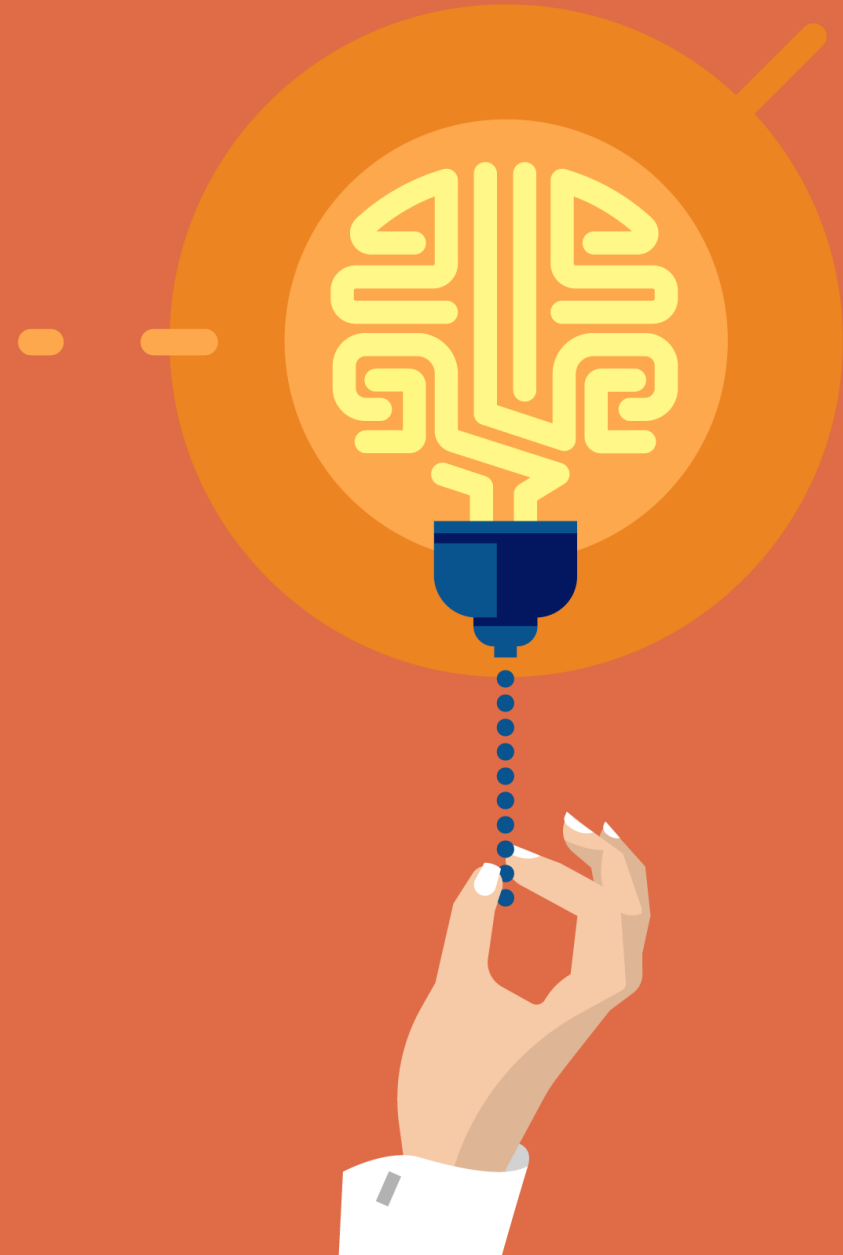
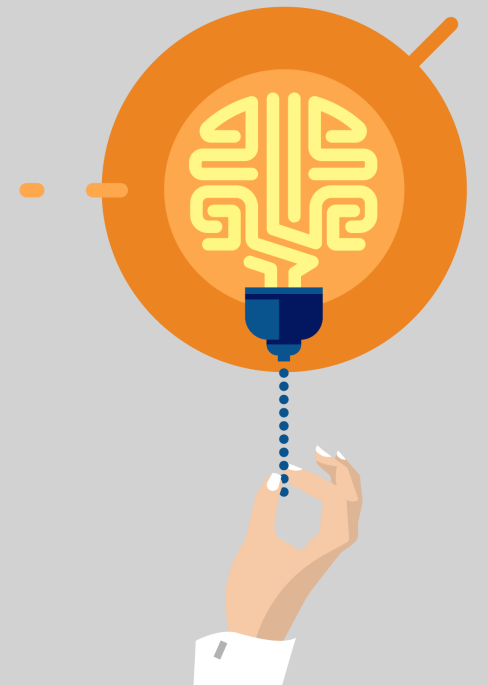


