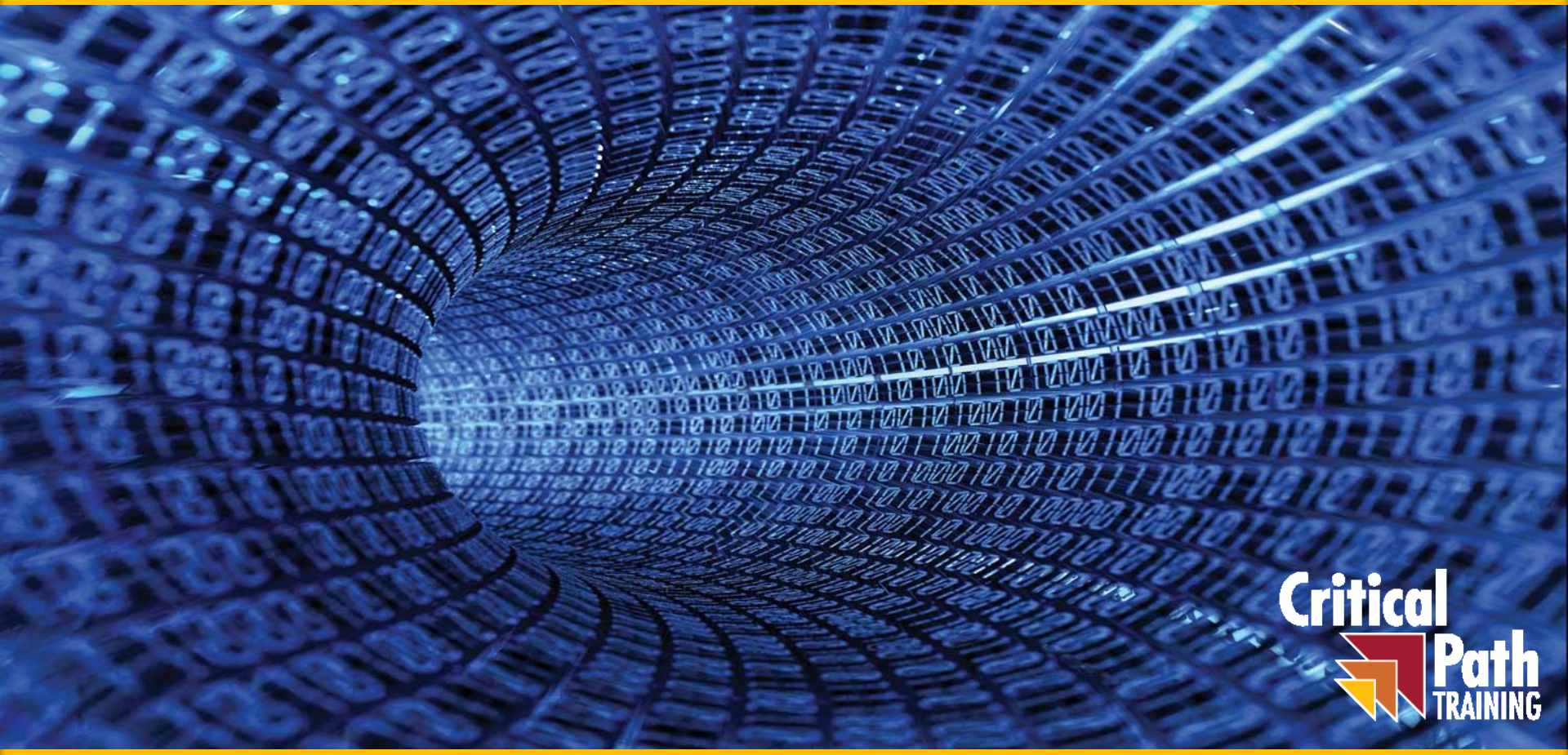
Integrating PowerApps with External Systems

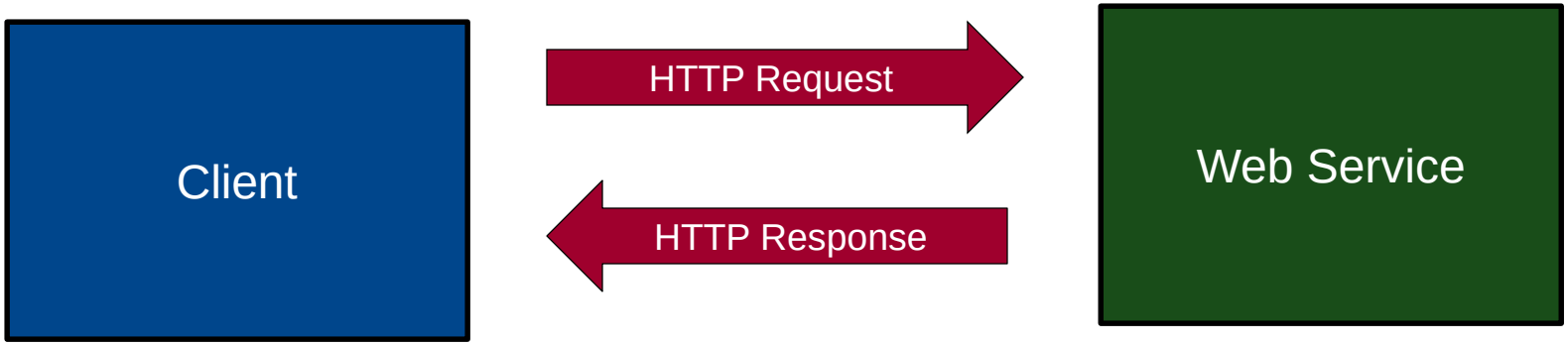


Agenda

- 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

HTTP Request and Response

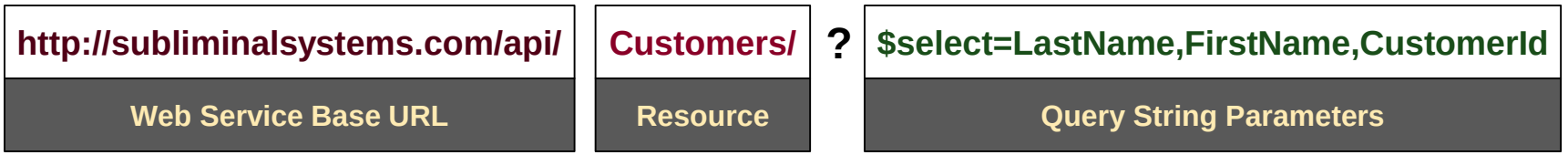
- HTTP Request
  - URL
  - Verb (e.g. GET, POST, PUT, PATCH, etc)
  - Headers
  - Body
- HTTP Response
  - Status code
  - Headers
  - Body



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



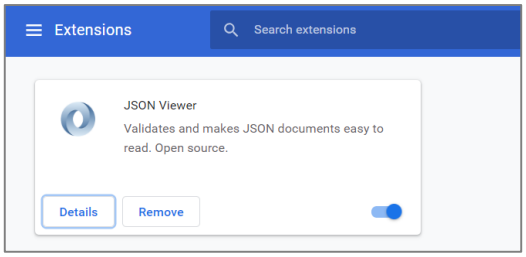
OData Query String Parameters

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

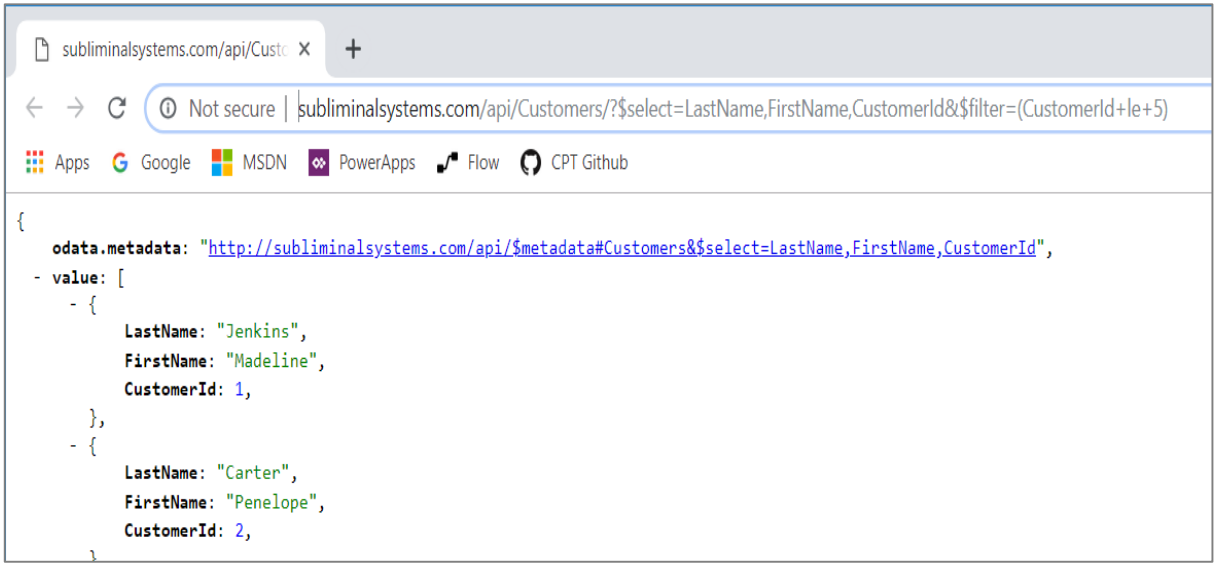
- Commonly-used OData query string parameters
  - **$select** – allows you to select which properties are returned
  - **$filter** – allows you to filter rows returned in result
  - **$orderby** – allows you to sort rows in result
  - **$top** – allows you to specify how many rows should be returned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

