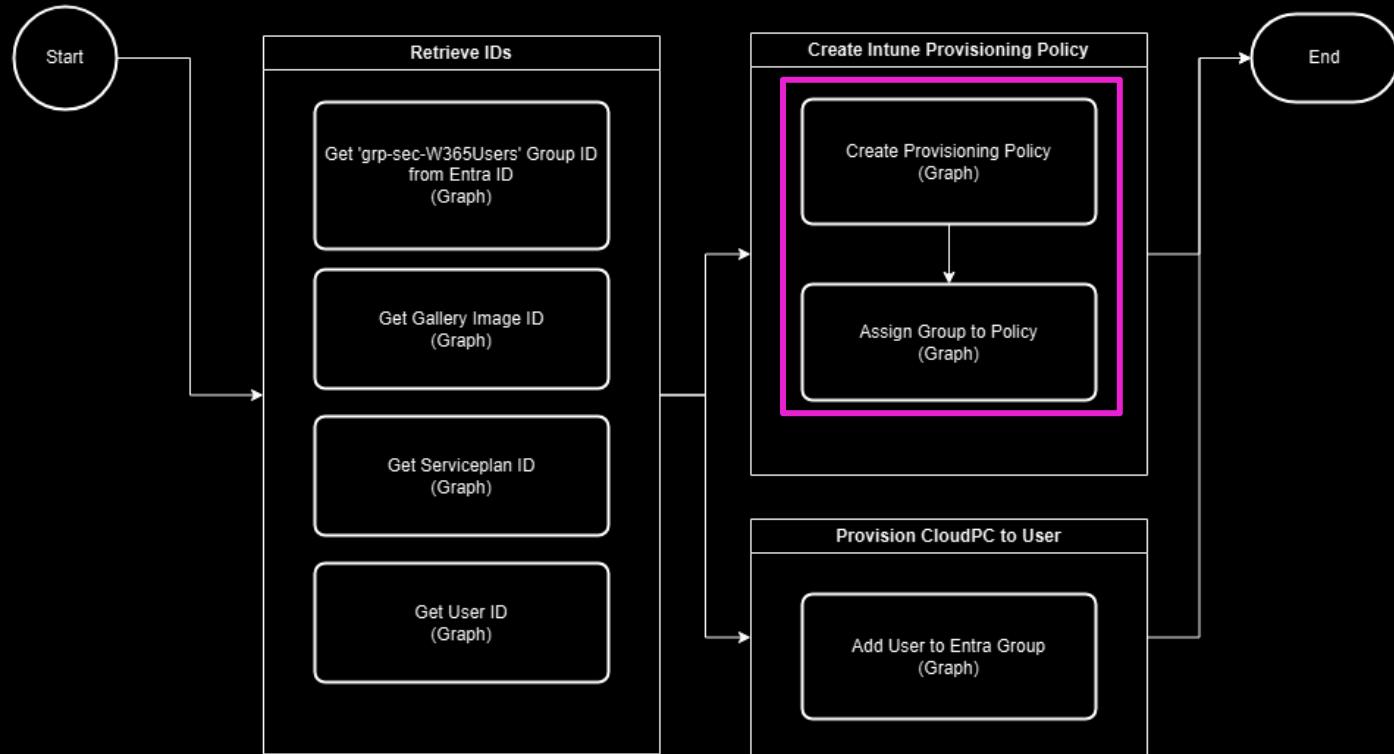
_ExpertsLive > Demos > ➔ 02_W365_Create_Provisioning_Policy.ps1 > ...

```
11 > #region Step 00 - Connect to Microsoft Graph API (retrieve bearer token)...
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89 > #region Step 03 - Get the CloudPC Serviceplan ID...
111 #endregion
112
113 > #region Step 04 - Create CloudPC Provisioning Policy...
163 #endregion
164
165 > #region Step 05 - Assign Entra Group and Serviceplan to CloudPC Provisioning Policy...
199 #endregion
200
```

```
63
64 #region Step 02 - Get the Gallery Image ID
65 # URL for the REST API call
66 $restUri = "https://graph.microsoft.com/v1.0/deviceManagement/virtualEndpoint/galleryImages"
67 $restUri += "?`$filter=startswith(skuName, 'win11-23h2-ent-cpc-m365')`" # filter
68 # Method for the REST API call
69 $restMethod = "GET"
70 # NO Body for a REST API call with Method GET
71 $restHeaders = @{
72     "Authorization" = "Bearer $graphBearerToken";
73     "Content-Type"  = "application/json"
74 }
75 # Parameters for the REST API call
76 $restParams = @{
77     Uri      = $restUri
78     Method   = $restMethod
79     Headers  = $restHeaders
80 }
81 # Make the REST API call to retrieve the token response and store it in a variable
82 $restResponse = Invoke-RestMethod @restParams
83 # Output the REST API call results
84 $galleryImageId = $restResponse.value.id
85 Write-Host "Step 02 - Gallery Image Id: " -NoNewline -ForegroundColor Yellow
86 Write-Host "$($galleryImageId)" -ForegroundColor Cyan
```

```
88
89 #region Step 03 - Get the CloudPC Serviceplan ID
90 # URL for the REST API call
91 $restUri = "https://graph.microsoft.com/beta/deviceManagement/virtualEndpoint/frontLineServicePlans"
92 # Method for the REST API call
93 $restMethod = "GET"
94 # NO Body for a REST API call with Method GET
95 $restHeaders = @{
96     "Authorization" = "Bearer $graphBearerToken";
97     "Content-Type" = "application/json"
98 }
99 # Parameters for the REST API call
100 $restParams = @{
101     Uri      = $restUri
102     Method   = $restMethod
103     Headers  = $restHeaders
104 }
105 # Make the REST API call to retrieve the token response and store it in a variable
106 $restResponse = Invoke-RestMethod @restParams
107 # Output the REST API call results
108 $serviceplanId = $restResponse.value.id
109 Write-Host "Step 03 - Serviceplan Id: " -NoNewline -ForegroundColor Yellow
110 Write-Host "$($serviceplanId)" -ForegroundColor Cyan
111 #endregion
```

