Integrating PowerApps with External Systems

Agenda

- Calling External Services using HTTP Actions

- Executing Child Flows from a Parent Flow

- Creating and Testing Custom Connector

- Configuring a Custom Connector to use OAuth

Working With REST-based Web Service

- Calling REST-based web service involve creating structured URLs
  - **http://subliminalsystems.com/api/Customers/**?**$select=LastName,FirstName,CustomerId**

- REST-based URL structured into several parts

http://subliminalsystems.com/api/	Customers/	?	$select=LastName,FirstName,CustomerId
Web Service Base URL	Resource		Query String Parameters

OData Query String Parameters

- Many web services support OData
  - OData is a REST-based specification for CRUD operations
  - OData defines standard query string parameters

- Commonly-used OData query string parameters
  - **$select** – allows you to select which properties are returned
  - **$filter** – allows you to filter rows returned in result
  - **$orderby** – allows you to sort rows in result
  - **$top** – allows you to specify how many rows should be returned
  - **$skip** – allows you to skip over rows that are not needed
  - **$expand** – allows you to retrieve more data in one round trip

HTTP Request and Response

- HTTP Request
  - URL
  - Verb (e.g. GET, POST, PUT, PATCH, etc)
  - Headers
  - Body
- HTTP Response
  - Status code
  - Headers
  - Body

Using the JSON Viewer Chrome Extension
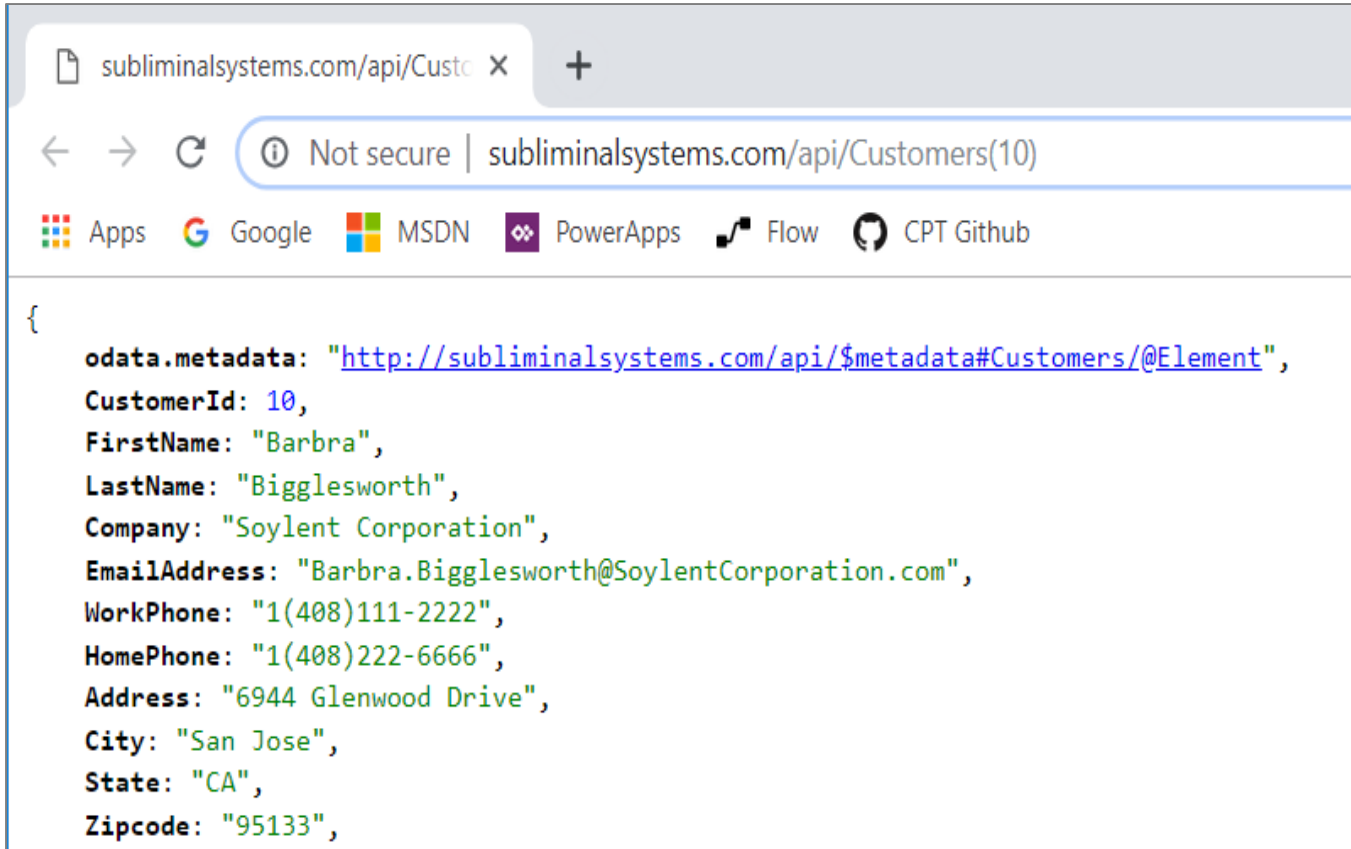
- Install the JSON Viewer extension
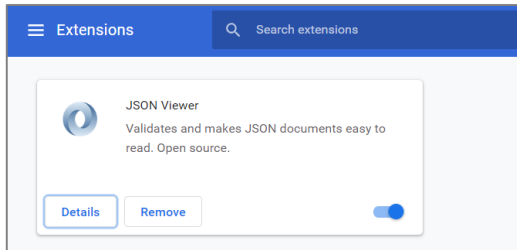
- Now you can inspect JSON in the browser
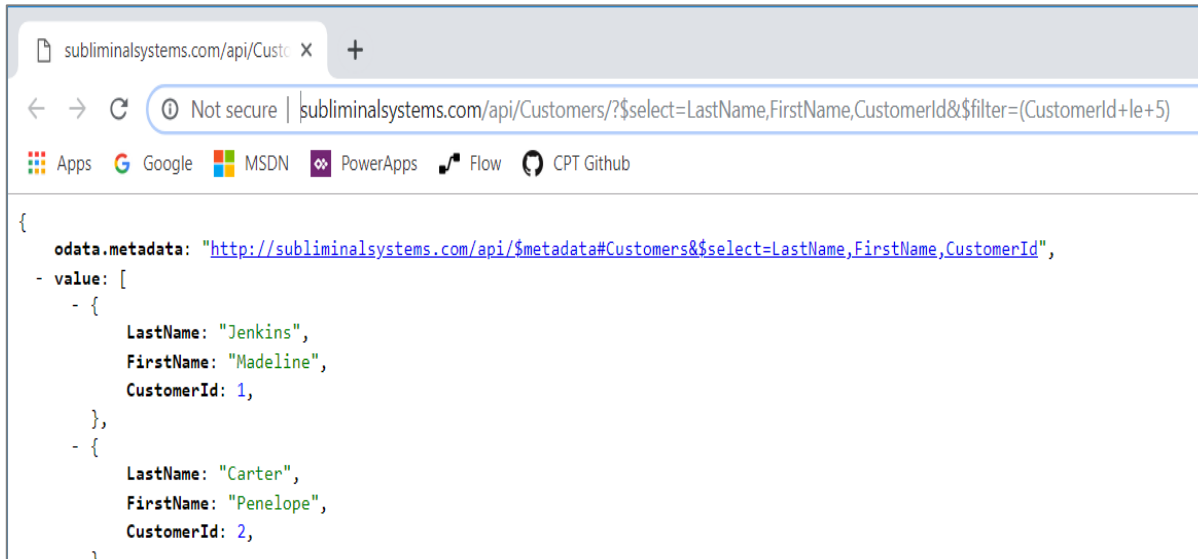
Retrieving a Single OData Instance

