

Hands-On Lab

Fraudulent Storm Claim Detection

Weather ChatBot Demo



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1 Demo Business Scenario

1.1 Storms can cause chaos – for insurance customers *and* insurance companies!

Sadly, the chaos after a serious storm can be devastating. Many people who are badly affected are likely to contact their insurance company, to find basic information about how to make an insurance claim and to claim compensation for damage caused by the storm. With this sudden load, the supporting systems are often overwhelmed, and communication lines get congested with claim requests and questions.

What do I do if my home's been flooded or damaged in a storm? How to make an insurance claim? What do I need to submit for an insurance claim? Who will assess the damage? When should I make an insurance claim?...

In times of crisis, fraudulent requests also surge and which in turn forces insurance companies to apply tedious processes for claim evaluation. Multiple layers and checks to discriminate between fraud and genuine claims are time-consuming for both parties which usually creates frustration among genuine victims and loyal customers.

1.2 Avoid the chaos with integrated cognitive technology

A chatbot can play a critical role in helping insurance companies to accelerate the process of claim evaluation checks and quickly gather information about storm damage and offering smoother user experience.

IBM Watson Assistant helps you build, train, and deploy conversational interactions that takes place as a first step in claiming a storm damage, assisting the victim about the process as well as validating the data to filter fraudulent claims to a certain degree without frustrating the victim. With IBM Cloud Pak for Integration you can elevate your chatbot experience from intelligent conversational interactions to real, cognitive system interactions by integrating with multiple applications. IBM Cloud Pak for Integration allows you to orchestrate your integration flows;

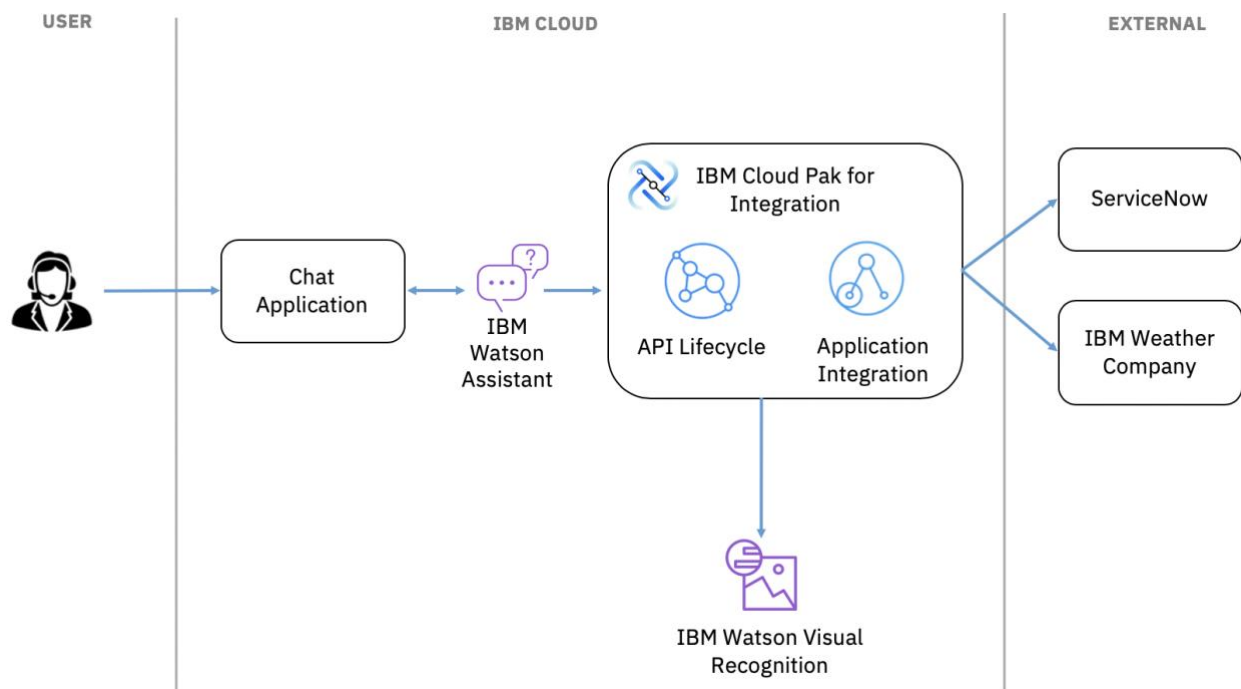
- to verify that there was a storm on the date and location provided by the victim with IBM's Weather service
- to create an online insurance claim
- to identify the items claimed for by analyzing the photographs uploaded by the victim using IBM Watson Visual Recognition and using this information to provide an estimate of value of the damage

1.3 The integrated solution architecture

An insurance company that specializes in 'Storm insurance' wants to streamline its claims process. They have a chatbot that verifies that there was a storm on the date and location provided by the victim and provides an initial estimate for property damage, by analyzing images uploaded by the customer and raises a provisional claim ticket for follow-up by a specialist. This will dramatically increase the efficiency of the specialist, by eliminating obviously fraudulent claims, gathering key information, and providing an initial claim estimate.

This solution shows how IBM Watson Assistant on IBM cloud can be used together with IBM Cloud Pak for Integration to create an engaging chatbot experience implemented in Node.js which allows users to make online insurance claims and also upload photographs of the items for which they wish to claim.

Three separate APIs which are independently deployable and scalable are brought together to support chatbot application. These APIs also leverages IBM Watson Visual Recognition and IBM's Weather service using built-in connectors.



1. The user visits the insurance company's site with the storm insurance chatbot application to raise a storm claim.
2. The chat application calls IBM Watson Assistant hosted in IBM Cloud.
3. IBM Watson Assistant uses natural language understanding and machine learning to extract entities and intents of the user question.
4. IBM Watson Assistant collects address and date information from the user to validate the eligibility to raise a storm claim.
5. Watson Assistant invokes the API hosted on IBM App Connect for claim validation.
6. IBM App Connect uses IBM Weather data connector to determine if the path of storm from historical data actually crosses home location and severity would warrant such damage. Based on outcome, the claim is rejected or accepted.
7. If the claim is accepted IBM App Connect uses ServiceNow connector to create a provisional claim and returns back the claim details along with validation message.
8. IBM Watson Assistant replies to the user the validation message and asks the user to upload the photograph of the damage for claim assessment. The chat application displays the chat answer to the user.
9. The user uploads the photograph of the damaged object.
10. IBM Watson Assistant application invokes the API hosted on IBM App Connect for damage assessment.
11. IBM App Connect feeds the photograph into IBM Watson Visual Recognition running in IBM Cloud.
12. IBM Watson Visual Recognition analyzes the photograph and determines the object category and maximum amount user can claim for the item.
13. IBM App Connect returns the analyses result.

IBM Watson Assistant replies to the user the analyses result along with the provisional claim details. The chat application displays the answer to the user.

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2 Plan of Work

This solution has a number of moving parts, so we'll tackle them in a logical sequence. If you're familiar with how to do any of the steps, feel free to do them in the way you prefer or are familiar with.

If you're familiar with any of the tools we're using, feel free to embellish or change the lab –as long as you make sure it all 'hangs together'. You can build the 'extension' version if you're familiar with the tooling.

We recommend you make one journey through the lab as we describe it and then go back and explore if you have time. You can make changes and redeploy new versions afterwards.

We'll be doing the following:

- **Set up our integration systems and services endpoints**

We are going to integrate with SaaS systems and IBM Watson AI services. We will need to have these endpoints created and create credentials for so that we can integrate to them securely in the lab.

In the 'real world' systems like IBM's Weather service or ServiceNow will be running at customers already – this is a lab task.

- **Create an integration flows for our 'Storm Claim APIs'**

This will create our three separate APIs which are independently deployable and scalable and the integrations to all of our endpoints. We will create an 'integration flow' which takes the API request, calls the endpoints in the correct order, maps the data between them and sends an appropriate API response back to the caller. These APIs will leverage IBM Watson Visual Recognition and IBM's Weather service using built-in connectors.

- **Deploy the API to the Cloud Pak for Integration (CP4I) runtime**

Once we have developed our flows and tested it, we will deploy it to CP4I running on OpenShift. This will create a Kubernetes container/pod deployment with highly available replicas which we can then scale up and down as we wish.

- **Manage the API, applying security and rate-plans and publish it to our Self-Service Portal**

We will create an API which will route across the three 'Storm Claim APIs' and secure it using API keys and rate-limited API plans. This way our consumers can discover it, get the information they need to use it and preferably sign up for access in a self-service and secure manner.

- **Set up our Watson Assistant and Node.js application**

We are going to implement a chatbot using Watson Assistant and use a Node.js client application to embed the chatbot.

- **Create an ‘application’ to consume our API. We’ll use the portal to discover the API and self-service register it.**

We will register to our Watson Assistant chatbot embedded Node.js application to API server. Registering Applications allows us to assign API keys and also to monitor the calls made to the API by that application.

3 List of things we will need:

As this is an integration lab, we will need systems and services to integrate to:

3.1 List of Systems and Services Endpoints

Service Now:

Service is an IT services management (ITSM) system provided as a SaaS i.e. it is hosted in the cloud.

In this scenario, we as a Storm Inc insurance company will use Service Now to log an insurance claim incident.

Service allows you to create developer instances/accounts free of charge. You will need a developer account to run this lab so instructions as to how to create them are included and you can set an account up as part of the lab (<https://developer.servicenow.com/>). If you already have a developer Service Now account, you can use that.

IBM Weather Data:

IBM Weather Data provides historical, current and future information about Weather parameters of a particular geo location. You could connect to Weather Data using the API Key.

A free 30-day API key can be available here.

<https://epwt-www.mybluemix.net/software/support/trial/cst/programwebsite.wss?siteId=443&tabId=774&w=1>

IBM Watson Visual Recognition:

IBM Watson is available on the IBM Cloud and also in the IBM Cloud Pak for Data. IBM Cloud lets you create non-expiring free instances of the IBM Watson services that you can use for this lab (or anything else)

The IBM Watson Image Recognition service lets you send a picture (.jpg, .png) to Watson and returns a list of things that Watson can 'see'.

In this use case we are using Visual Recognition to recognize the images of weather damaged objects, assess the maximum claim possible for the type of the object. You can train your Visual Recognition model with your set of images and classifiers.

IBM Watson Assistant:

The IBM Watson Assistant service lets you build, train, and deploy conversational interactions into any application, device, or channel. Watson Assistant can be deployed in any cloud or on-premises environment – meaning smarter AI is finally available wherever you need it.

In this use case we are using Watson Assistant to build a chatbot dialog that takes place as a first step in claiming a storm damage, assisting the victim about the process as well as validating the data to filter fraudulent claims to a certain degree without frustrating the victim.

Source code is hosted on our Github repository.

Node.js Client Application:

This project deploys a react application that connects to a Watson API. It currently runs from localhost. The application deals with text and image responses only from the Watson assistant.

Source code is hosted on our Github repository.

Some extra things we need for this lab:

GitHub

We've hosted our API flow definitions, our test scripts and some other things you might need on a public github repository, so they're easy to download to your lab environment.

The repo is here: <https://github.com/IBM/cp4i-demos>

In this way, if you want to redo this lab in your own environment you can use the assets that you need.

Also, if you are using one-click install API Connect and App Connect assets will be available to you via Asset Repository.

Asset repository

Upload

Browse Assets

Remotes

Access Control

Search Assets

Search for assets, tags, types or owners...



Designer API Implementation

[Tickets_StormIncWeatherAPI](#)



Tags: No tags added.

Owner: IBM-CP4I-demos-git

Modified: 15 days ago

Designer API Implementation

[IncidentSummary](#)



Tags: No tags added.

Owner: IBM-CP4I-demos-git

Modified: 15 days ago

Open API specification (v2)

[chatbot](#)

Version: 0.0.1

Tags: No tags added.

Owner: IBM-CP4I-demos-git

Modified: 15 days ago

Designer API Impl

[classifyImagesV4](#)



Tags: No tags add

Owner: IBM-CP4I-

Modified: 15 days

4 Getting Started – Setting up the endpoints

Before we can build our API integration, we need to set up the endpoints that we need will integrate to.

This lab doesn't use emulators, shims or stubs – we're going to connect to real endpoints in the real-world cloud! You can use these endpoints after this lab to explore more with CP4I and to do other demos – they're your endpoints to 'take home and keep'!

All of these endpoints have been deliberately chosen for this lab as they have free versions that we can use – don't worry, you won't need a credit card to create them.

We will set up endpoints to connect to:

- IBM Watson Image Recognition
- ServiceNow
- IBM Weather Company

(If you already have Watson Services and a ServiceNow Developer Account e.g., you can skip this section)

Later, we will connect to the following endpoints.

4.1 Setting up the Service Now

To get started you will require admin level access to your ServiceNow account. If you want to create a free ServiceNow account to test out App Connect, you'll have to [register](https://developer.servicenow.com/) (https://developer.servicenow.com/) for a ServiceNow Account. Once your account is activated, you can request a ServiceNow personal developer instance.

Once your account is activated, you can request a ServiceNow free developer instance.


servicenow | Developer Learn ▾ Reference ▾ Guides ▾ Connect ▾

Request Instance UC ▾

Welcome, Ulas!
Consider this your home base for your Developer Program experience.

Your Instance

Get a free developer instance




Rapidly test, build, and deploy applications on the Now Platform® with a personal developer instance.


[Request an Instance](#)


or, restore an instance.

BUILD Step 1 of 2
First things first... Request an instance.
You need an instance to start building on the Now Platform®. You can request an instance of ServiceNow free of charge.

[Request an Instance](#)

EVENT
CreatorCon 2020
 [Watch Now →](#)

PODCAST
Break Point Podcast
 [Listen Now →](#)

WEBINAR
Discover Paris Platform features
 [Watch Now →](#)

Click on 'Request an Instance' and select the location of your instance.


Request an Instance ✕


Request an Instance


Restore an Instance

Choose your release

Latest Release


Paris
[Release Notes ↗](#)





Orlando
[Release Notes ↗](#)



NO INSTANCES AVAILABLE
New York
[Release Notes ↗](#)

[Cancel](#) [Request](#)

Click on 'Request'. This will only take a few seconds.

Learn ▾ Reference ▾ Guides ▾ Connect ▾

 [Watch Now →](#)  [Listen Now →](#) 

 We are processing your request. This will only take a few seconds. ✕

Please note your instance URL and credentials. You will need these later when we configure the ServiceNow connector.

Your instance is ready!



Your instance URL: [https://dev\[redacted\]-now.com](https://dev[redacted]-now.com)

Username: admin

Current password: v[redacted]

Keep your new instance active by developing on the instance or logging into the Developer Site. If your instance is inactive for 10 days, it will be reclaimed and released for other developers to use.

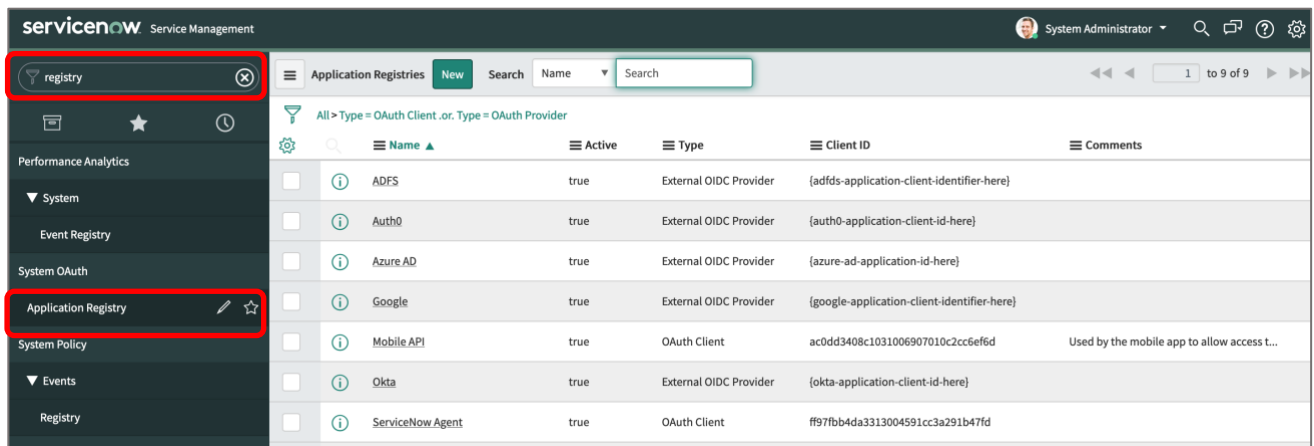
[Return to the Developer Site](#)

[Open Instance](#)

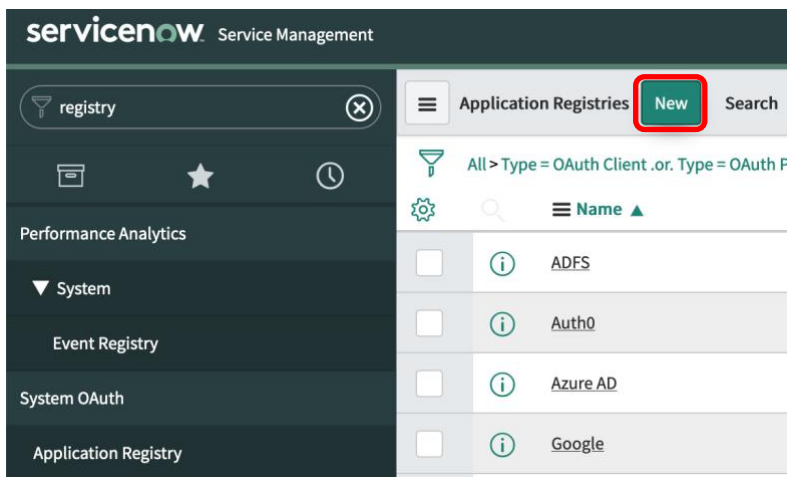
Click on 'Open Instance'

The screenshot shows the ServiceNow Service Management interface. The top navigation bar includes the 'servicenow Service Management' logo and a user profile for 'System Administrator'. Below the navigation bar is a 'Filter navigator' search bar and a 'System Administration' dropdown menu. The left sidebar lists various navigation items under 'Self-Service', including 'Homepage', 'Business Applications', 'Dashboards', 'Service Catalog', 'Knowledge', 'Visual Task Boards', 'Connect Chat', 'Incidents', 'Watched Incidents', 'My Requests', 'Requested Items', and 'Watched Requested Items'. The main content area displays a 'System Administration' dashboard. At the top of this dashboard is a banner that says 'Make your life easier, create a dashboard!' with a 'Create dashboard version' button. Below the banner is a grid of nine tiles, each representing a different system administration function: 'Guided Setup' (Guided Setup tools to help you set up ServiceNow), 'System Security' (Configure and monitor Instance security settings), 'Business Logic' (Manage workflow and behavior of applications), 'Create and Deploy' (Create, modify and deploy applications to your instances), 'Data Management' (Manage the way data is stored and displayed), 'Diagnostics' (Performance, development and debugging tools), 'Email' (Customize behavior of inbound and outbound email), 'Homepages' (Configure homepages for Service Desk and Self Service users), and 'Integration' (Integrate with 3rd-party systems and data sources).

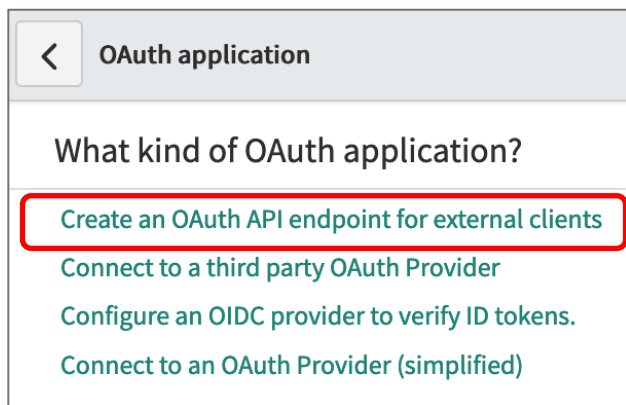
Search for Registry in 'Filter Navigator' search bar and then select 'Application Registry'.



We will create an OAuth API endpoint for external clients. Click on 'New'.



Select 'Create an OAuth API endpoint for external clients'.



In the config panel give it a unique name and hit submit.

Application Registries
New record

OAuth client application details.

- Name: A unique name.
- Client ID: Client ID automatically generated by ServiceNow OAuth server.
- Client Secret: Client secret for the OAuth application. Leave it empty for auto-generation.
- Refresh Token Lifespan: Time in seconds the Refresh Token will be valid.
- Access Token Lifespan: Time in seconds the Access Token will be valid.
- Redirect URL: The redirect URLs authorization server redirect to. They must be absolute URLs and they are comma separated.

[More Info](#)

* Name

* Client ID

Client Secret

Leave Client Secret blank to automatically generate a string

Application

Accessible from

Active ☒

* Refresh Token Lifespan

* Access Token Lifespan

Redirect URL

Logo URL

Comments

Submit

This will create a new OAuth endpoint with Client ID and Client Secret generated. You can view these details by clicking and viewing the new endpoint. You will be providing Client ID and Client Secret

* Name

* Client ID

Client Secret

Toggle Password Visibility

Great! We've now a running ServiceNow instance with an Oauth app/endpoint registered for it which represents our App Connect!

Please keep in mind that this is a free developer instance, it will be reclaimed in 10 Days and also to support the developer program, instances hibernate when they are idle. But you can easily restore instance from the reclaimed instance's backup. Similarly, you can easily wake up a hibernating instance. (Learn more;

<https://developer.servicenow.com/dev.do#!/guides/orlando/now-platform/pdi-guide/understanding-pdis>)

You'll be later asked for the following details about your ServiceNow instance and Oauth endpoint to integrate with the service. Please keep them safe.

- The URL of your ServiceNow instance, in the following form: <https://<servicenow-id>.service-now.com/>
- The username and password that you use to log in to the instance.
- ClientID and Secret of your ServiceNow application (Oauth endpoint).

4.2 Setting up the IBM Watson Services

You will need an IBM Cloud account to do this. You can use your existing one if you wish or you can set up a new one.

IBM cloud access is free and can be provisioned instantly.

Once you have an account, all of the Watson services have ‘lite’ plans which allow you to use them for free – the only restriction is the number of calls you can make per month. Don’t worry, we won’t be getting anywhere near that number – and you won’t get charged if you hit the limit, it will just stop working until the next month.