Provision Windows 365 CloudPC to User



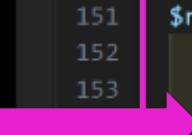
_ExpertsLive > Demos > ➔ 02_W365_Create_Provisioning_Policy.ps1 > ...

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163 #endregion
164
165 > #region Step 05 - Assign Entra Group and Serviceplan to CloudPC Provisioning Policy ...
199 #endregion
200
```

```
113 #region Step 04 - Create CloudPC Provisioning Policy
114 # URL for the REST API call
115 $restUri = "https://graph.microsoft.com/v1.0/deviceManagement/virtualEndpoint/provisioningPolicies"
116 # Method for the REST API call
117 $restMethod = "POST"
118 # Body for a REST API call with Method PUT
119 $restBody = @{
120     "@odata.type"          = "#microsoft.graph.cloudPcProvisioningPolicy"
121     description           = "Windows 365 CloudPC Frontline Provisioning Policy"
122     displayName            = "CPC-W365-Frontline-Provisioning"
123     domainJoinConfigurations = @(
124         @{
125             domainJoinType      = "azureADJoin"
126             regionName          = "automatic"
127             onPremisesConnectionId = $null
128             regionGroup          = "europeUnion"
129         }
130     )
131     enableSingleSignOn      = $true
132     imageDisplayName        = "win11-23h2-ent-cpc-m365"
133     imageId                = "$($galleryImageId)"
134     imageType               = "gallery"
135     cloudPcNamingTemplate   = "CPC-%USERNAME:5%-%RAND:5%"
136     windowsSetting          = @{
```

```
113 #region Step 04 - Create CloudPC Provisioning Policy
114 # URL for the REST API call
115 $restUri = "https://graph.microsoft.com/v1.0/deviceManagement/virtualEndpoint/provisioningPolicies"
116 # Method for the REST API call
117 $restMethod = "POST"
118 # Body for a REST API call with Method PUT
119 $restBody = @{
120     "@odata.type"          = "#microsoft.graph.cloudPcProvisioningPolicy"
121     description           = "Windows 365 CloudPC Frontline Provisioning Policy"
122     displayName            = "CPC-W365-Frontline-Provisioning"
123     domainJoinConfigurations = @(
124         @{
125             domainJoinType      = "azureADJoin"
126             regionName          = "automatic"
127             onPremisesConnectionId = $null
128             regionGroup          = "europeUnion"
129         }
130     )
131     enableSingleSignOn      = $true
132     imageDisplayName        = "win11-23h2-ent-cpc-m365"
133     imageId                = "$($galleryImageId)"
134     imageType               = "gallery"
135     cloudPcNamingTemplate   = "CPC-%USERNAME:5%-%RAND:5%"
136     windowsSetting          = @{
```