Two graphs and a chatbot

Roman Broich, Cloud Solution Architect



Introduction demo scenario

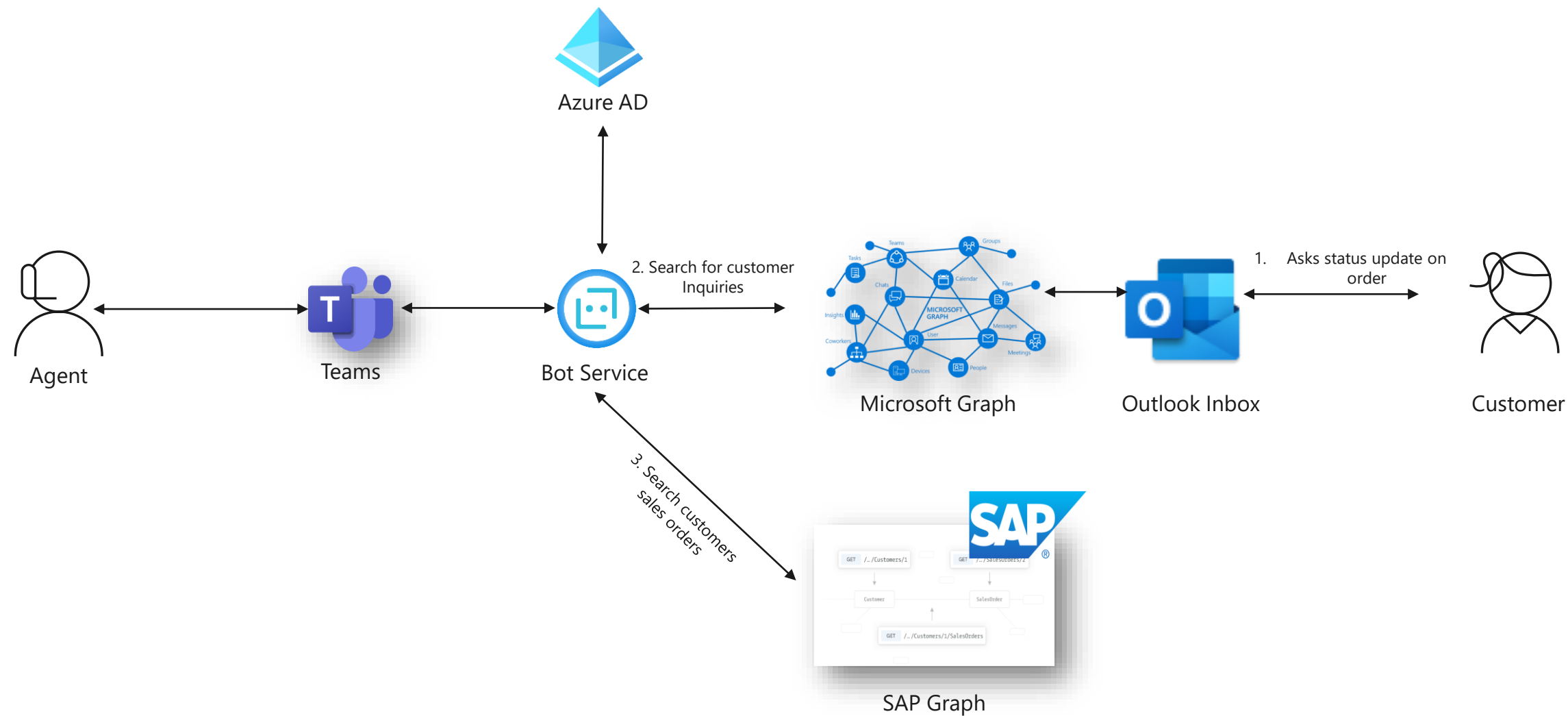


Demo business scenario description

- Business context
 - Frontline worker with Microsoft Teams as single user-interface
 - Access to Office365 and SAP via Teams
 - Read Outlook Inbox
 - Search for SAP Sales Orders
 - Guided interactions and workflow via Chatbot
- Simple demo scenario
 - Agent searches in the Outlook inbox for customer complaint about delayed orders via Chatbot
 - Agent searches for corresponding SAP sales orders via customer name via Chatbot



Demo business scenario description



Microsoft Graph

The screenshot displays the Microsoft Graph Explorer interface. The top navigation bar includes the Microsoft logo, the title "Microsoft Graph", and various links like "Solutions", "Graph Explorer", "Getting Started", "Docs", "API Reference", "Resources", "Developer Program", and "All Microsoft". The left sidebar features a "Graph Explorer" header, a user profile for Jane Jackson, and sections for "Sample queries" (with a search bar) and "Getting Started (7)" (listing various GET requests like "my profile", "my photo", "my mail", etc.). The main area shows a successful GET request to the endpoint `https://graph.microsoft.com/v1.0/me/messages`. The response is displayed in an "Adaptive cards" view, showing a list of messages from Jane Jackson with details like "Shipment update?", "Is my order delayed?", and "Order status update?".

Microsoft Graph Explorer Interface

Request:

- Method: GET
- Version: v1.0
- Endpoint: `https://graph.microsoft.com/v1.0/me/messages`
- Request body: {}

Response:

OK - 200 - 410ms

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

Response preview / Adaptive cards:

Message Content	Timestamp
Jane Jackson Shipment update?	7/28/2020 11:09 AM
Jane Jackson Is my order delayed?	7/28/2020 11:08 AM
Jane Jackson Order status update?	7/28/2020 11:08 AM
Jane Jackson Delayed order? Shipping status?	7/22/2020 2:50 PM
Jane Jackson Delayed order? Shipping status?	7/22/2020 2:50 PM
Jane Jackson Where is my order?	7/22/2020 2:49 PM
Jane Jackson Where is my order?	7/22/2020 2:49 PM

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

SAP Graph (Beta)

The screenshot displays the SAP Graph API Explorer interface. At the top, there's a navigation bar with 'SAP Graph', 'API Explorer', 'Getting Started', and 'Documentation'. On the right, there are links for 'Feedback', 'Register', and 'Login'. The main section is titled 'API Explorer' and includes an 'API Sandbox' link.

REQUEST

Method: GET
URL: `https://api.graph.sap/beta/Customers`
Body: `eg. $top=5` (under the 'Query Parameters' tab)
Buttons: 'Run Query' and 'Copy Query'

RESPONSE

Status: 200 OK
Preview tab is active, showing a JSON response:

```
1 {
2   "@odata.context": "$metadata#Customers",
3   "value": [
4     {
5       "id": "1000482",
6       "birthday": null,
7       "gender": null,
8       "firstName": "Jane",
9       "lastName": "Jackson",
10      "secondLastName": null,
11      "middleName": null,
12      "initials": "JJ",
13      "academicTitle_code": null,
14      "correspondenceLanguage": null,
15      "emails": [
16        {
17          "id": "9cf95a2b-85de-4961-9214-a6d2c06f53ab",
18          "address": "jane.jack@gmail.com",
19          "isDefault": true,
20          "description": null
21        }
22      ],
23      "phoneNumbers": [],
24      "faxNumbers": [],
25      "mobileNumbers": [],
26      "addresses": []
27    }
28  ]
29 }
```

SAMPLE QUERIES

Search:

Cross Process Entities

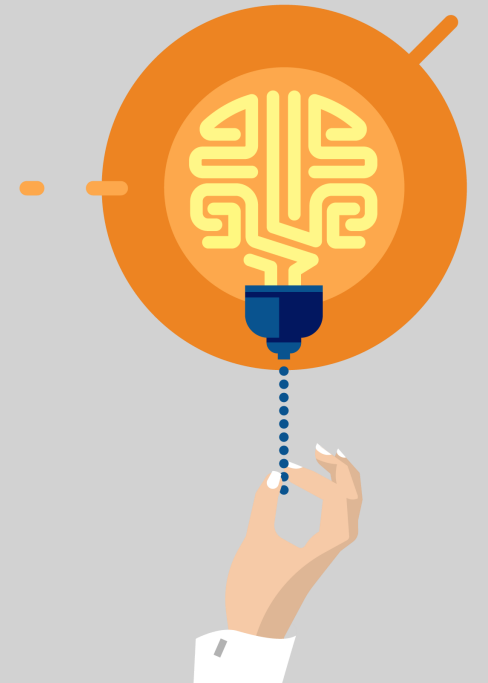
- Lead To Cash
- Customers

Customers

- GET: Retrieve a list of customers.
- POST: Create a single customer.
- GET: Retrieve a single customer.
- GET: Retrieve sales orders for a customer.
- GET: Retrieve sales quotes for a customer.
- PATCH: Change a single customer.
- DELETE: Delete a single customer.
- GET: Retrieve a list of emails of a customer.
- POST: Create a single email of a customer.
- GET: Retrieve a single email of a customer.
- PATCH: Change a single email of a customer.
- DELETE: Delete a single email of a customer.
- GET: Retrieve a list of phone numbers of a customer.

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

Technical setup



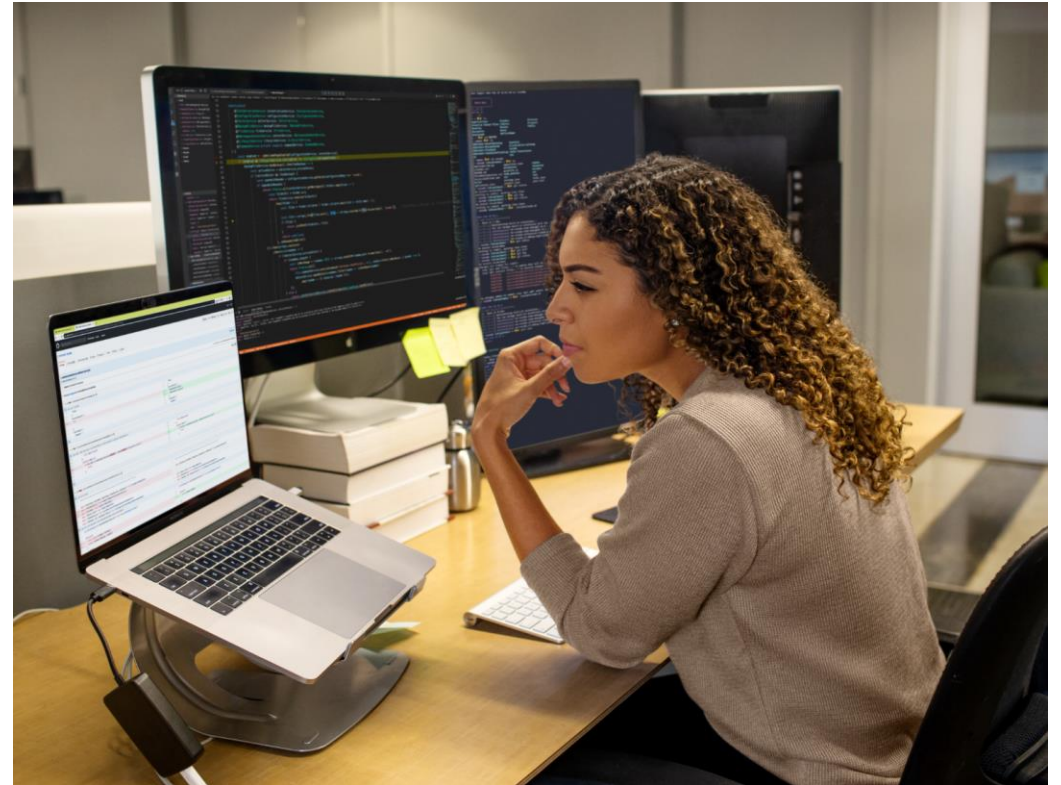
Development tools and tutorials

Development environment and tools

- Visual Studio Code ([Link](#))
- Git Client ([Link](#))
- NGORK Client ([Link](#))
- Bot Framework Emulator ([Link](#))
- Bot Builder samples ([Link](#))
- Microsoft 365 developer sandbox ([Link](#))
- Teams App Studio ([Link](#))

