MS FlowPath connector

Powerful integration of UiPath and Microsoft Flow

Santhosh S
Suresh S
Dinesh B

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FlowPath

Idea

UiPath is the most popular RPA software in the market. On the other hand, MS flow is the most popular cloud based automation tool with a tight integration with the Office applications (Outlook, Skype, Excel, OneDrive, SharePoint, Teams, Planner) and more than 250 external connectors like Azure, Computer Vision, Salesforce, Twitter, MailChimp, ServiceNow, LUIS, Bitbucket, RSS, JIRA etc.

A seamless integration between these two powerful platforms will open up numerous opportunities to automate the processes and eliminate some of the existing limitations. A custom connector is built for UiPath to integrate with MS Flow platform. Both are widely used in the enterprises to achieve automation goals. This integration will ensure a proper connection to bridge the gaps, push the limits and improvise the automations.

Video link - https://vimeo.com/349530262

Project

Orchestrator API and Webhooks are combined with the MS flow custom connector creation to define and develop triggers and actions in accordance with the Custom Connector framework. The New Uipath cloud and API authentication mechanism are used to build the connector.

Triggers added to MS Flow

- When a Job completes successfully
- When a Job fails
- when a new item added to queue

Actions added to MS Flow

- Start a Job
- Add a Queue item
- Get all Releases

- Get all Processes
- Get Job status

Technical possibilities

- Execute UiPath robots based on **diverse amount of triggers** available with MS flow (inbuilt, custom and third party). Examples - Triggers from SharePoint, Outlook, Facebook, Twitter, GitHub, JIRA, Salesforce, Workday, MS Kaizala, Azure, Slack....
- Execute workflows on MS flow platform with **triggers from UiPath**. Example - Run a skype flow to notify the stakeholders on successful UiPath job completion. Orchestrator webhooks are configured in MS flow to build a custom connector for UiPath
- Train the models built in with **AI builder** and use the processed data in UiPath jobs
- Connect with **AI services** like LUIS, Face API, computer vision with the UiPath workflows thru MS flow
- Build **PowerApps** for Mobile and web to provide a easy user interface to the users to run/monitor the automations
- Build **Microservices** combining MS Flow with UiPath using HTTP request feature of MS Flow

Use Cases

- Run Uipath job on a file is added or modified to sharepoint, Google drive, OneDrive..
- Run Uipath job on arrival of particular emails (Invoices, Reports...)
- Run Uipath job once another uipath job completes. Design job sequence
- Process Invoices/Receipt thru trained models in AI builder instead of OCR and execute UiPath jobs with the extracted information.
- Schedule process flow from MS flow and also trigger with a mobile touch from PowerApps/Flow mobile app.
- Execute other onboarding processes when a new employee is added to Workday
- On any uipath event (job completion, failure etc..) get notified thru skype, MS teams, Slack, SMS, mobile push notifications...
- Create and process Surveys
- Setup Approval flows integrating different entities

References

- https://orchestrator.uipath.com/v2019/reference#consuming-cloud-api

- https://forum.uipath.com/t/consuming-apis-with-the-new-cloud-orchestrator/123112
- https://docs.microsoft.com/en-us/flow/#pivot=start
- https://www.pcworld.com/article/3401459/microsoft-adds-ai-capabilities-to-powerapps-and-flow-to-automate-business-tasks.html
- https://india.flow.microsoft.com/en-us/connectors/

Prerequisites

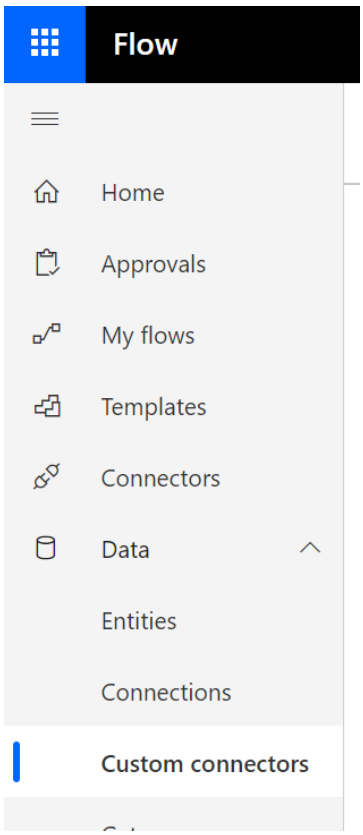
Installation

FlowPath Connector can be installed and configure in MS flow (Any subscription)

Step 1 - Download the json file from UiPath Go! Or from the below link. This is the auto generated swagger for the UiPath custom connector