```
139     microsoftManagedDesktop = @{
140         managedType = "notManaged"
141         profile     = ""
142     }
143     provisioningType          = "shared"
144 }
145 # Headers for the REST API call
146 $restHeaders = @{
147     "Authorization" = "Bearer $graphBearerToken";
148     "Content-Type"  = "application/json"
149 }
150 # Parameters for the REST API call
151 $restParams = @{
152     Uri      = $restUri
153     Method   = $restMethod
154     Body     = ConvertTo-Json -InputObject $restBody -Depth 10 -Compress
155     Headers  = $restHeaders
156 }
157 # Make the REST API call to retrieve the token response and store it in a variable
158 $restResponse = Invoke-RestMethod @restParams
159 # Output the REST API call results
160 $provisioningPolicyId = $restResponse.id
161 Write-Host "Step 04 - Provisioning Policy Id: " -NoNewline -ForegroundColor Yellow
162 Write-Host "$($provisioningPolicyId)" -ForegroundColor Cyan
```



```
139     microsoftManagedDesktop = @{
140         managedType = "notManaged"
141         profile     = ""
142     }
143     provisioningType          = "shared"
144 }
145 # Headers for the REST API call
146 $restHeaders = @{
147     "Authorization" = "Bearer $graphBearerToken"
148     "Content-Type"  = "application/json"
149 }
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151 $restParams = @{
152     Uri      = $restUri
153     Method   = $restMethod
154     Body     = ConvertTo-Json -InputObject $restBody -Depth 10 -Compress
155     Headers  = $restHeaders
156 }
157 # Make the REST API call to retrieve the token response and store it in a variable
158 $restResponse = Invoke-RestMethod @restParams
159 # Output the REST API call results
160 $provisioningPolicyId = $restResponse.id
161 Write-Host "Step 04 - Provisioning Policy Id: " -NoNewline -ForegroundColor Yellow
162 Write-Host "$($provisioningPolicyId)" -ForegroundColor Cyan
```

WARNING: Resulting JSON is truncated as serialization has exceeded the set depth of 2.

```
{  
    "level1": {  
        "level2": {  
            "level3": "System.Collections.Hashtable"  
        }  
    }  
}
```



```
139     microsoftManagedDesktop = @{
140         managedType = "notManaged"
141         profile      = ""
142     }
143     provisioningType          = "shared"
144 }
145 # Headers for the REST API call
146 $restHeaders = @{
147     "Authorization" = "Bearer $graphBeare
148     "Content-Type"  = "application/json"
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152     Uri      = $restUri
153     Method   = $restMethod
154     Body     = ConvertTo-Json -InputObject $restBody -Depth 10 -Compress
155     Headers  = $restHeaders
156 }
157 # Make the REST API call to retrieve the token response and store it in a variable
158 $restResponse = Invoke-RestMethod @restParams
159 # Output the REST API call results
160 $provisioningPolicyId = $restResponse.id
161 Write-Host "Step 04 - Provisioning Policy Id: " -NoNewline -ForegroundColor Yellow
162 Write-Host "$($provisioningPolicyId)" -ForegroundColor Cyan
```

ConvertTo-Json

Reference

Feedback

Module: Microsoft.PowerShell.Utility

Converts an object to a JSON-formatted string.

Syntax

PowerShell

Copy

ConvertTo-Json