Logging in to IBM Cloud

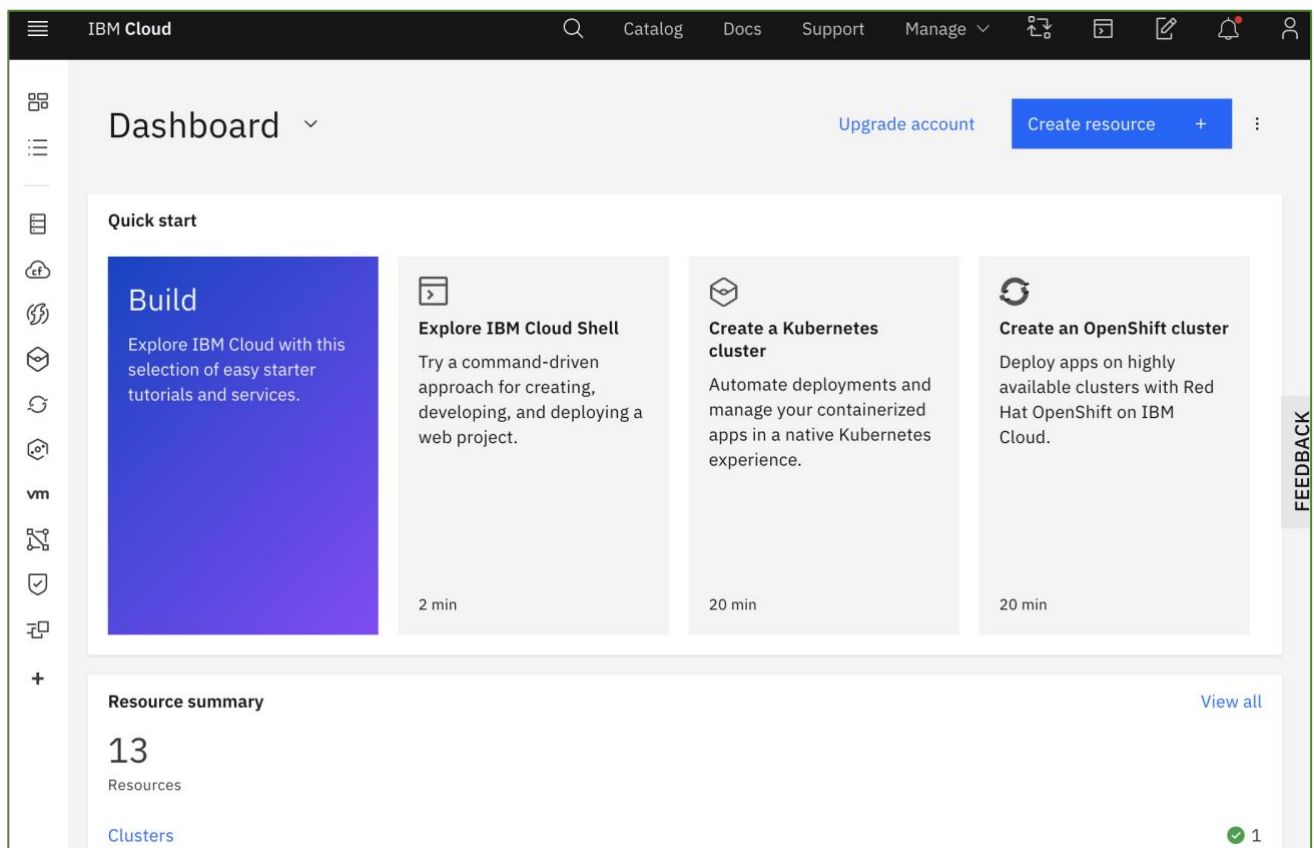
The IBM Cloud can be accessed at <https://cloud.ibm.com>.

If you’ve not been to the IBM cloud recently, the UI has just had a makeover, so yes, you are in the right place if you don’t recognize it.

If you don’t have an IBM ID then click ‘Create an account’ – all you need is an email, you don’t need a credit card.

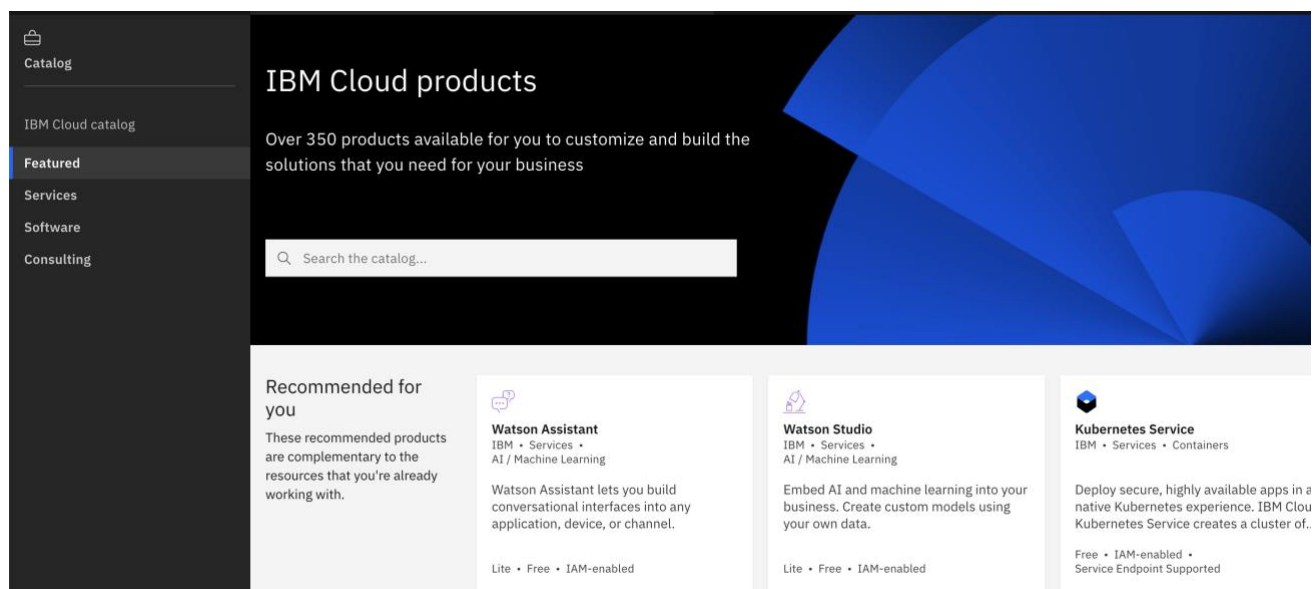
When you have an IBM ID, sign in at <https://cloud.ibm.com> (Depending on your company, e.g. if you’re an IBMer, you may go through a Single Sign-on process).

Once you’re in, you’ll be presented with the cloud dashboard showing which services you have provisioned:



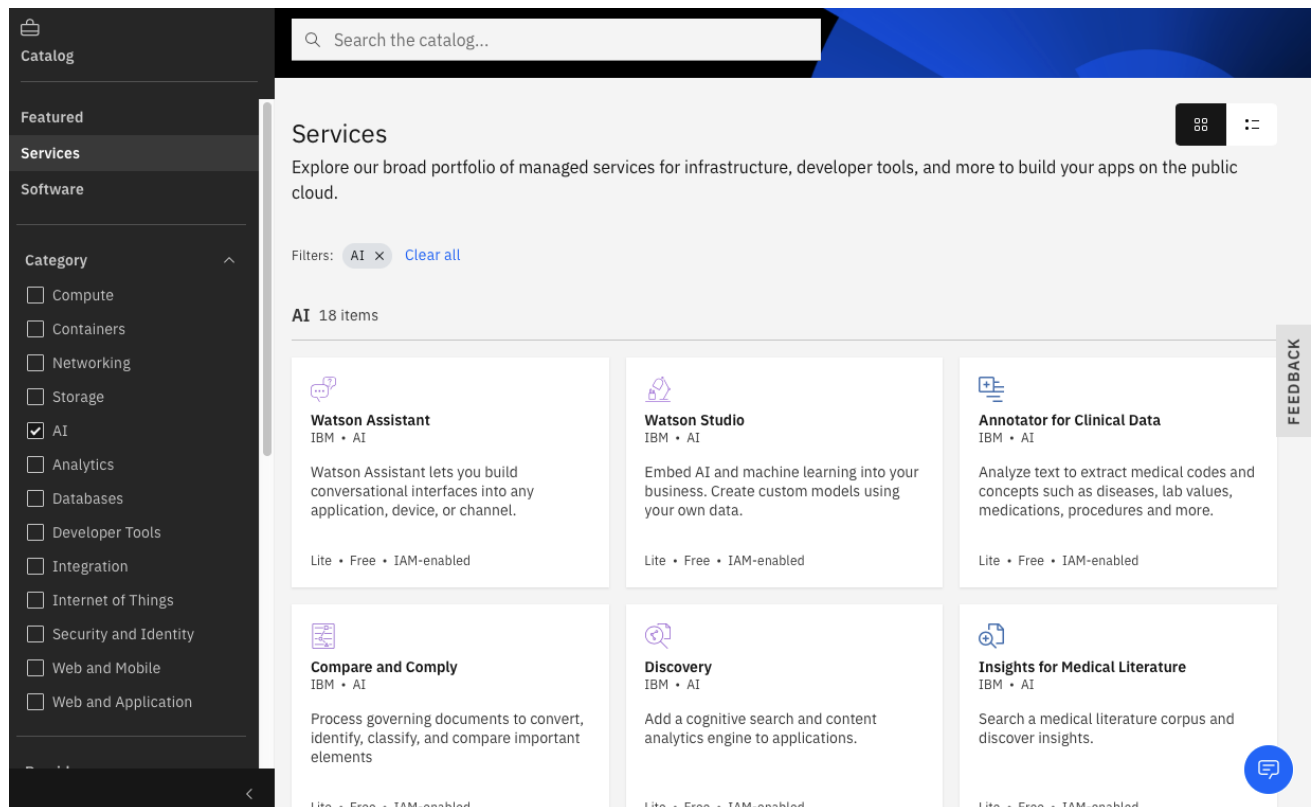
4.2.1 Creating your free Lite-Plan IBM Watson Visual Recognition

On the IBM Cloud Dashboard, click 'Catalog'.

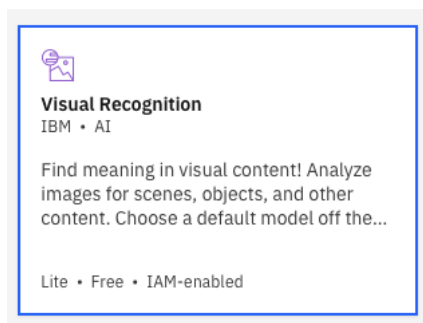


You'll see a list of services (if not, click on 'services').

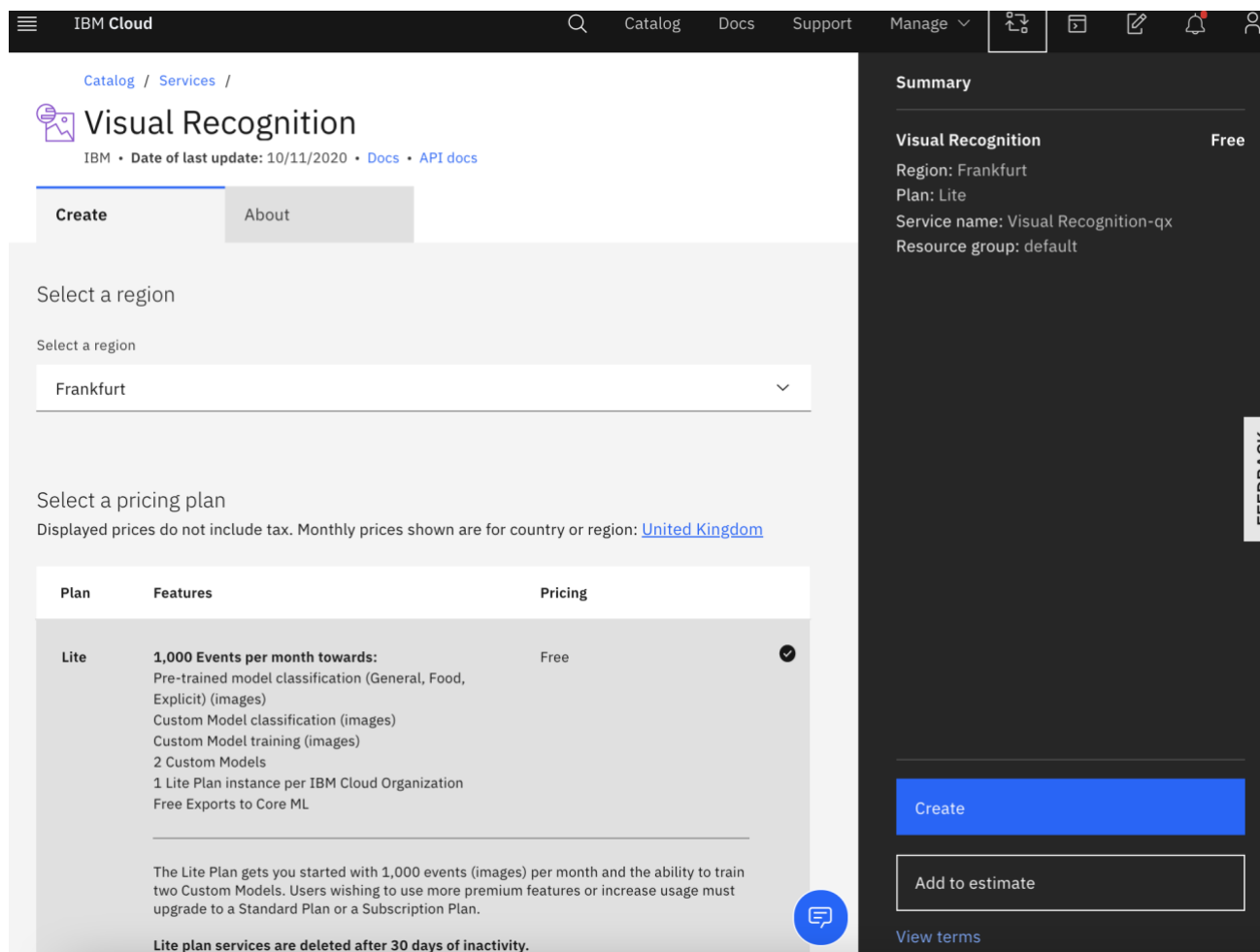
Check the 'AI' filter checkbox on the left to filter for Watson services. (You can also search for them by name)



Scroll down and click on the 'Visual Recognition' tile.



Inside, you'll be able create a lite plan (free) instance as shown in the screenshot below.



IBM Cloud

Catalog / Services /

Visual Recognition

IBM • Date of last update: 10/11/2020 • [Docs](#) • [API docs](#)

Create About

Select a region

Select a region

Frankfurt

Select a pricing plan

Displayed prices do not include tax. Monthly prices shown are for country or region: [United Kingdom](#)

Plan	Features	Pricing
Lite	1,000 Events per month towards: Pre-trained model classification (General, Food, Explicit) (images) Custom Model classification (images) Custom Model training (images) 2 Custom Models 1 Lite Plan instance per IBM Cloud Organization Free Exports to Core ML	Free

The Lite Plan gets you started with 1,000 events (images) per month and the ability to train two Custom Models. Users wishing to use more premium features or increase usage must upgrade to a Standard Plan or a Subscription Plan.

Lite plan services are deleted after 30 days of inactivity.

Create

Add to estimate

[View terms](#)

FEEDBACK

Select the free 'lite' plan and provision the service.

You can change the service name to something more memorable if you wish.

Once you create the service, you will be redirected to 'Getting Started' page of your service where you can learn the basics and go through tutorials.

Resource list / Visual Recognition-qx Active Add tags Details Actions...

Manage

- Getting started
- Service credentials
- Plan
- Connections

Show credentials

Curl .NET Go More

Getting started with Visual Recognition

Last Updated: 2020-10-22

This tutorial guides you through simple image recognition with IBM Watson™ Visual Recognition. You use the built-in models to analyze the images.

Tip: To work in a graphical interface where you can create your own custom models, use [Watson Studio](#), part of Cloud Pak for Data as a Service, and follow the [video](#).

Before you begin

- Make sure that you have the `curl` command.
 - Test whether `curl` is installed. Run the following command on the command line. If the output lists the `curl` version with SSL support, you are set for the tutorial.

```
$ curl -V
```
- If necessary, install a version with SSL enabled from [curl.haxx.se](#). Add the location of the file to your PATH environment variables if you want to run `curl` from any command-line location.

Or, you'll be able to access the service later from your cloud dashboard (to get to the cloud Dashboard,

click the 'hamburger' menu at the top left of the screen and select 'Dashboard')

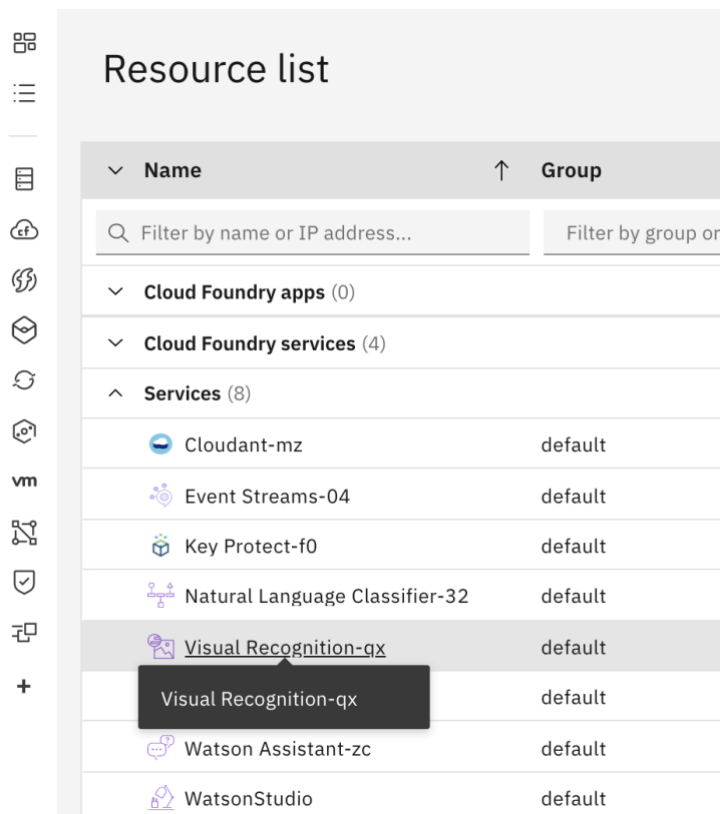
IBM Cloud

Dashboard

Resource List

- Classic Infrastructure
- Cloud Foundry
- Functions
- Kubernetes
- OpenShift

Look under 'Services' and you'll find your newly created service.



Click on your new service and you'll see the 'Manage' tab:

IBM Cloud

Visual Recognition-qx Active [Add tags](#) [Details](#) [Actions...](#)

[Resource list](#) /

Manage

- Getting started
- Service credentials
- Plan**
- Connections

Start by viewing the tutorial

[Getting started tutorial](#)

[API reference](#)

Plan

Lite

[Upgrade](#)

Credentials

[Download](#) [Show credentials](#)

API key:

.....

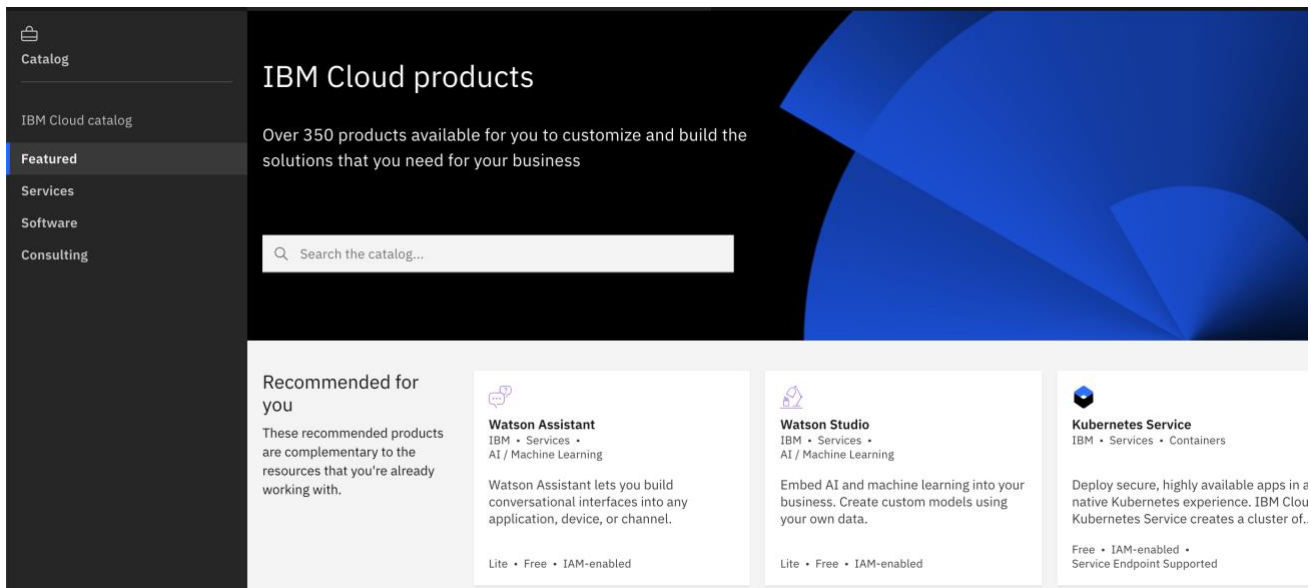
URL:

<https://api.eu-de.visual-recognition.watson.cloud.ibm.com/instances/8afe9e02-1d79-4421-86a1->

The API key and URL are what we are going to need to integrate with the service. You can click 'Show credentials' and copy/paste them somewhere for later use in this lab or you can click 'Download' and they will be downloaded as a text file for you.

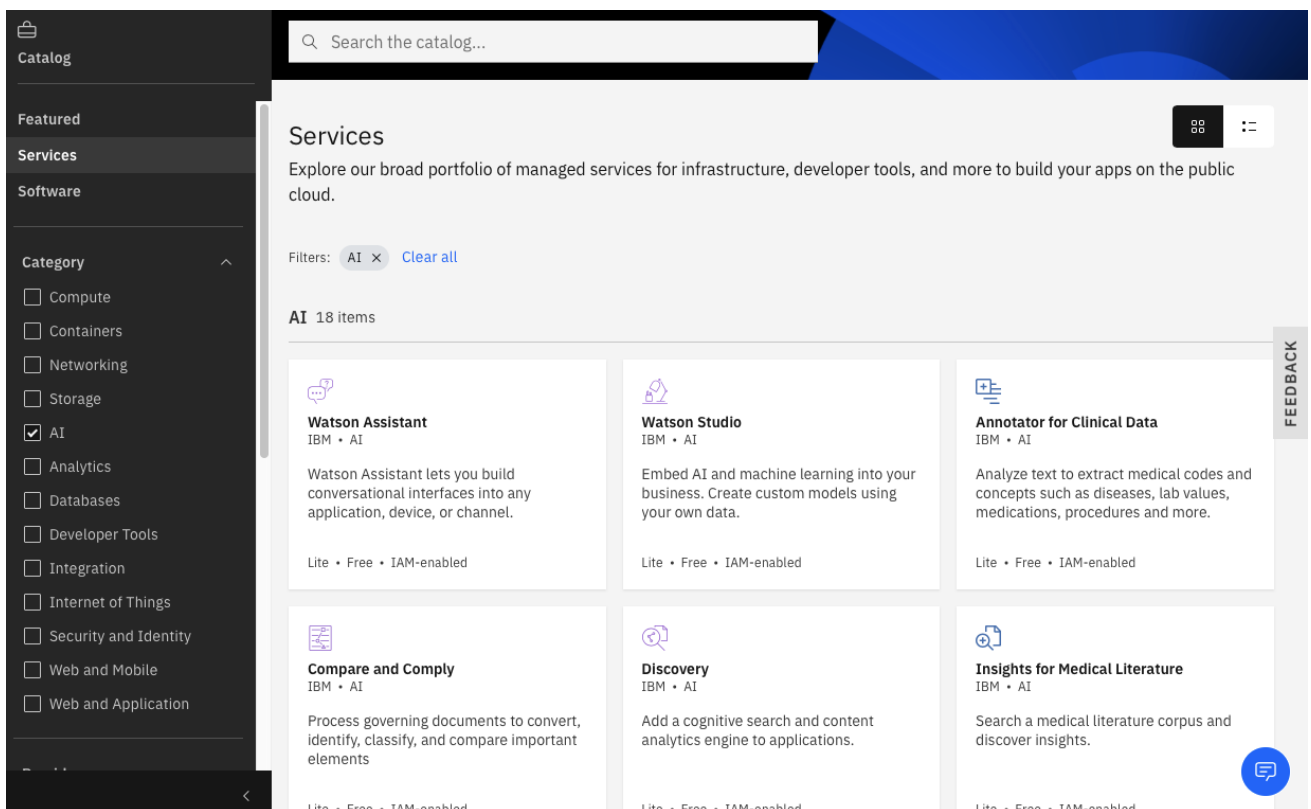
4.2.1 Creating your free Lite-Plan IBM Watson Assistant

On the IBM Cloud Dashboard, click 'Catalog'.