Samples and tutorials used

- Bot builder samples:
 - 24. MSGraph authentication
 - 46. Teams authentication
- Add authentication to your Teams bot ([Link](#))
- Quickly develop apps with App Studio for Microsoft Teams ([Link](#))



Azure – Bot channel registration

- Bot Channel Registration

Local ngrok endpoint

```
ngrok by @inconshreveable

Session Status      online
Session Expires    6 hours, 56 minutes
Version            2.3.35
Region             United States (us)
Web Interface      http://127.0.0.1:4040
Forwarding          http://[redacted].ngrok.io -> http://localhost:3978
                   https://[redacted].ngrok.io -> http://localhost:3978

Connections
  ttl  opn  rt1  rt5  p50  p90
   0    0    0.00 0.00 0.00 0.00
```

Home > **BOT-Channel-Teams-Graph | Settings**
Bot Channels Registration | Directory: Microsoft

Search (Ctrl+/) << Save Discard

Overview
Activity log
Access control (IAM)
Tags

Bot management
Test in Web Chat
Analytics
Channels
Settings
Speech priming
Bot Service pricing
Support + troubleshooting
New support request

Icon
Upload custom icon
30K max, png only

Display name * ⓘ
BOT-Channel-Teams-Graph

Bot handle ⓘ
BOT-Channel-Teams-Graph

Description ⓘ

Configuration
Messaging endpoint
https://[redacted].ngrok.io/api/messages
☐ Enable Streaming Endpoint

Microsoft App ID (Manage) ⓘ
[redacted]

Analytics
Application Insights Instrumentation key ⓘ
[redacted]

Application Insights API key ⓘ
[redacted]

Application Insights Application ID ⓘ
[redacted]

OAuth Connection Settings
Name
OAUTH-Provider
Add Setting

Service Provider
Azure Active Directory

OAUTH-Provider

Service Provider Connection Setting

Save Delete Test Connection

Name

OAUTH-Provider

Service Provider

Azure Active Directory

Client id *

[redacted]

Client secret *

[redacted]

Grant Type

authorization_code

Login URL

https://login.microsoftonline.com

Tenant ID

common

Resource URL

https://graph.microsoft.com/

Scopes

[redacted]

Azure – OAuth permission for MS Graph

Home > Microsoft | App registrations >

BOT-IDENTITY-AD | API permissions

Search (Ctrl+/) << Refresh Got feedback?

Overview
Quickstart
Integration assistant (preview)

Manage

- Branding
- Authentication
- Certificates & secrets
- Token configuration
- API permissions
- Expose an API
- Owners

Configured permissions

Applications are authorized to call APIs when they are granted permissions by users/admins as part of the consent process. See all the permissions the application needs. [Learn more about permissions and consent](#)

+ Add a permission ✓ Grant admin consent for Microsoft

API / Permissions name	Type	Description
▼ Microsoft Graph (4)		
Mail.Read	Delegated	Read user mail
Mail.ReadBasic	Delegated	Read user basic mail
Mail.ReadWrite	Delegated	Read and write access to user mail
User.Read	Delegated	Sign in and read user profile

Microsoft

diegos@m365x833208.onmicrosoft.com

Permissions requested

BOT-IDENTITY-AD
unverified

This app would like to:

- ✓ Read your mail
- ✓ Read user basic mail
- ✓ Read and write access to your mail
- ✓ Sign you in and read your profile

Accepting these permissions means that you allow this app to use your data as specified in their terms of service and privacy statement. **The publisher has not provided links to their terms for you to review.** You can change these permissions at <https://myapps.microsoft.com>. [Show details](#)