```
[-InputObject] <Object>
[-Depth <Int32>]
[-Compress]
[-EnumsAsStrings]
[-AsArray]
[-EscapeHandling <StringEscapeHandling>]
[<CommonParameters>]
```

-Depth

Specifies how many levels of contained objects are included in the JSON representation. The value can be any number from 0 to 100. The default value is 2.

`ConvertTo-Json` emits a warning if the number of levels in an input object exceeds this number.

[PROBLEMS](#)[TERMINAL](#)[PORTS](#)[GITLENS](#)[AZURE](#)[COMMENTS](#)[OUTPUT](#)[DEBUG CONSOLE](#)

Step 00 - Graph bearer token: eyJ0eXAiOiJKV1QiLCJub25jZ...

Step 01 - groupId: 715b1ead-7ea8-4803-94b5-b13788c6a9db

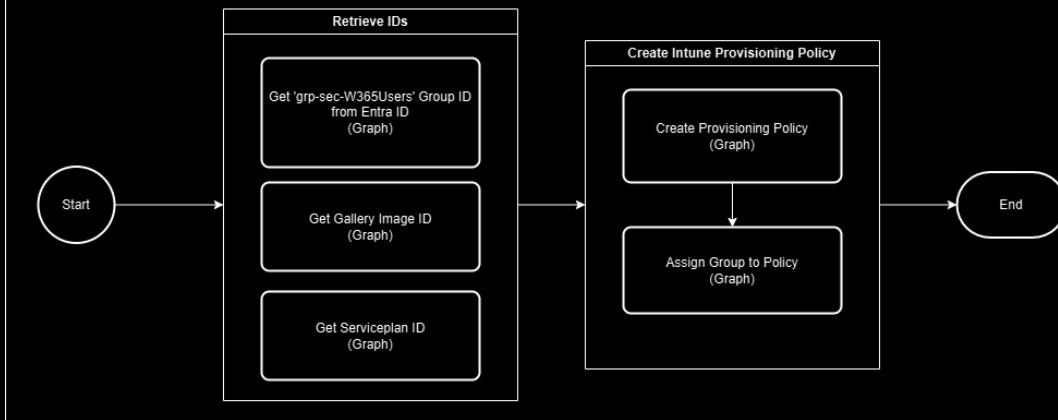
Step 02 - Gallery Image Id: microsoftwindowsdesktop_windows-ent-cpc_win11-23h2-ent-cpc-m365

Step 03 - Serviceplan Id: 50ef7026-6174-40ba-bff7-f0e4fcddbf65

Step 04 - Provisioning Policy Id: a5a00319-eb6b-478a-bcda-9d76bcd7fdf5

Step 05 - Group and Serviceplan assigned to policy

Create Windows 365 CloudPC Provisioning Policy



<<

[Home > Devices | Windows 365 >](#)

CPC-W365-Frontline-Provisioning ...

General [Edit](#)

| | |
|------------------------------------|---|
| Name | CPC-W365-Frontline-Provisioning |
| Description | Windows 365 CloudPC Frontline Provisioning Policy |
| License type | Frontline |
| Use Microsoft Entra single sign-on | Yes |
| Join type | Microsoft Entra Join |
| Geography | European Union |
| Region | Automatic (Recommended) |

Image [Edit](#)

| | |
|------------|---|
| Image type | Gallery |
| | Windows 11 Enterprise + Microsoft 365 Apps 23H2 |

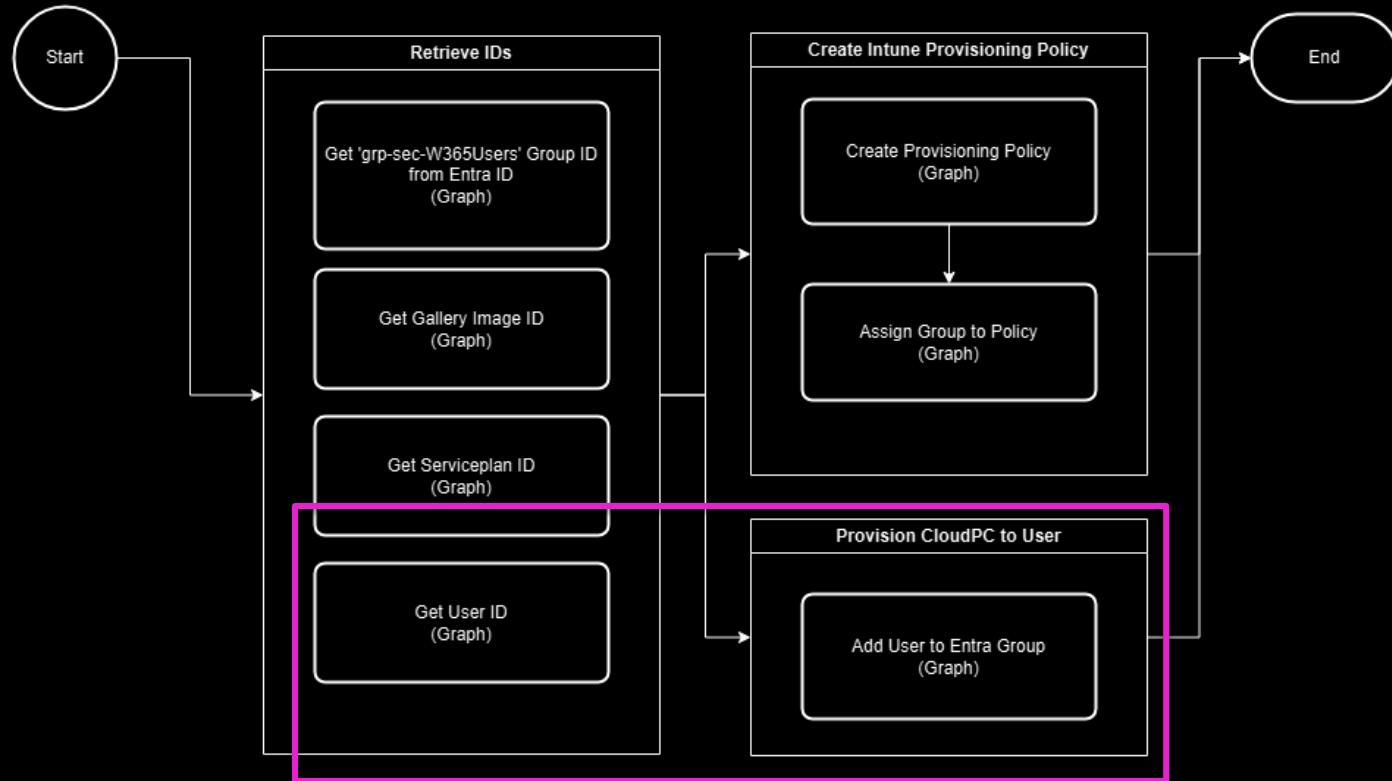
Configuration [Edit](#)

| | |
|----------------------------|---------------------------|
| Language & Region | English (United States) |
| Apply device name template | true |
| Enter a name template | CPC-%USERNAME:5%-%RAND:5% |
| Additional Services | None |

Assignments [Edit](#)

| Group | Cloud PC size | Number of Cloud PCs | Users |
|-------------------|------------------------------------|---------------------|---------------------------|
| grp-sec-W365Users | Cloud PC Frontline 2vCPU/8GB/256GB | 0 | see users |

Provision Windows 365 CloudPC to User



_ExpertsLive > Demos > 03_W365_Provision_CloudPC_to_User.ps1 > ...