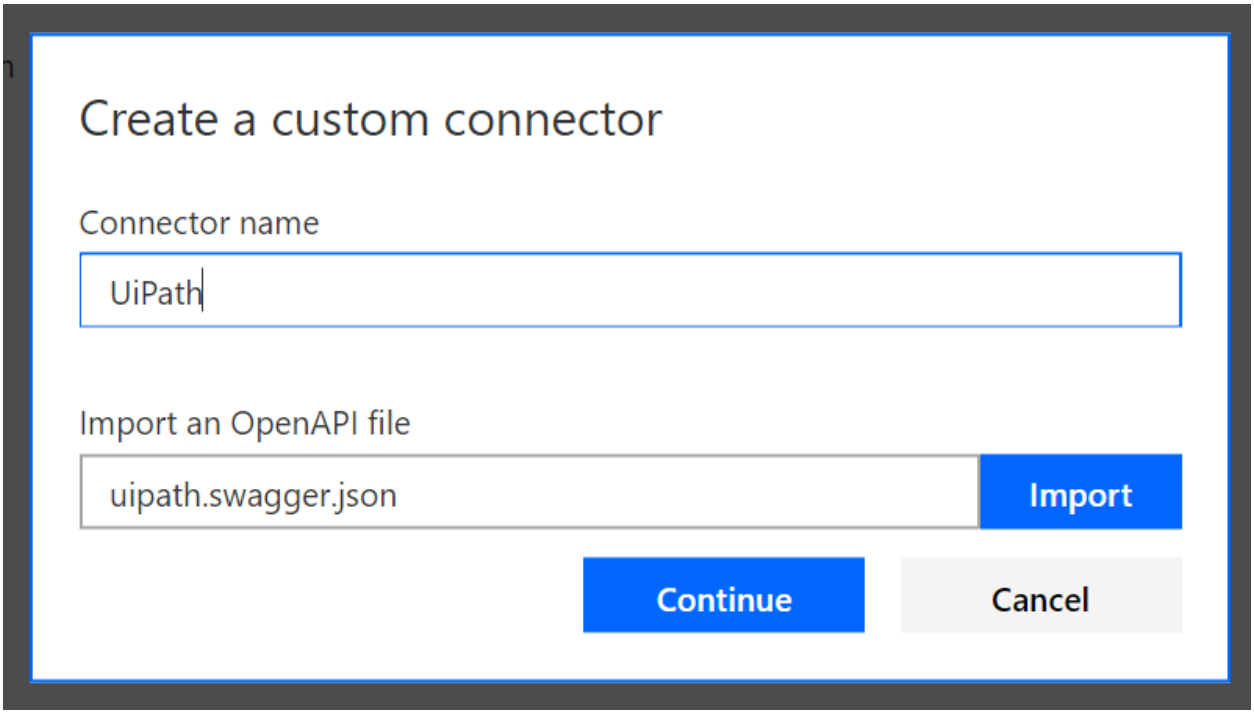
https://dev.azure.com/SDwiki/_git/FlowPath?path=%2FUiPath.swagger.json&version=GBmaster

Step 2 - Select Custom Connector Option in MS Flow

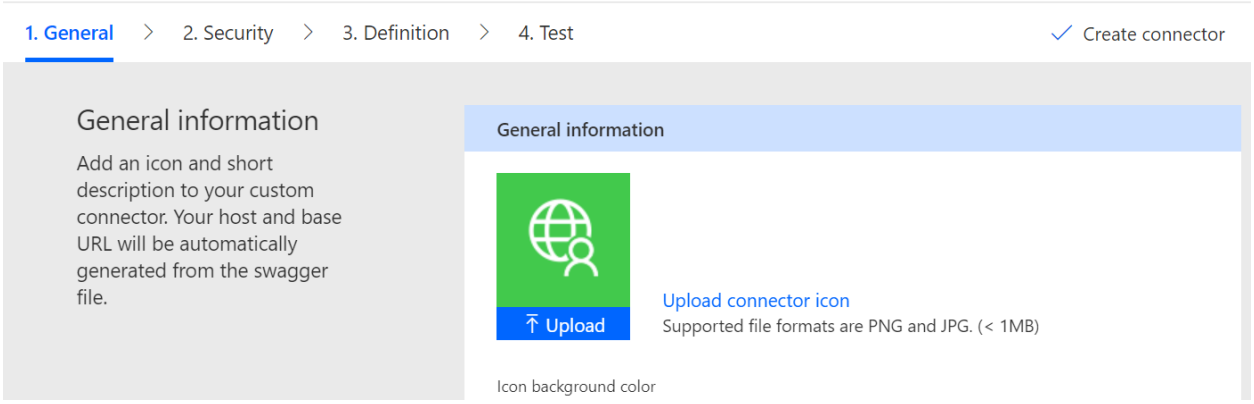


Step 3 - Select New Custom connector and "Import an OpenAPI file"