Using the HTTP Action

Inspecting the body of the HTTP Response
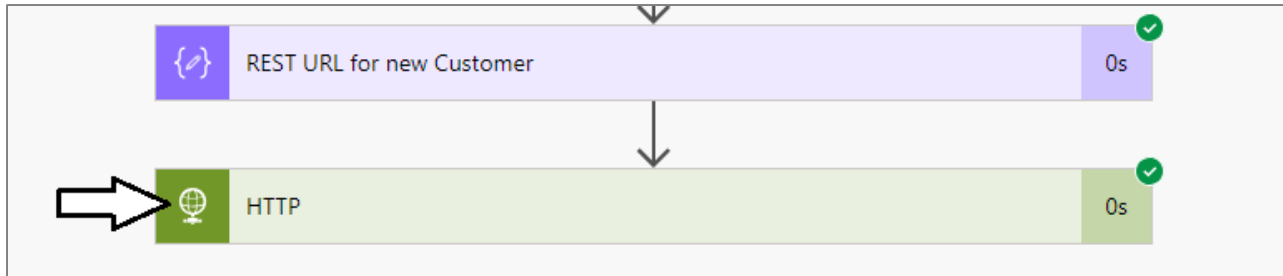
Parsing JSON
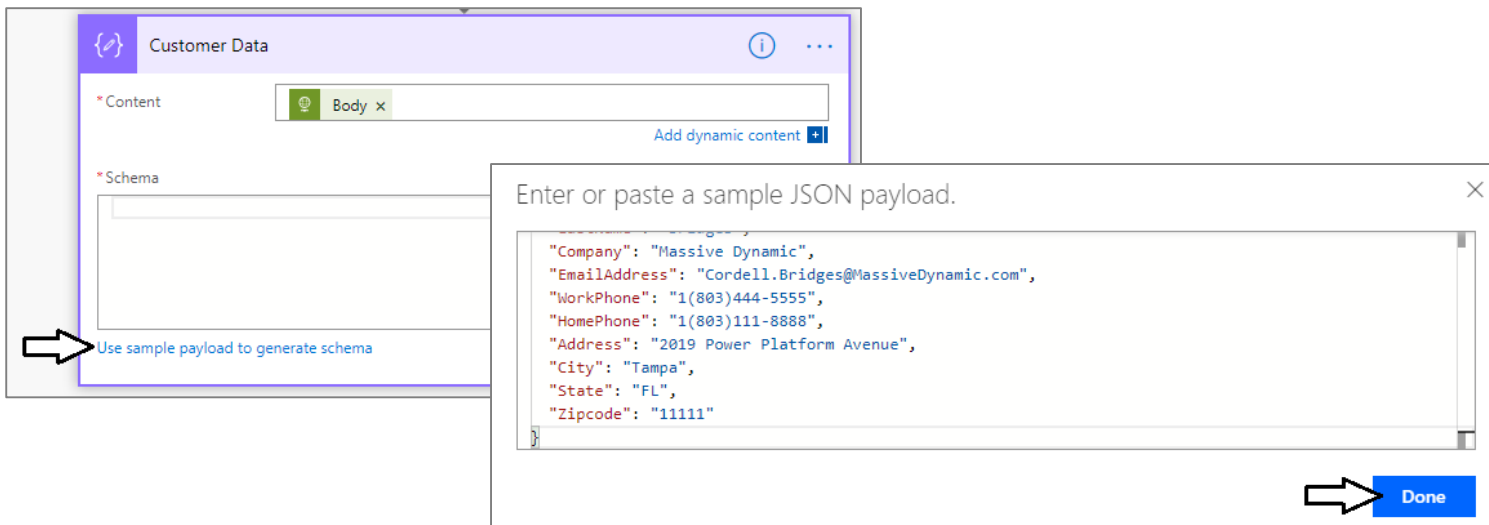