Using the JSON Viewer Chrome Extension

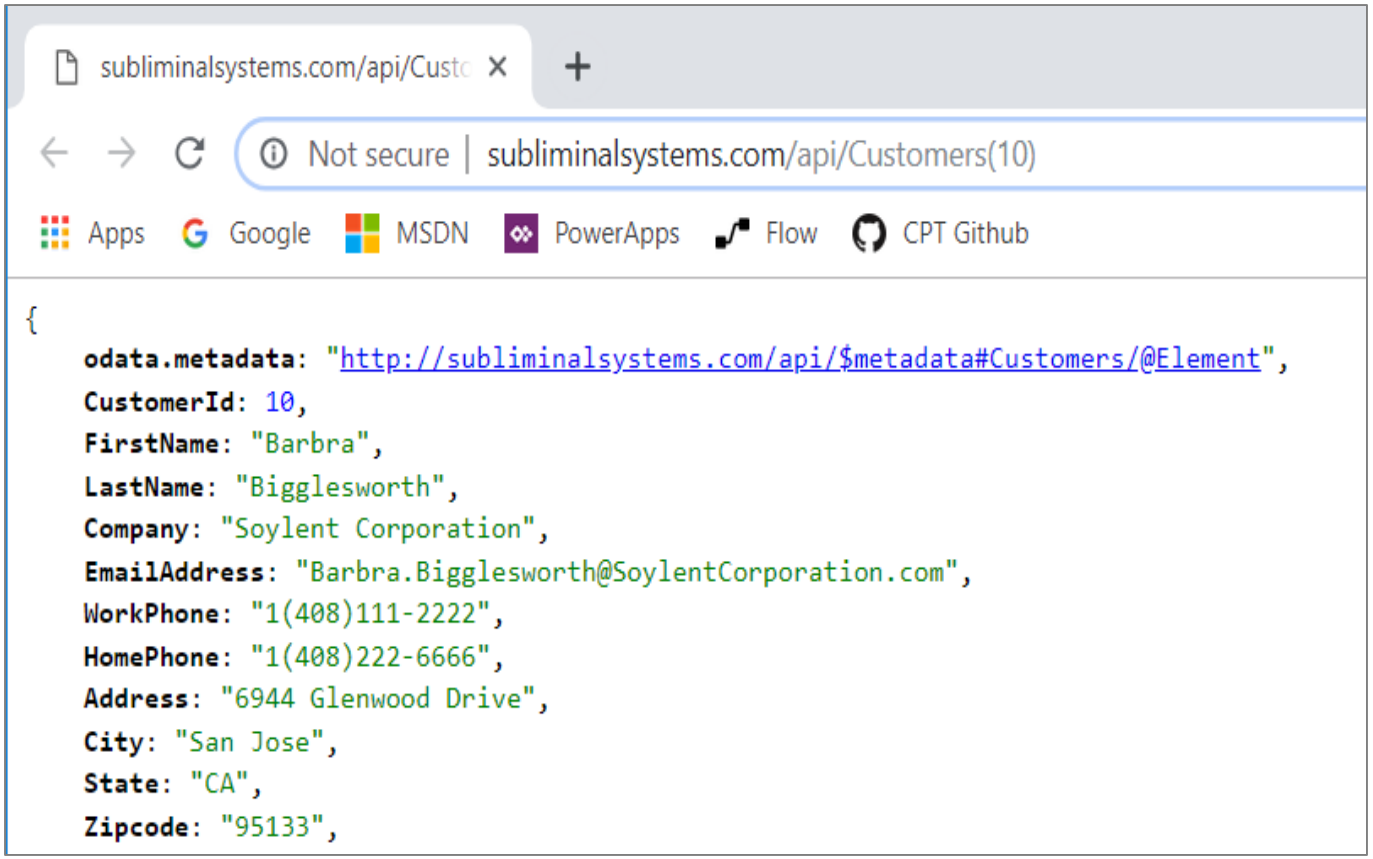
- Install the JSON Viewer extension



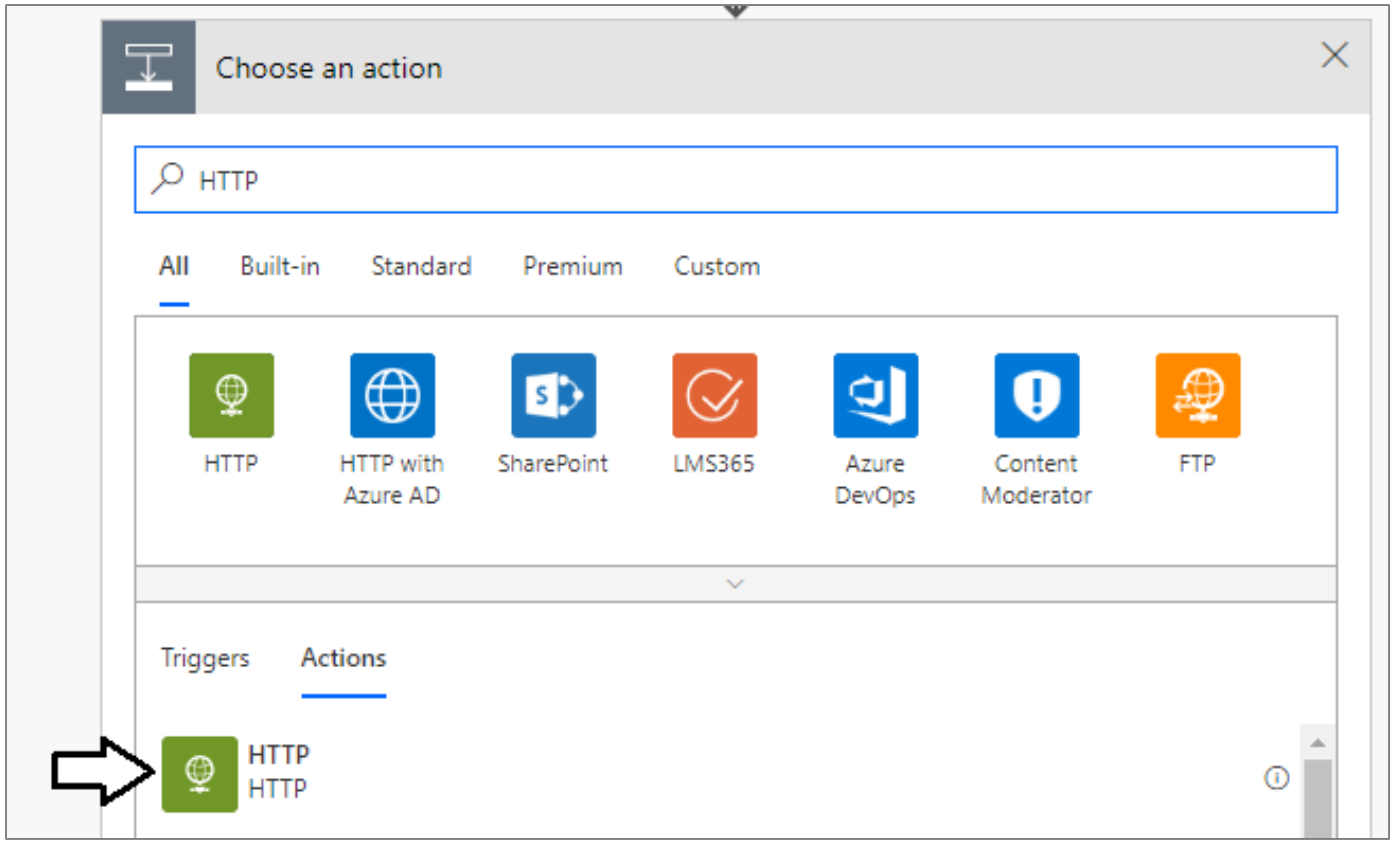
- Now you can inspect JSON in the browser



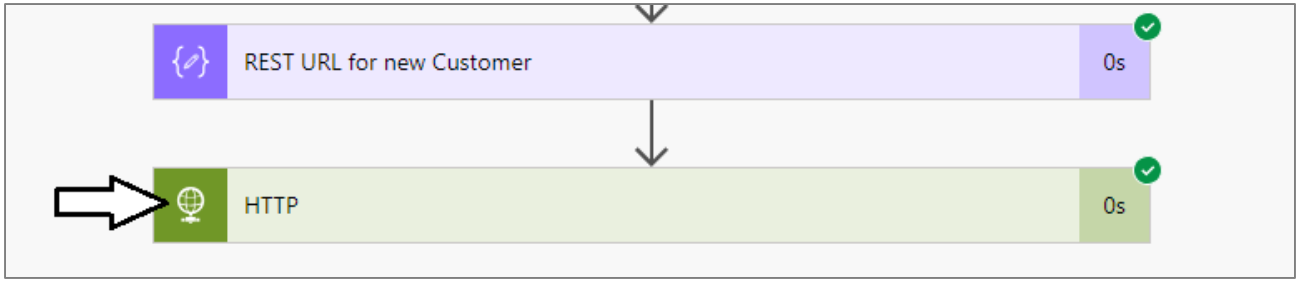
Retrieving a Single OData Instance

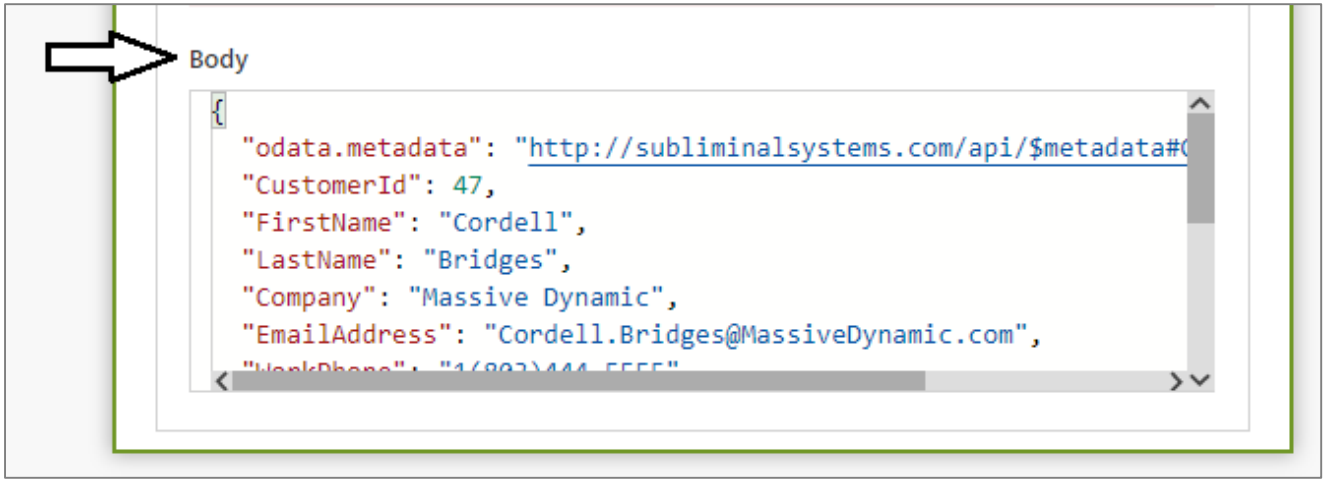


Using the HTTP Action

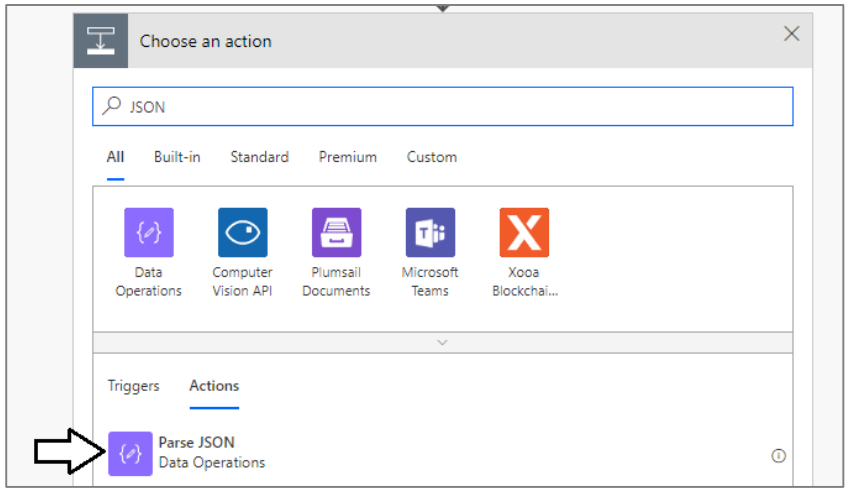


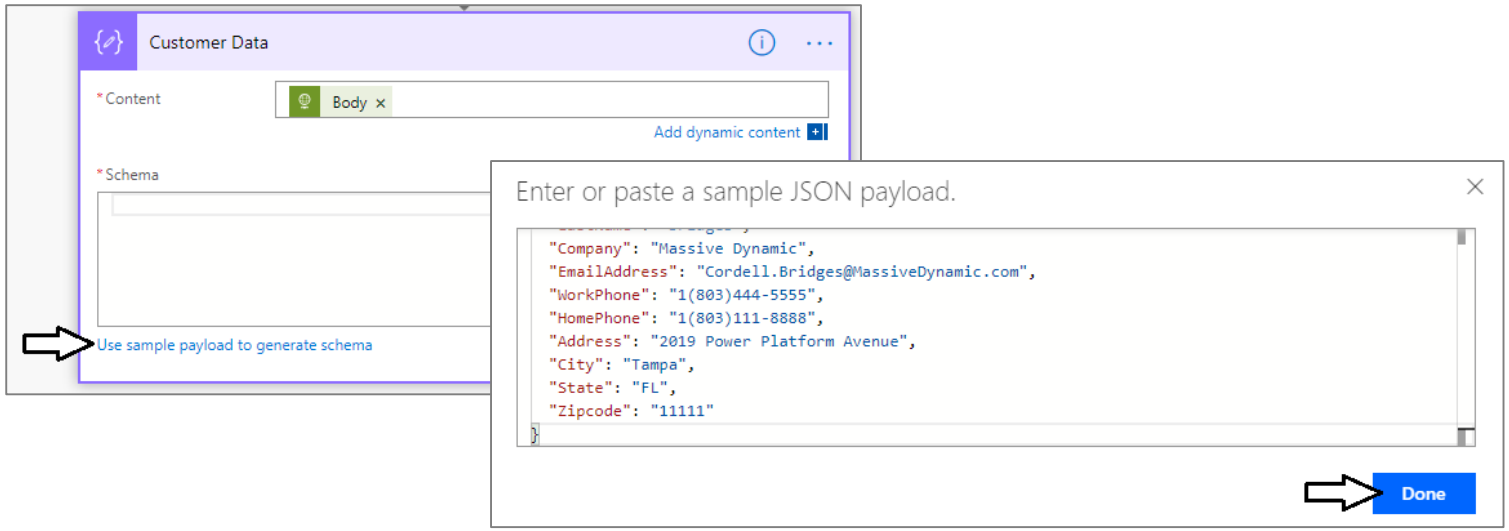
Inspecting the body of the HTTP Response