```
11 > #region Step 00 - Connect to Microsoft Graph API (retrieve bearer token) ...
34 #endregion
35
36 > #region Step 01 - Get the Entra Group ID ...
60 #endregion
61
62 > #region Step 02 - Get the Entra User ID ...
85 #endregion
86
87 > #region Step 03 - Add Member to Group ...
112 #endregion
113 ♦
114
```

```
61
62 #region Step 02 - Get the Entra User ID
63 # URL for the REST API call
64 $restUri = "https://graph.microsoft.com/v1.0/users"
65 $restUri += "?`$filter=startswith(displayName, 'test01')" # filter
66 # Method for the REST API call
67 $restMethod = "GET"
68 # NO Body for a REST API call with Method GET
69 $restHeaders = @{
70     "Authorization"="Bearer $graphBearerToken";
71     "Content-Type" = "application/json"
72 }
73 # Parameters for the REST API call
74 $restParams = @{
75     Uri          = $restUri
76     Method       = $restMethod
77     Headers      = $restHeaders
78 }
79 # Make the REST API call to retrieve the token response and store it in a variable
80 $restResponse = Invoke-RestMethod @restParams
81 # Output the REST API call results
82 $userId = $restResponse.value.id
83 Write-Host "Step 02 - User Id: " -NoNewline -ForegroundColor Yellow
84 Write-Host "$($userId)" -ForegroundColor Cyan
```

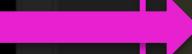
_ExpertsLive > Demos > 03_W365_Provision_CloudPC_to_User.ps1 > ...