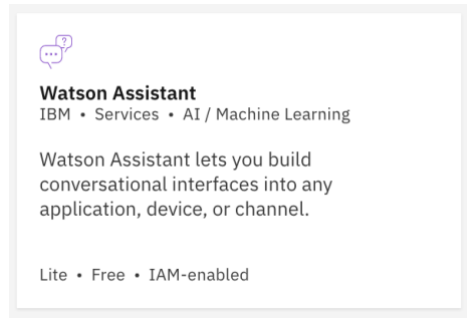


You'll see a list of services (if not, click on 'services').

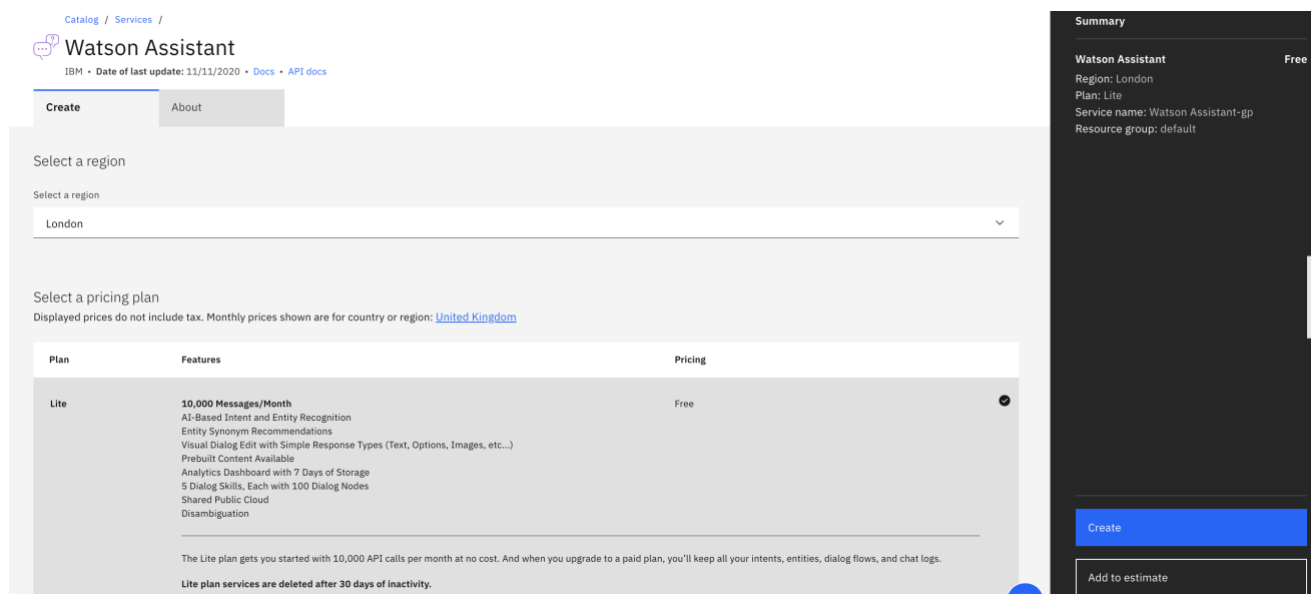
Check the 'AI' filter checkbox on the left to filter for Watson services. (You can also search for them by name)



Scroll down and click on the 'Visual Assistant' tile.

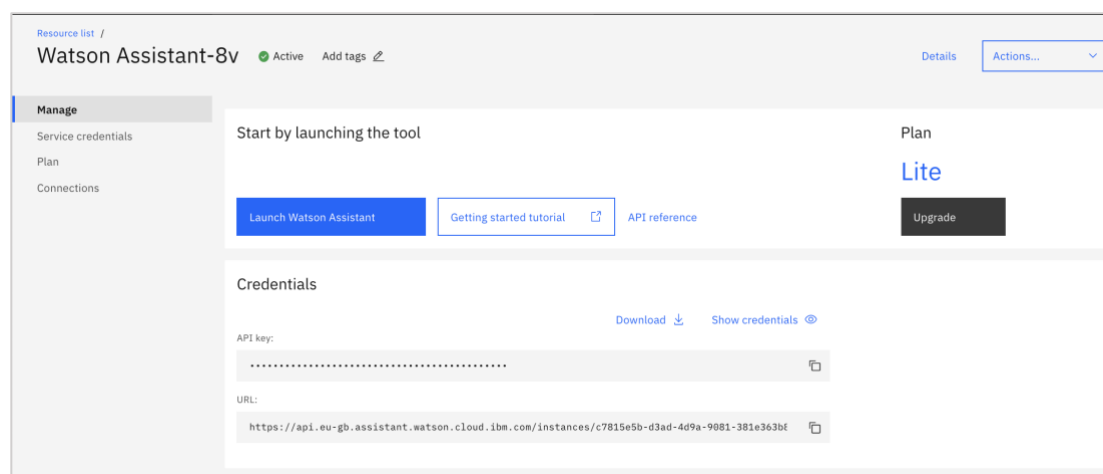


Inside, you'll be able to create a lite plan (free) instance as shown in the screenshot below.



Select the free 'lite' plan and provision the service.

You can change the service name to something more memorable if you wish. Once you create the service, you will be redirected to home page of your service.



Congratulations, you've provisioned a free Watson Assistant service. We will be later using this service to create a chatbot.

4.3 Setting up the Weather Data Connector

You can use App Connect to retrieve details on the following objects:

- Historical Data
- Forecast
- Near Locations
- Locations
- Location by Point
- Current Conditions

To use App Connect to integrate IBM Weather Company Data with your other applications, you need to connect App Connect to your IBM Weather Company Data account. To do that, you'll need to provide the following information:

IBM Weather Company Data API key.

Claim your 30-day free API key from here - <https://epwt-www.mybluemix.net/software/support/trial/cst/programwebsite.wss?siteId=443&tabId=774&w=1>

5 Getting into the Cloud Pak and Building Your Integration

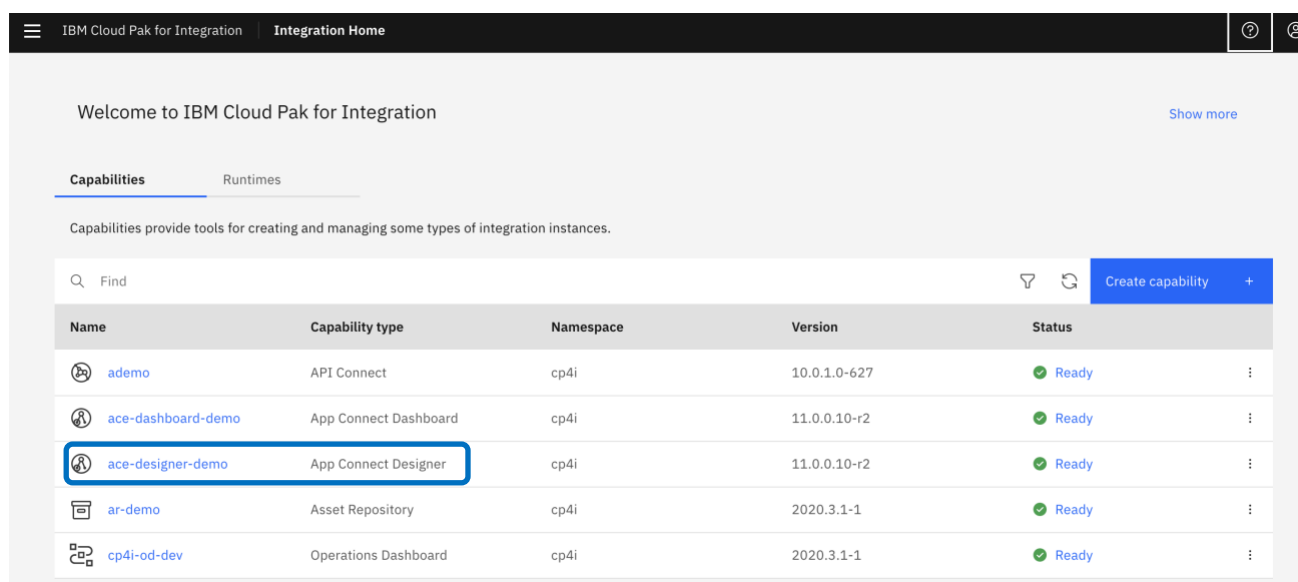
Getting started with Cloud Pak for Integration (CP4I) on Red Hat OpenShift Kubernetes Service (ROKS) on IBM Cloud has never been easier with one-click install. The following guide walks you through how to deploy Cloud Pak Integration on ROKS cluster.

<https://ibm-garage-tsa.github.io/cp4i-demohub/cp4i-on-roks/>

We're going to be using API Connect, App Connect and the Asset Repository for this lab.

5.1 Accessing the Designer Integration Tooling

For either method, menu or instance view, click on 'ace-designer-demo' which is our instance of the designer tooling for this lab.



IBM Cloud Pak for Integration | Integration Home

Welcome to IBM Cloud Pak for Integration [Show more](#)

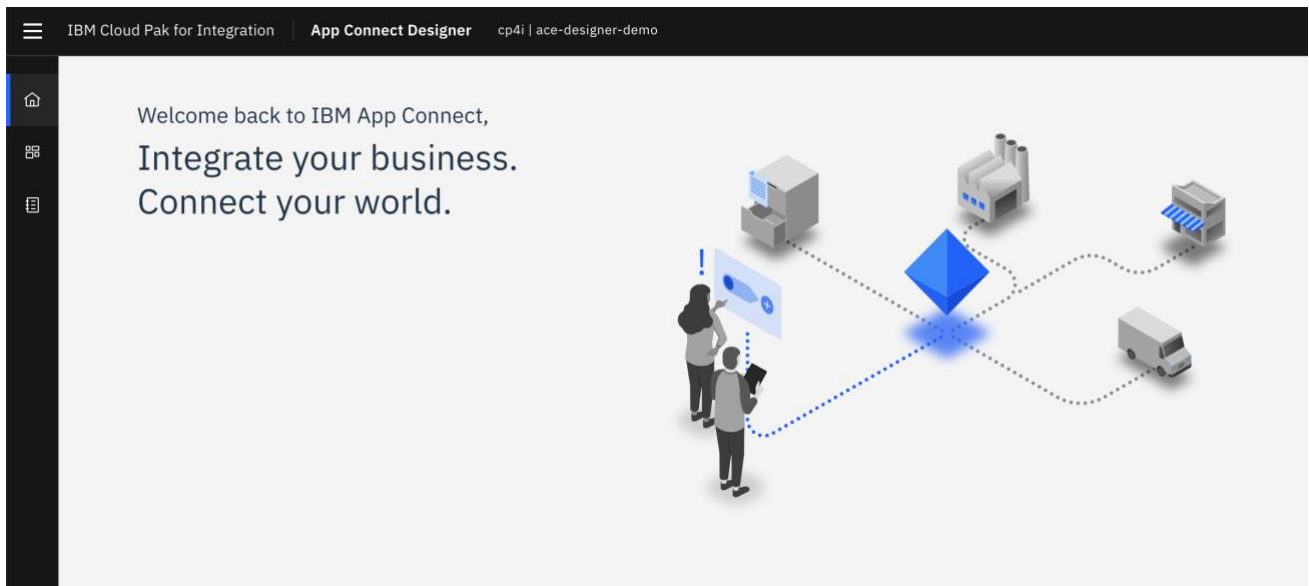
Capabilities | Runtimes

Capabilities provide tools for creating and managing some types of integration instances.

Find Filter Refresh [Create capability](#) +

Name	Capability type	Namespace	Version	Status
ademo	API Connect	cp4i	10.0.1.0-627	Ready
ace-dashboard-demo	App Connect Dashboard	cp4i	11.0.0.10-r2	Ready
ace-designer-demo	App Connect Designer	cp4i	11.0.0.10-r2	Ready
ar-demo	Asset Repository	cp4i	2020.3.1-1	Ready
cp4i-od-dev	Operations Dashboard	cp4i	2020.3.1-1	Ready

You'll arrive at the App Connect Designer here:



This is where we can create all of our API integration flows and also manage our connectivity to our services and endpoints. You can create many integration flows and manage them all here.

5.2 Connecting the tooling to our endpoints

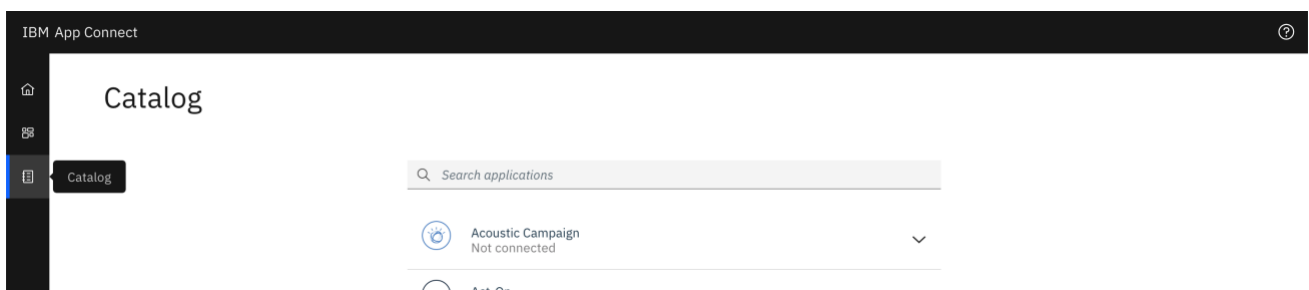
Let's go to the connector catalog:

The connector catalog appears with a list of the cloud pak connectors which are installed locally to this lab. There are many more connectors available although not all of them run 'locally'. Some of the connectors are currently available in the pak locally, all of them are available on the IBM cloud – you can use the ones that run on the IBM cloud directly from ICP4i designer as well – you just need to link to your IBM cloud account, which we won't be doing in this lab.

More connectors are being developed constantly – for a list, look here:

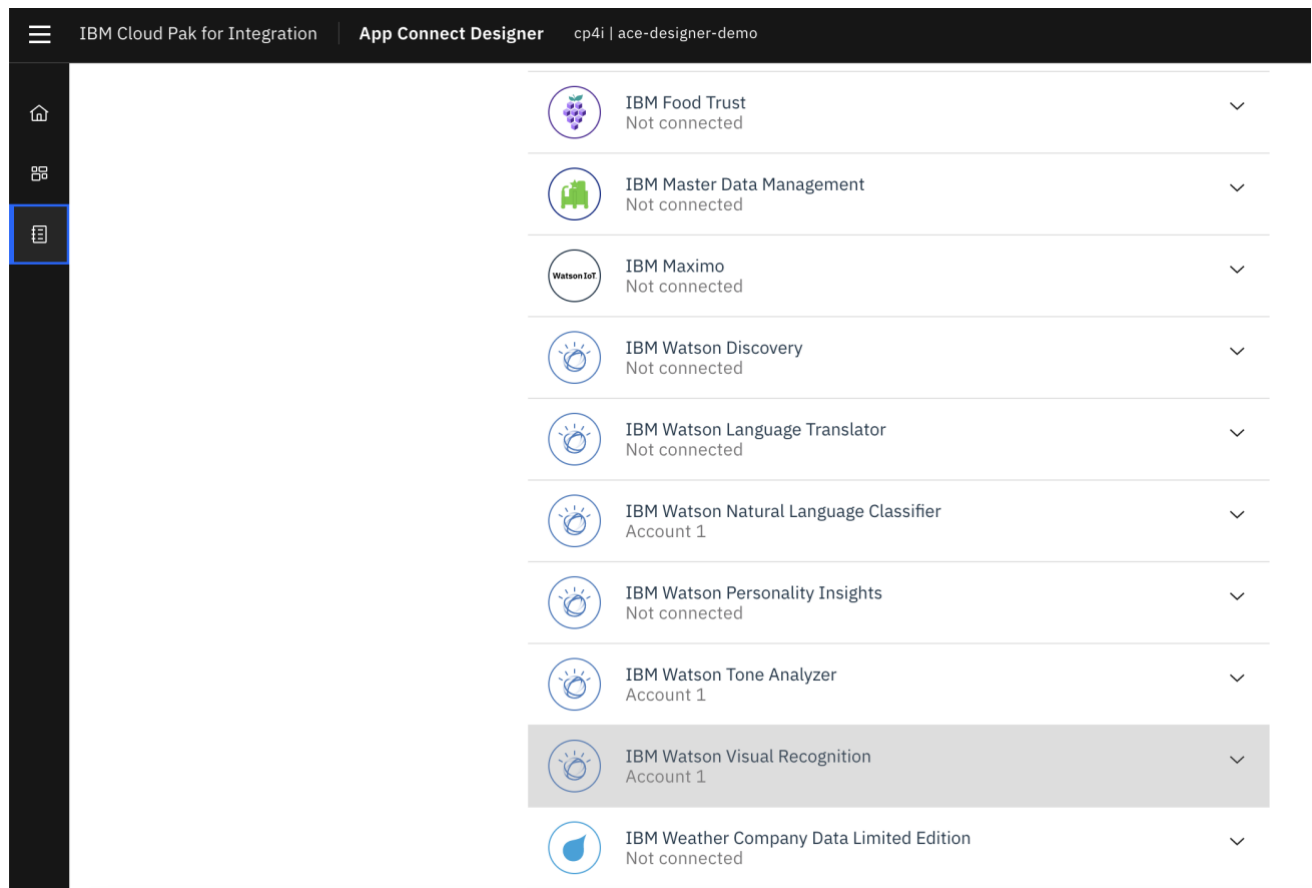
<https://www.ibm.com/cloud/app-connect/connectors/>

You can choose whether you want to run the connectors locally or on the IBM cloud. For this lab, we will run them locally:

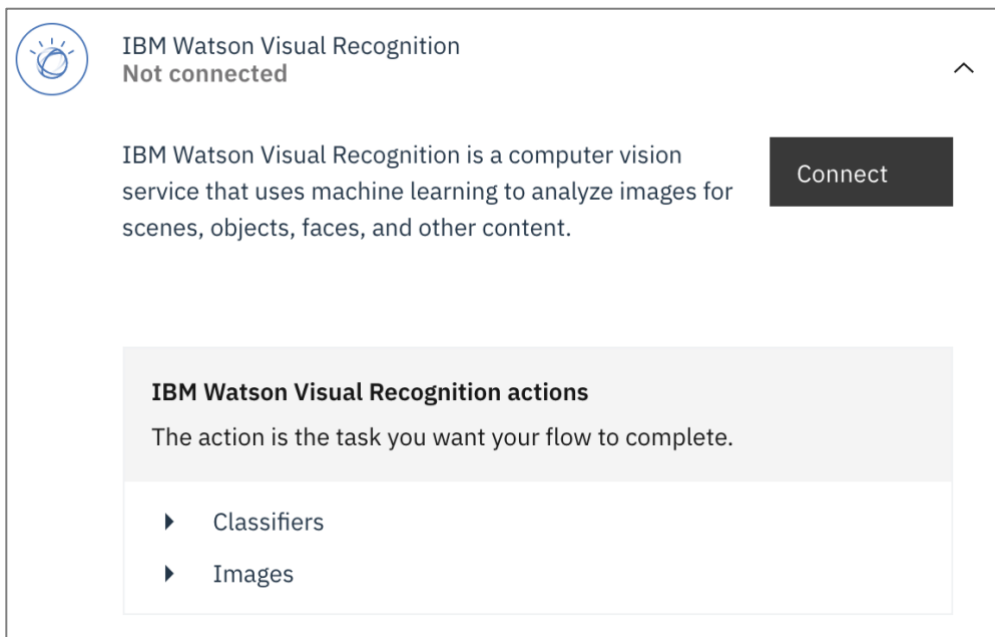


5.2.1 Connect to IBM Watson Visual Recognition

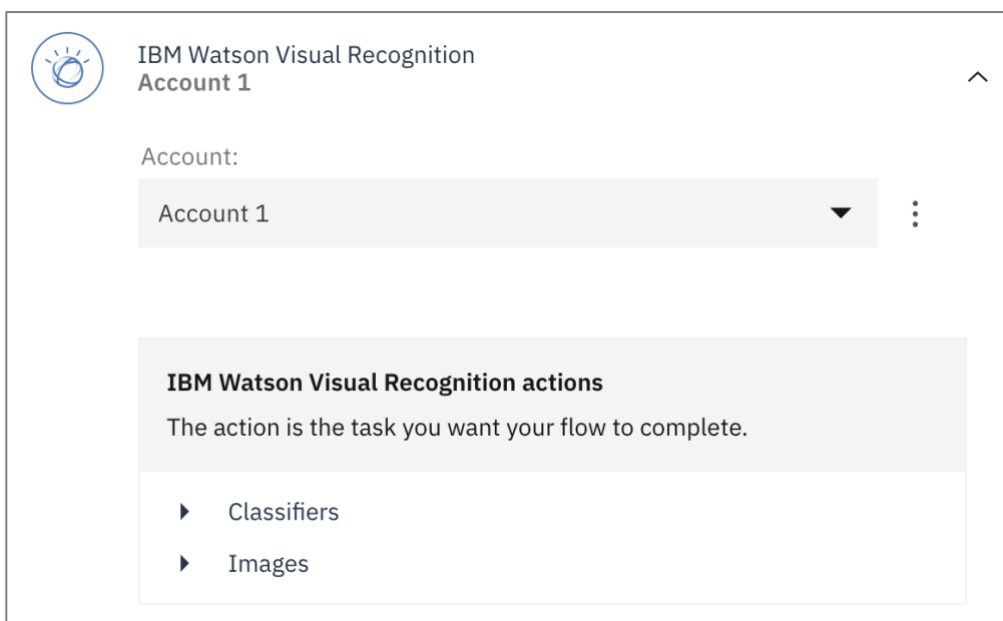
Let's set up our Watson AI endpoint – scroll down until you see the IBM Watson connectors:



Click on 'IBM Watson Visual Recognition'. You'll see that the connector expands and shows you the actions available for the connector. CP4I connectors are smart connectors and are metadata driven – you don't need to know what functions and data are in the endpoint – the connectors will usually show them to you.