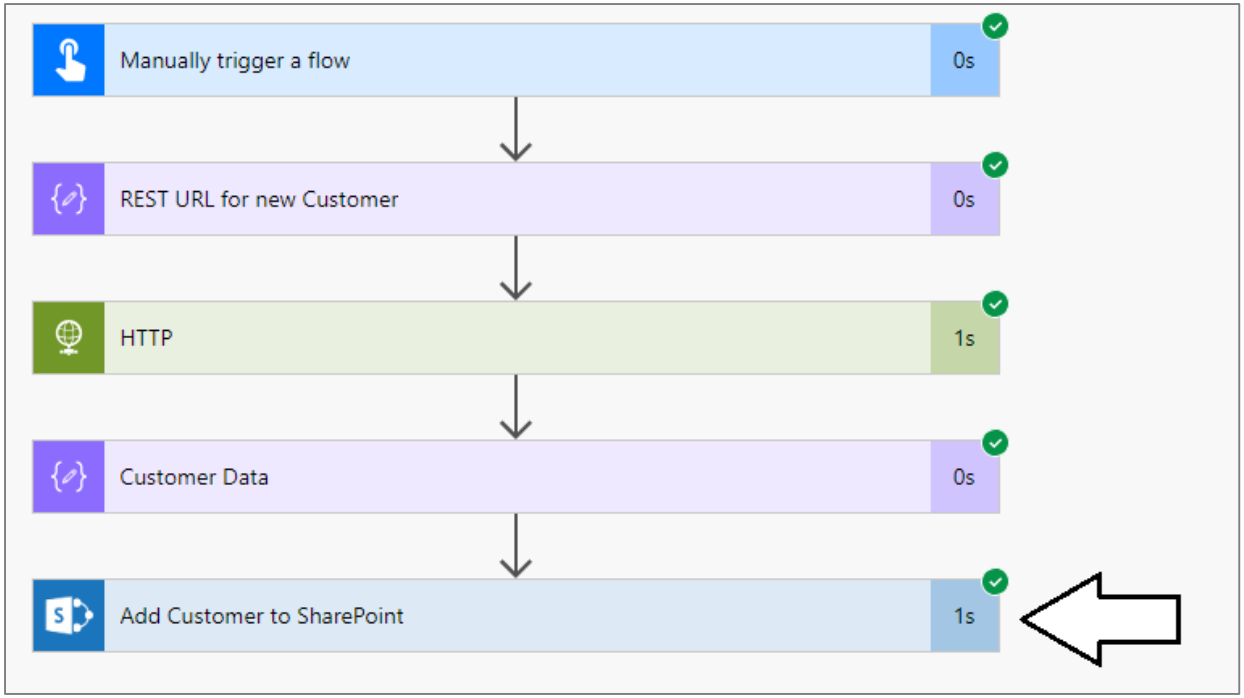


Parsing JSON





Adding a New Item to a SharePoint List



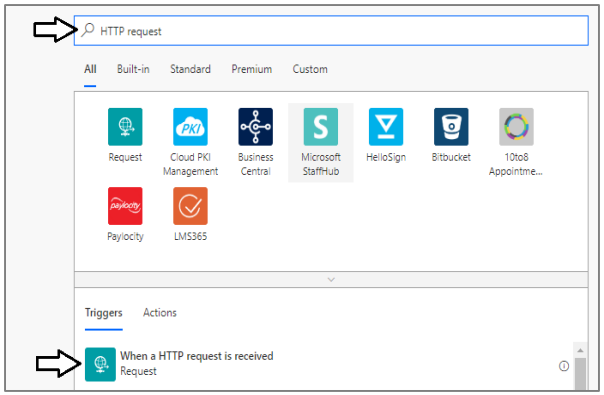

DEMO
Calling an External Web Service
with the HTTP Action

Agenda

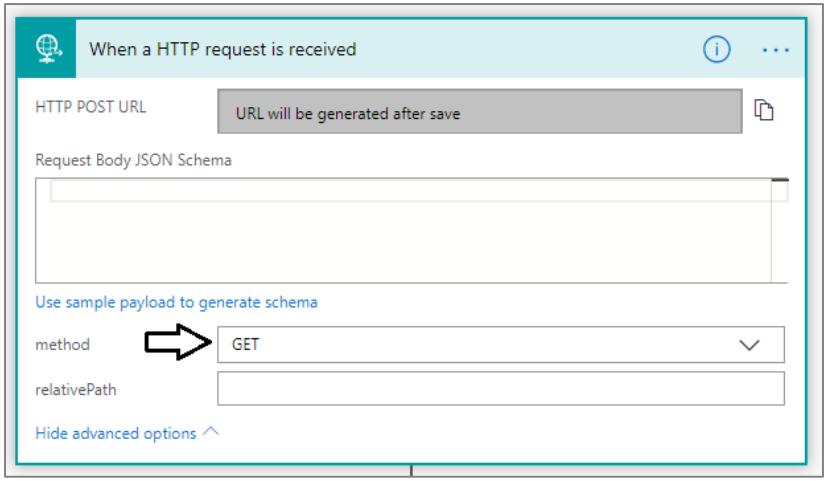
- ✓ Calling External Services using HTTP Actions
- ➢ Executing Child Flows from a Parent Flow
- Creating and Testing Custom Connector
- Configuring a Custom Connector to use OAuth

Creating the Child Flow

- Child flow creating with HTTP trigger

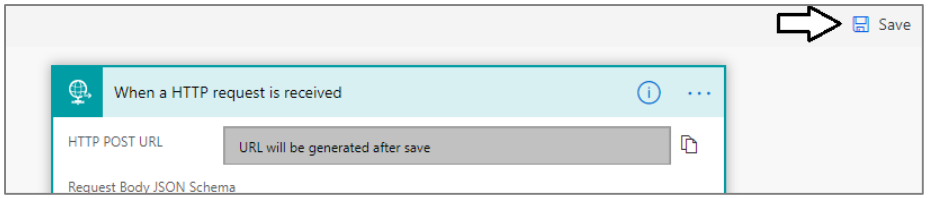


- Select an HTTP operation (e.g. GET, POST, PUT, DELET, PATCH, etc.)

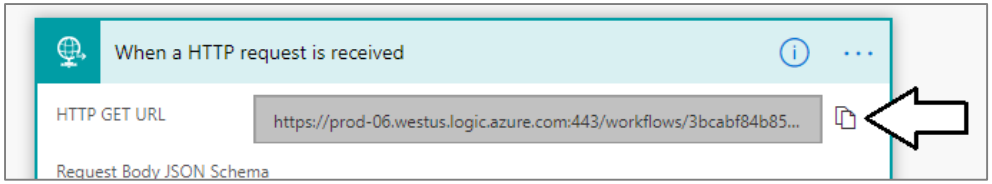


Discovering the URL for an HTTP Trigger

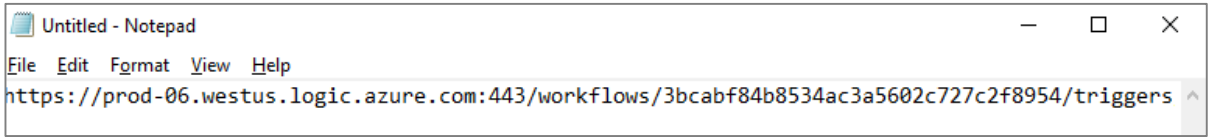
- HTTP POST URL is not generated until you first save the flow



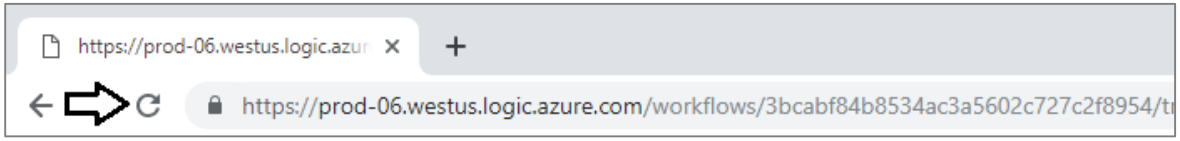
- After saving the flow you can copy the HTTP POST URL