```
11 > #region Step 00 - Connect to Microsoft Graph API (retrieve bearer token) ...
34 #endregion
35
36 > #region Step 01 - Get the Entra Group ID...
60 #endregion
61
62 > #region Step 02 - Get the Entra User ID...
85 #endregion
86
87 > #region Step 03 - Add Member to Group...
112 #endregion
113
114
```

```
87 #region Step 03 - Add Member to Group
88 # URL for the REST API call
89 $restUri = "https://graph.microsoft.com/v1.0/groups/$groupId/members/`$ref"
90 # Method for the REST API call
91 $restMethod = "POST"
92 # Body for a REST API call with Method PUT
93 $restBody = @{
94     "@odata.id"          = "https://graph.microsoft.com/v1.0/directoryObjects/$userId"
95 }
96 # Headers for the REST API call
97 $restHeaders = @{
98     "Authorization" = "Bearer $graphBearerToken";
99     "Content-Type"  = "application/json"
100 }
101 # Parameters for the REST API call
102 $restParams = @{
103     Uri      = $restUri
104     Method   = $restMethod
105     Body     = ConvertTo-Json -InputObject $restBody -Depth 10 -Compress
106     Headers  = $restHeaders
107 }
108 # Make the REST API call to retrieve the token response and store it in a variable
109 $restResponse = Invoke-RestMethod @restParams
110 # Output the REST API call results
```



```
87 #region Step 03 - Add Member to Group
88 # URL for the REST API call
89 $restUri = "https://graph.microsoft.com/v1.0/groups/$groupId/members/`$ref"
90 # Method for the REST API call
91 $restMethod = "POST"
92 # Body for a REST API call with Method PUT
93 $restBody = @{
94     "@odata.id"          = "https://graph.microsoft.com/v1.0/directoryObjects/$userId"
95 }
96 # Headers for the REST API call
97 $restHeaders = @{
98     "Authorization" = "Bearer $graphBearerToken";
99     "Content-Type"  = "application/json"
100 }
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103     Uri      = $restUri
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105     Body     = ConvertTo-Json -InputObject $restBody -Depth 10 -Compress
106     Headers  = $restHeaders
107 }
108 # Make the REST API call to retrieve the token response and store it in a variable
109 $restResponse = Invoke-RestMethod @restParams
110 # Output the REST API call results
```