Step 4 - Connector name as UiPath and select the downloaded json file

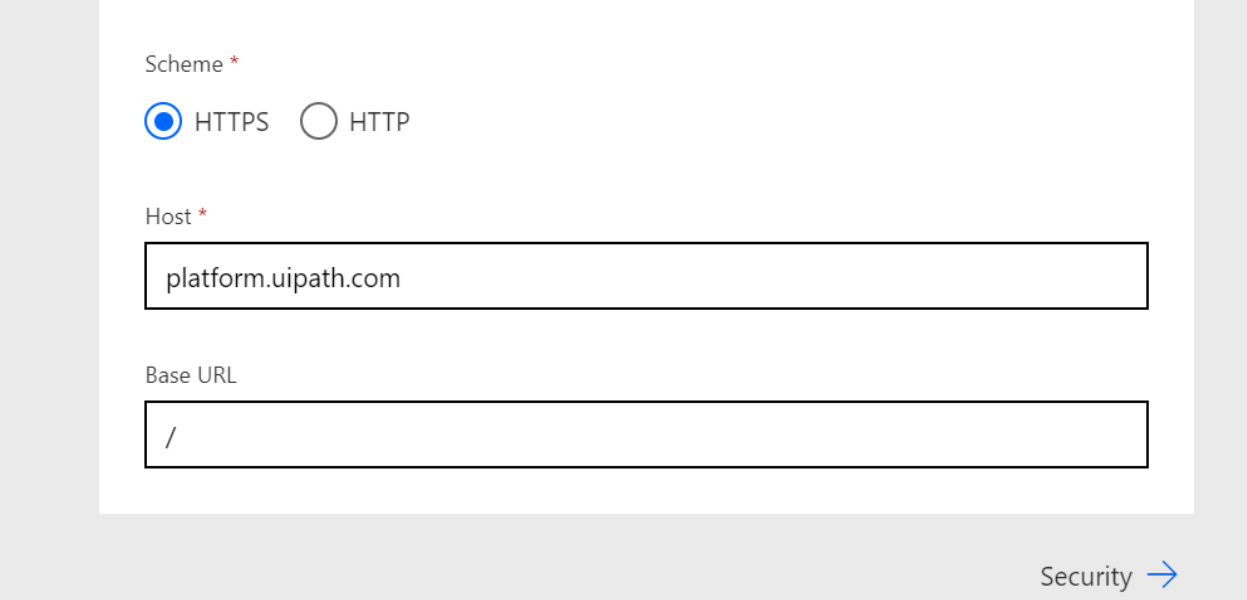


Step 5 - Upload UiPath logo (or your company logo) as connector icon. No other change is required for UiPath community edition. Finally, select "Create Connector"

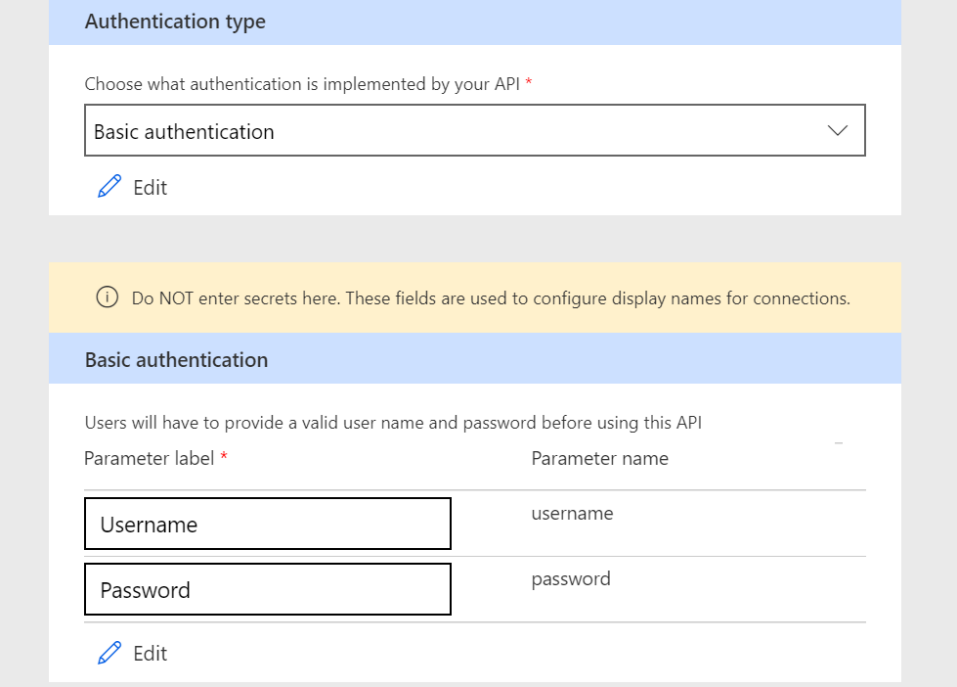


- Logo

- In case of separate orchestrator instance, Change the host name to your orchestrator instance.



- Change the Authentication in the Security page as per your orchestrator installation. Then click “Create Connector”.