- Copy and paste the URL into Notepad

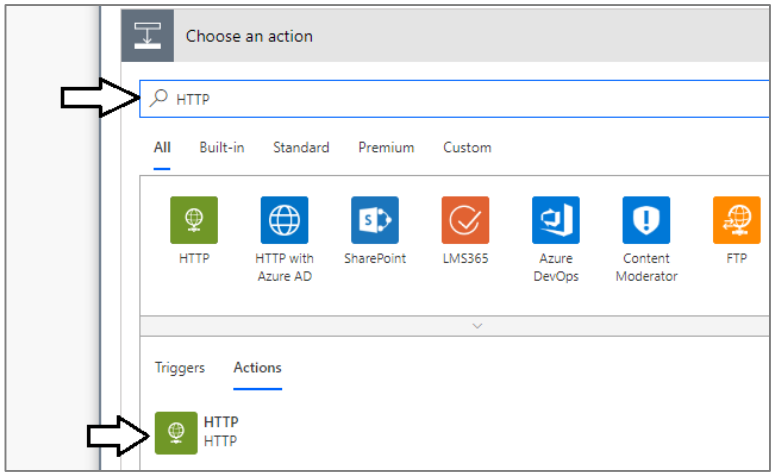


- Try executing the flow by adding the URL into address bar in browser

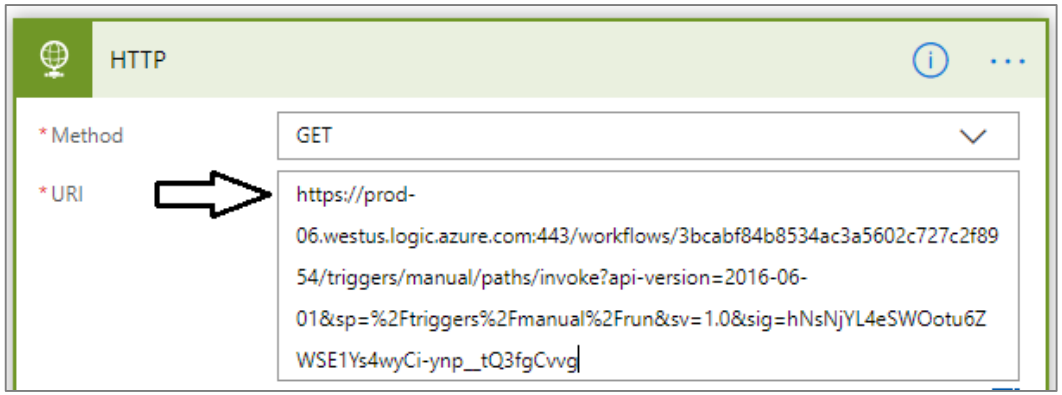


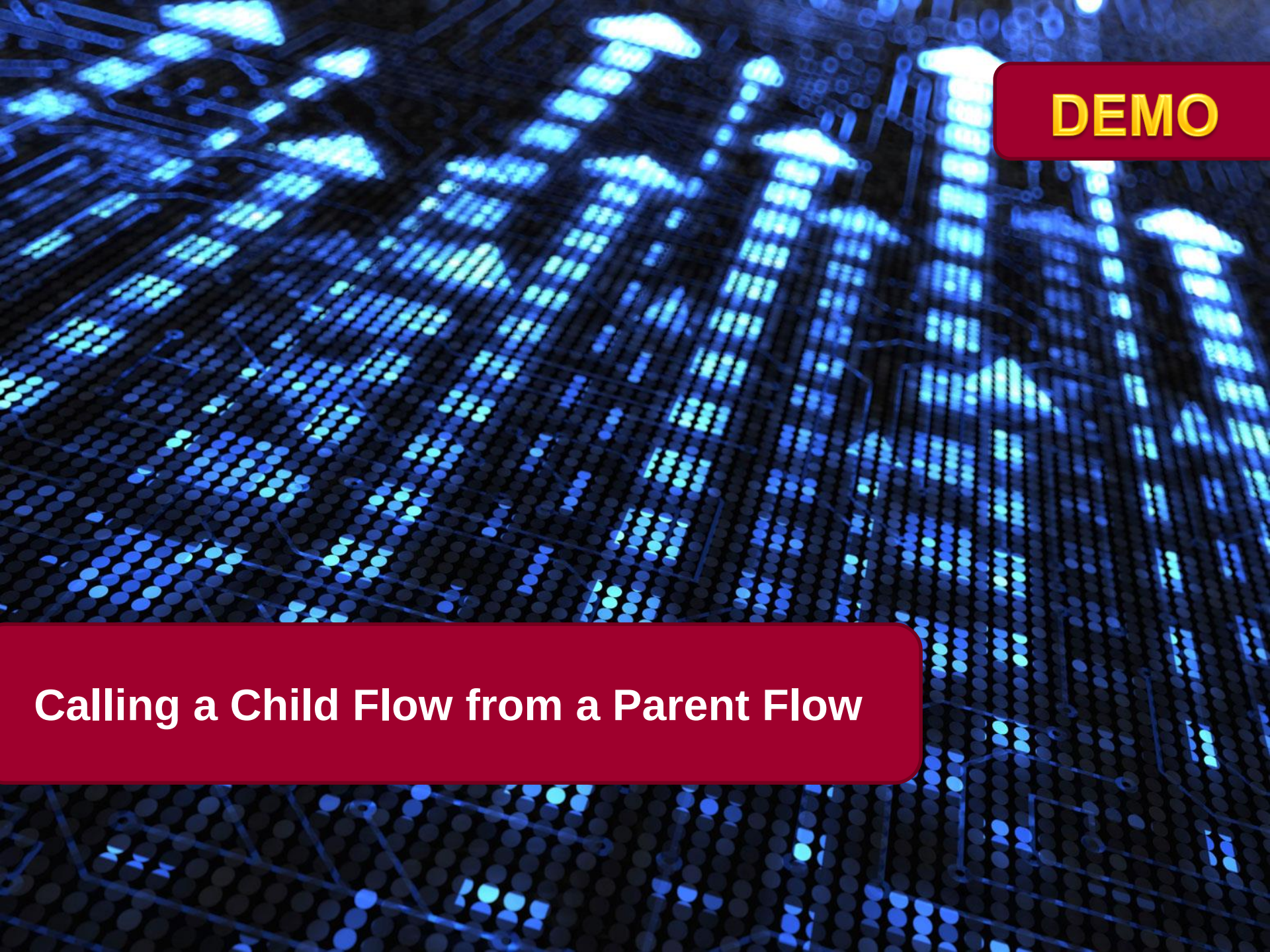
Parent Flow

- Parent flow uses HTTP action to execute child flow



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



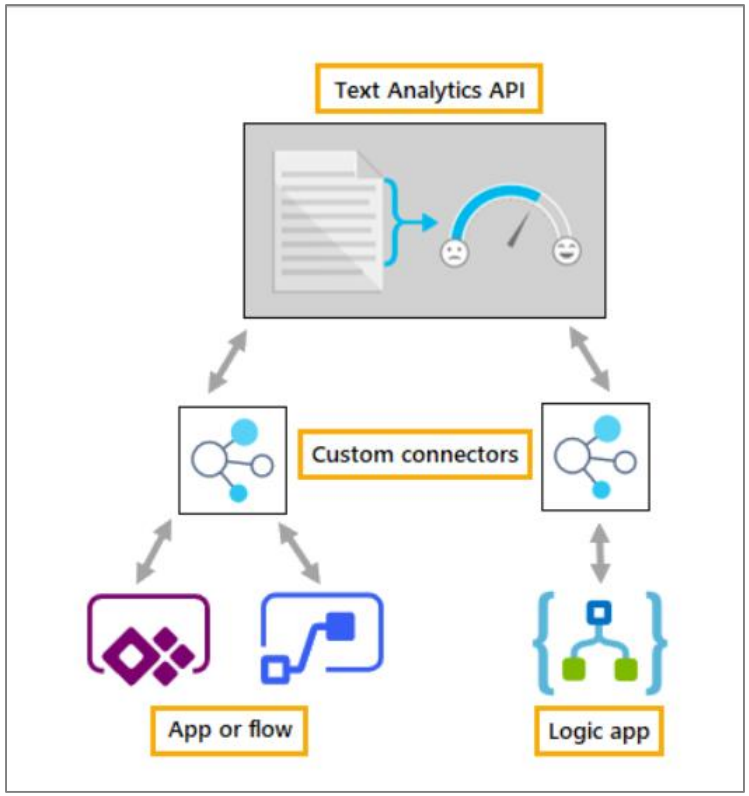

DEMO
Calling a Child Flow from a Parent Flow

Agenda

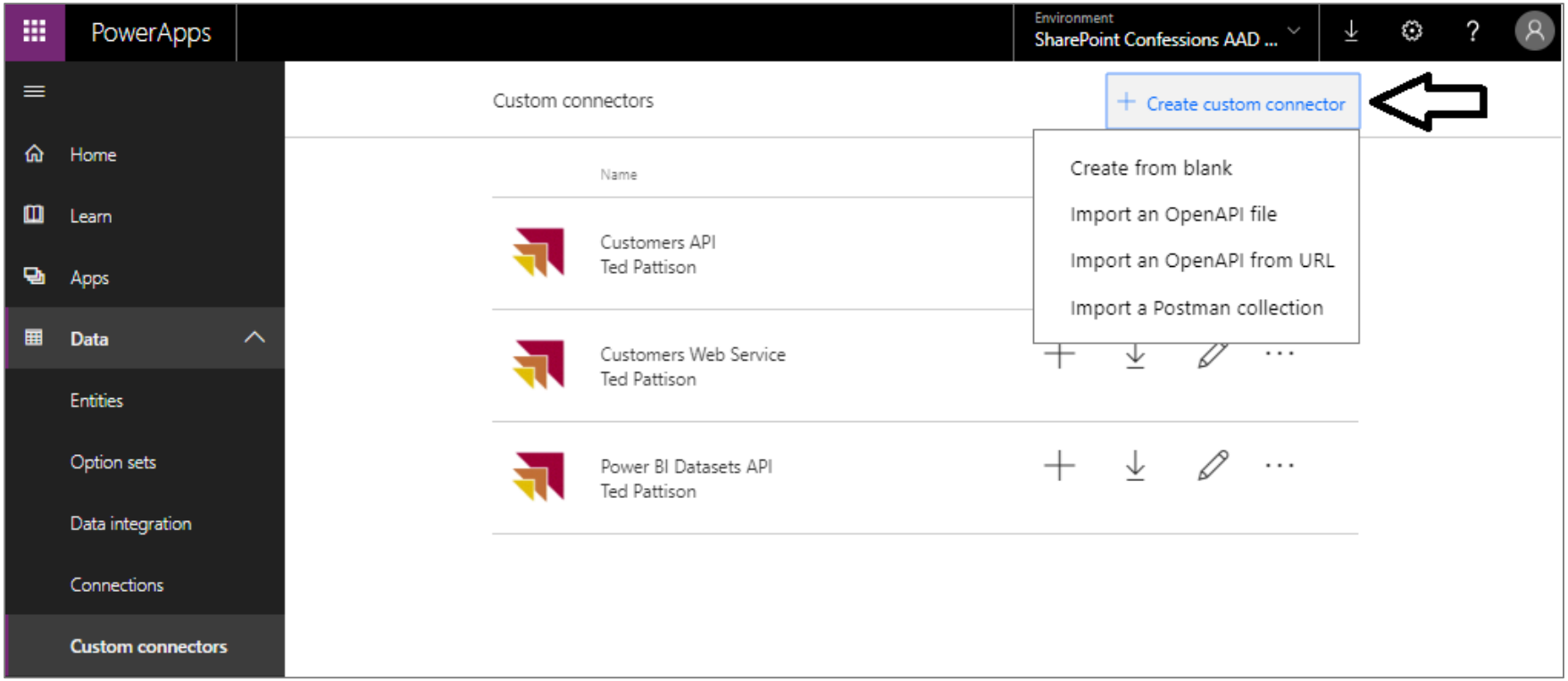
- ✓ Calling External Services using HTTP Actions
- ✓ Executing Child Flows from a Parent Flow
- ➢ Creating and Testing Custom Connector
- • Configuring a Custom Connector to use OAuth

Standard Connectors vs Custom Connectors

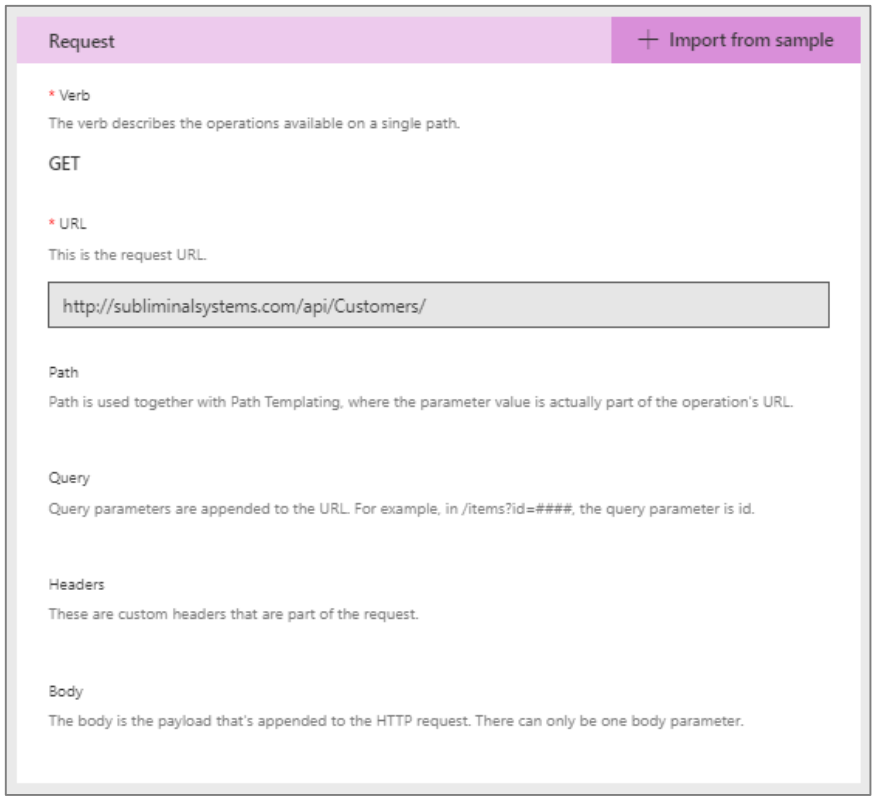
- PowerApps Supports two types of connectors
  - Standard connectors supplied out-of-box and vetted by Microsoft
  - Custom connectors created by organizations for their own use