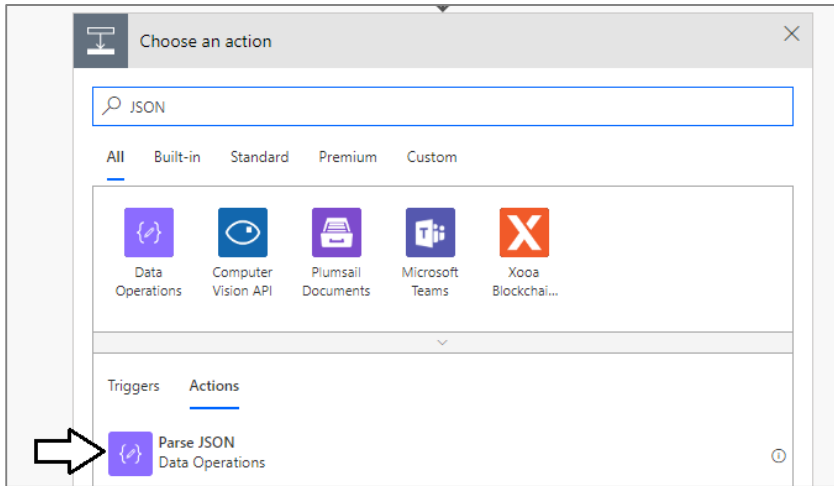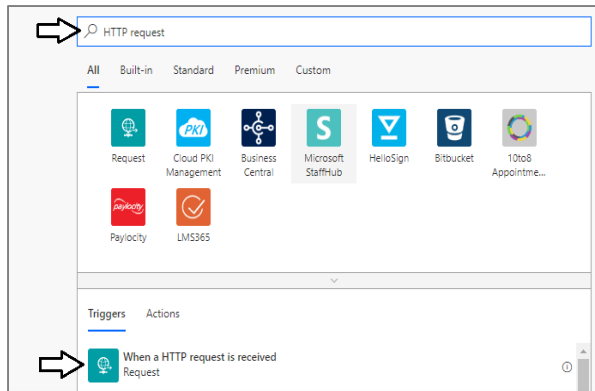
Adding a New Item to a SharePoint List
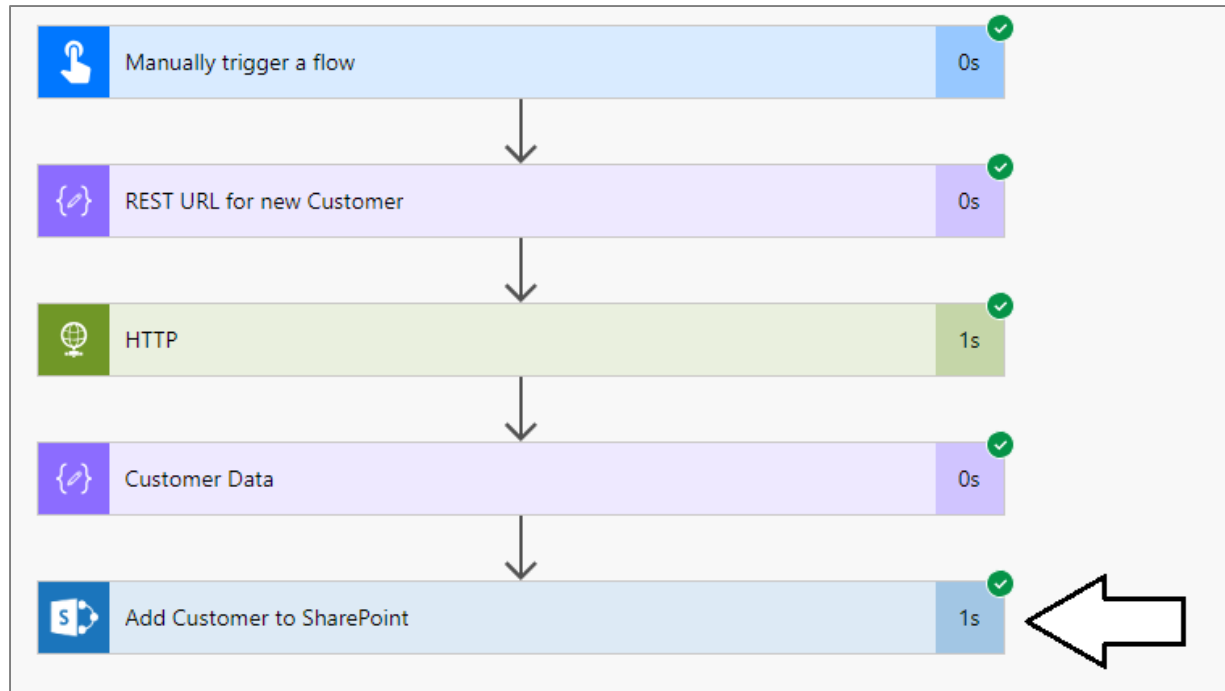
Agenda