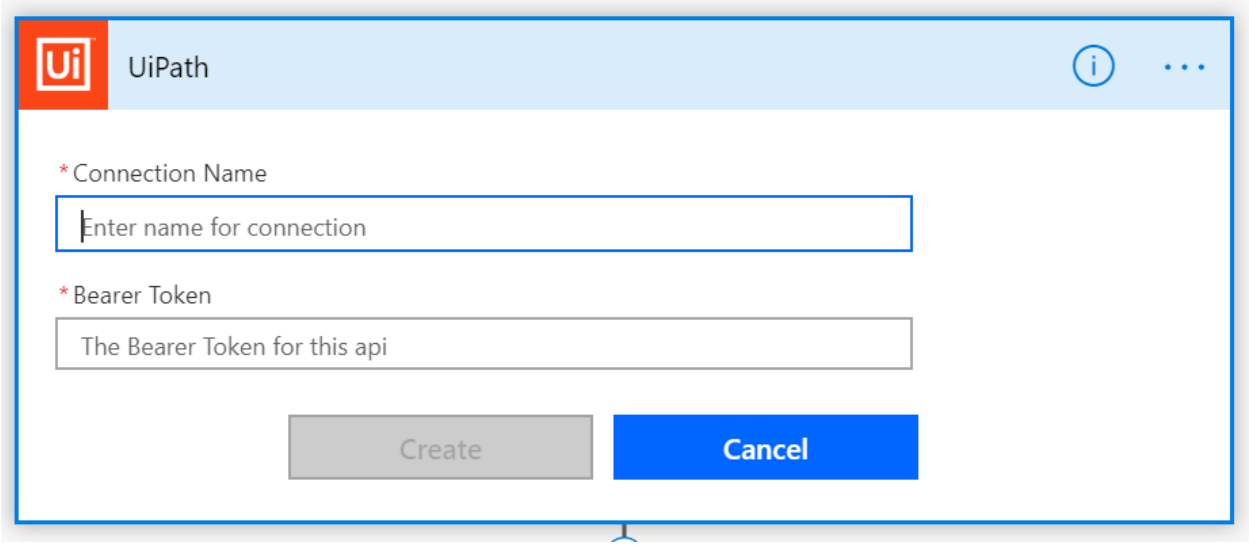


Then the Connector will be displayed the Custom Connector section. Now, the connector will be available and ready for use while creating new flow.

Reference - https://docs.microsoft.com/en-us/connectors/custom-connectors/define-openapi-definition#import-the-openapi-definition-for-microsoft-flow-and-powerapps

Creating a Connection

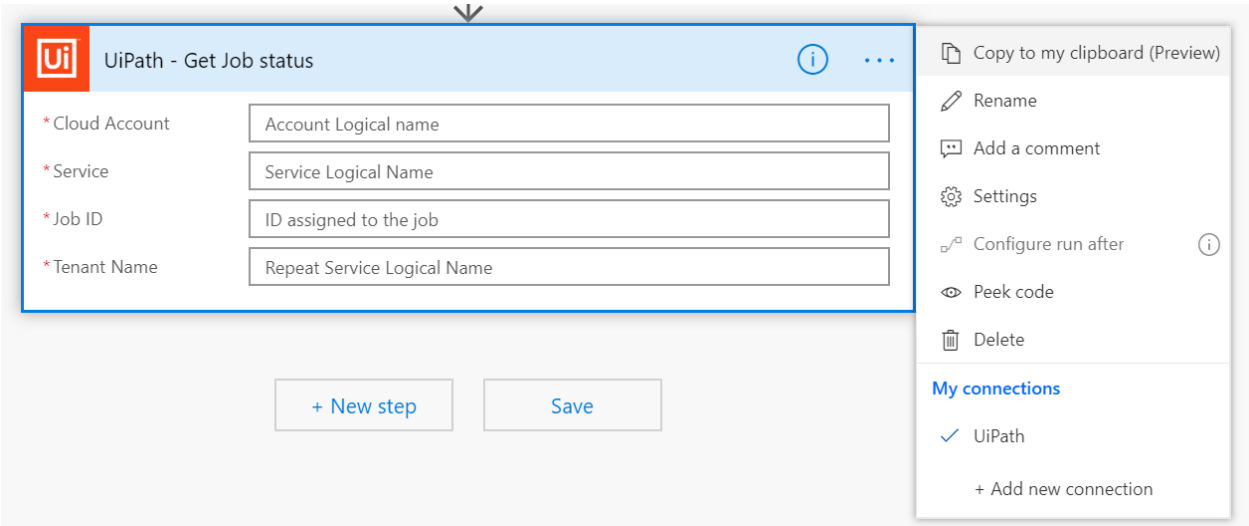
First time use of the connector in any flow, it will prompt for creating a connection.



1. Enter a name for connection
2. UiPath Community edition
    - Bearer Token (**Must be entered in the format "Bearer<space>XXXXXXXXXXXXXXX"**), XXXXXXXXXXXXX is your **access token** for cloud platform.
      Refer https://orchestrator.uipath.com/v2019/reference#consuming-cloud-api for generating bearer token

Note: Bearer token is valid for 24 hours. when this expires, a new connection is required with the new token. Choose "+ Add new connection" if the token is expired.