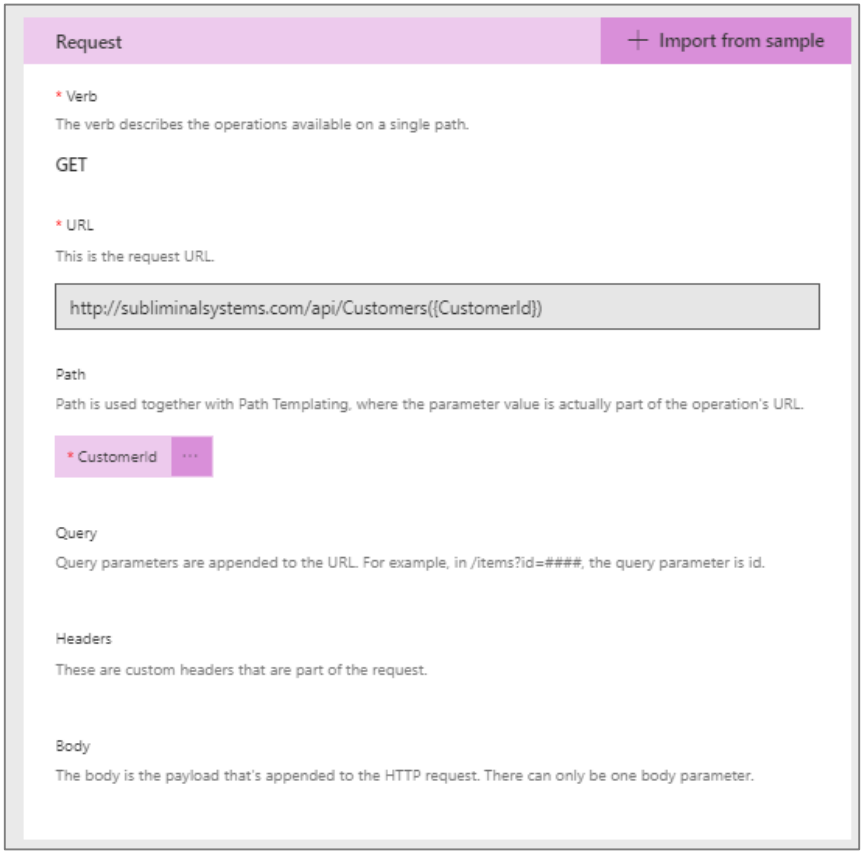


Creating a New Custom Connector

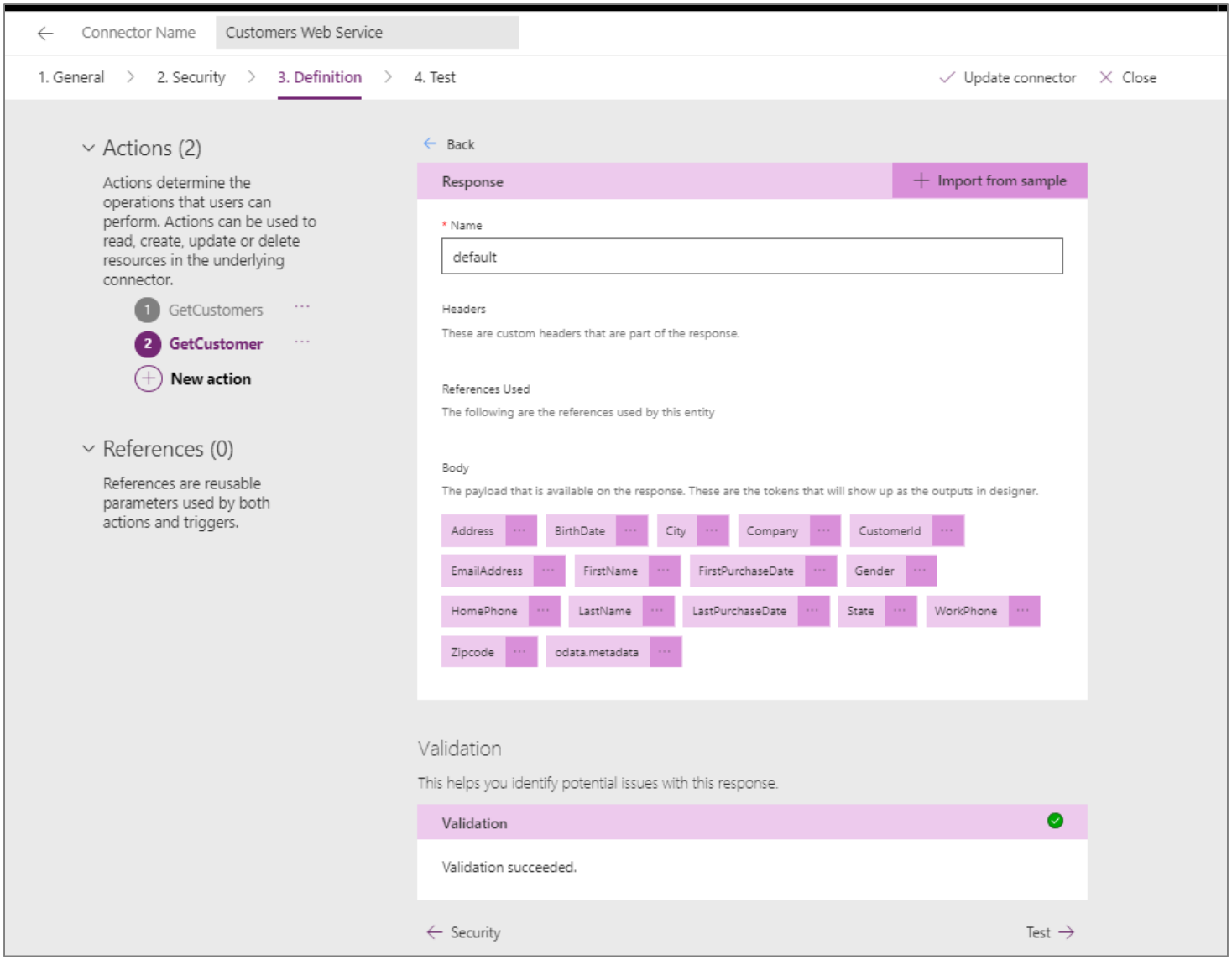


Defining Requests





Defining the Response



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

CustomerFactoryAPI.swagger.json

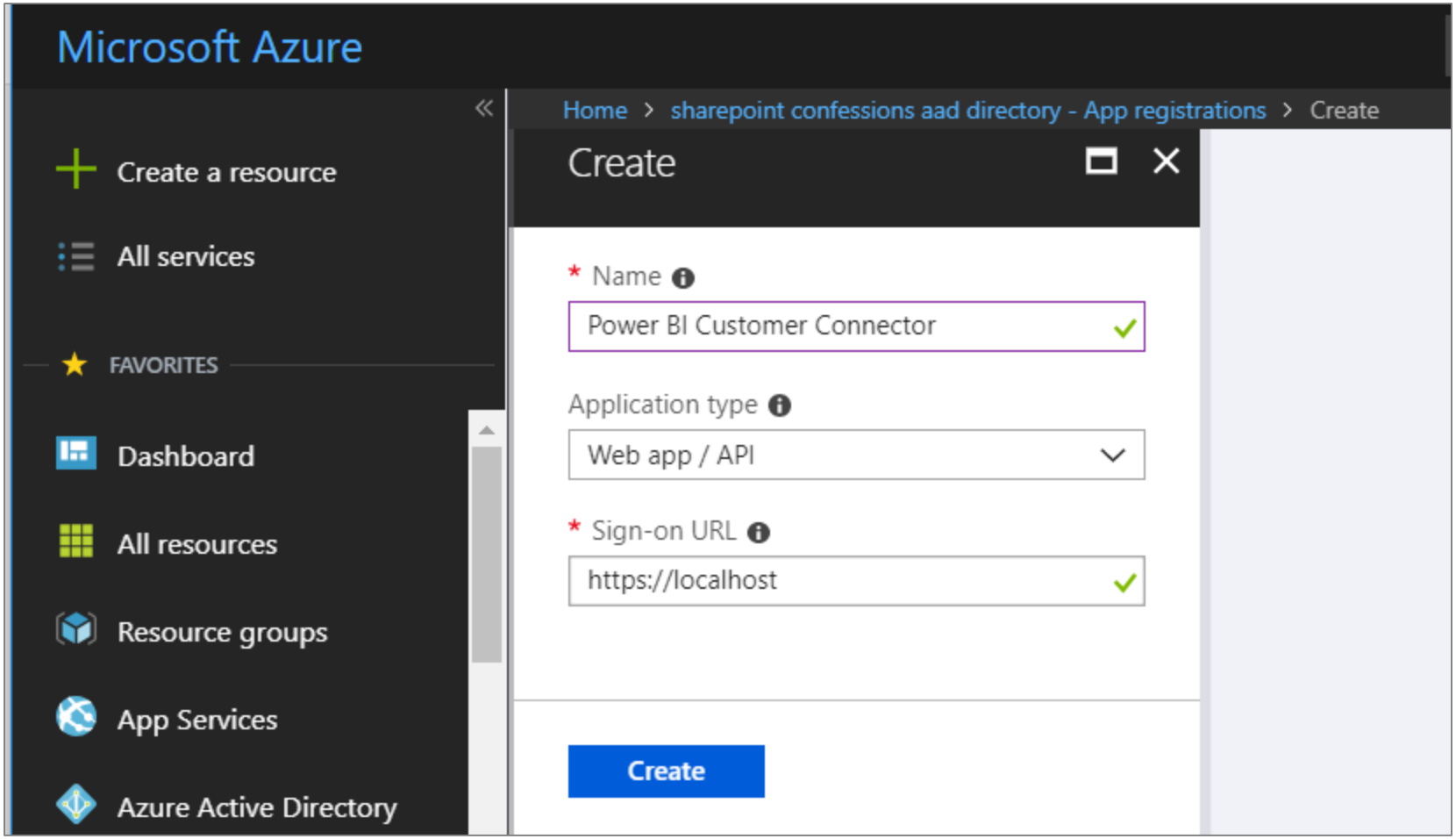
```
{
  "swagger": "2.0",
  "info": {
    "title": "CustomerFactoryApi",
    "description": "Sample custom connector providing sample customer data",
    "version": "1.0"
  },
  "host": "cptlabs.azurewebsites.net",
  "basePath": "/api/",
  "schemes": [ "https" ],
  "consumes": [],
  "produces": [],
  "paths": {
    "/NextCustomer": {
      "get": {
        "responses": {
          "default": {
            "description": "default",
            "schema": {
              "type": "object",
              "properties": { "firstName": { "type": "string", "description": "firstName" },
                "lastName": { "type": "string", "description": "lastName" },
                "company": { "type": "string", "description": "company" },
                "emailAddress": { "type": "string", "description": "emailAddress" },
```