- ✓ Calling External Services using HTTP Actions
- ➢ Executing Child Flows from a Parent Flow
- • Creating and Testing Custom Connector
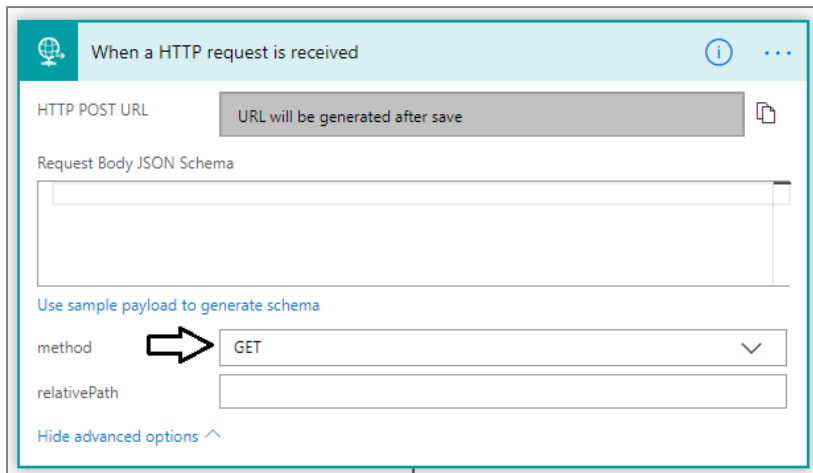- • Configuring a Custom Connector to use OAuth

Creating the Child Flow
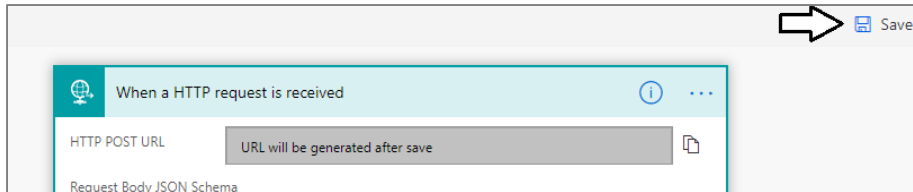
- Child flow creating with HTTP trigger