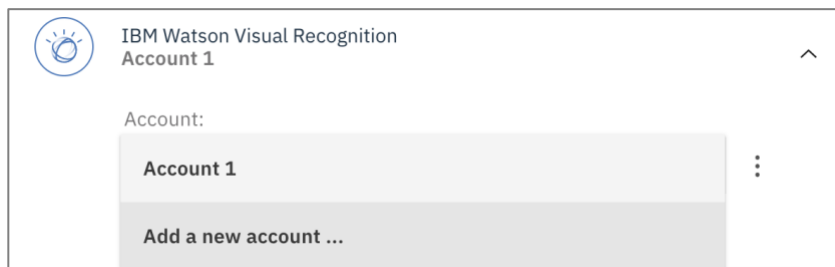


Click on 'Connect'



Note that if you have already an account associated with the connector, you can click on 'Add a new account'. You can have multiple accounts connected to each application or API. You can also rename your App Connect accounts for ease of identification, update the credentials for your accounts when necessary, and remove accounts that you no longer need.

The ability to connect to multiple accounts enables you to create flows that use different accounts to connect to different instances of an application; for example, test and production instances, or instances in two different sites or geographies.



To connect to your Watson Visual Recognition account, you'll need credentials – otherwise anyone could connect to it. The service is protected by an API key. You'll now be asked for the API key that you kept safe from before: Enter it here and click 'connect'.

Connect to IBM Watson Visual Recognition

*Region URL:

The service endpoint is based on the location of the service instance (as shown in the Service credentials for the instance). For example, when Visual Recognition is hosted in Frankfurt, the base URL is <https://api.eu-de.visual-recognition.watson.cloud.ibm.com>

*API key:

👁

Specify the API key of the Watson Visual Recognition service instance.

Disable logging: (optional)

Set to true or false. Set to true if you do not want IBM to use the data in your request to improve the Watson Visual Recognition service for future users. The default is true.

Cancel

Connect

IBM Watson Visual Recognition actions

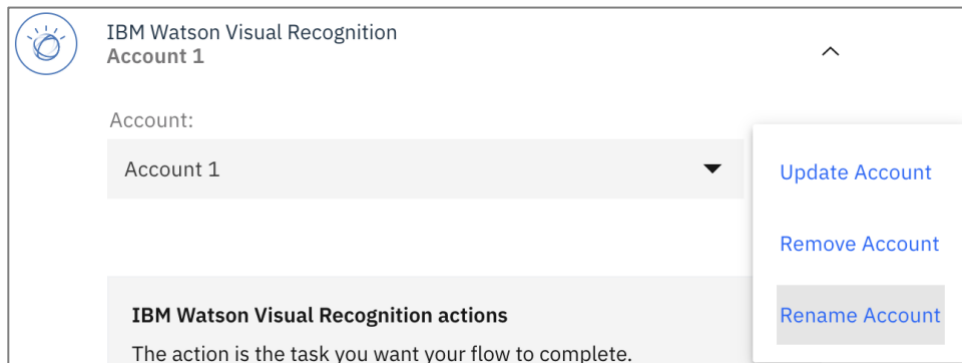
The action is the task you want your flow to complete.

- ▶ Classifiers
- ▶ Images

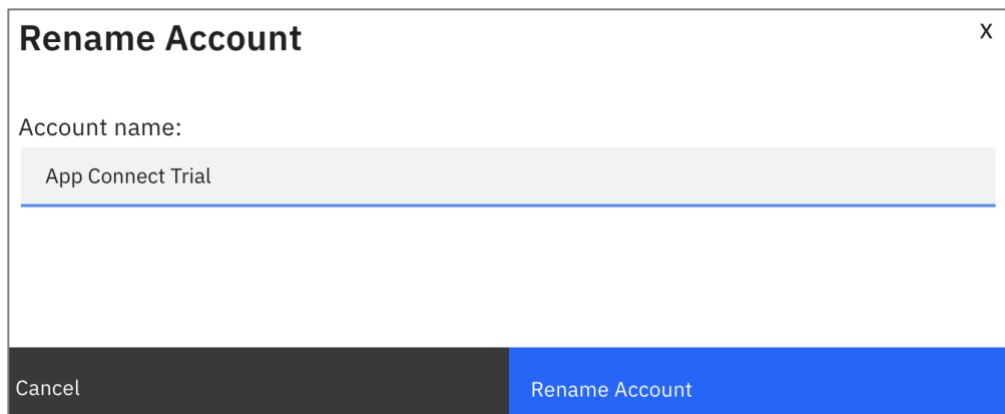
(Hint: you can use the 'eye' button to show the API key to check it's correct)

IMPORTANT: DON'T MOVE ON YET! You'll see 'Account 1' as the name of the account. WE NEED TO RENAME THE ACCOUNT FOR THE LAB TO WORK SEAMLESSLY.

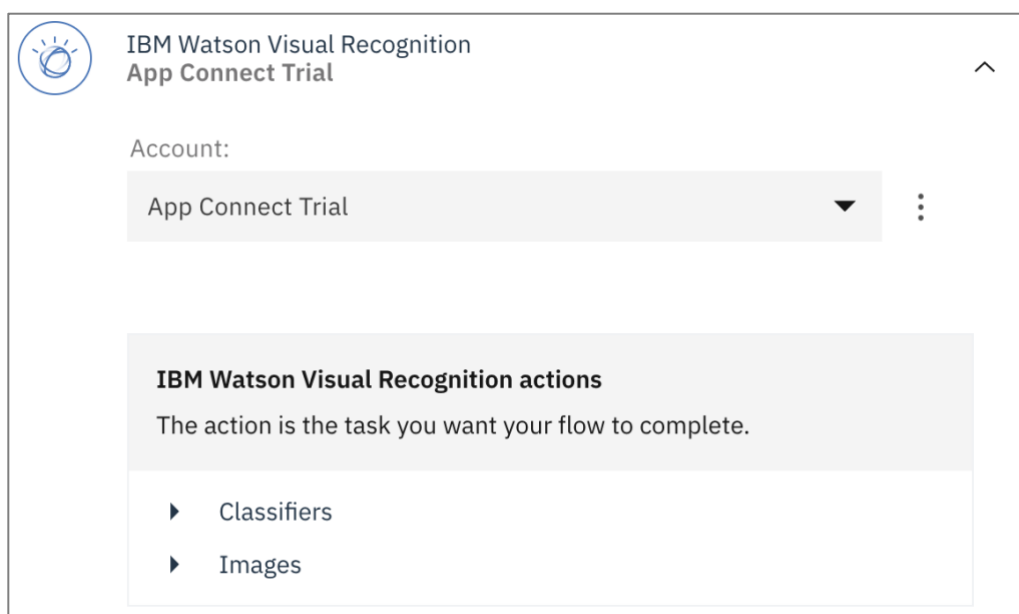
To rename your account, Click the three dots menu and click 'Rename Account'.



In the dialog box, name the account 'App Connect Trial' (exactly as shown – capitals on the first letter of the words, spaces between the words) and click 'Rename Account' as shown below.



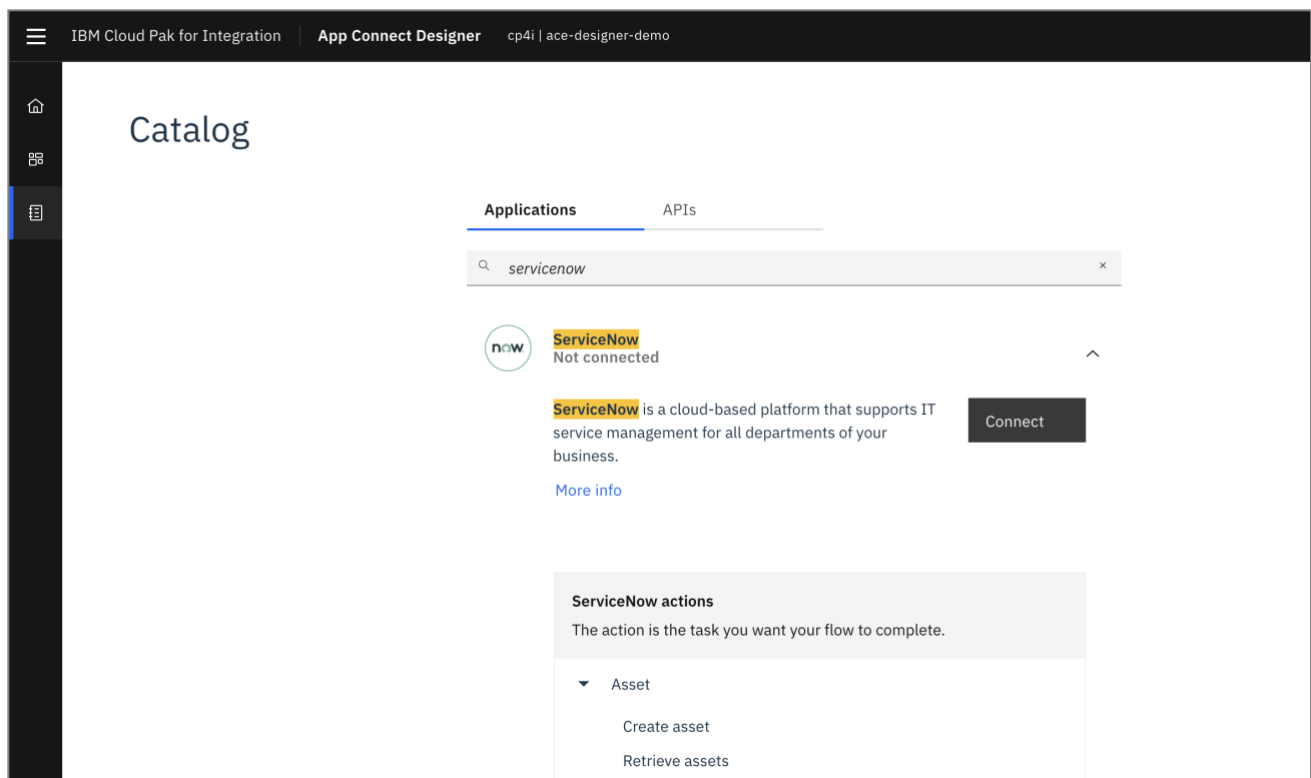
Your connector should now look like this.



5.2.2 Connect to ServiceNow

Let's set up our ServiceNow endpoint – scroll down until you see the ServiceNow connector or you can locate it by filtering via the search box.

Click on 'Connect'.

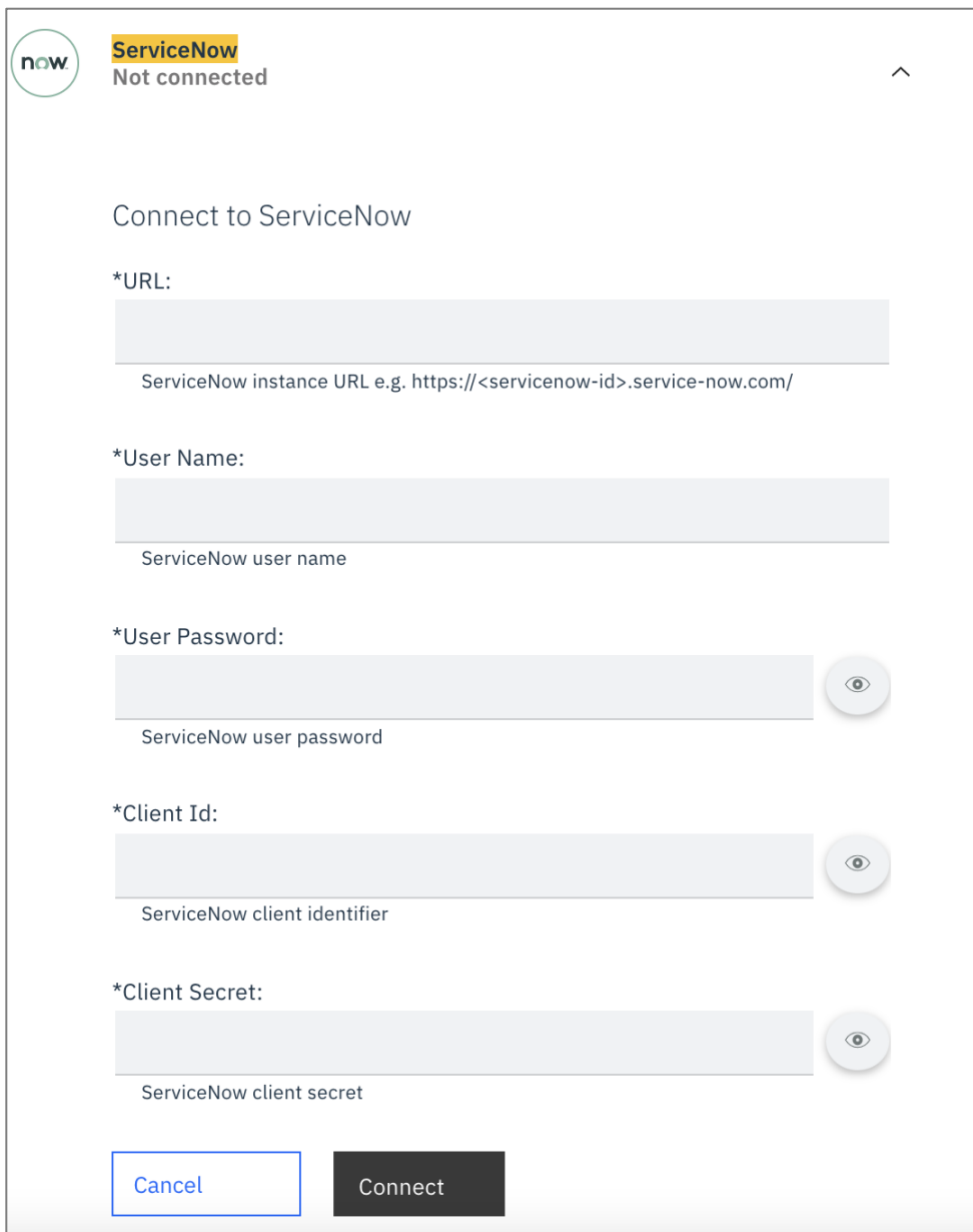


You'll now be asked for the following details that you kept safe from before: Enter it here and click 'Connect'.

The **URL of your ServiceNow instance**, in the following form: `https://<servicenow-id>.service-now.com/`

The **username and password** that you use to log in to the instance.

ClientID and **Secret** of your ServiceNow application (Oauth endpoint).



The image shows a 'ServiceNow' connection dialog box. At the top left is the 'now' logo. To its right, the text 'ServiceNow' is in a yellow box, and 'Not connected' is below it. A small upward arrow is in the top right corner. The main heading is 'Connect to ServiceNow'. Below it are five fields, each with an asterisk and a label: '*URL:', '*User Name:', '*User Password:', '*Client Id:', and '*Client Secret:'. Each field has a light gray input box. Below the URL field is a hint: 'ServiceNow instance URL e.g. https://<servicenow-id>.service-now.com/'. Below the User Name field is a hint: 'ServiceNow user name'. Below the User Password field is a hint: 'ServiceNow user password'. Below the Client Id field is a hint: 'ServiceNow client identifier'. Below the Client Secret field is a hint: 'ServiceNow client secret'. To the right of each password and client secret field is a circular icon with an eye. At the bottom are two buttons: 'Cancel' (outlined in blue) and 'Connect' (solid black).

now **ServiceNow**
Not connected

Connect to ServiceNow

*URL:
ServiceNow instance URL e.g. https://<servicenow-id>.service-now.com/

*User Name:
ServiceNow user name

*User Password:
ServiceNow user password

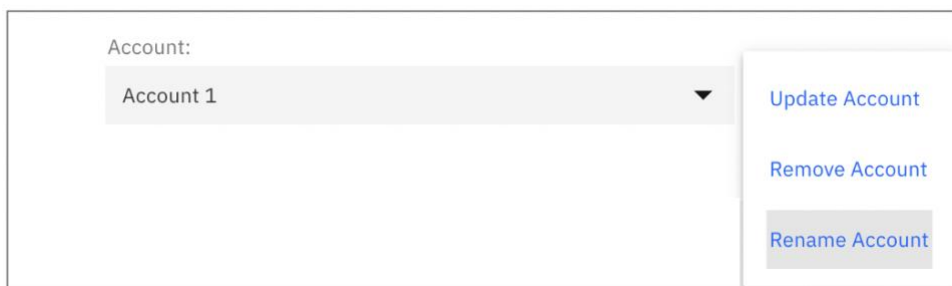
*Client Id:
ServiceNow client identifier

*Client Secret:
ServiceNow client secret

Cancel Connect

Similarly, we want to rename the account for the Lab to work seamlessly.

To rename your account, Click the three dots menu and click 'Rename Account'.

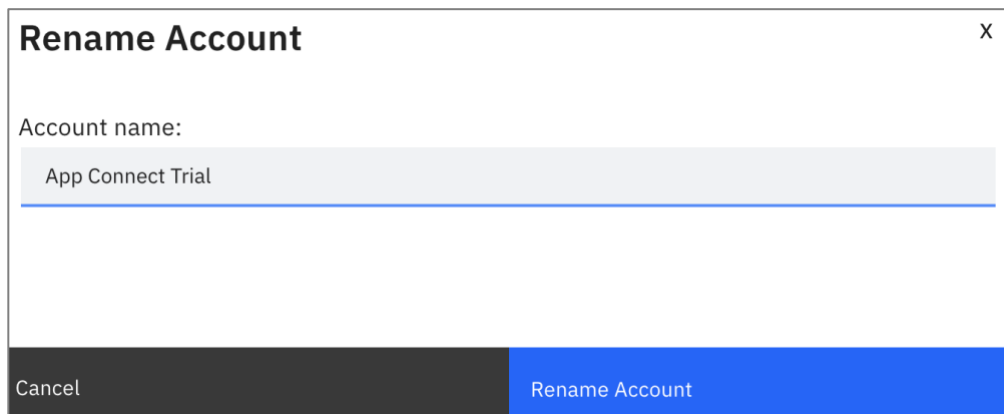


The image shows a dropdown menu for accounts. The label 'Account:' is above a dropdown box that currently shows 'Account 1' with a downward arrow. To the right of the dropdown box is a menu with three options: 'Update Account', 'Remove Account', and 'Rename Account'. The 'Rename Account' option is highlighted with a gray background.

Account:
Account 1

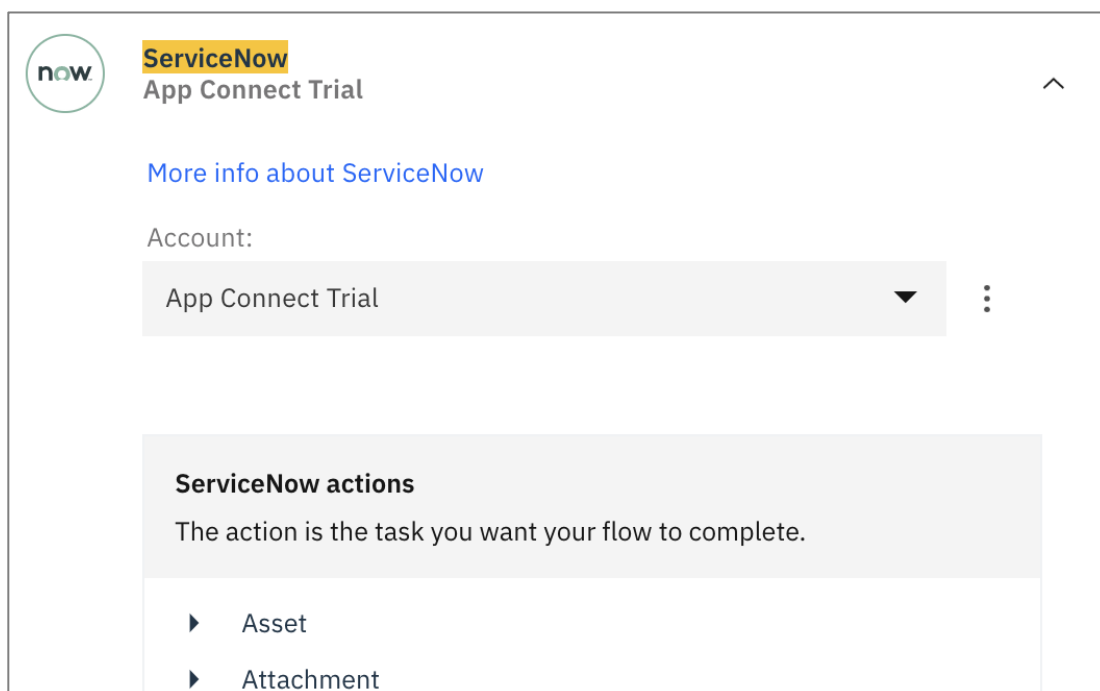
Update Account
Remove Account
Rename Account

In the dialog box, name the account 'App Connect Trial' (exactly as shown –capitals on the first letter of the words, spaces between the words) and click 'Rename Account' as shown below.



The 'Rename Account' dialog box features a title bar with the text 'Rename Account' and a close button 'X'. Below the title bar, the label 'Account name:' is followed by a text input field containing 'App Connect Trial'. At the bottom, there are two buttons: 'Cancel' on the left and 'Rename Account' on the right.

Your connector should now look like this.




The ServiceNow connector configuration interface shows the 'now.' logo and the connector name 'ServiceNow App Connect Trial'. A link 'More info about ServiceNow' is provided. Below, the 'Account:' dropdown menu is set to 'App Connect Trial'. A section titled 'ServiceNow actions' explains that the action is the task for the flow, listing 'Asset' and 'Attachment' as available options.

5.2.3 Connect to IBM Weather

Let's set up our IBM Weather endpoint – scroll down until you see the IBM Weather connector or filter via the search box.

Click on 'Connect'.



IBM Weather Company Data Limited Edition
Not connected

IBM Weather Company Data Limited Edition enables users to gain accurate insights and make informed decisions based on upcoming weather forecasts.

Connect

IBM Weather Company Data Limited Edition actions

The action is the task you want your flow to complete.

▶ Current conditions

▶ Forecasts


▶ Historical observations

▶ Locations

▶ Locations by point

▶ Near locations

The service is protected by an API key. You'll now be asked for the API key that you kept safe from before: Enter it here and click 'Connect'.



IBM Weather Company Data Limited Edition
Not connected

Connect to IBM Weather Company Data Limited Edition

*API key:

👁

Your IBM Weather Company Data Limited Edition API key

Cancel

Connect

Similarly, we want to rename the account for the Lab to work seamlessly.

To rename your account, Click the three dots menu and click 'Rename Account'.

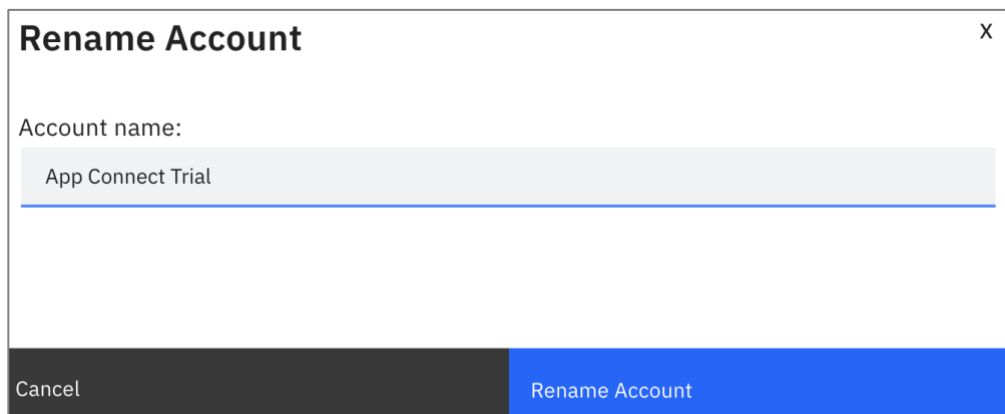


Account:

Account 1 ▼

- Update Account
- Remove Account
- Rename Account

In the dialog box, name the account 'App Connect Trial' (exactly as shown – capitals on the first letter of the words, spaces between the words) and click 'Rename Account' as shown below.