As the Uipath team is working on the OAuth flow like Google, facebook, the same will be implemented here to auto generate tokens.



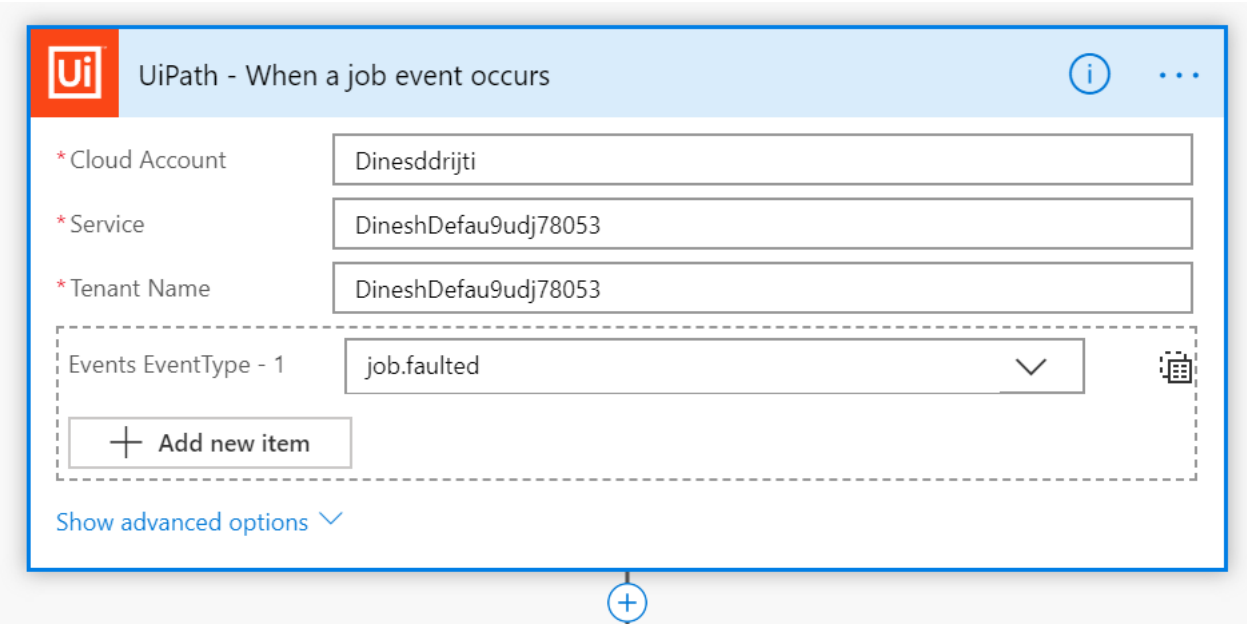
Triggers

The Connector has triggers from the uipath events. When a new flow is created in MS Flow with the UiPath trigger, it will create and register a webhook in Cloud platform based on the selected parameters

Webhook link will be auto generated by MS flow in azure. Each instance of the trigger will create a new webhook link and gets registered in Orchestrator webhooks.

When an UiPath event occurs

1. On Job Completion
2. On Job Failure
3. On new item added to Queue



Arguments

- Cloud Account (Account Logical name)
- Service (Service Logical name)
- Tenant name (same as Service Logical Name)
- Event type (select the event to subscribe)
  -- job.completed