Does this app look suspicious? [Report it here](#)

Cancel Accept

Admin approval required!
(Use MS 365 development tenant)

Microsoft 365 development tenant for test users

Microsoft 365 admin center

Home

Users

Active users

Contacts

Guest users

Deleted users

Groups

Billing

Setup

Customize navigation

Show all

Contoso

Dark mode

Active users

Due to a recent increase in Teams usage, when you assign a Teams license to a user it may take around 24 hours before they'll be fully set up. Until then, you won't be able to assign Teams policies to them, and they might not have access to some Teams features like calling and audio conferencing.

Check status

Suggested actions (1)

Add a user

User templates

Add multiple users

Multi-factor authentication

Delete a user

Refresh

Reset password

Export users

Filter

Search


Display name ↑		Username	Licenses	Choose columns
Alex Wilber	⋮	AlexW@M365x833208.OnMicrosoft.com	Office 365 E5 , Enterprise Mobility + Security E5	
Allan Deyoung	⋮	AllanD@M365x833208.OnMicrosoft.com	Office 365 E5 , Enterprise Mobility + Security E5	
Diego Siciliani	⋮	DiegoS@M365x833208.OnMicrosoft.com	Office 365 E5 , Enterprise Mobility + Security E5	
Isaiah Langer	⋮	IsaiahL@M365x833208.OnMicrosoft.com	Office 365 E5 , Enterprise Mobility + Security E5	
Jane Jackson	⋮	jane.jackson@M365x833208.onmicrosoft.com	Office 365 E5 , Enterprise Mobility + Security E5	
Joni Sherman	⋮	JoniS@M365x833208.OnMicrosoft.com	Office 365 E5 , Enterprise Mobility + Security E5	
Lynne Robbins	⋮	LynneR@M365x833208.OnMicrosoft.com	Office 365 E5 , Enterprise Mobility + Security E5	
Megan Bowen	⋮	MeganB@M365x833208.OnMicrosoft.com	Office 365 E5 , Enterprise Mobility + Security E5	
MOD Administrator	⋮	admin@M365x833208.onmicrosoft.com	Windows 10 Enterprise E3 , Enterprise Mobility + Security E5	
Nestor Wilke	⋮	NestorW@M365x833208.OnMicrosoft.com	Office 365 E5 , Enterprise Mobility + Security E5	

Need help?

Teams App Studio configuration

Bots

Set up a bot to include it in your app experience. [Learn more](#)

 BOT-Channel-Teams-Graph

App passwords

Create and manage application passwords. You can also manage your app secrets in the [App Registration Portal](#).

[Generate new password](#)

Password	Created
407*****	7/28/2020 8:41:03 PM

Messaging endpoint

Manage the messaging endpoint for your bot here.

Bot endpoint address

https:// /api/messages

Commands

Include commands that will determine how your bot behaves.

[Add](#)

Bot menus

[Personal](#) [Team](#) [Group Chat](#)

Your commands will appear here.

Identification

Your App ID should be a GUID. Use Semantic Versioning for your version number.

*App ID

[Generate](#)

Valid domains

List the domains your app needs to navigate to. Use wildcards to include multiple subdomains (for example, *.example.com). [Learn more](#)

Adding domains you don't own can expose your app's users to phishing attacks.

Enter a valid domain

ex: www.contoso.com [Add](#)

Additional valid domains

token.botframework.com

*.ngrok.io

Device permissions

Optionally specify the devices your app may request permission to use.