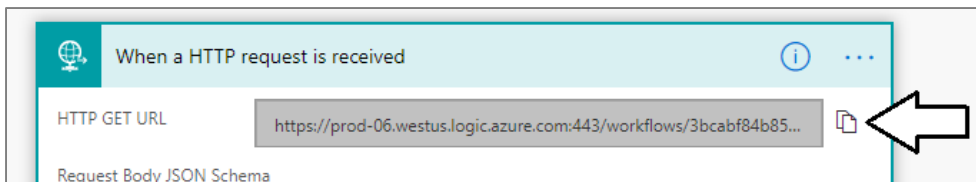- Select an HTTP operation (e.g. GET, POST, PUT, DELET, PATCH, etc.)

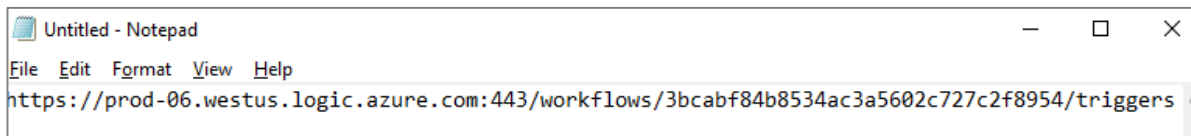# Discovering the URL for an HTTP Trigger

- HTTP POST URL is not generated until you first save the flow
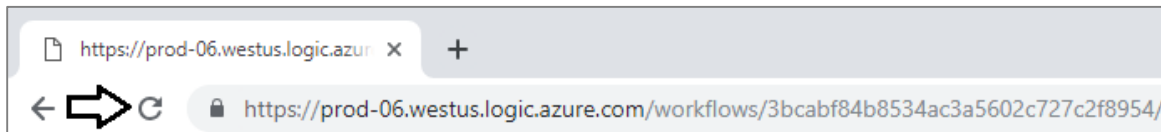

- After saving the flow you can copy the HTTP POST URL

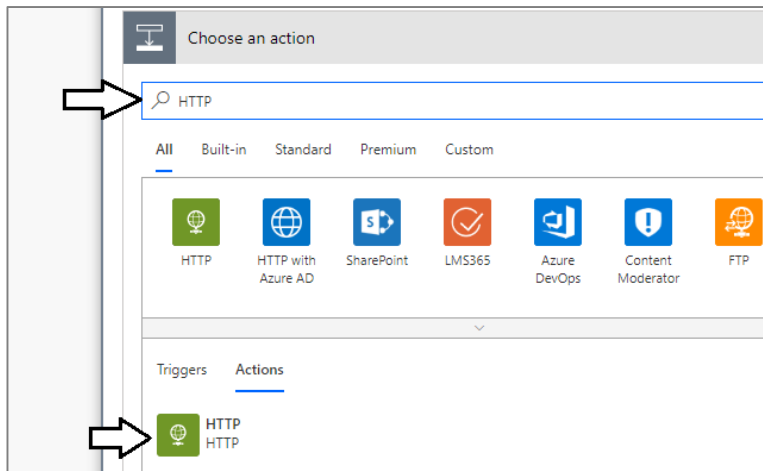
- Copy and paste the URL into Notepad

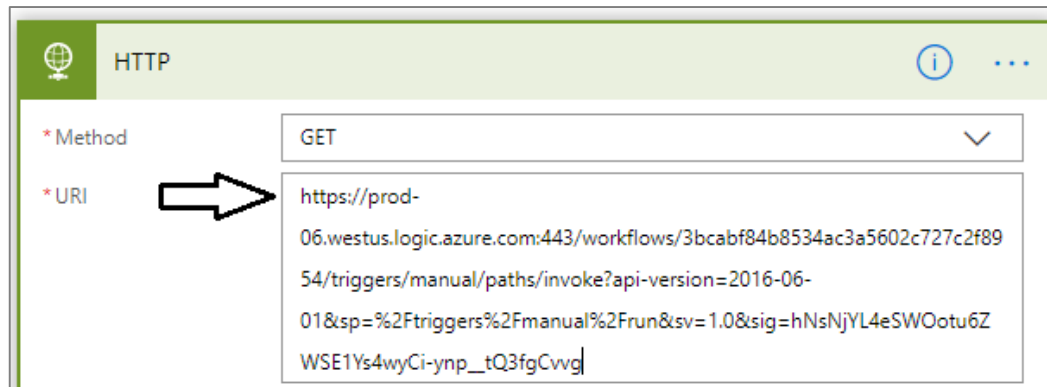- Try executing the flow by adding the URL into address bar in browser