DEMO
Creating a Simple Custom Connector

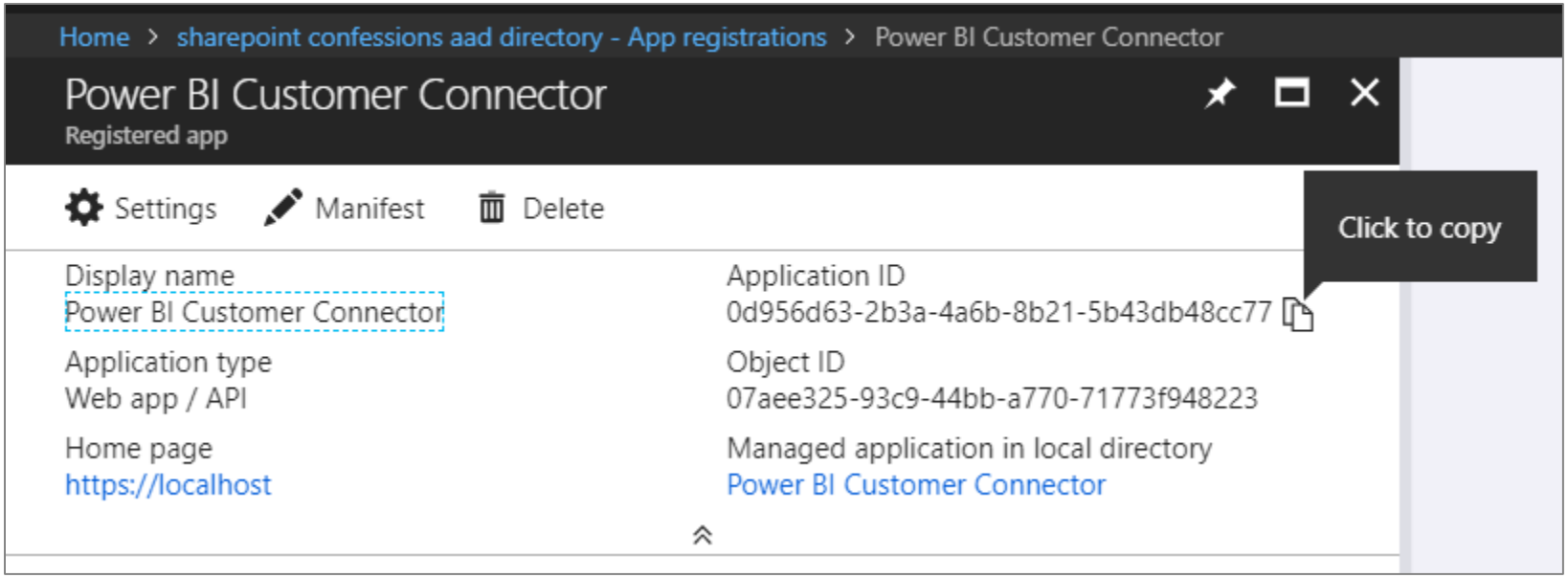
Agenda

- ✓ 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

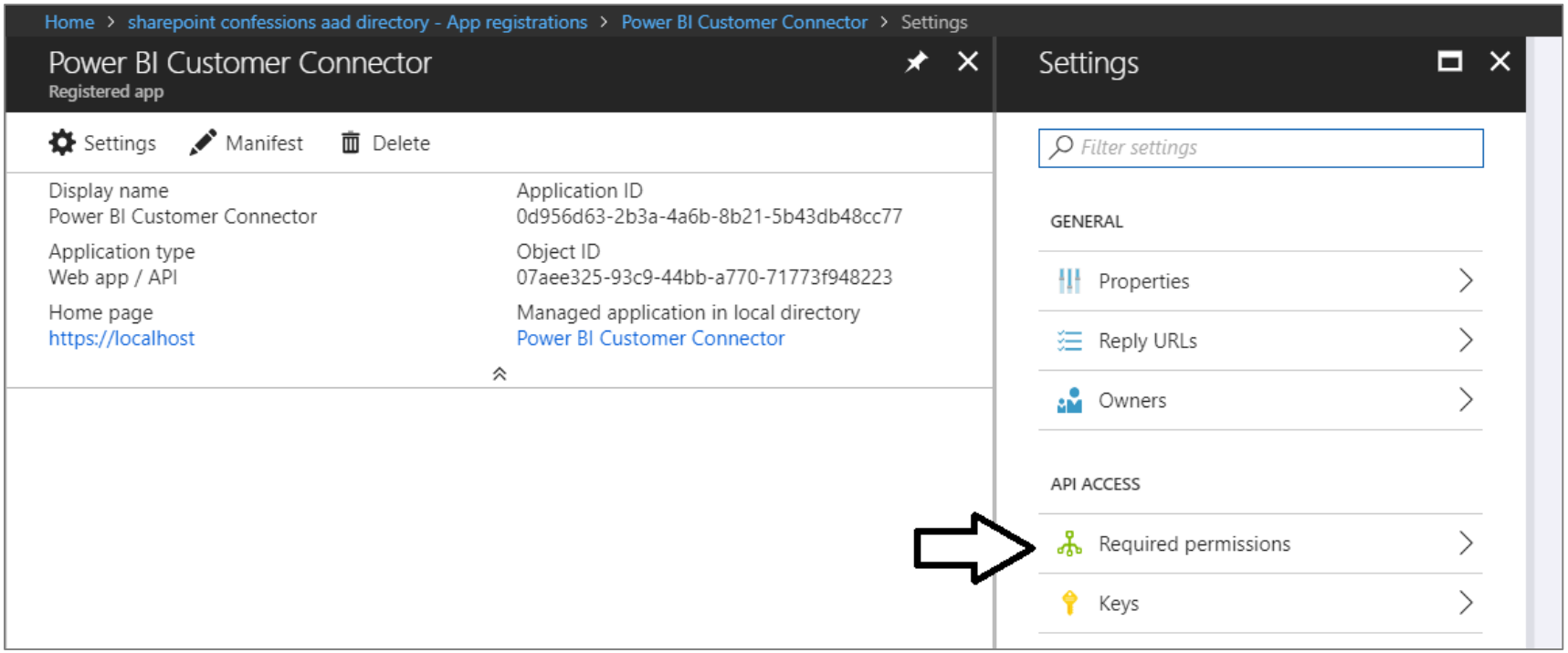
Creating an Azure AD Application



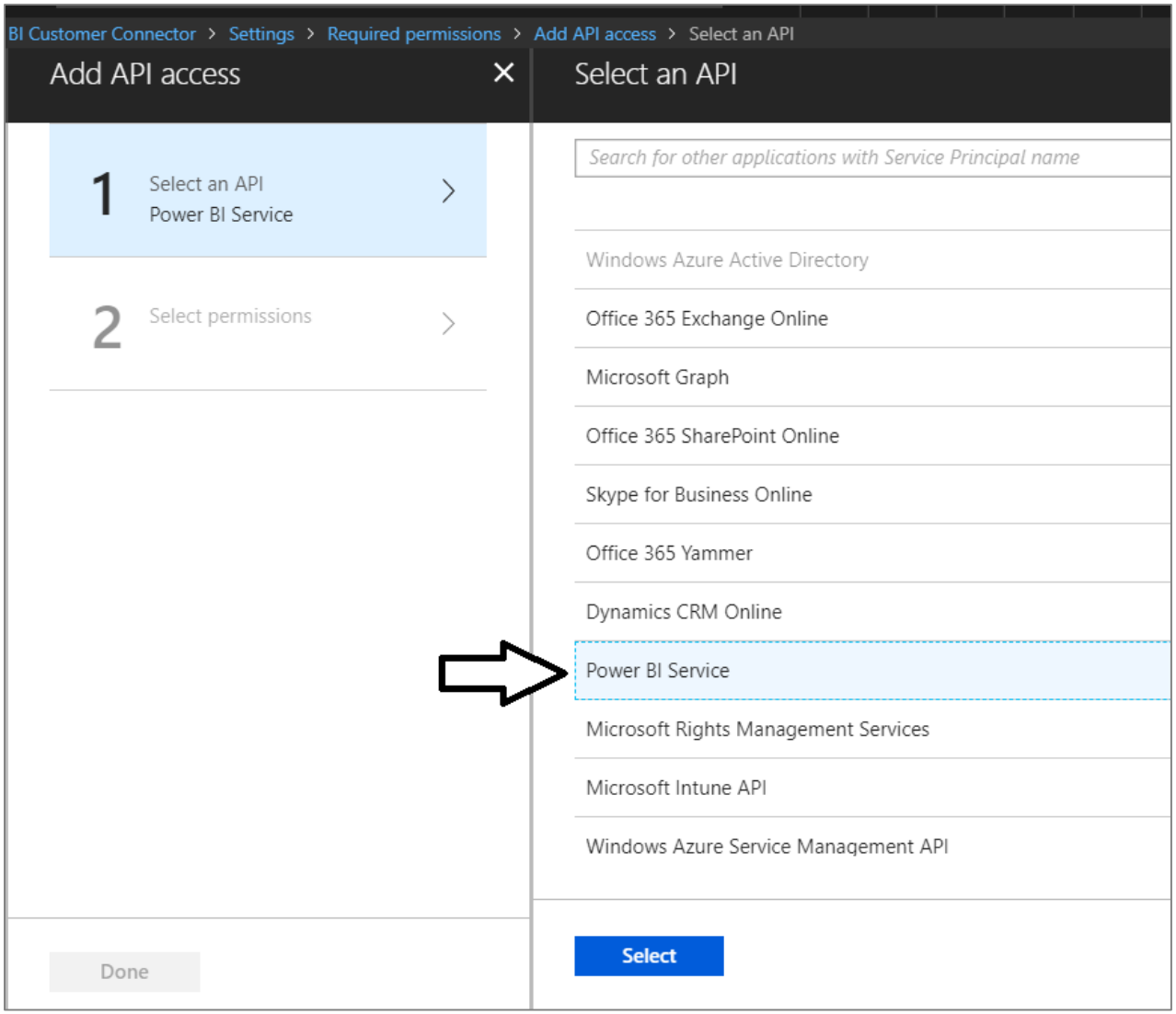
Application ID (aka Client ID)