[Set up](#)

AAD App ID

Optionally specify your AAD App Id to configure your app for Single Sign On or Resource Specific Consent

XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX

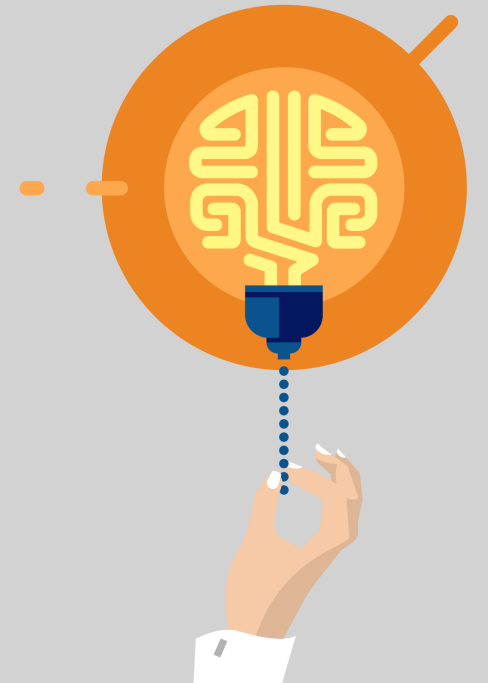
Resource Specific Consent

c consent


[Add](#)

token for SSO [Learn more](#)

Demoflow and used APIs




Demo flow – Azure AD logon


 **BOT-Channel-Teams-Graph** 9:51 AM

Welcome to the Microsoft Graph & SAP Graph Chatbot Demo.

Please Sign In

Sign In

 Reply

 **BOT-Channel-Teams-Graph** 10:08 AM


Welcome to the Microsoft Graph & SAP Graph Chatbot Demo.

You are now logged in.


Would you like to view your token? Please prompt 'YES' for this demo


Yes


No

 Microsoft

Pick an account

 Jane Jackson
jane.jackson@M365x833208.onmicrosoft.com
Signed in

 admin@M365x833208.onmicrosoft.co
m

 Use another account

Demo flow – MS Graph query

The diagram illustrates a demo flow for a Microsoft Graph query. It consists of three main components: a Teams chat window on the left, the Microsoft Graph Explorer in the center, and a response preview on the right.

Teams Chat Window:

- A text input field at the top contains the instruction: "Please type 'inbox' to display your Outlook inbox via the Microsoft Graph API or 'me' for your profile".
- A message from "BOT-Channel-Teams-Graph" at 10:10 AM asks: "Shipment update? Jane Jackson".
- A message from "Jane Jackson" at 10:10 AM says: "inbox".
- A response from the bot shows a large blue Outlook icon and the text: "Dear Alex, could please update me on the order shipment? Thanks!".
- A second message from "Jane Jackson" asks: "Is my order delayed?".

Microsoft Graph Explorer:

- The interface shows the user profile for Jane Jackson (jane.jackson@m365x833208.onmicroso...).
- Under "Sample queries", there is a search bar and a list of queries under the "Getting Started (7)" category:

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

Response Preview:

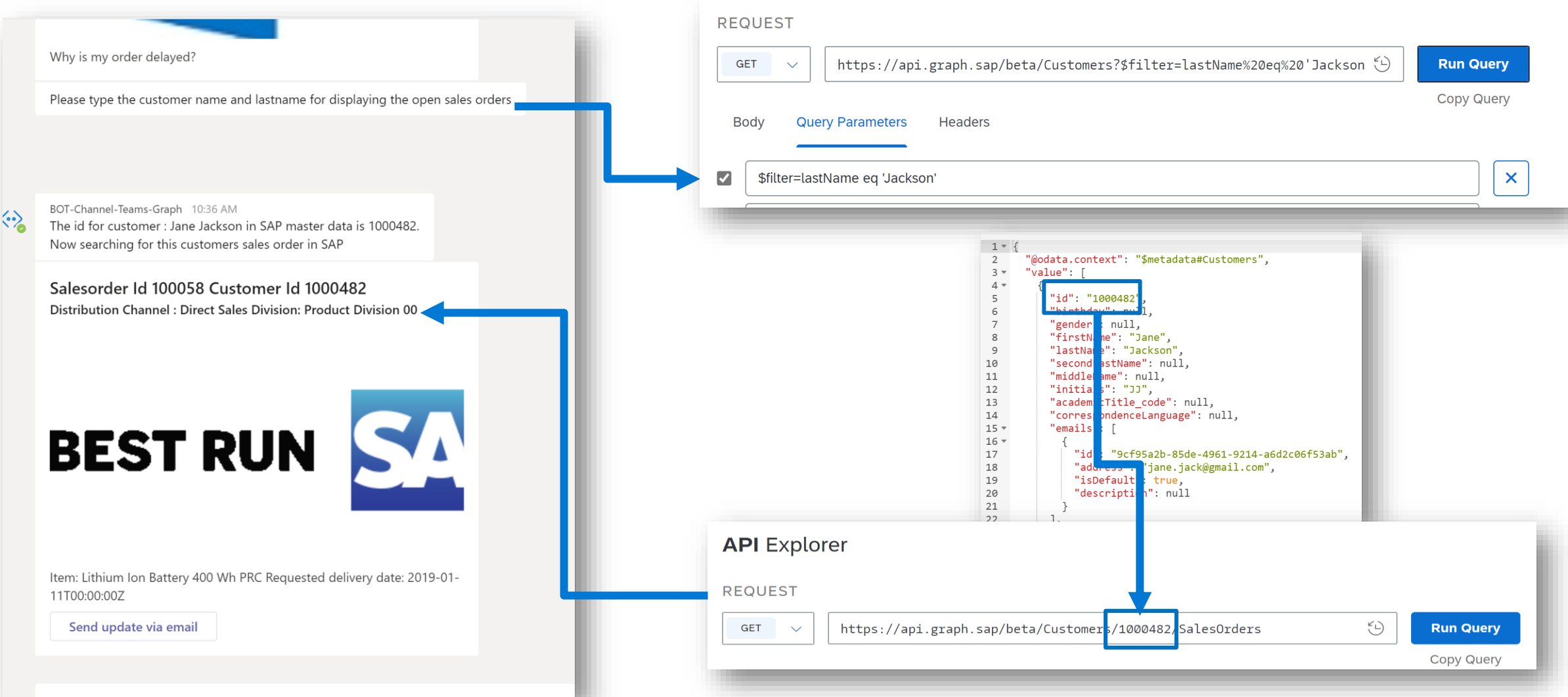
- The status is "OK - 200 - 410ms".
- A note states: "When you use Microsoft Graph APIs, you agree to the Microsoft APIs Terms of Use. View the terms of use.".
- The "Adaptive cards" section displays a list of cards:

 - Jane Jackson: Shipment update?
 - Jane Jackson: Is my order delayed?
 - Jane Jackson: Order status update?
 - Jane Jackson: Delayed order? Shipping status?

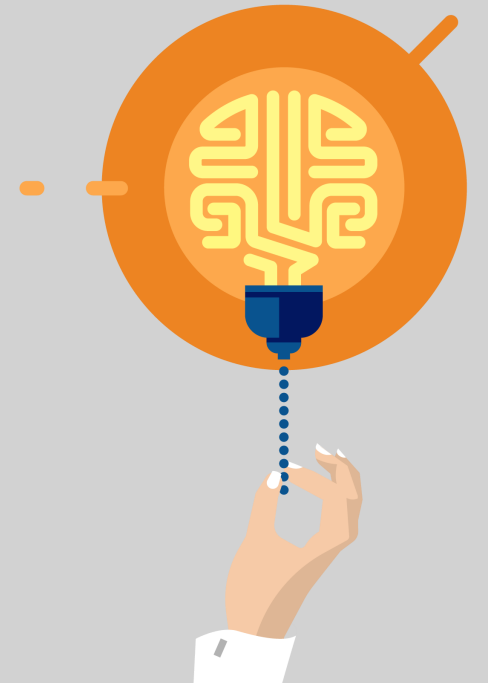
Blue arrows indicate the flow of the demo: from the Teams chat input to the Graph Explorer search bar, from the Graph Explorer query list to the response preview, and from the response preview back to the Teams chat window.

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

Demo flow – SAPP Graph query



Next steps & Open items



ToDo's & Next steps

- SAP Graph (Beta) with currently public Bearer token (Only)
- Improve adaptive cards layout
- Implement Microsoft Graph Search API to search beyond Inbox

GEWINNEN GEMEINSAM EINFACH MIT PARTNERN

DAS OCP PRINZIP

Roman Broich

Cloud Solution Architect

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