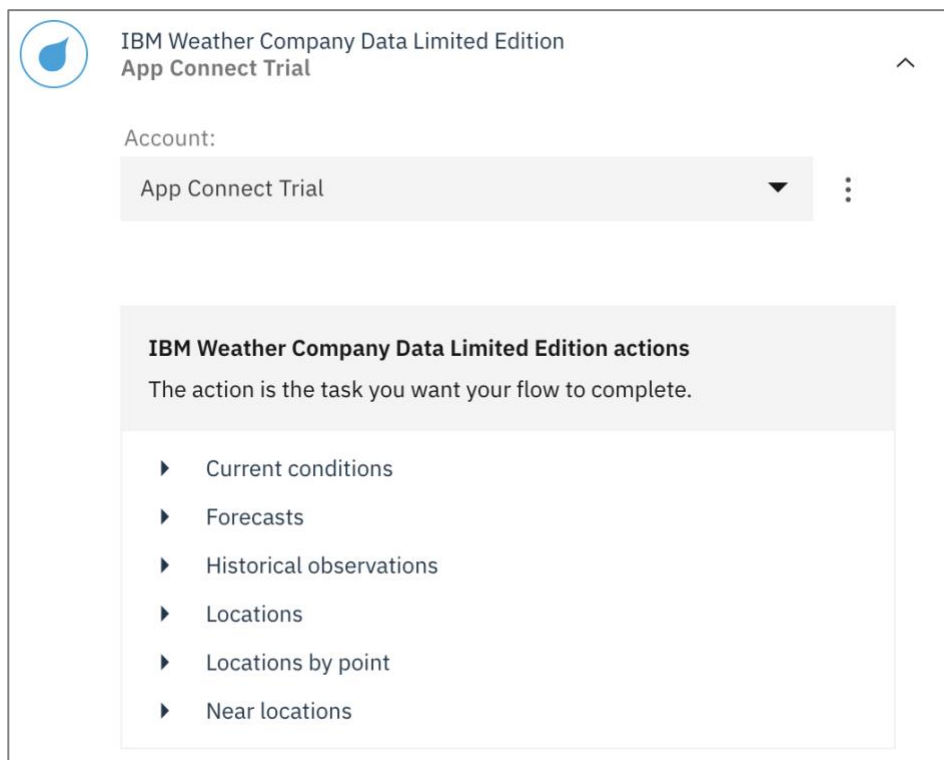
Rename Account X


Account name:

App Connect Trial

Cancel Rename Account

Your connector should now look like this.



 IBM Weather Company Data Limited Edition
App Connect Trial ^

Account:

App Connect Trial ▼ ⋮

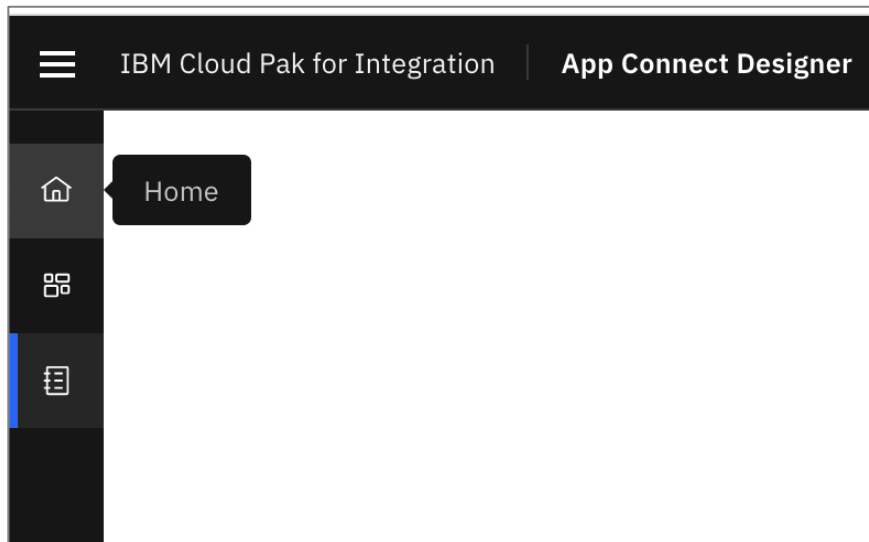
IBM Weather Company Data Limited Edition actions
The action is the task you want your flow to complete.

- ▶ Current conditions
- ▶ Forecasts
- ▶ Historical observations
- ▶ Locations
- ▶ Locations by point
- ▶ Near locations

Great! We're now all connected up! Let's go and see our flow!

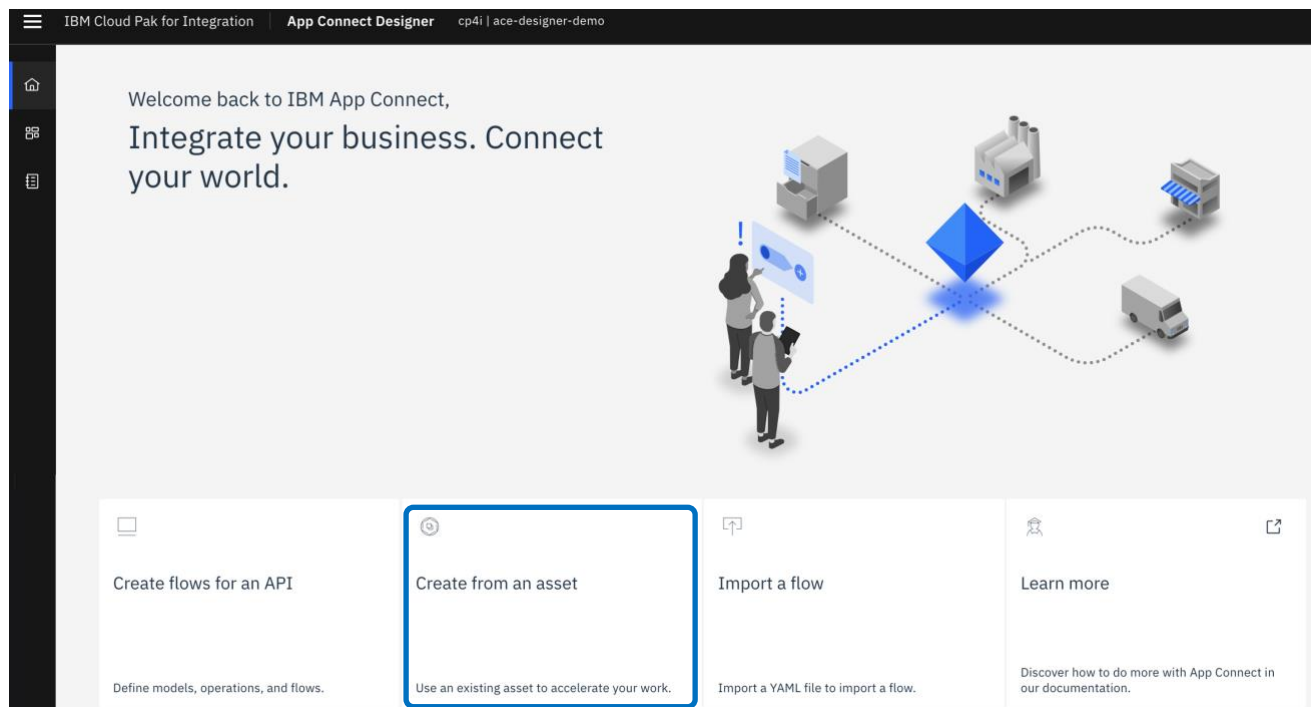
5.3 Importing the Integration flow into designer

Go back to the 'Home' page in Designer by clicking the 'home' icon.



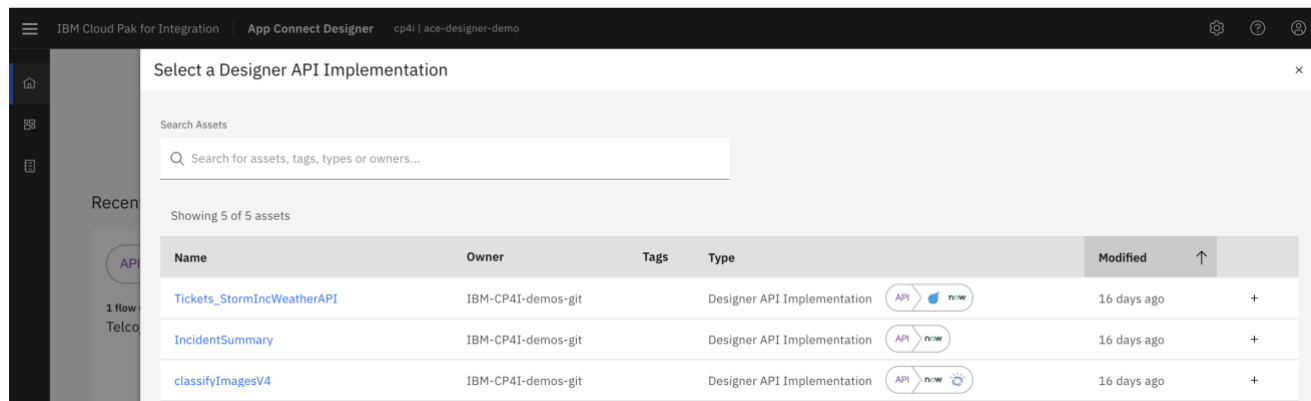
We're going to import our flow from the Asset Repository: The 1-click install has put it there for you...

Click on 'Create from an asset'.



We have a flow to use already stored in the Asset Repository: We're going to import it to save you typing and clicking!

There is a lot of detailed designer flow documentation for when you want to delve deeper – a good place to start is <https://ibm.biz/learnappconnect>



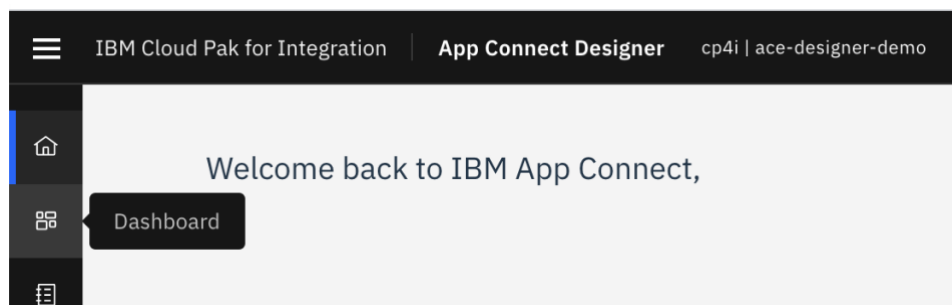
Click on the '+' sign to the right on the 'Tickets_StormIncWeatherAPI' asset and create from the asset.

Repeat the same for 'IncidentSummary' and 'classifyImagesV4' assets.

5.4 Reviewing our API Integration Flows:

This section is for you understand how the flow is built, as the flows are pre-built and we won't change it in the lab, you can skip straight to 'Starting the flow' section and come back here later.

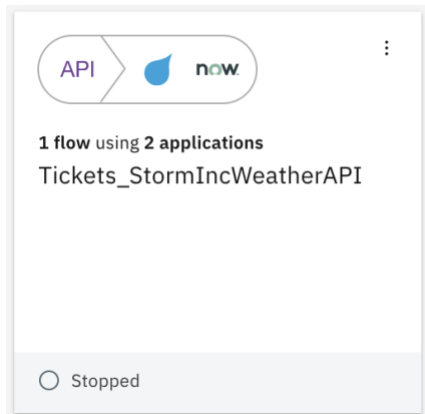
Go back to the 'Dashboard' page in Designer by clicking the 'Dashboard' icon where you can access all your flows.



5.4.1 The 'Tickets_StormIncWeatherAPI' API flow

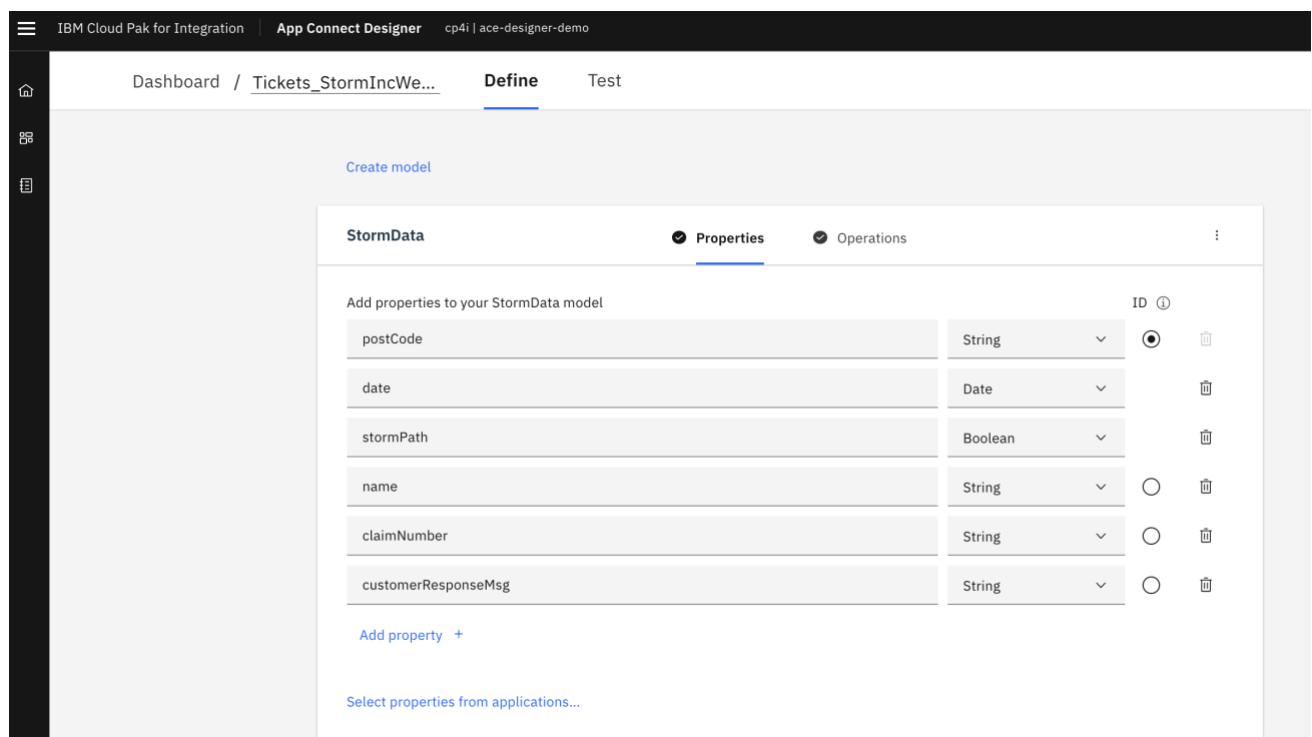
This API checks the weather on a date and location and opens a ServiceNow ticket if it determines that a storm has happened.

Click on the 'Tickets_StormIncWeatherAPI' API flow tile.

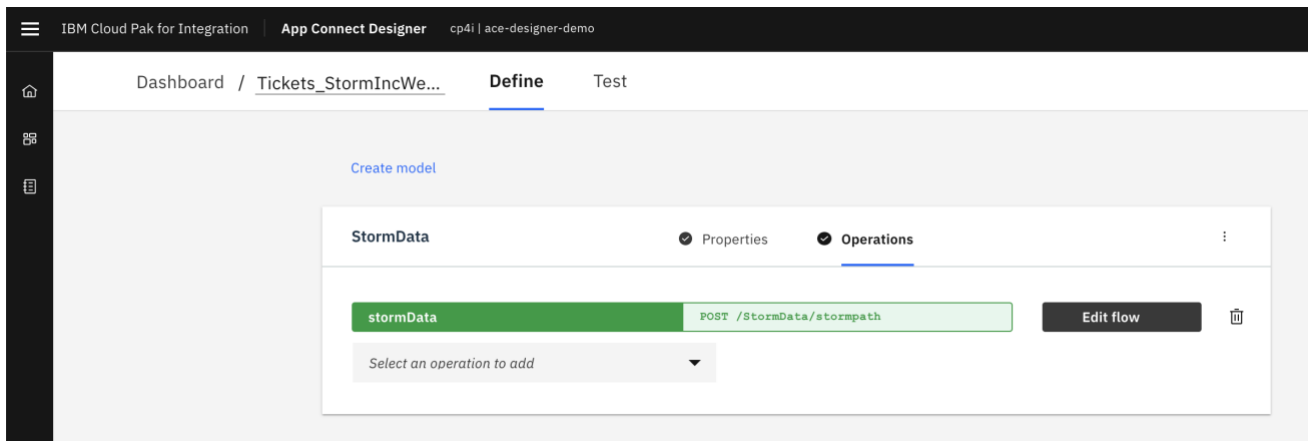


What you can see first is our API model.

App Connect Designer builds your API for you – you don't need to worry about OpenAPI specs or Swagger editors – it's all built in. To create your API, you just type in the names of the fields you want to use in plain English.



Now that we've told the API what data to use, we need to define what actions to perform on that data. Click 'Operations'.



Click 'Edit flow' to see the details of the flow.



The first step in the flow uses date and location in the request input and retrieves the weather observations on that specified date and location.

You can also test this step independently by defining sample data and clicking 'Try this action'.

You will be amazed by how much data you can retrieve related to Weather observation. For the purpose of this demo, we will use wind and precipitation to evaluate the storm condition.

IBM Weather Company Data Limited Edition

App Connect Trial

Retrieve historical observations

*Where

End date

equals

date

2019-04-12T23:20:50.52Z

Edit

and

Language

equals

en-US

en-US

and

Start date

equals

date

2019-04-12T23:20:50.52Z

Edit

and

Units

equals

s

s

and

Postal key

equals

postCode

70510-US

Edit

Try this action

200 OK 11 minutes ago, completed in 865ms

IBM Weather Company Data Limited Edition (App Connect Trial) | Retrieve historical observations

Input

Output

Retrieved 1 item in total.

```

{
  "date": "20190412",
  "geoType": "postalKey",
  "geoTypeId": "70510:US",
  "latitude": "29.644829",
  "longitude": "-92.18706",
  "DewpointLocalAfternoonAvg": "293.85",
  "DewpointLocalAfternoonMax": "294.1",
  "DewpointLocalAfternoonMin": "293.6",
  "DewpointLocalDayAvg": "293.225",
  "DewpointLocalDayMax": "294.4",
  "DewpointLocalDayMin": "291.0",
  "DewpointLocalDaytimeAvg": "293.125",
  "DewpointLocalDaytimeMax": "294.2",
  "DewpointLocalDaytimeMin": "291.0",
  "DewpointLocalEveningAvg": "293.01666",
  "DewpointLocalEveningMax": "293.5",
  "DewpointLocalEveningMin": "292.6",
  "DewpointLocalMorningAvg": "292.4",
  "DewpointLocalMorningMax": "294.2",
  "DewpointLocalMorningMin": "291.0",
  "DewpointLocalNighttimeAvg": "293.93335",
  "DewpointLocalNighttimeMax": "295.3",
  "DewpointLocalNighttimeMin": "292.6",
  "DewpointLocalOvernightAvg": "294.85",
  "DewpointLocalOvernightMax": "295.3",
  "DewpointLocalOvernightMin": "294.1",
  "FeelsLikeLocalAfternoonAvg": "298.58334",
  "FeelsLikeLocalAfternoonMax": "301.2",
  "FeelsLikeLocalAfternoonMin": "297.1",
  "FeelsLikeLocalDayAvg": "296.3",
  "FeelsLikeLocalDayMax": "301.5",
  "FeelsLikeLocalDayMin": "292.7",
  "FeelsLikeLocalDaytimeAvg": "297.14166",
  "FeelsLikeLocalDaytimeMax": "301.5",
  "FeelsLikeLocalDaytimeMin": "292.7",
  "FeelsLikeLocalEveningAvg": "296.4",
  "FeelsLikeLocalEveningMax": "296.5",
  "FeelsLikeLocalEveningMin": "296.3",
  "FeelsLikeLocalMorningAvg": "295.7",
  "FeelsLikeLocalMorningMax": "301.5",
  "FeelsLikeLocalMorningMin": "295.7"
}

```

The 'If' construct checks if the 'wind speed is greater than or equal to 20' and 'precipitation is greater than or equal to 10'.

If

Output Schema

if

All of the following are true

Wind speed local day max

is greater than or

20

Precipitation amount local overnight max

is greater than or

10

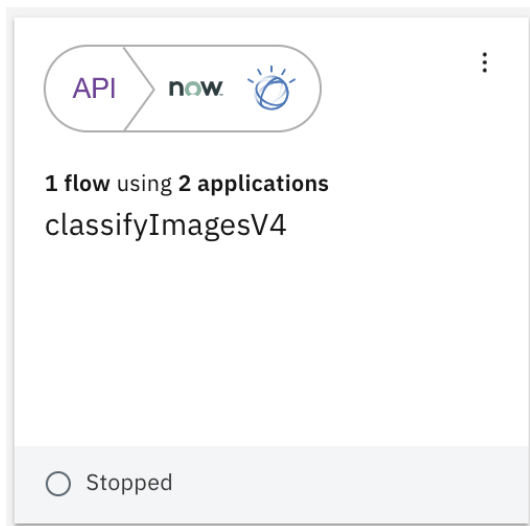
If the above condition evaluates to true, we assume there is a storm occurrence and create a provisional storm claim in ServiceNow and return the claim id and the evaluation result.

If the above condition evaluates to false, we directly return the evaluation result.