-- job.faulted
-- queueitem.added

Actions

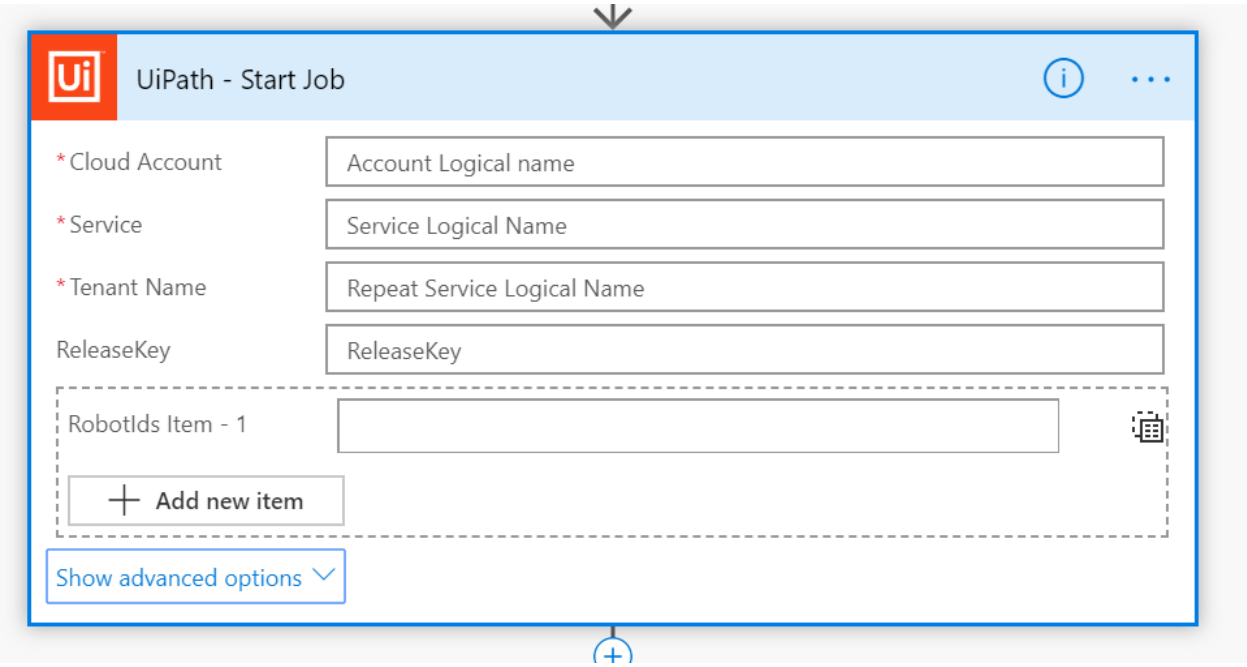
Actions are processes executed in UiPath Orchestrator from MS flow.

Supported Actions

1. Start Job
2. Get Job status
3. Add a Queue Item
4. Get all Releases
5. Get all Processes

Start Job

This activity starts the job in Orchestrator

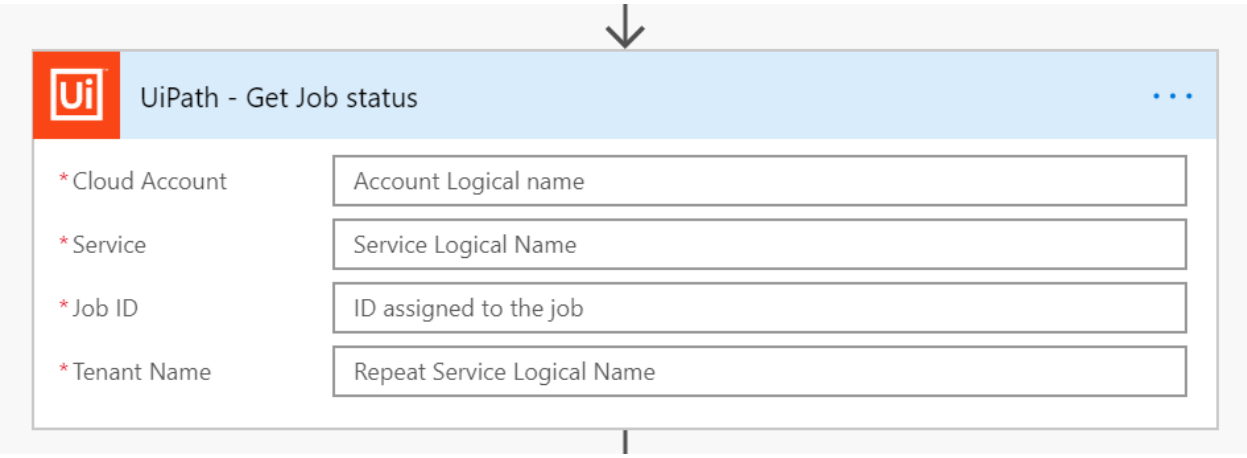


Arguments

1. Cloud Account (Account Logical name)
2. Service (Service Logical name)
3. Tenant name (same as Service Logical Name)
4. Release Key (Process to execute)

Get Job status

This action is to check the Job running status. Usually performed after starting a job to track completion. Job ID can be retrieved from the output of "Start Job" action.