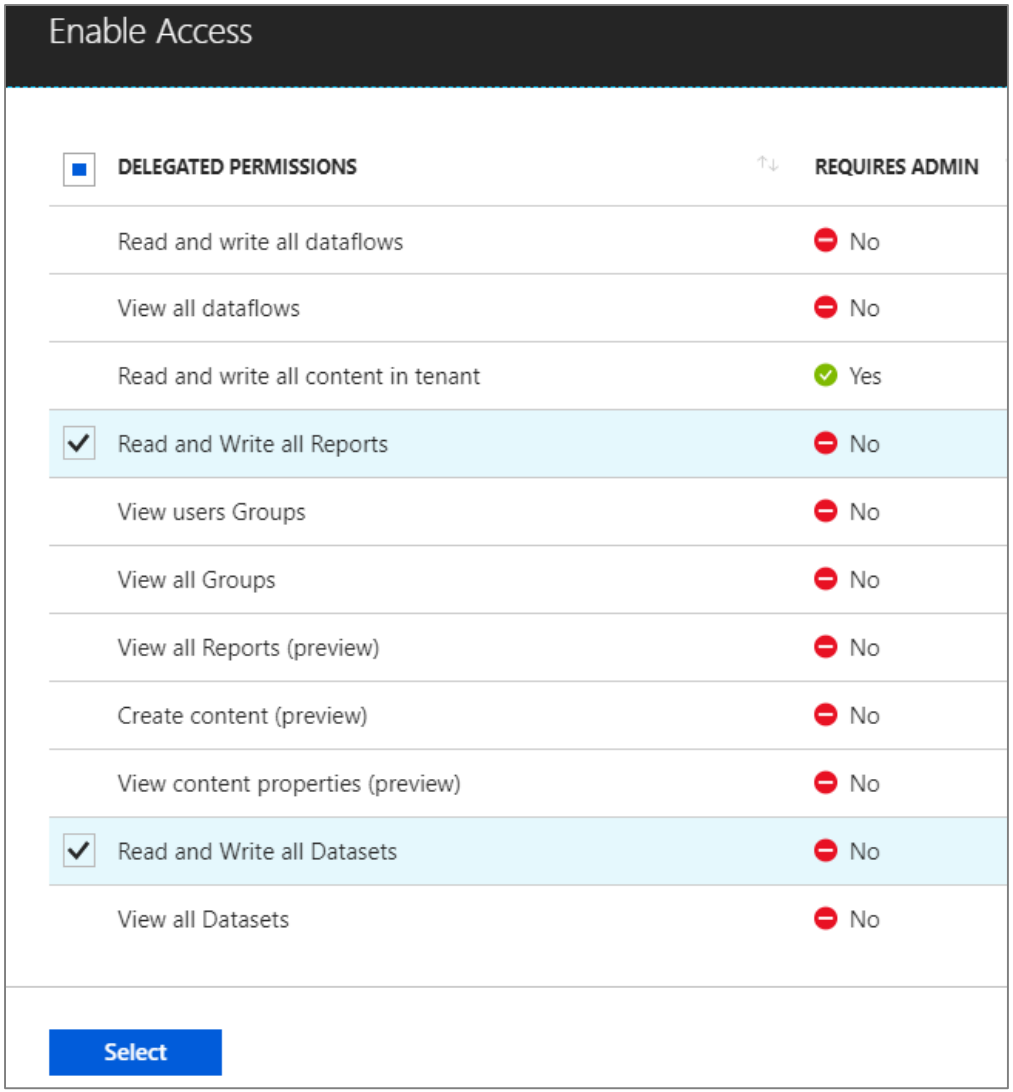
Configuring Permissions



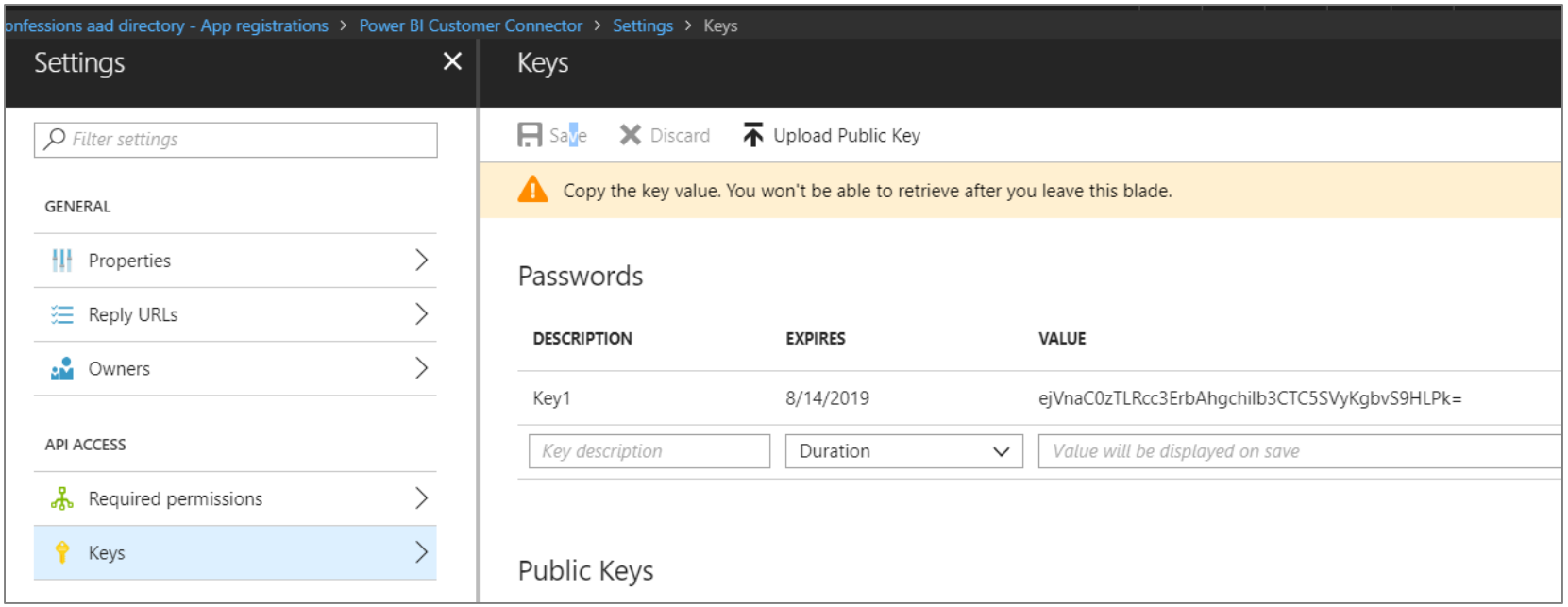
Select the Power BI Service for the API



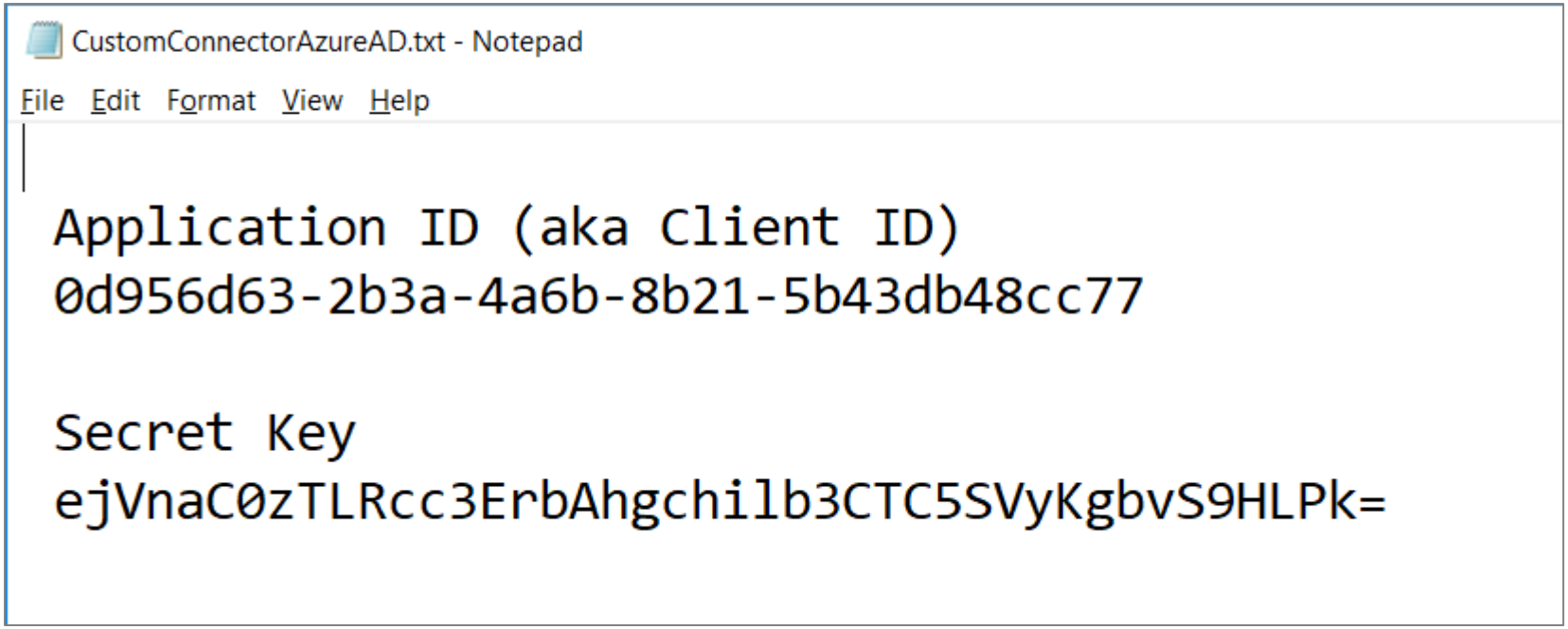
Select the Required Permissions



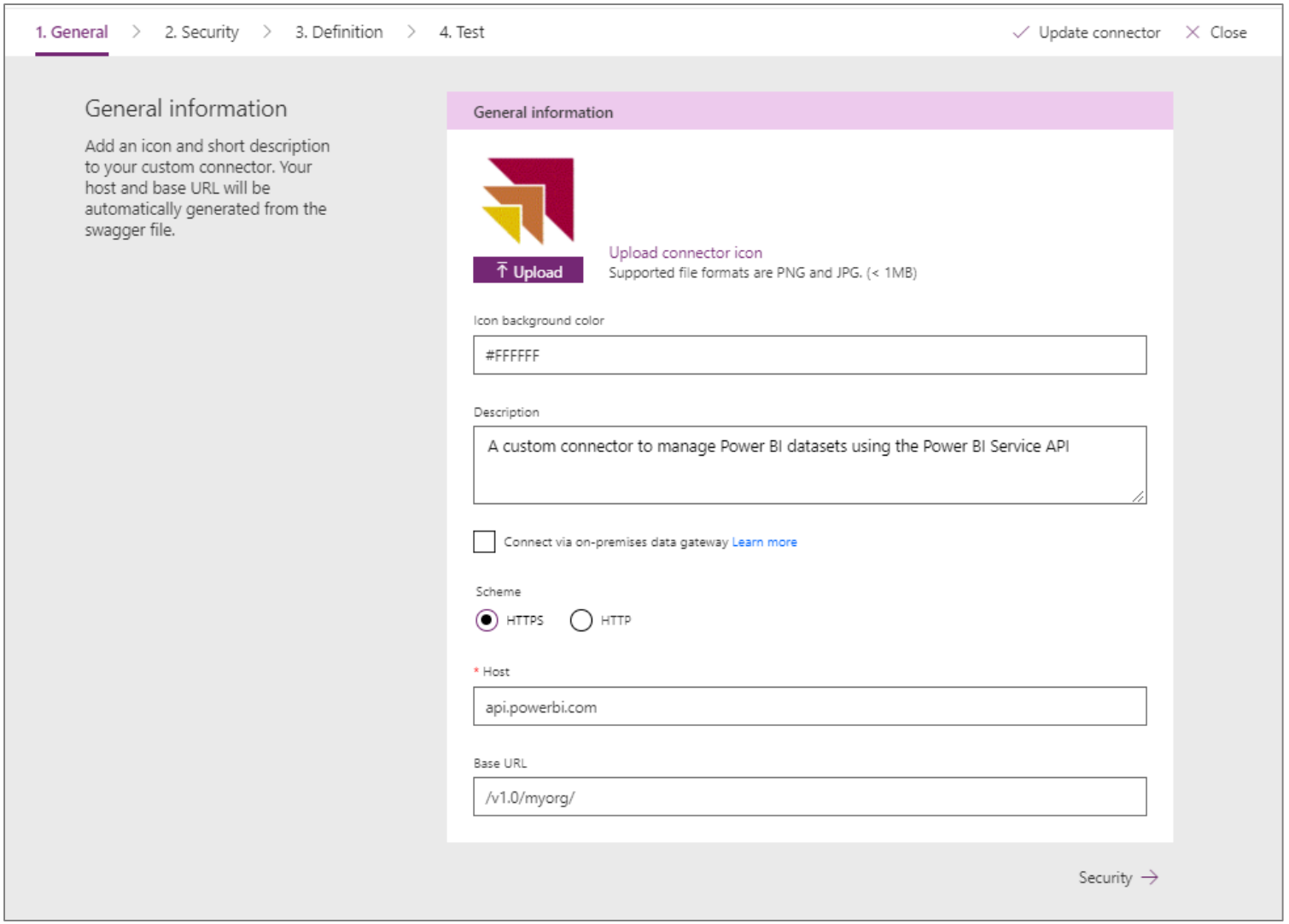
Generating a Key Secret



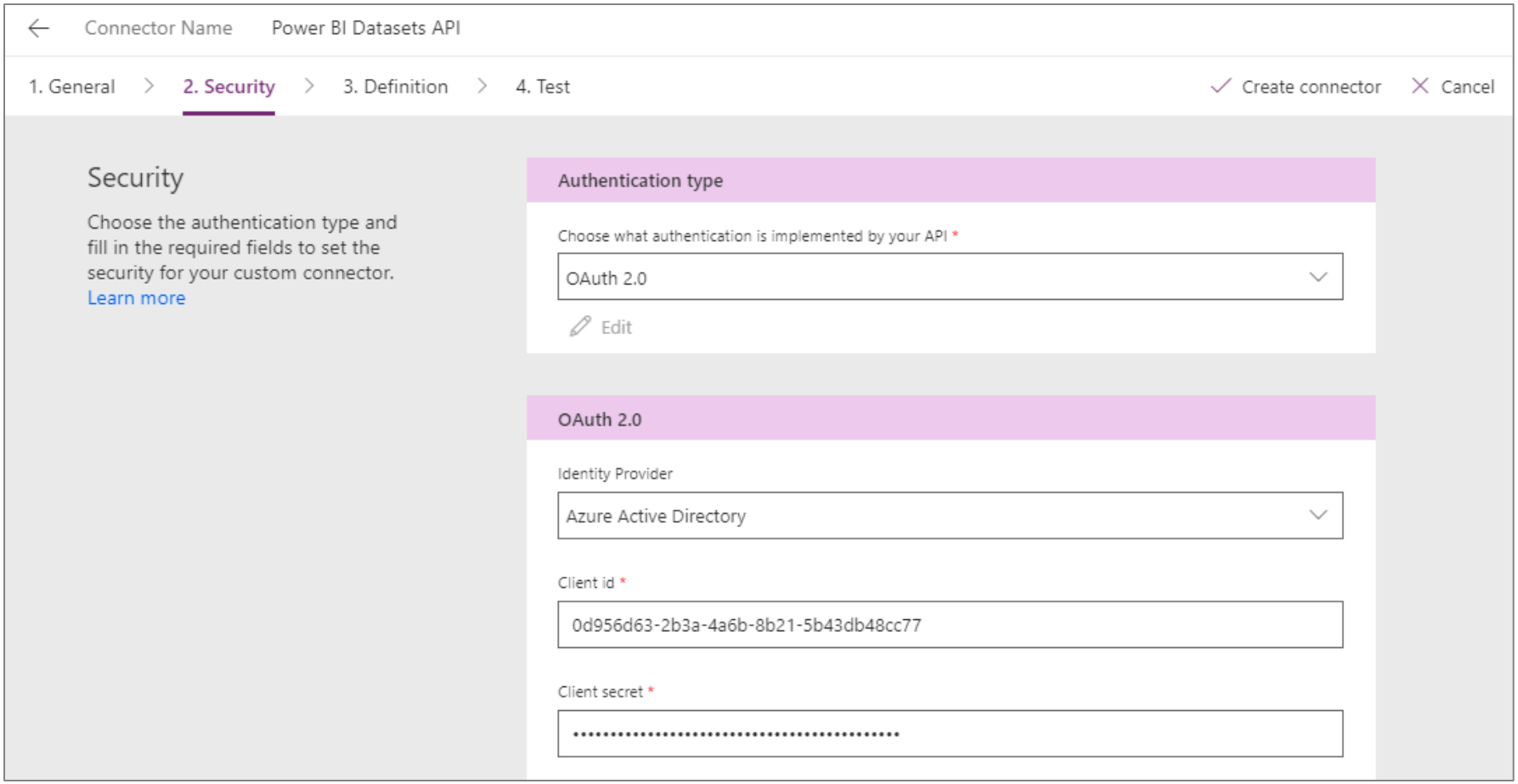
Data Required to Create Custom Connector