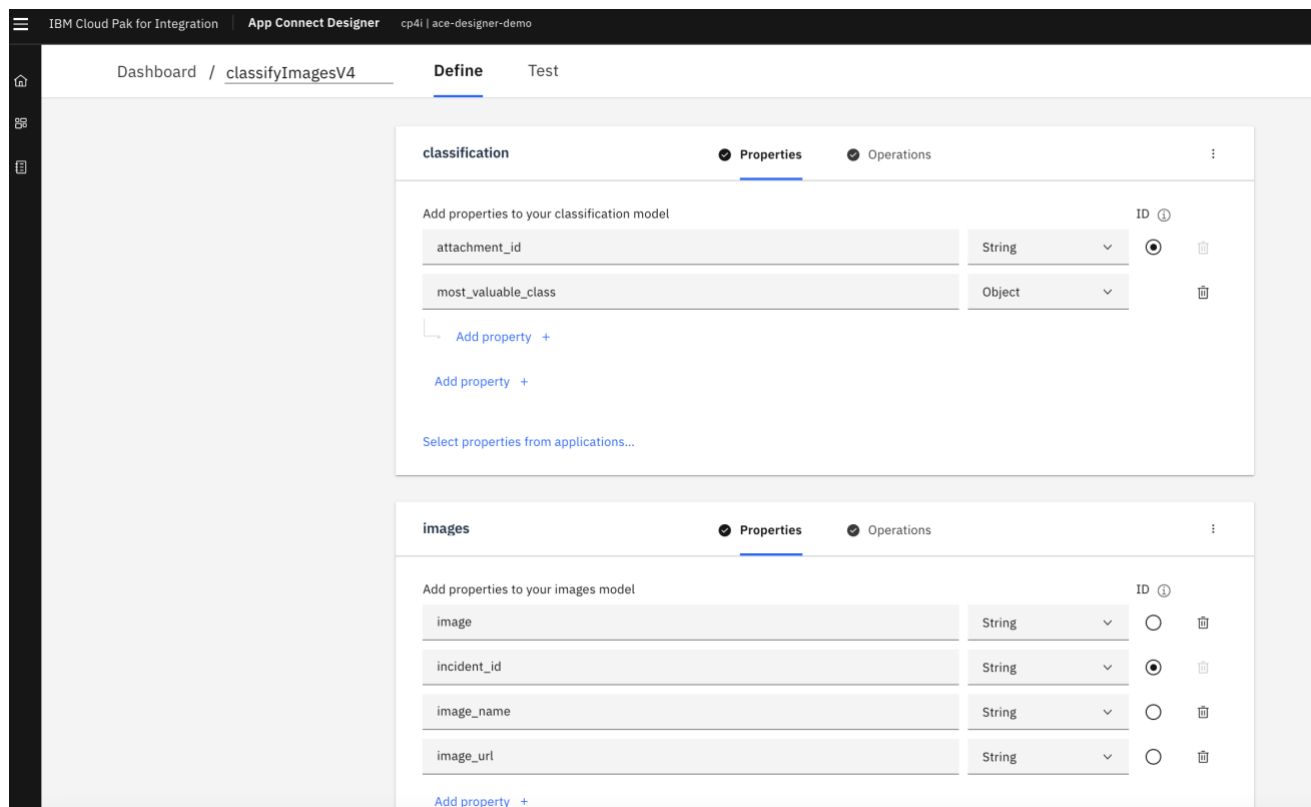
5.4.2 The 'classifyImages' API flow

This API takes an image and a ServiceNow ticket number as input, analyses the image with Watson Image Recognition and finally updates the ticket with analysis results.

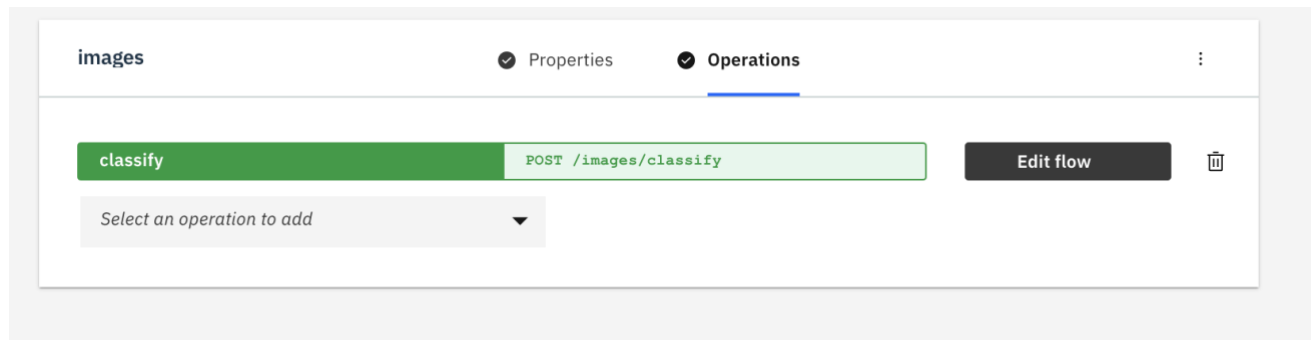
Click on the 'classifyImagesV4' API flow tile.



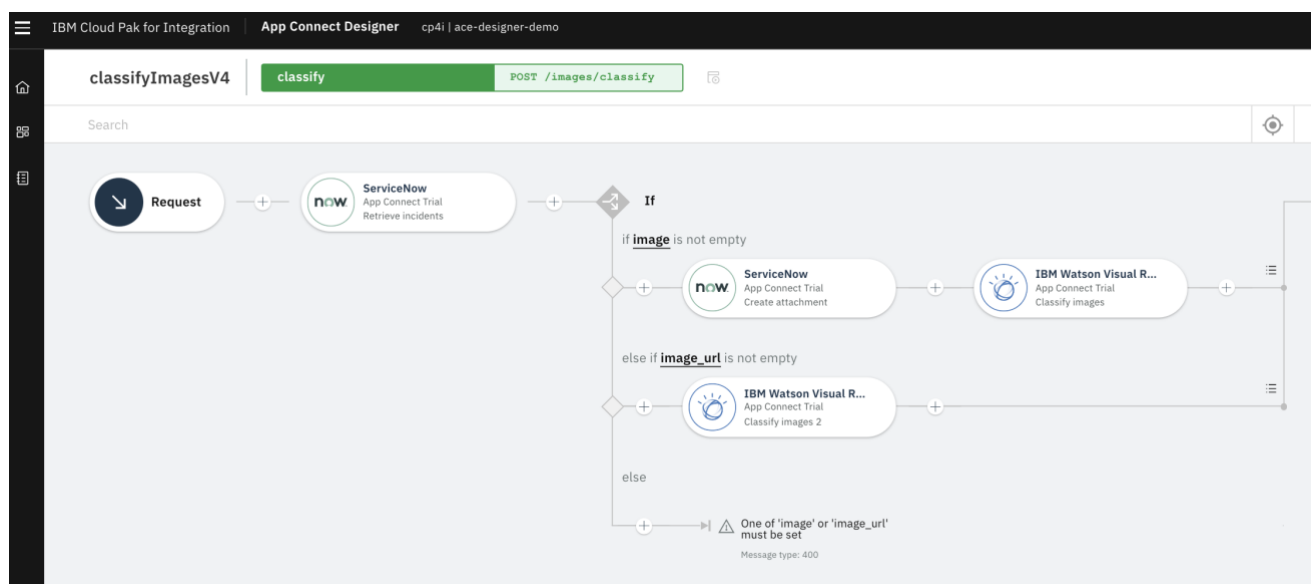
What you can see first is our API model.



Now that we've told the API what data to use, we need to define what actions to perform on that data. Click 'Operations' of 'images' data model.



Click 'Edit flow' to see the details of the flow.



Retrieves the ServiceNow ticket.

Checks that either an image (file base64 encoded) or a URL to an image has been supplied.

- If an image has been supplied, it adds it as an attachment to ServiceNow
- If a URL has been supplied, it does not add an attachment and adds the attachment ID as the IF output context
- If neither supplied, exits the flow with error

Invokes Watson Visual Recognition to get the recognised 'classes' for the image from the 'default classifier'

Uses the JSON parse node to set an arbitrary set of 'claimable values' for a few classes

The set variable node augments the discovered classes with their claimable value.

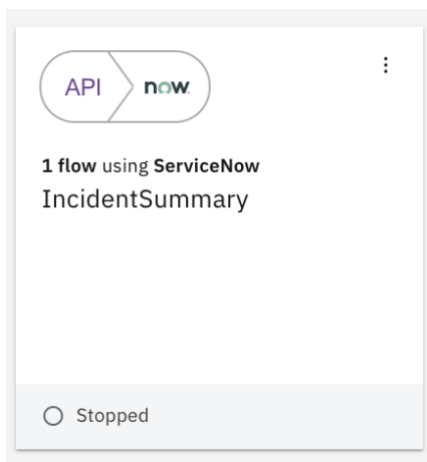
It responds with what the image was recognized as, and its maximum claimable value. It also augments the ticket.

- Adds the image as an attachment to the ticket
- Augments the description field with a JSON structure that holds the information discovered (for later retrieval)

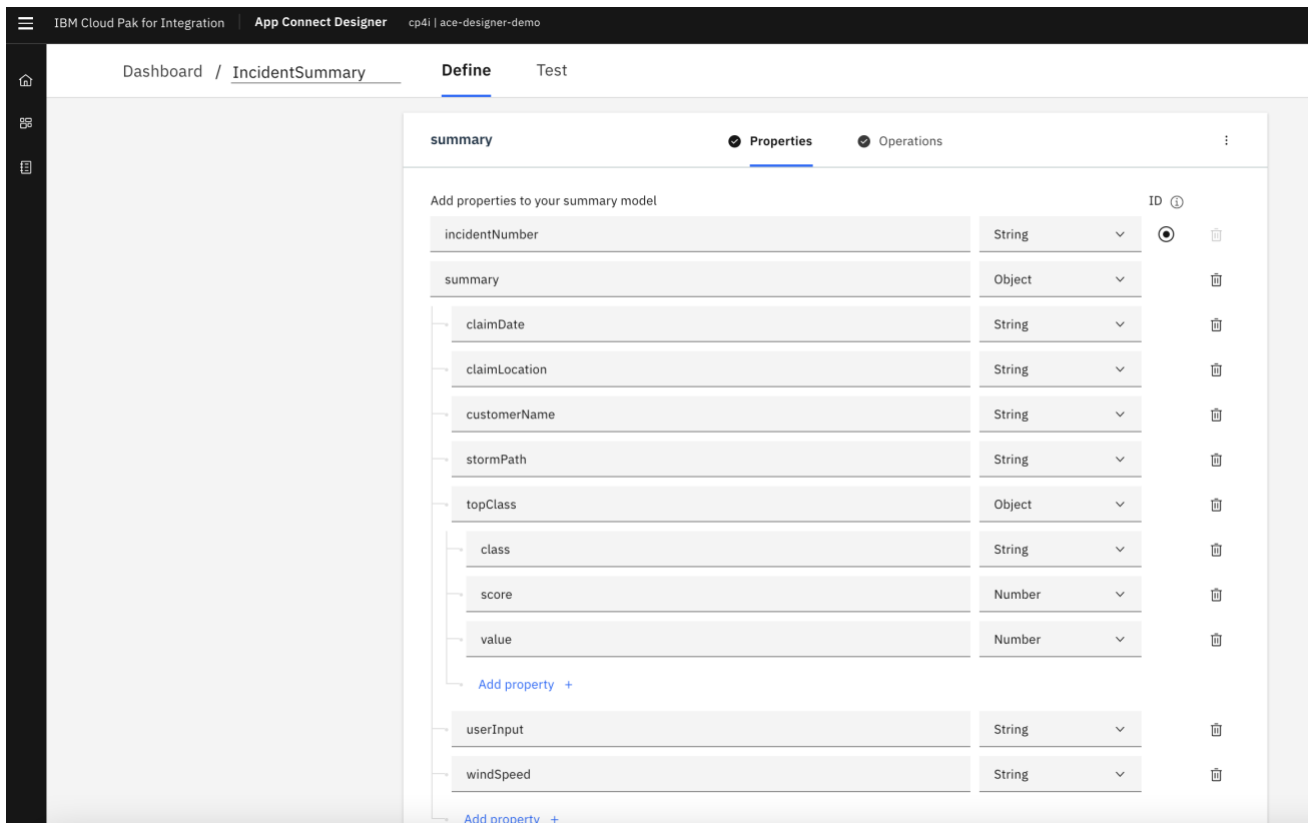
5.4.3 The 'IncidentSummary' API flow

This API simply takes a ServiceNow ticket number as input, returns the details.

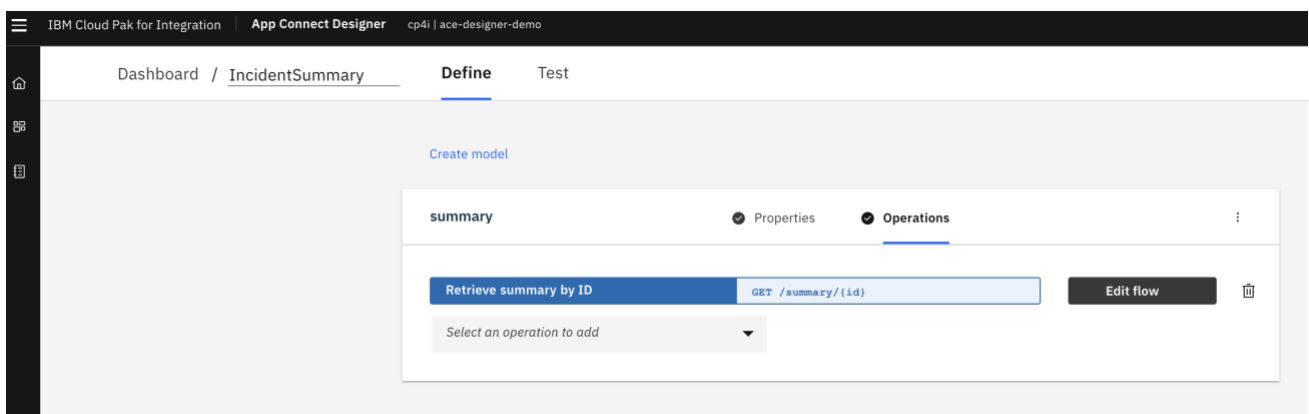
Click on the 'IncidentSummary' API flow tile.



What you can see first is our API model.



Now that we've told the API what data to use, we need to define what actions to perform on that data. Click 'Operations'.



Click 'Edit flow' to see the details of the flow.



5.5 Testing our API Integration Flows

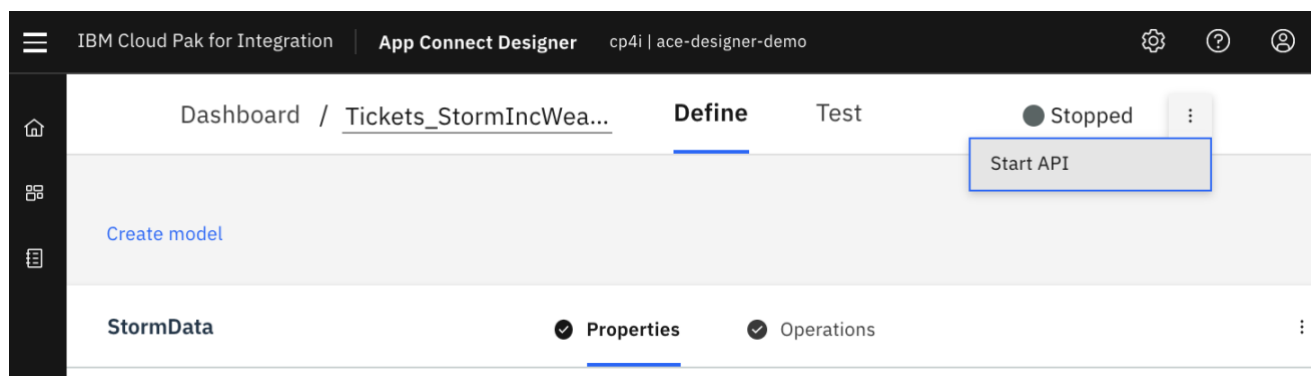
Now we've built our API, we need to test it. When you create an API flow in your App Connect Designer instance, the definition provides an API that you can expose. After you start the flow, you can verify its behaviour by using the built-in test facility to call the endpoints for each of the implemented API operations.

In the course of this lab, we want to test our APIs using built-in test facilities. This will give us the assurance to promote our flows from Designer runtime (which is a development environment) to integration runtime.

If the flow is not already open, click 'Dashboard' in the navigation pane and then click the flow tile.

Let's start with 'Tickets_StormIncWeatherAPI' flow.

Click 'Start API'



Click the 'Test' tab.

The Overview page displays the API type and the base URL for the API endpoint. To the right of the "Overview" title, a tag is provided for each model that is defined in the API flow.



A Download Open API Document link is also provided for the OpenAPI document that describes the API.

If you download this document, it is saved as a YAML file to the default download location that is configured for your browser. The format of the file name is '*flowName-version.yaml*'; for example, Tickets_StormIncWeatherAPI-1.0.0.yaml. The version number is derived from the version of the API in the OpenAPI document and is always set to 1.0.0.

You can use the OpenAPI document to test your flow in any other test tool or you can proceed with the embedded test option.

From the left pane, click 'POST /StormData/stormpath' operation to view its details and test the behaviour. Notice that the tag shown will reflect the model that an operation belongs to.

The Details tab displays the following information:

- The HTTP method and request for the operation.
- The authentication method (security scheme) that the API uses.
- The header parameters in a collapsible section.
- The body, path, or query parameters with examples, and the schema if relevant, in collapsible sections. The parameters that you see will depend on the operation's settings.
- Tooling languages that can be used when making the request, and a code sample for calling the operation in the selected language.
- Response status codes for the operation, and the response body schema with an example.

The screenshot displays the IBM App Connect Designer interface. The top navigation bar includes 'Dashboard / Tickets_StormIncWea...', 'Define', and 'Test' tabs. The 'Test' tab is active, showing a green 'Running' status. The main content area is titled 'StormData.stormpath' and has a 'Details' tab selected. The operation is a 'POST' request to 'https://ace-designer-demo-iners.appdomain.cloud/Tickets_StormIncWeatherAPI/StormData/stormpath'. The security scheme is 'basicAuth' with a 'Type' of 'basic'. The 'Parameters' section is expanded, showing 'Header' and 'Body' sections. The 'Body' section is further expanded, showing an 'Example' tab with a JSON schema. A dropdown menu is open, showing various tooling languages: 'curl' (selected), 'ruby', 'python', 'php', 'java', 'node', 'go', and 'swift'. The 'Example request' section at the bottom shows the 'curl' command.

IBM Cloud Pak for Integration App Connect Designer cp4i | ace-designer-demo

Dashboard / Tickets_StormIncWea... Define Test Running

StormData.stormpath StormData

Details Try it

POST https://ace-designer-demo-iners.appdomain.cloud/Tickets_StormIncWeatherAPI/StormData/stormpath

Security basicAuth

Type basic

Parameters

Header

Body

data optional

curl (selected)

ruby

python

php

java

node

go

swift

Example request curl

Example Schema

```
{
  "postCode": "R5M 7K9",
  "date": "2006-12-13T04:20:41.700Z",
  "stormPath": true,
  "name": "Anthony Reed",
  "claimNumber": "458764008292352",
  "customerResponseMsg": "pogfeguziob"
}
```

Again, you can use the embedded test scripts to test your flow from your preferred tooling language or proceed with the embedded test option.

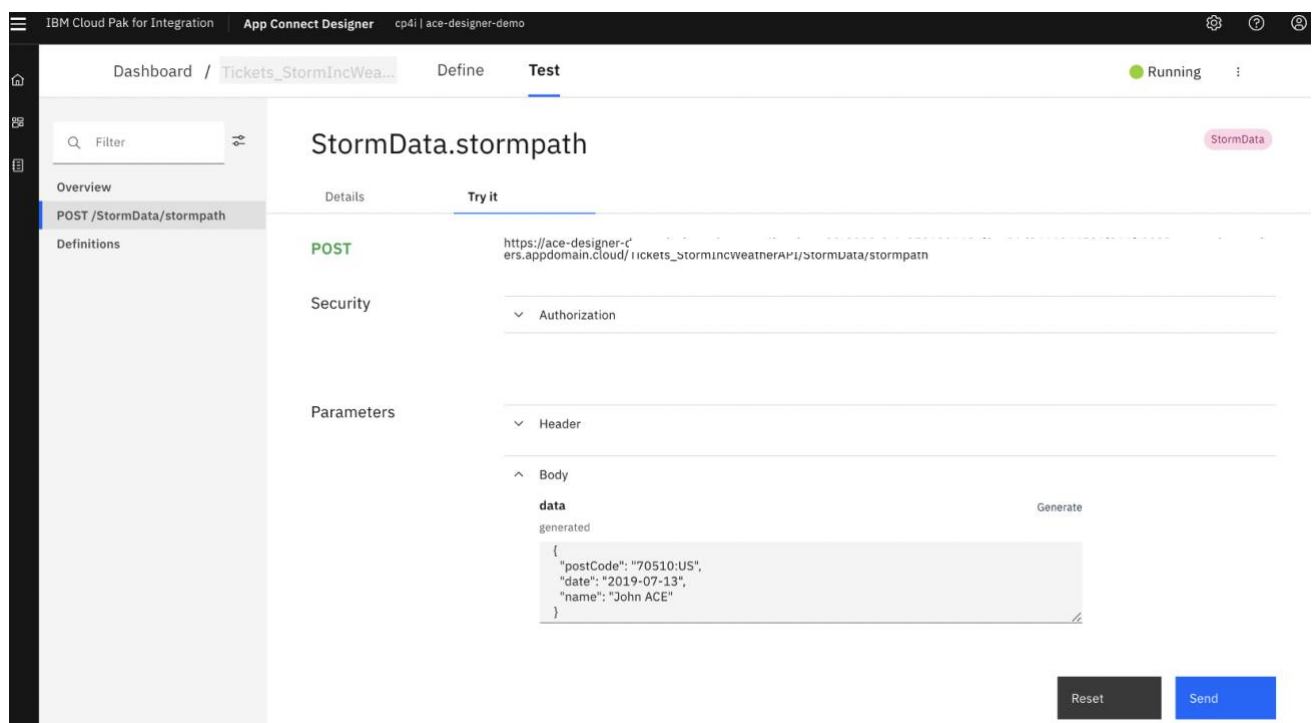
To proceed with the embedded test option, click 'Try it'.

Use the below test data which passes the storm validation and creates a ServiceNow incident.

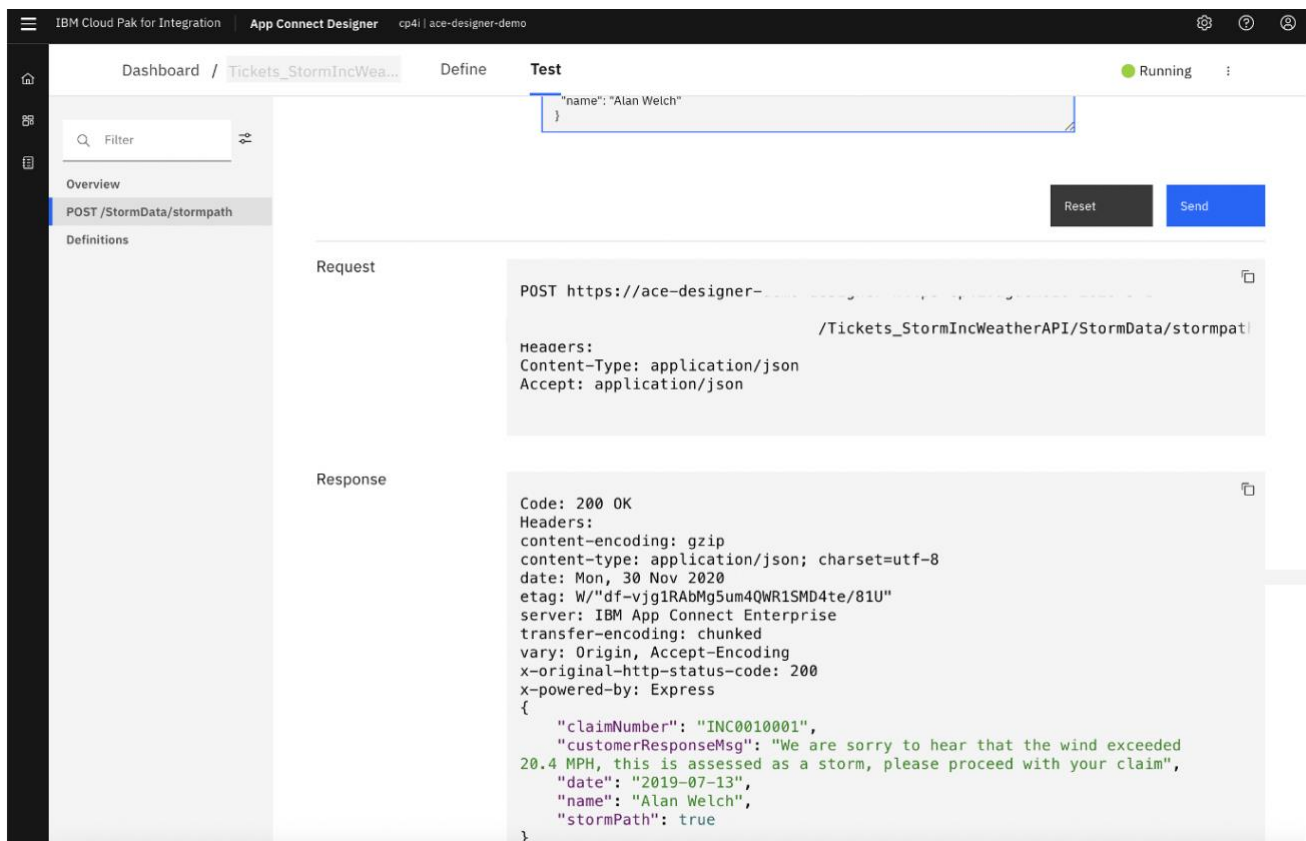
```
{
  "postCode": "70510:US",
  "date": "2019-07-13",
  "name": "John ACE"
}
```

Note that authentication credentials are auto generated and displayed together with the request parameters.