Parent Flow

- Parent flow uses HTTP action to execute child flow

- Set Method parameter to Get and paste in URL for child flow

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Standard Connectors vs Custom Connectors

- PowerApps Supports two types of connectors
  - Standard connectors supplied out-of-box and vetted by Microsoft
  - Custom connectors created by organizations for their own use
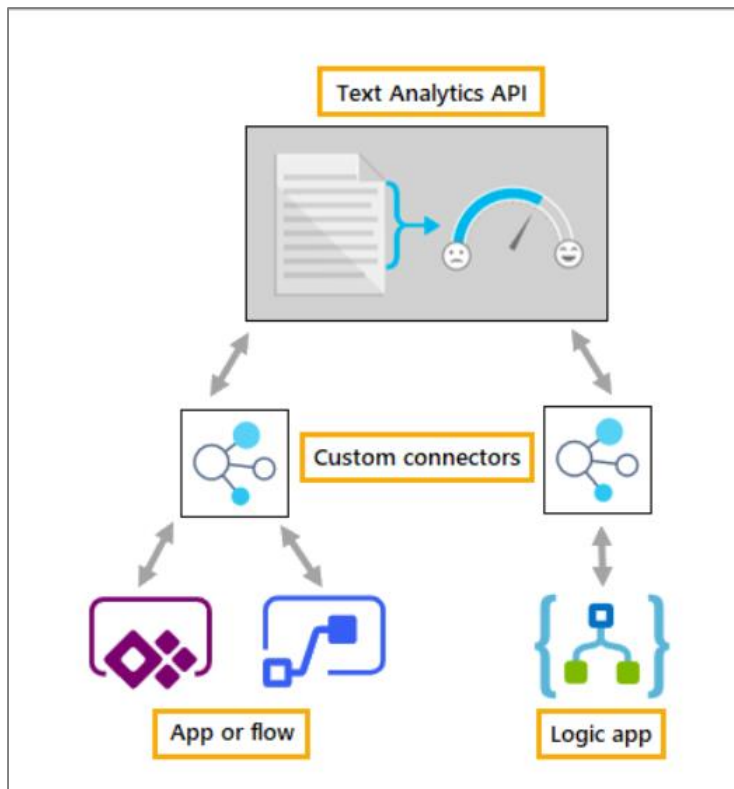
OpenAPI Specification and Swagger

- OpenAPI specification (OAS)

  - Community-driven open specification

  - Defines standard interface description for REST APIs

  - allows humans and computers to discover web service API

  - OpenAPI Specification removes guesswork in calling a service.

- API description defined using JSON

Open API Concepts

- Paths

- Parameters

- Responses

- Security

Creating a New Custom Connector

Defining Requests

Left panel

Request   + Import from sample

* Verb

The verb describes the operations available on a single path.

GET

* URL

This is the request URL.

http://subliminalsystems.com/api/Customers/

Path

Path is used together with Path Templating, where the parameter value is actually part of the operation's URL.

Query

Query parameters are appended to the URL. For example, in /items?id=####, the query parameter is id.

Headers

These are custom headers that are part of the request.

Body

The body is the payload that's appended to the HTTP request. There can only be one body parameter.

Right panel

Request   + Import from sample

* Verb

The verb describes the operations available on a single path.

GET

* URL

This is the request URL.

http://subliminalsystems.com/api/Customers({CustomerId})

Path

Path is used together with Path Templating, where the parameter value is actually part of the operation's URL.

* CustomerId ...

Query

Query parameters are appended to the URL. For example, in /items?id=####, the query parameter is id.

Headers

These are custom headers that are part of the request.