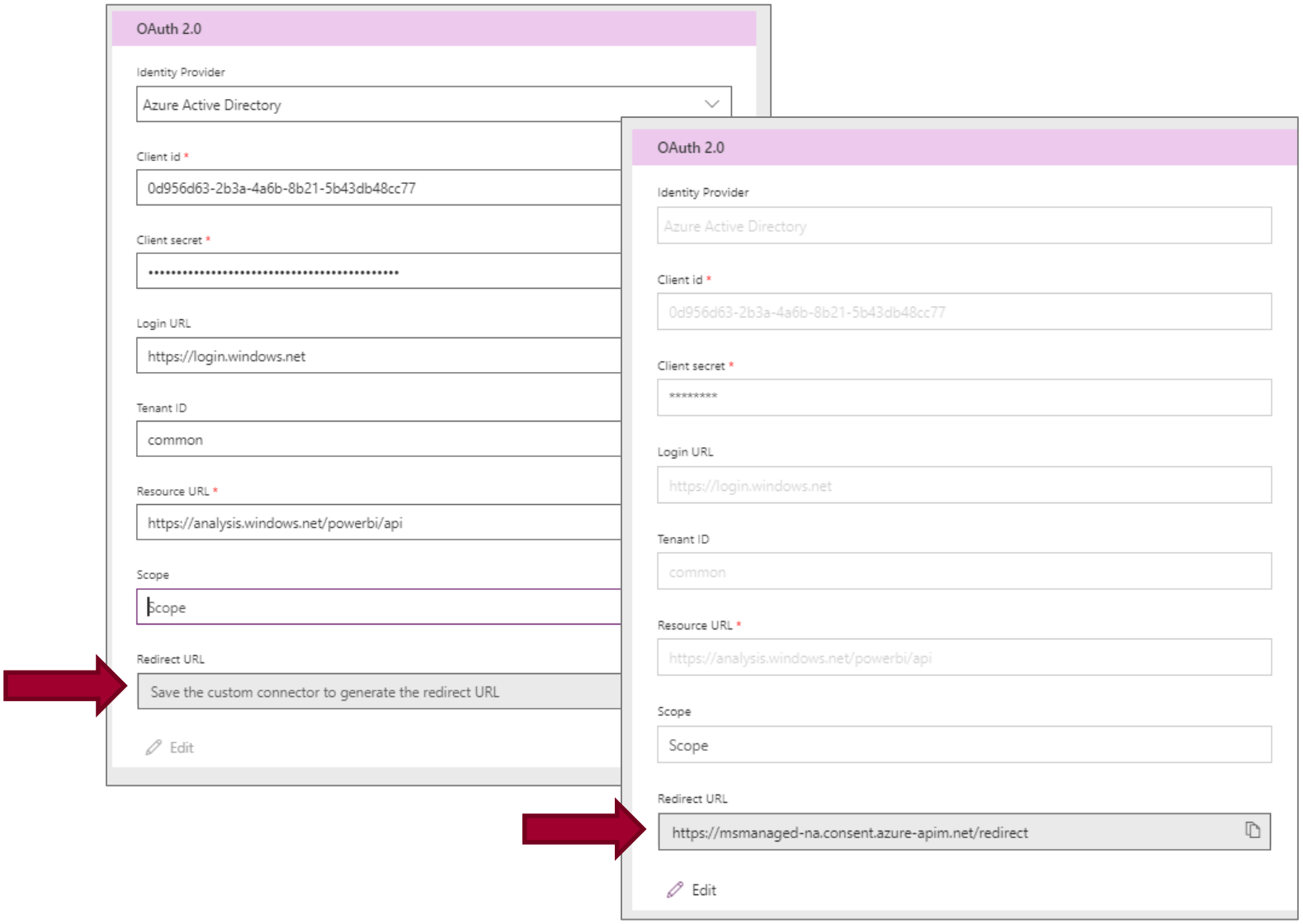
Creating the New Custom Connector



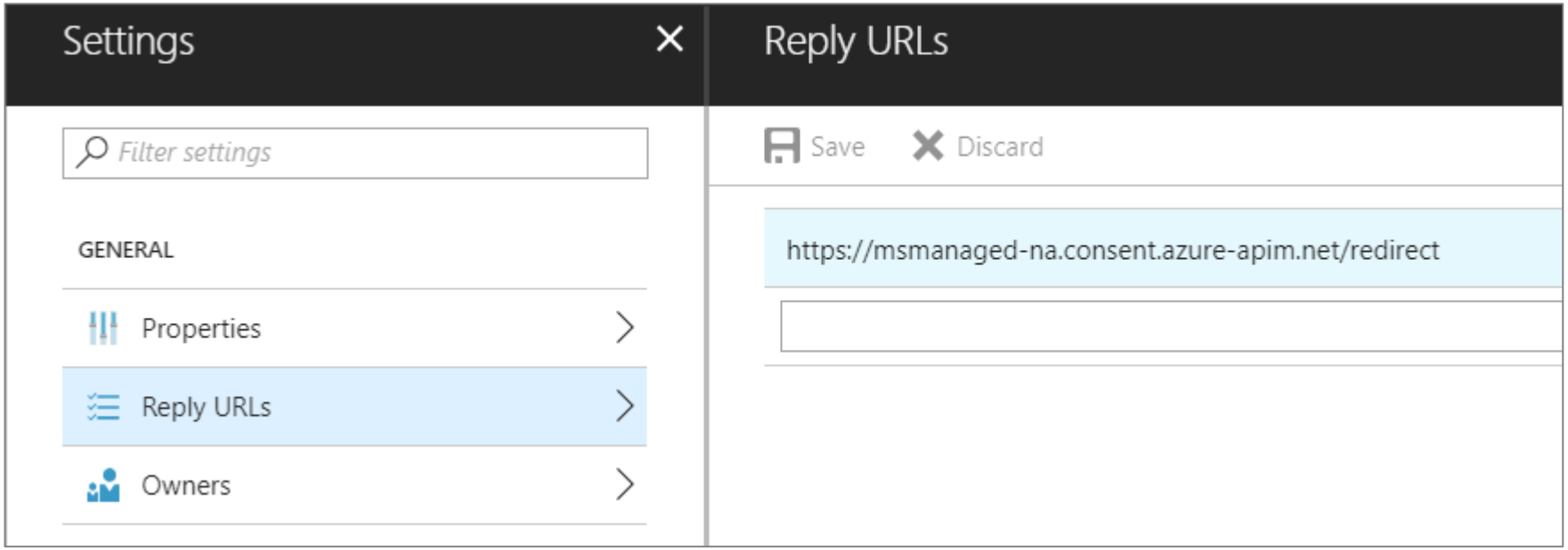
Configuring the Client Id and Client Secret



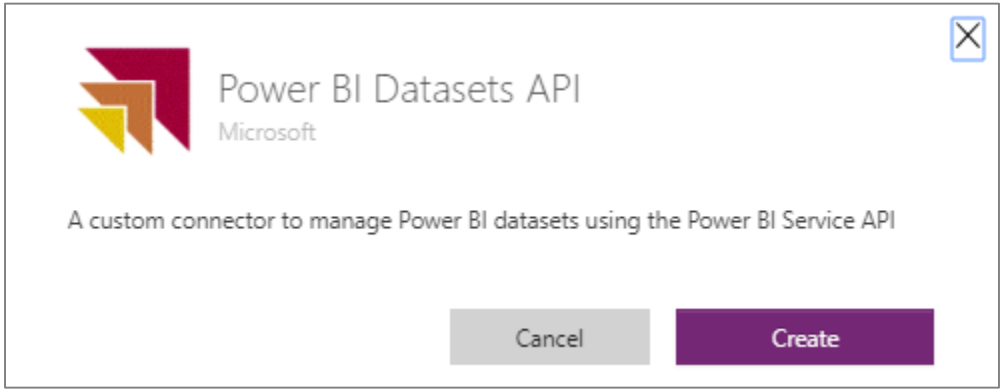
What About the Redirect URL?

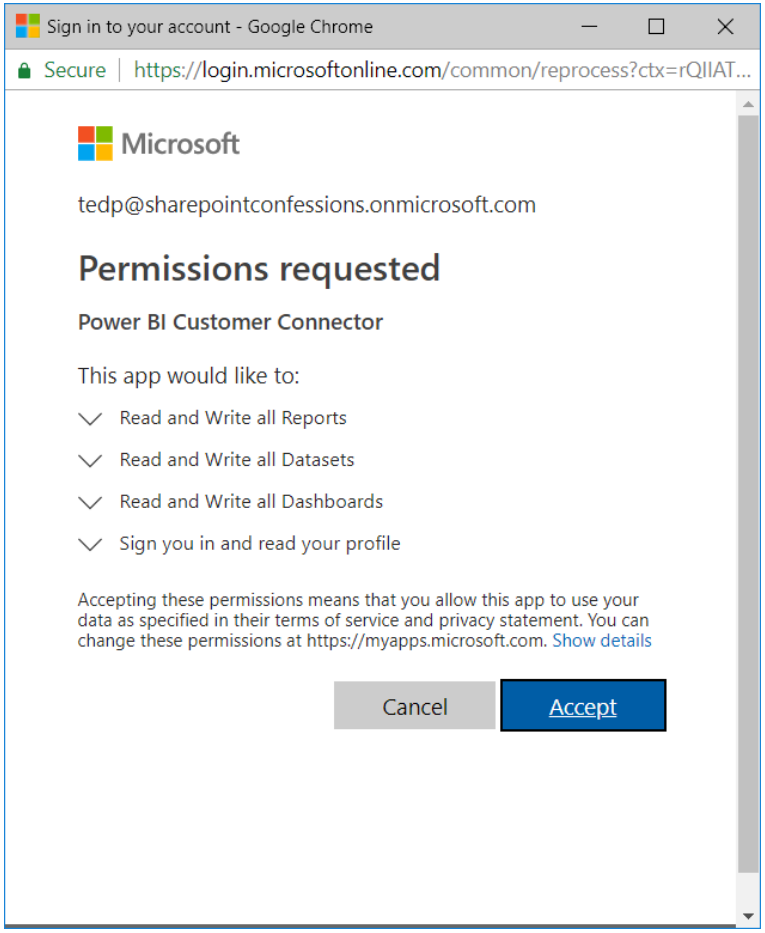


Adding the Redirect URL back in Azure AD



Creating a New Connection





Summary

- ✓ 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