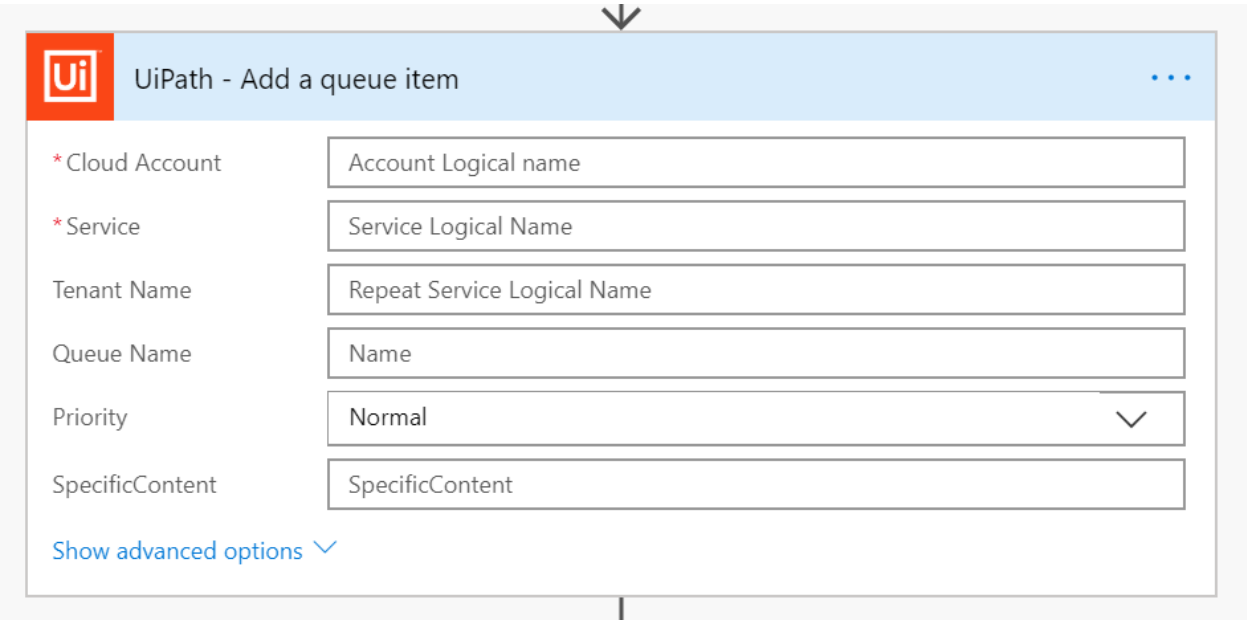


Arguments

1. Cloud Account (Account Logical name)
2. Service (Service Logical name)
3. Tenant name (same as Service Logical Name)
4. Job ID (Job ID received from Start job action)

Add a Queue Item

This action is to add a queue item from MS flow

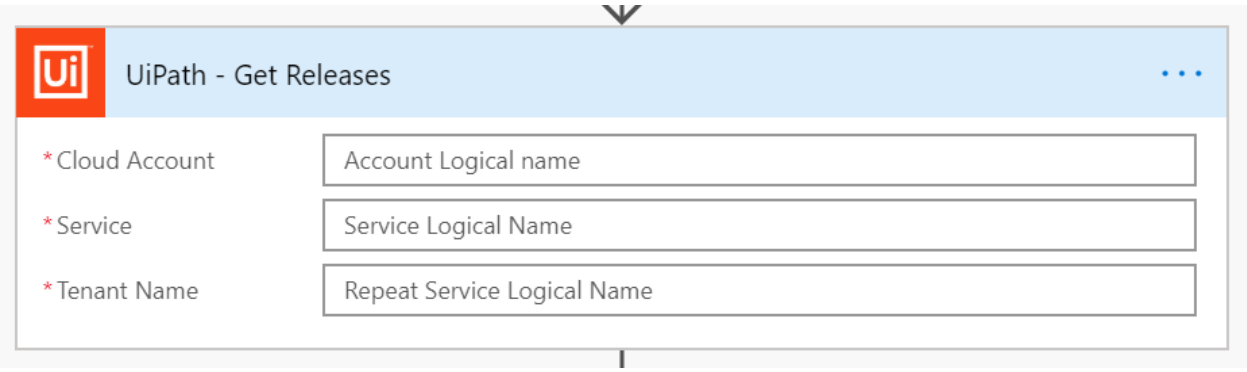


Arguments

1. Cloud Account (Account Logical name)
2. Service (Service Logical name)
3. Tenant name (same as Service Logical Name)
4. Queue Name
5. Priority
6. Specific Content (Actual data in JSON format)