Click 'Send'.



Then review the request and response that are displayed.



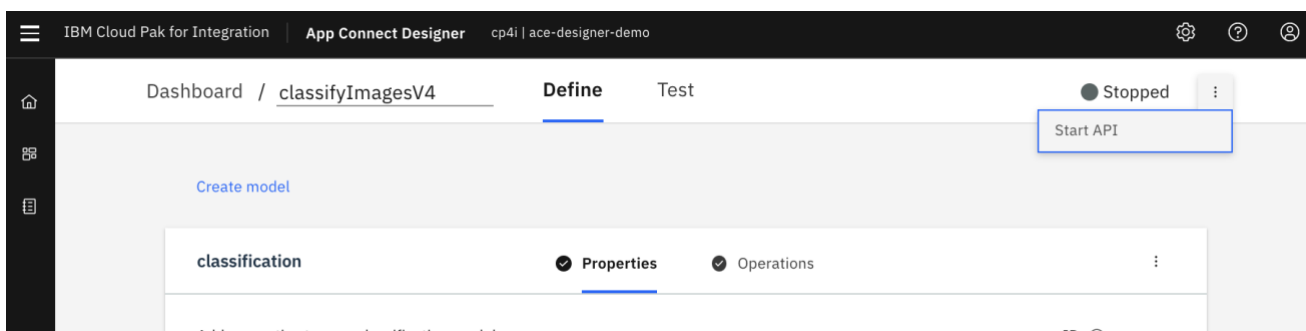
For our POST example, the Response section displays the success code that is returned (200 OK), the headers, and the claimNumber value that represents the ID assigned by ServiceNow.

We will use this claimNumber as an input parameter to test the other APIs.

Next, we will start 'classifyImagesV4' API.

If the flow is not already open, click 'Dashboard' in the navigation pane and then click the 'classifyimagesV4' flow tile.

Click 'Start API'.



Click 'POST /images/classify' and 'Try it'.

Use the below test data which passes the ServiceNow incident id created in the previous step along with the image url.

```
{
  "incident_id": "INC0010001",
  "image_name": "my damaged car",
  "image_url": "https://raw.githubusercontent.com/IBM/cp4i-demos/main/ace-weather-chatbot/images/car.jpg"
}
```

Click 'Send'.

IBM Cloud Pak for Integration | App Connect Designer | cp4i | ace-designer-demo

Dashboard / classifyImagesV4 | Define | Test | Running

Filter

Overview

POST /images/classify

Definitions

Details | Try it

POST

https://ace-designer-demo:loud/classifyImagesV4/images/classify

Security

Authorization

Parameters

Header

Accept

application/json

Content-Type

application/json

Body

data

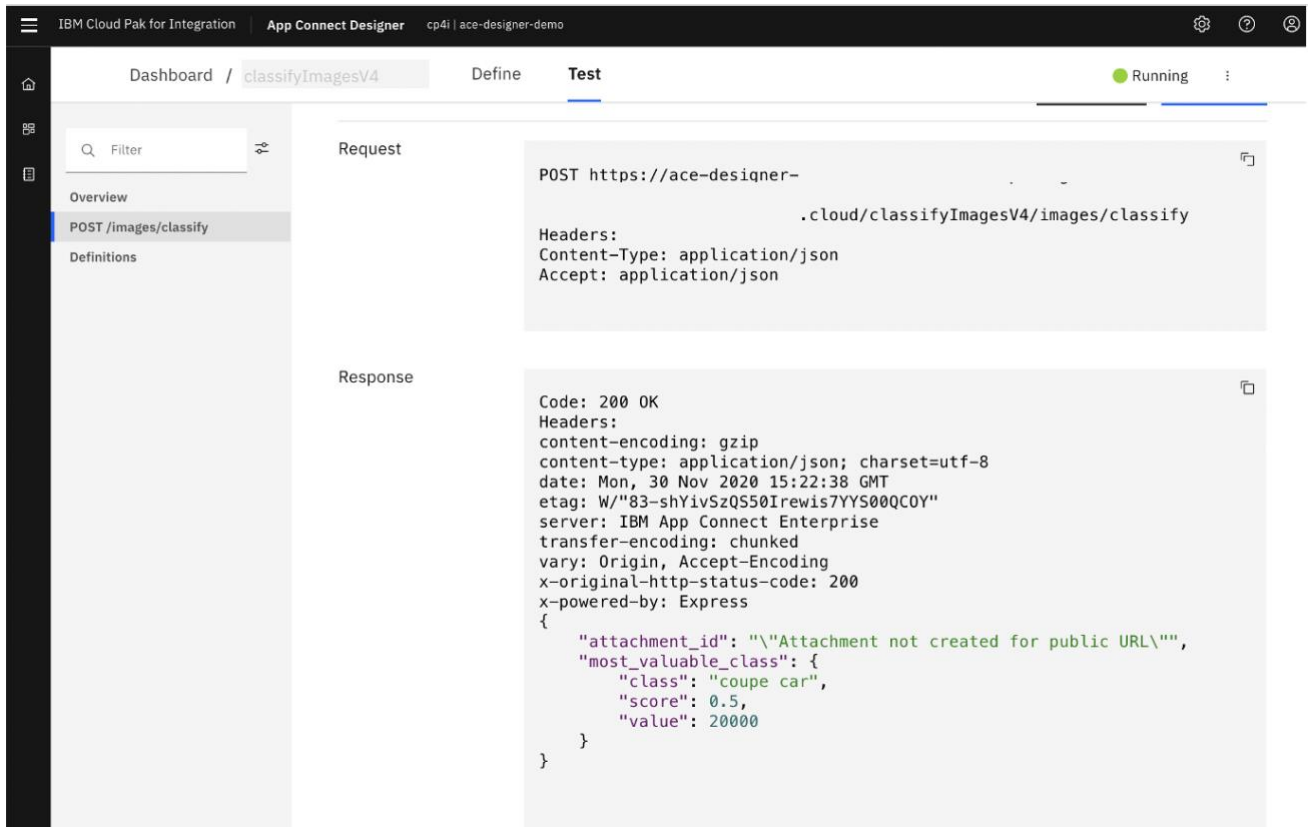
generated

Generate

```
1
{
  "incident_id": "INC0010001",
  "image_name": "my damaged car",
  "image_url": "https://raw.githubusercontent.com/IBM/cp4i-demos/main/ace-weather-chatbot/images/car.jpg"
}
1
```

Reset | Send

Then review the request and response that are displayed.

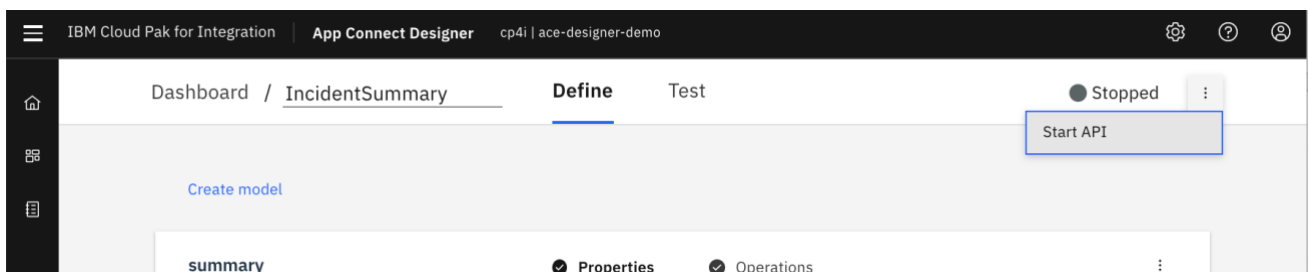


For our POST example, the Response section displays the success code that is returned (200 OK), the headers, and the classification values provided by Watson Image Recognition for the input image.

Lastly, we will start 'incidentSummary' API.

If the flow is not already open, click 'Dashboard' in the navigation pane and then click the 'incidentSummary' flow tile.

Click 'Start API'.



Click 'GET /summary/{id}' and 'Try it'.

Use the ServiceNow incident id created in the previous steps.

Click 'Send'.

IBM Cloud Pak for Integration | App Connect Designer | cp4i | ace-designer-demo

Dashboard / IncidentSummary Define **Test** Running

Find a model instance by {{id}} from the data source. summary

Overview
GET /summary/{{id}}
Definitions

Details Try it

GET

https://ace-designer-demo-designer-https-cp4i.agdemo20-2020-3-1-252622168ef3ca91d0666944581f016f-0000.us-south.containers.appdomain.cloud/IncidentSummary/summary/{{id}}

Security

Authorization

Parameters

Header

Path

id*

INC0010001

Reset Send

Then review the request and response that are displayed.

IBM Cloud Pak for Integration | App Connect Designer | cp4i | ace-designer-demo

Dashboard / IncidentSummary Define **Test** Running

Request

GET https://ace-designer-demo-designer-https-cp4i.agdemo20-2020-3-1-252622168ef3ca91d0666944581f016f-0000.us-south.containers.appdomain.cloud/IncidentSummary/summary/INC0010001

Headers:

Content-Type: application/json
Accept: application/json

Response

Code: 200 OK
Headers:
content-encoding: gzip
content-type: application/json; charset=utf-8
date: Mon, 30 Nov 2020 16:01:28 GMT
etag: W/"eb-wiGRGoWDMzkqOm1hFDJvZvFcIIE"
server: IBM App Connect Enterprise
transfer-encoding: chunked
vary: Origin, Accept-Encoding
x-original-http-status-code: 200
x-powered-by: Express

```
{
  "incidentNumber": "INC0010001",
  "summary": {
    "claimDate": "2019-07-13",
    "claimLocation": "70510:US",
    "customerName": "Alan Welch",
    "stormPath": "true",
    "topClass": {
      "class": "coupe car",
      "score": 0.5,
      "value": 20000
    },
    "userInput": "",
    "windSpeed": "20.4"
  }
}
```

For our GET example, the Response section displays the success code that is returned (200 OK), the headers, and the updated claim details.

We've now got our flow running in the designer and we've tested it – now we are ready to deploy it 'for real' on the cloud pak runtime.

6 Deploying the Integration flow to CP4I Runtime via the App Connect Dashboard

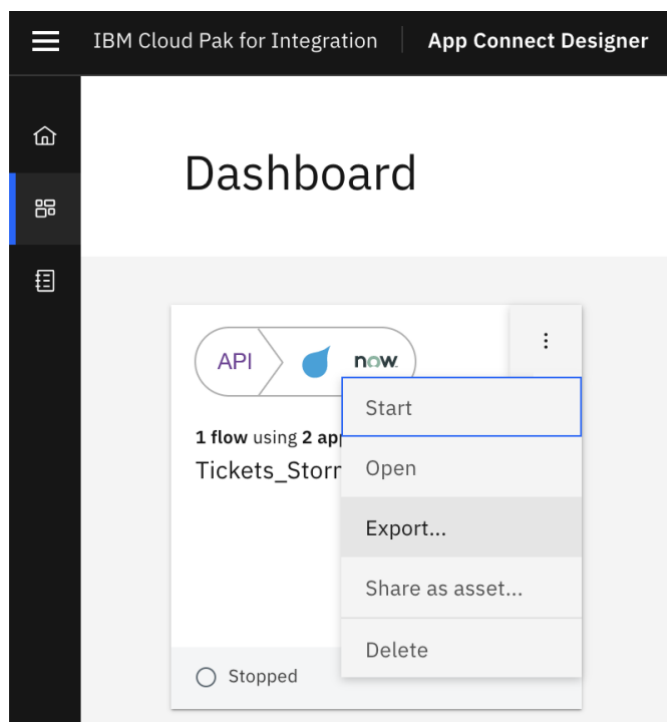
We've now got our flow running in the designer and we've tested it – now we need to deploy it 'for real' on the cloud pak runtime. To do this, we'll export a .bar file of our flow from the designer.

This .bar file contains everything in our flow –with the exception of the connector credentials, which we'll configure later in a Kubernetes secret.

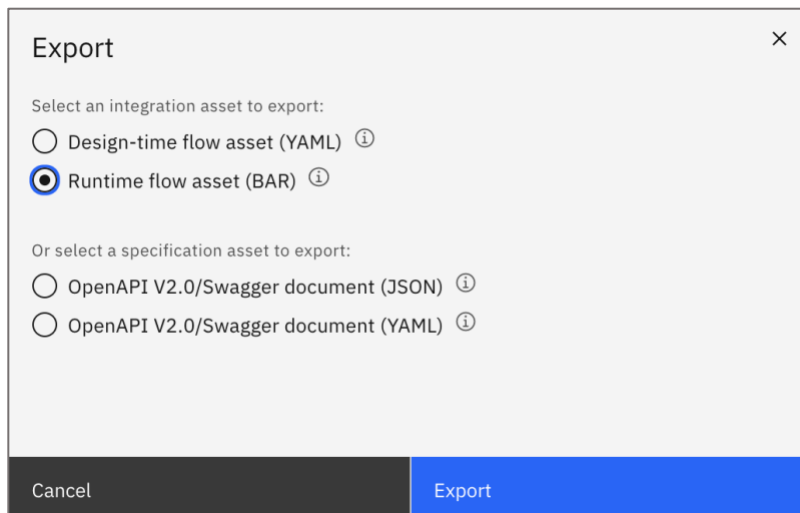
When we deploy, it will create a 3 HA replica container pods running on OpenShift – automatically.

6.1 Exporting the executable bar file:

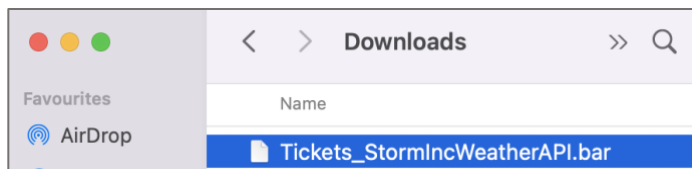
To export the .bar file, go into the designer dashboard and click the '...' menu on the integration tile and click 'Export...'



You'll get a dialog box. Select 'Runtime flow asset (BAR)' and click 'Export'.



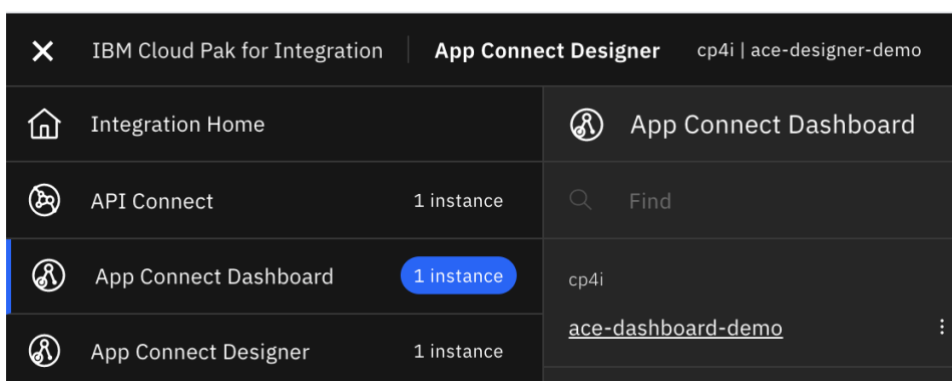
The browser may prompt you for a download location – otherwise it will place the ‘Tickets_StormIncWeatherAPI.bar’ file in the Downloads directory.



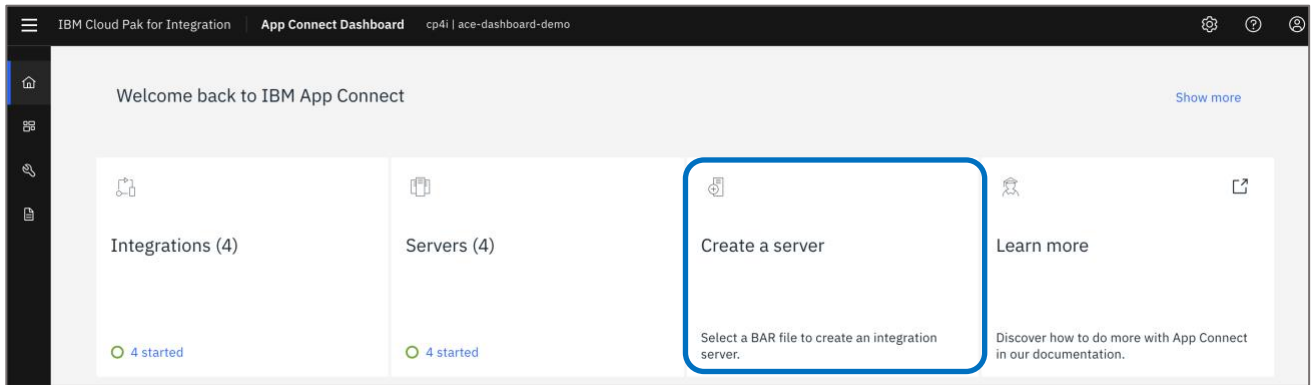
That’s it – we now have our executable flow – let’s see what we need to do to deploy it.

6.2 Navigating to the App Connect dashboard and importing the .bar file

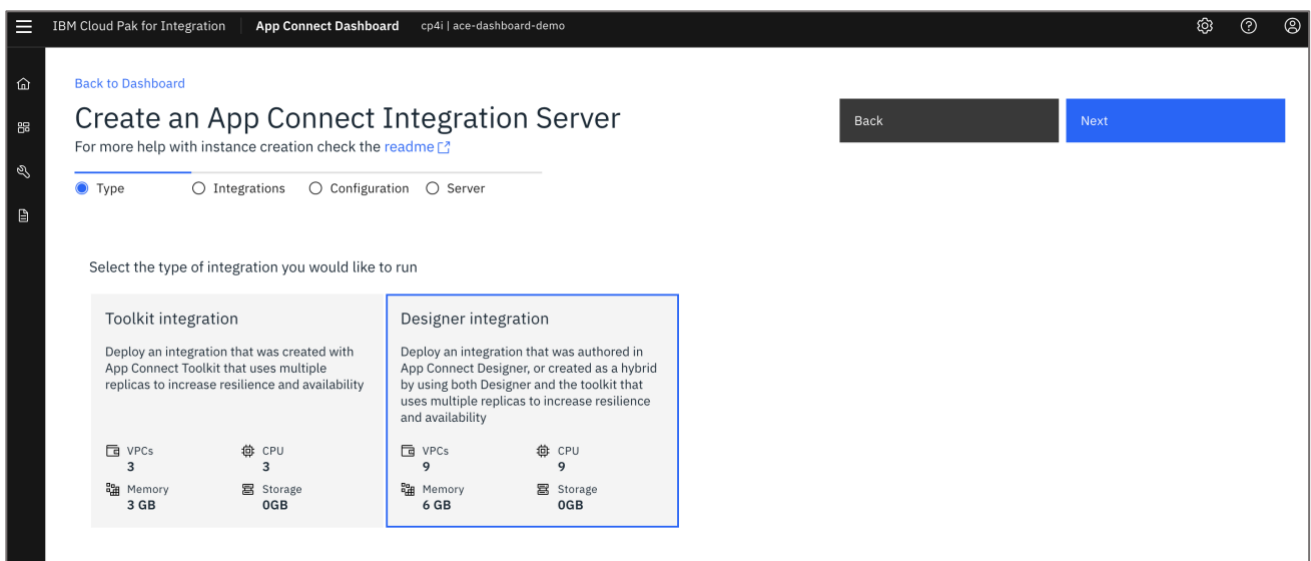
From the menu, click ‘App Connect’ and then click ‘ace-dashboard-demo’: This is the runtime, we need not the tooling.



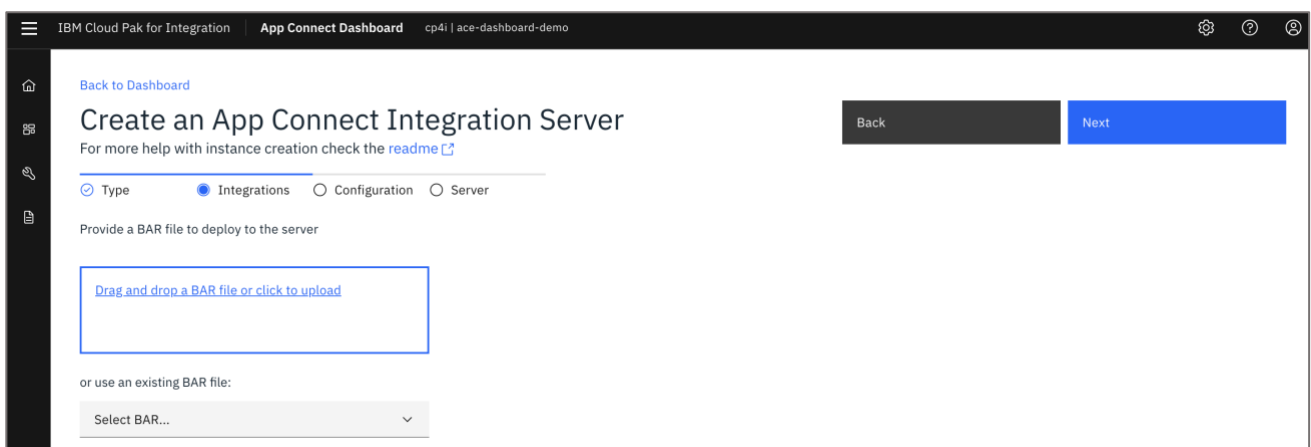
You’ll then be taken to the App Connect Dashboard.
Click ‘Create A Server’



Now we need to select the kind of tooling we used to build the integration. We used App Connect Designer, so click that and click ‘Next’.