Body

The body is the payload that's appended to the HTTP request. There can only be one body parameter.
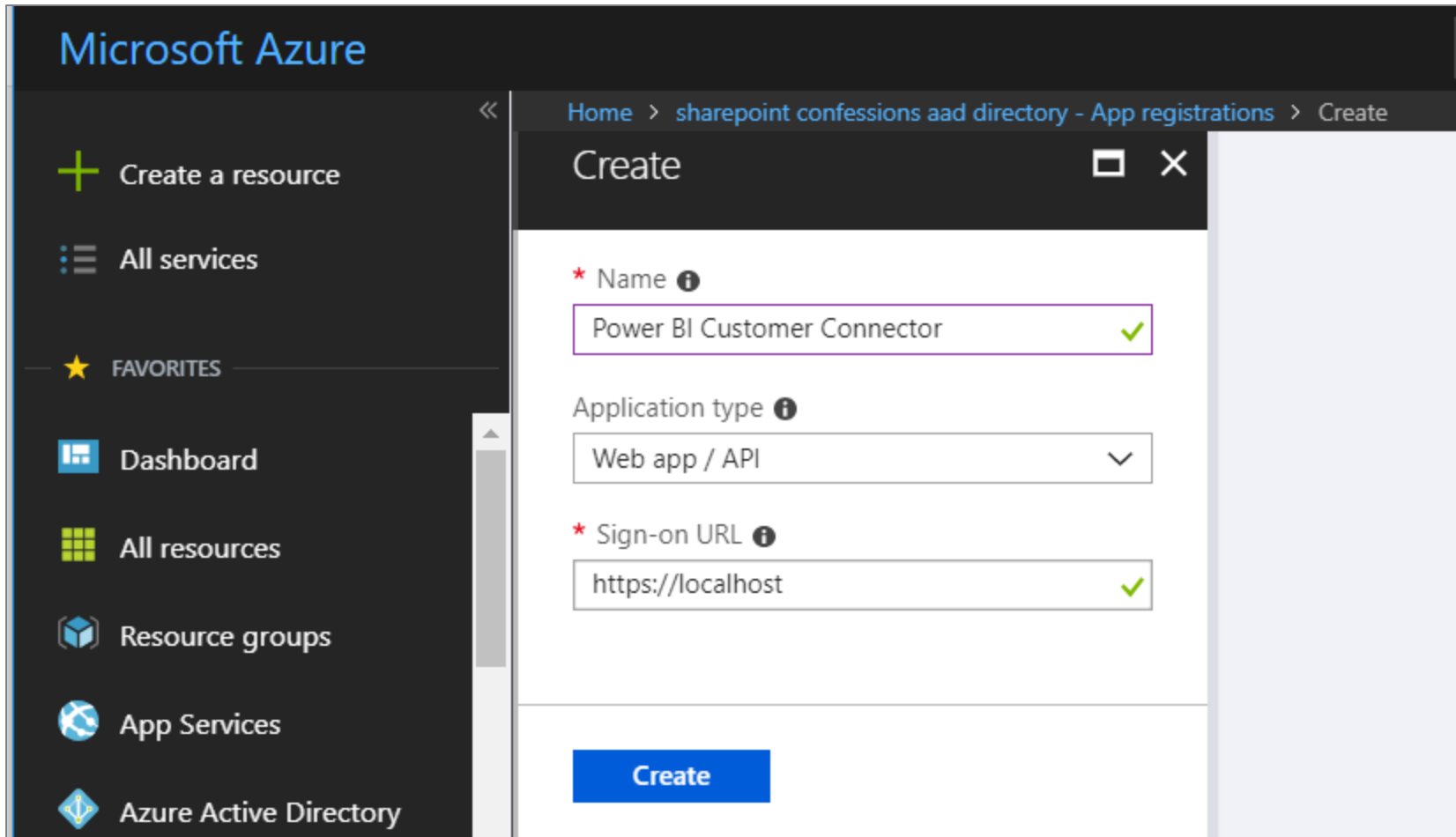
Defining the Response

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Creating an Azure AD Application

Application ID (aka Client ID)

Configuring Permissions

Select the Power BI Service for the API

Select the Required Permissions

Enable Access

■ DELEGATED PERMISSIONS	↑↓	REQUIRES ADMIN
Read and write all dataflows		🚫 No
View all dataflows		🚫 No
Read and write all content in tenant		✅ Yes
✔ Read and Write all Reports		🚫 No
View users Groups		🚫 No
View all Groups		🚫 No
View all Reports (preview)		🚫 No
Create content (preview)		🚫 No
View content properties (preview)		🚫 No
✔ Read and Write all Datasets		🚫 No
View all Datasets		🚫 No

Select

Granting Permissions in Azure AD Portal

Generating a Key Secret

Data Required to Create Custom Connector

CustomConnectorAzureAD.txt - Notepad

File   Edit   Format   View   Help

Application ID (aka Client ID)
0d956d63-2b3a-4a6b-8b21-5b43db48cc77

Secret Key
ejVnaC0zTLRcc3ErbAhgchilb3CTC5SVyKgbvS9HLPk=

Creating the New Custom Connector

Configuring the Client Id and Client Secret

Connector Name   Power BI Datasets API

1. General > **2. Security** > 3. Definition > 4. Test   ✓ Create connector   ✕ Cancel

Security

Choose the authentication type and fill in the required fields to set the security for your custom connector.
Learn more

Authentication type

Choose what authentication is implemented by your API *

OAuth 2.0   ⌄

✏ Edit

OAuth 2.0

Identity Provider

Azure Active Directory   ⌄

Client id *

0d956d63-2b3a-4a6b-8b21-5b43db48cc77

Client secret *

•••••••••••••••••••••••••••••••••••••

What About the Redirect URL?