Get Releases

This action is to get the releases from Orchestrator



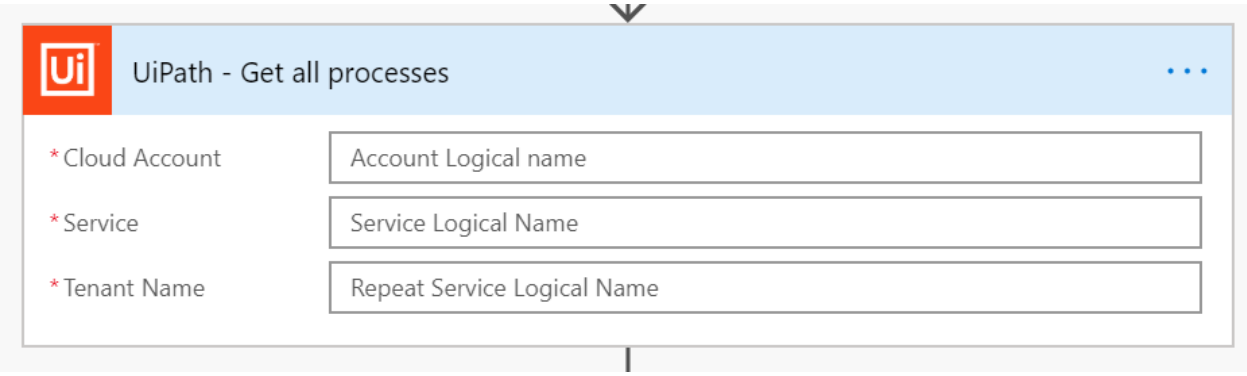
Arguments

1. Cloud Account (Account Logical name)
2. Service (Service Logical name)

3. Tenant name (same as Service Logical Name)

Get all processes

This actions fetches all the processes from Orchestrator



Arguments

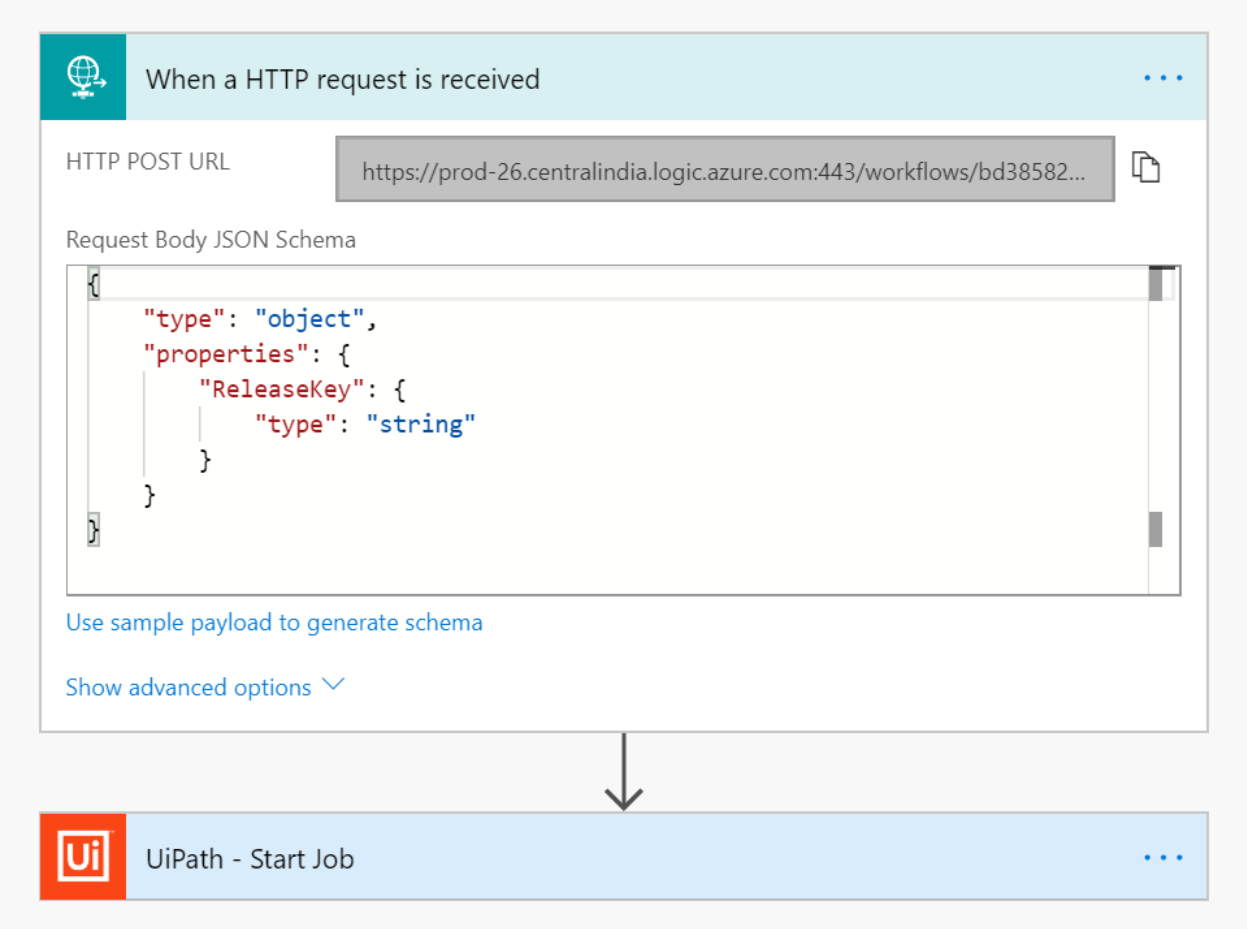
1. Cloud Account (Account Logical name)
2. Service (Service Logical name)
3. Tenant name (same as Service Logical Name)

Microservices

With the features built in Flow, A process containing a uipath job can be converted into a Microservice combining different applications.

This service can be invoked from any platform and execute the jobs. It can also be invoked from uipath using HTTP request activity.

Example:
The below flow can be invoked with the created endpoint to start a uipath job



Roadmap

Following features are in Roadmap

1. New set of actions
2. New set of triggers
3. OAuth 2.0 complete flow once cloud API allows it
4. Improving user experience