```
92 # Body for a REST API call with Method PUT
93 $restBody = @{
94     "@odata.id"          = "https://graph.microsoft.com/v1.0/directoryObjects/$userId"
95 }
96 # Headers for the REST API call
97 $restHeaders = @{
98     "Authorization" = "Bearer $graphBearerToken";
99     "Content-Type"  = "application/json"
100 }
101 # Parameters for the REST API call
102 $restParams = @{
103     Uri      = $restUri
104     Method   = $restMethod
105     Body     = ConvertTo-Json -InputObject $restBody -Depth 10 -Compress
106     Headers = $restHeaders
107 }
108 # Make the REST API call to retrieve the token response and store it in a variable
109 $restResponse = Invoke-RestMethod @restParams
110 # Output the REST API call results
111 Write-Host "Step 03 - User added to Group" -ForegroundColor Yellow
112 #endregion
113
114
```

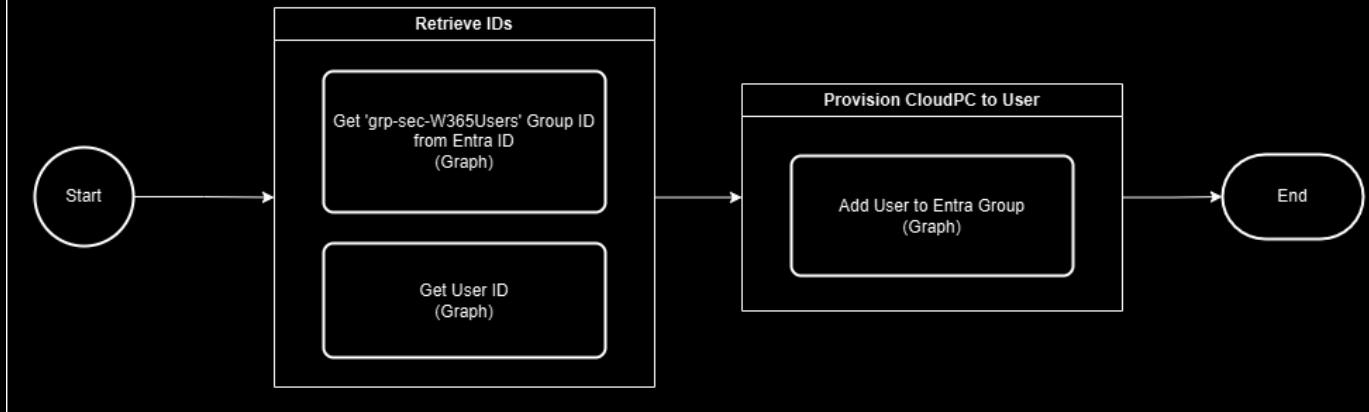
[PROBLEMS](#)[TERMINAL](#)[PORTS](#)[GITLENS](#)[AZURE](#)[COMMENTS](#)[OUTPUT](#)[DEBUG CONSOLE](#)

Step 01 - groupId: 715b1ead-7ea8-4803-94b5-b13788c6a9db

Step 02 - User Id: f4eb6841-9fab-403c-9990-8fd6d0753d1d

Step 03 - User added to Group

Provision Windows 365 CloudPC to User



Devices | Windows 365

[Overview](#) [All Cloud PCs](#) [Provisioning policies](#) [Custom images](#) [Azure network connection](#) [User settings](#) [Refresh](#) [Export](#) [Columns](#) [Provide feedback](#)

You can provision, configure, protect, and monitor your Cloud PCs. [Learn more about Cloud PC setup](#)

 [Add filter](#)

Showing 1 to 1 of 1 records

[< Previous](#) [Page](#) [1](#) [of 1](#) [Next >](#)

Device name ↑↓ Provisioning policy ↑↓ Image ↑↓ A... ↑↓ PC type ↑↓

Not provisioned CPC-W365-Frontline-P... Windows 11 Enterprise + Microsoft 365...

Cloud PC Frontline 2vCPU/8GB/256GB [Provisioning](#) test01@cognitionitdev...

Status ↑↓

User ↑↓

Device onboarding

[Windows 365](#)[Enrollment](#)

Home

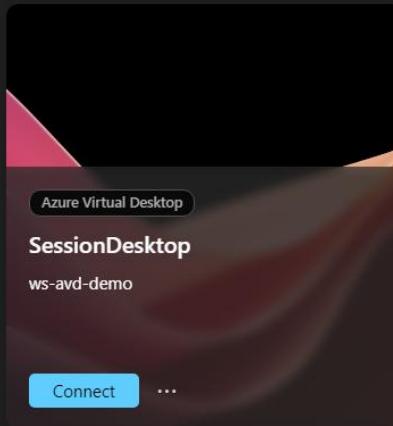
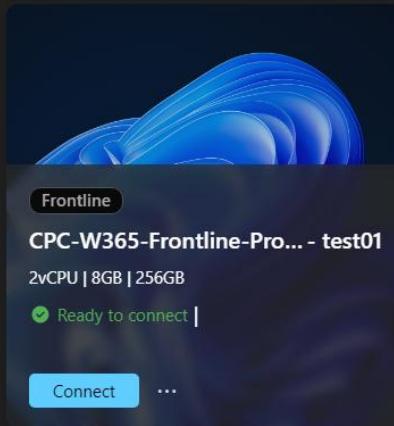
Devices



All

Cloud PC

ws-avd-demo





THANK YOU

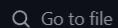
Are there any questions?

cloud-devops-ninja / myPresentations Public[Code](#) [Issues](#) [Pull requests](#) [Actions](#) [Projects](#) [Security](#) [Insights](#)

Files



main



Go to file



Alyx



ExpertsLive



GraphAPI_StarterKit



Code

[00_Create_Entra_Group.bicep](#)[00_Create_Entra_Group.bicepparam](#)[00_Create_Entra_Group.ps1](#)[01_AVD_Assign_AIM_Role_To_Group.ps1](#)[02_W365_Create_Provisioning_Policy.ps1](#)[03_W365_Provision_CloudPC_to_User.ps1](#)[bicepconfig.json](#)

Postman

[ExpertsLive_Collection.json](#)[createUUID.js](#)[storeAzureBearerToken.js](#)myPresentations / GraphAPI_StarterKit / Code

cloud-devops-ninja Adding Connect SlideDecks

6f16799 · 3 months ago

[History](#)

| Name | Last commit message | Last commit date |
|---------|---------------------------|------------------|
| .. | | |
| Code | updating presentations | 4 months ago |
| Postman | updating presentations | 4 months ago |
| Slides | Adding Connect SlideDecks | 3 months ago |

code: https://github.com/cloud-devops-ninja/myPresentations/tree/main/GraphAPI_StarterKit