Adding the Redirect URL back in Azure AD

GetDatasets

RefreshDataset

Request

It defines the pre-requirements needed in order to make a request. Describes a single operation parameter. A unique parameter is defined by a combination of a name and location.

Request	+ Import from sample

* Verb

The verb describes the operations available on a single path.

POST

* URL

This is the request URL.

```
https://api.powerbi.com/v1.0/myorg/groups/{workspaceId}/datasets/{datasetId}/refreshes
```

Path

Path is used together with Path Templating, where the parameter value is actually part of the operation's URL.
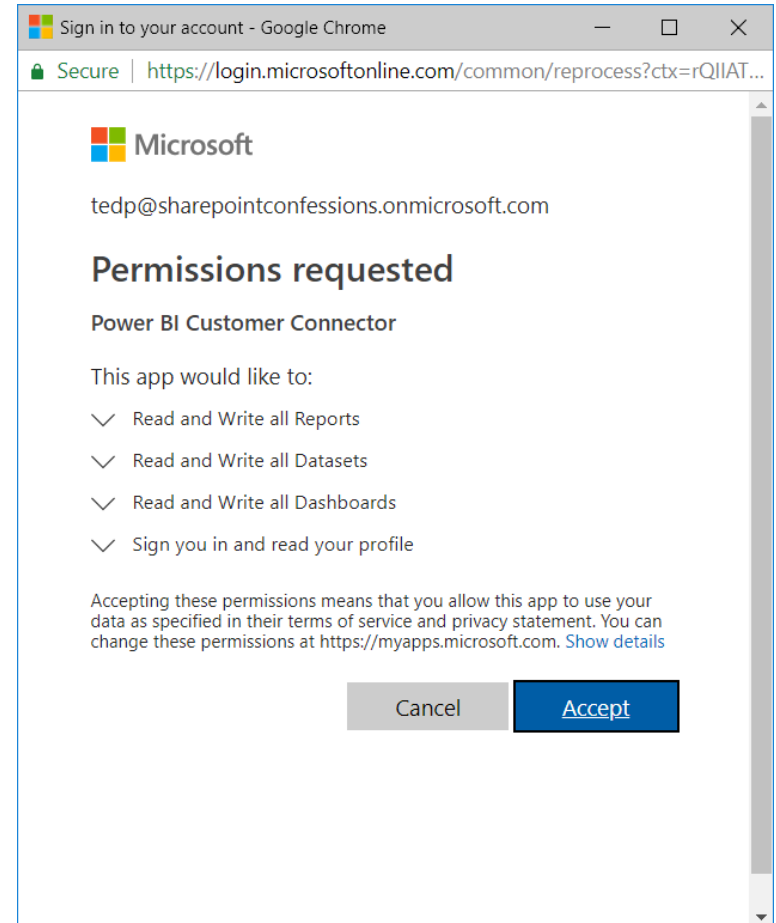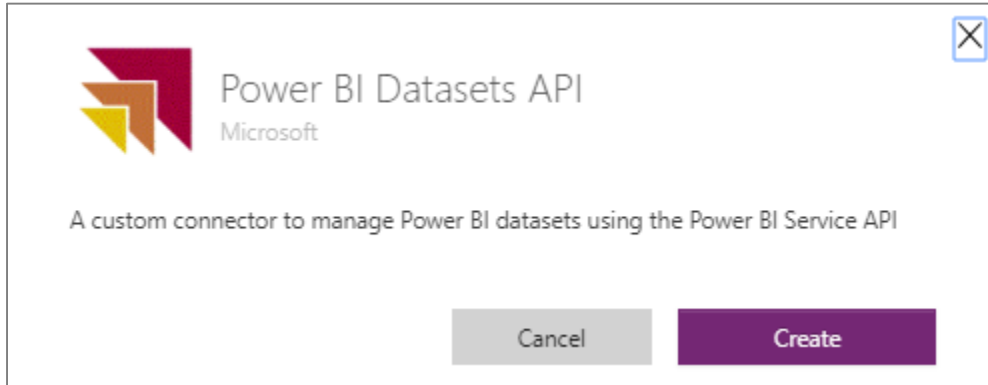
* workspaceId ···	* datasetId ···

Query

Query parameters are appended to the URL. For example, in /items?id=####, the query parameter is id.

Creating a New Connection

Importing Apps that use Custom Connections

Summary

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- ✓ Creating and Testing Custom Connector
- ✓ Configuring a Custom Connector to use OAuth