You’re now prompted to upload the .bar file you exported before. In the dialog box, click ‘Drag and drop a BAR file or click to upload’.

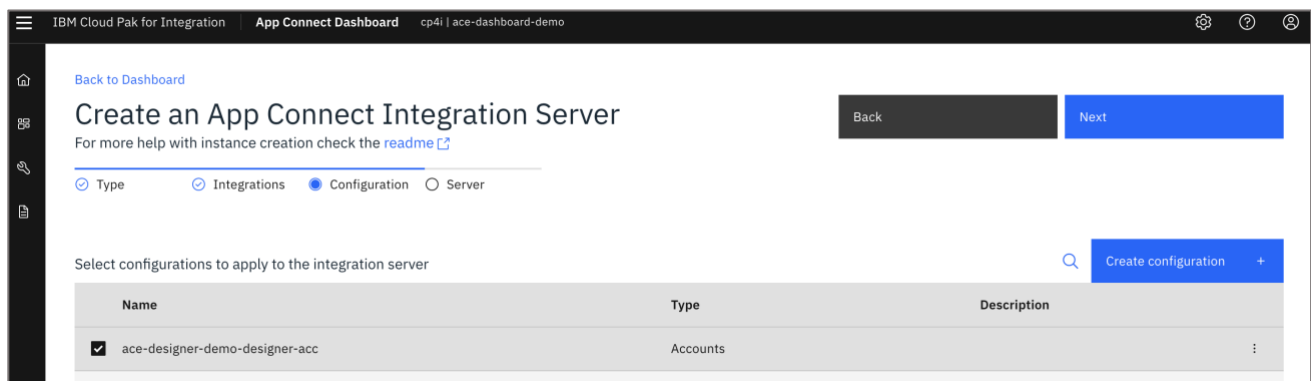


Browse to the location of the ‘Tickets_StormIncWeatherAPI.bar’ file that you exported from designer and select it with ‘Open’ and then click ‘Next’.

In the next step, we need to choose configurations for the connector account credentials as we want to use locally deployed connectors. For the purpose of this demo, we will use 'ace-designer-demo-designer-acc' accounts configuration which holds all the connector credentials we configured previously in App Connect Designer.

Select that as below and click 'Next'.

(note: For the purpose of this demo, you don't need to click 'create configuration' here unless you want to use different credentials for your connector accounts.)



You're now on the last screen!

Enter a name for our integration server – note that permitted characters are lowercase alphanumeric and '-' and must start and end with lowercase alphanumeric characters.

In these flows we will use local connectors only, so we select 'local' for 'Designer flows mode'. This option will extend the functionality of each pod by deploying sidecar containers, which are needed to run APIs that are authored in App Connect Designer, and local connectors.

IBM Cloud Pak for Integration | App Connect Dashboard | cp4i | ace-dashboard-demo

[Back to Dashboard](#)

Create an App Connect Integration Server

For more help with instance creation check the [readme](#)

✓ Type ✓ Integrations ✓ Configuration ● Server

Common settings | YAML editor

Advanced settings
☐ Off

Details | Version

Details

Name

Name of the integration server

Designer flows mode (optional)

Replicas (optional)

Enable Designer flows with only local connectors or all (local and cloud-managed) connectors; see <https://ibm.biz/acdeploydesignerflow-ace>

The type of transport used by the integration endpoint (optional)

Enable Operations Dashboard tracing (optional)
☐ Off
Enable tracing for use with the IBM Cloud Pak for Integration Operations Dashboard

Version

Channel or version (optional)

[Back](#) [Create](#)

Now click 'Create'

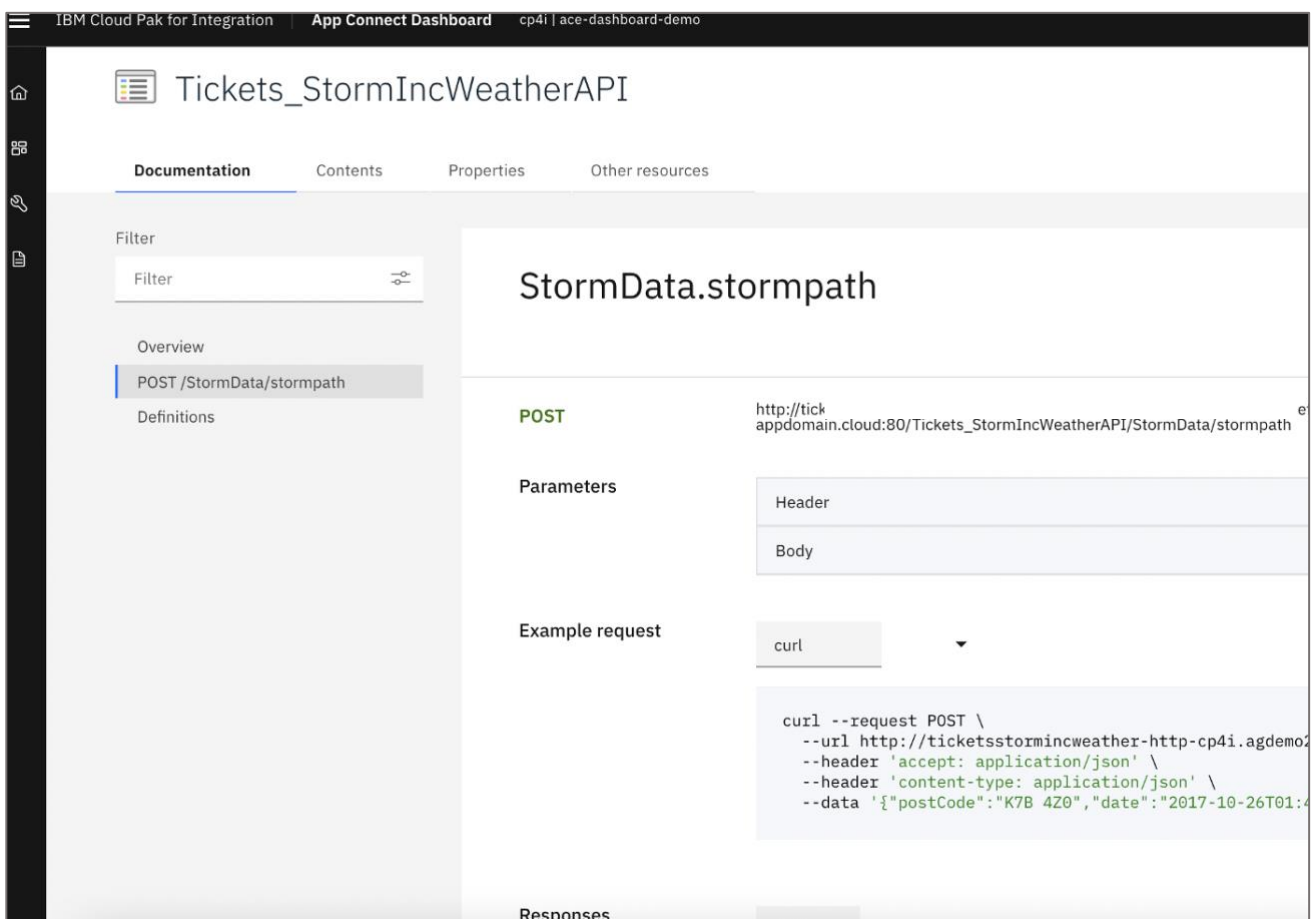
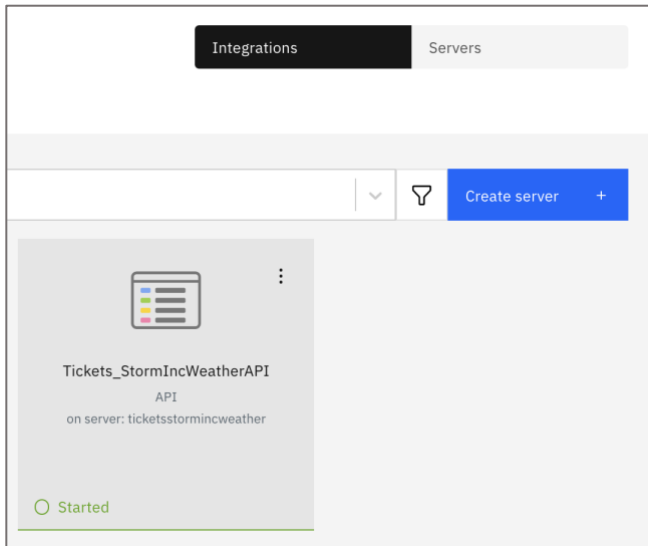
You'll see:



When you get refreshed screen, you will see the integration server displayed as a tile on the Servers page of the dashboard, with an initial status of Unavailable (⚠️), which then changes to Started when the deployment completes. (so, DON'T PANIC! – this is the cloud pak spinning up 3 pods of the integration server – it won't show a green tick until all the pods are running. Give it a couple of minutes or so and refresh your browser.)

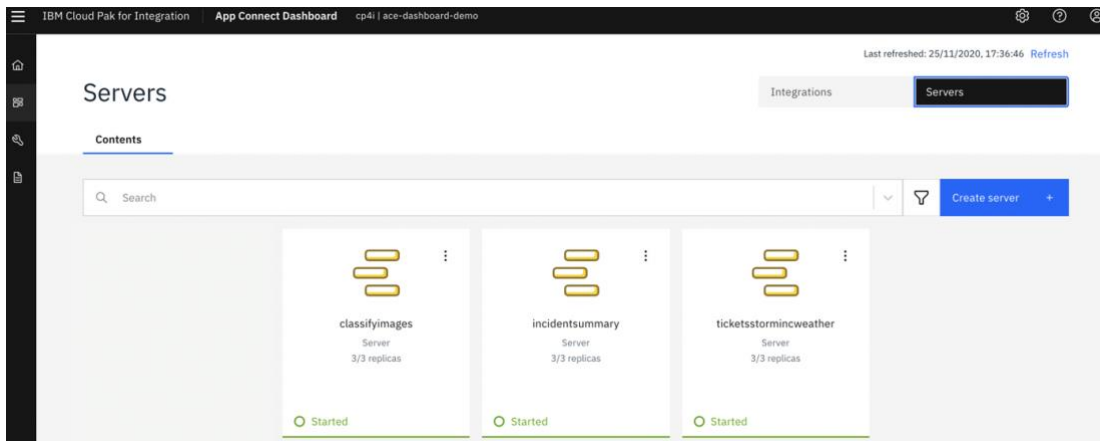
The Servers page will also display any other integration servers that are installed in the same namespace.

Switch to 'Integration' view and click the 'Tickets_StormIncWeatherAPI' tile to see further the details about your integration API.



You can see the REST operation; example test request and you can even download the OpenAPI (also called swagger) document. Hence, after you deploy an integration server to the cluster, you can view the underlying API definition. You can then test the API by using the built-in testing facilities. ([learn more](#))

Repeat the same steps for 'IncidentSummary' and 'classifyImagesV4' assets. Eventually you will have all the integration APIs deployed as shown below.



Now would be a good time to test it again.

You can also use the below 'curl' request examples, where you need to replace with your hostnames. Also remember to use the incident number returned from the first call in the subsequent calls.

1) Call ticketsstormincweather API

```
curl --request POST \
  --url http://REPLACE_ticketsstormincweather_HOSTNAME/Tickets_StormIncWeatherAPI/StormData/stormpath \
  --header 'accept: application/json' \
  --header 'content-type: application/json' \
  --data '{"postCode": "70510:US", "date": "2019-07-13", "name": "Alan ACE"}'
```

2) Call classifyimages API

```
curl --request POST \
  --url http://REPLACE_classifyimages_HOSTNAME/classifyImagesV4/images/classify \
  --header 'accept: application/json' \
  --header 'content-type: application/json' \
  --data '{"incident_id": "REPLACE_INCIDENTNUMBER", "image_name": "my damaged car", "image_url": "https://raw.githubusercontent.com/IBM/cp4i-demos/main/ace-weather-chatbot/images/car.jpg"}'
```

3) Call incidentsummary API

```
curl --request GET \
  --url http://REPLACE_incidentsummary_HOSTNAME/IncidentSummary/summary/REPLACE_INCIDENTNUMBER \
  --header 'accept: application/json'
```

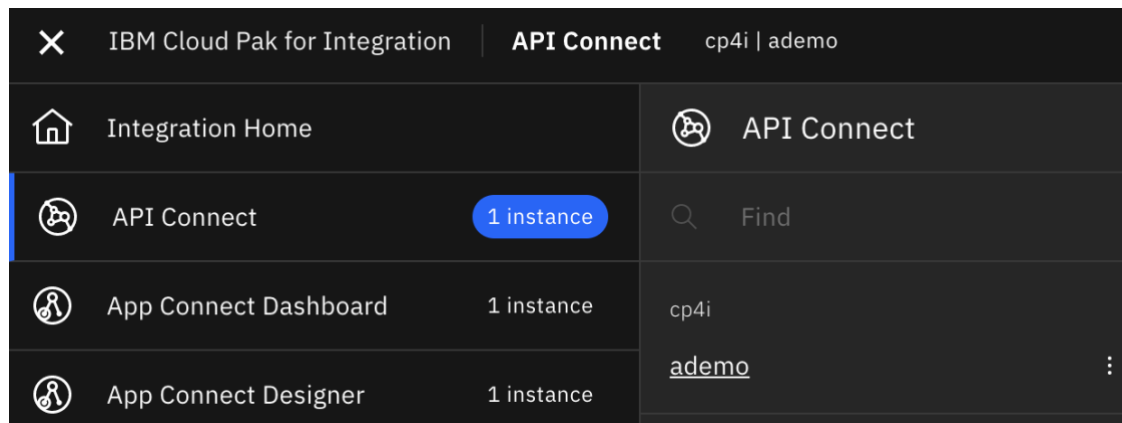
7 Managing our API using API Connect

Now it is the time to configure our facade API in API Connect, let's go there and do some API Management.

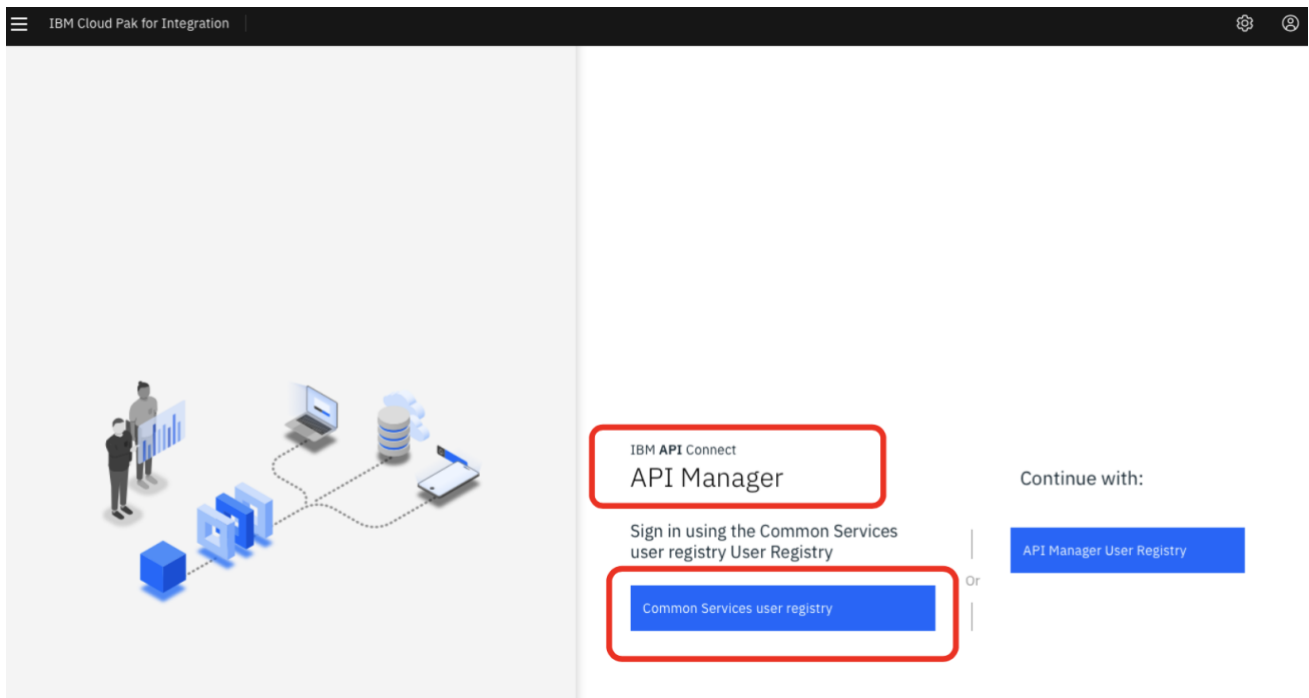
We want to be able to add security, define some rate-limiting plans and publish the API to a secure gateway.

In addition we want to be able to use a self-service portal so that consumers can browse our APIs and sign up to use them.

Using the hamburger menu, click on 'ademo'. This time, click on the name – we want to go to the API manager, not the APIC cloud manager...



You'll be asked to log into the API Manager. Click on 'IBM Common Services user registry'. You should be logged in automatically using SSO. If not, use 'admin' and the same password you used to log into the cloud pak home page.



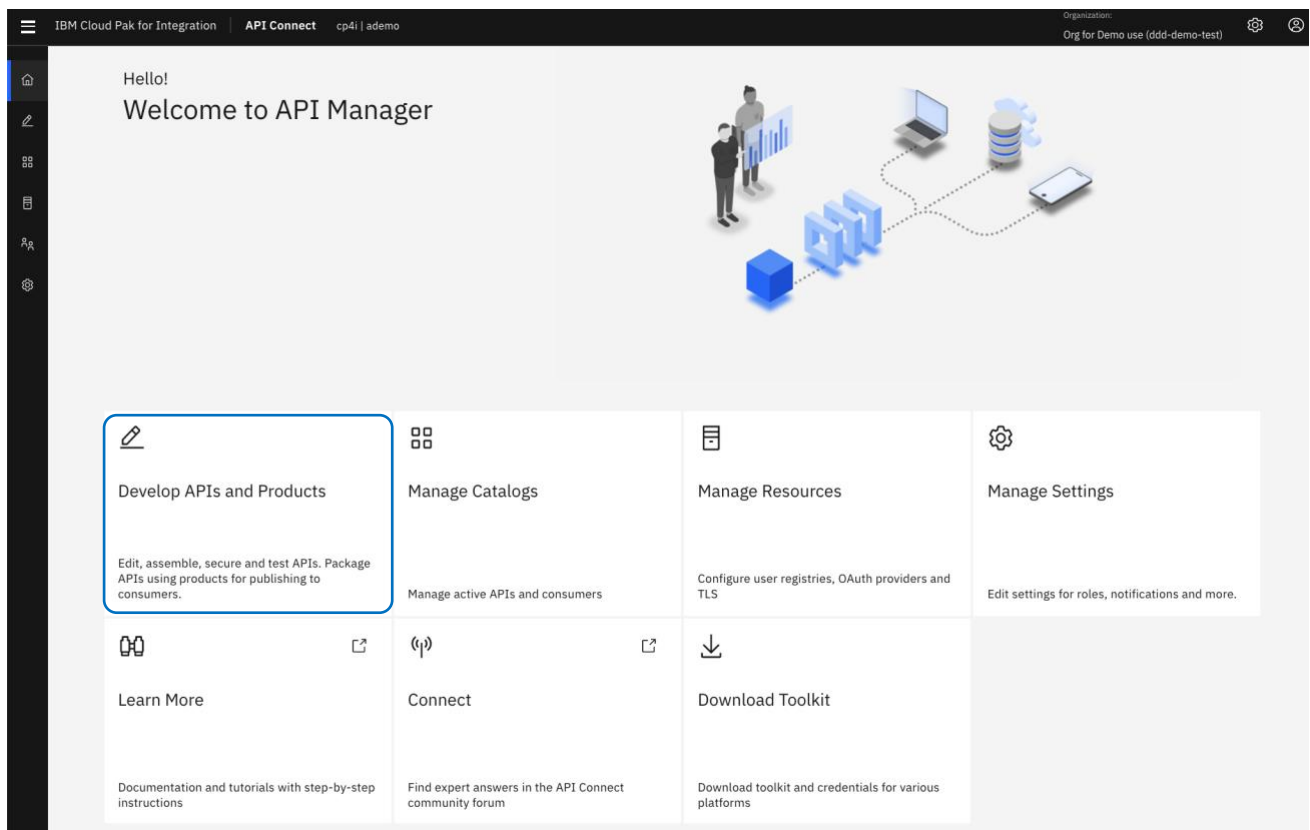
Make sure it says 'Welcome to API Manager'.

Also check out the organisation at the top-right: Make sure it says 'Org for Demo use' – If it doesn't, click on it and change it so it does.

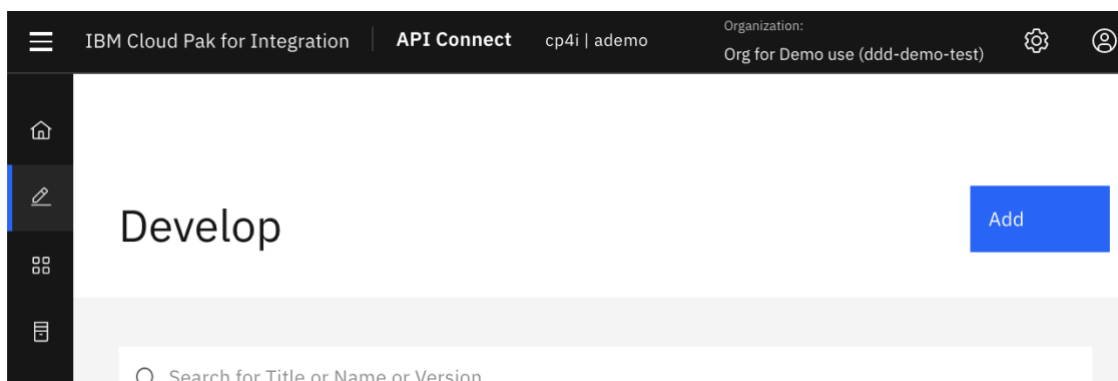
7.1 Importing our Facade API flow into API Manager

We're going to import our API flow from the Asset Repository: The 1-click install has put it there for you...

Click 'Develop APIs and Products' tile.



Click 'Add'.



Select 'From asset repository' and click 'Next'

IBM Cloud Pak for Integration

API Connect

cp4i | demo

Organization:
Org for Demo use (ddd-demo-test)

Develop /

Select API Type

Create

☒ **From target service**
Create a REST proxy that routes all traffic to a target API or service endpoint

☒ **From existing OpenAPI service**
Create a REST proxy based upon an OpenAPI described target service

☒ **From existing WSDL service (SOAP proxy)**
Create a SOAP proxy based upon a WSDL described target service

☒ **From existing WSDL service (REST proxy)**
Create a REST proxy based upon a WSDL described target service

☒ **From existing GraphQL service (GraphQL proxy)**
Create a GraphQL proxy based on a GraphQL service

☒ **New OpenAPI**
Compose a new REST proxy by defining paths and operations

Import

☒ **Existing OpenAPI**
Use an existing definition of a REST proxy or GraphQL proxy or SOAP API

☒ **From asset repository**
Import OpenAPI definition from asset repository

Cancel

Next

App

API Proxy

Target Endpoint

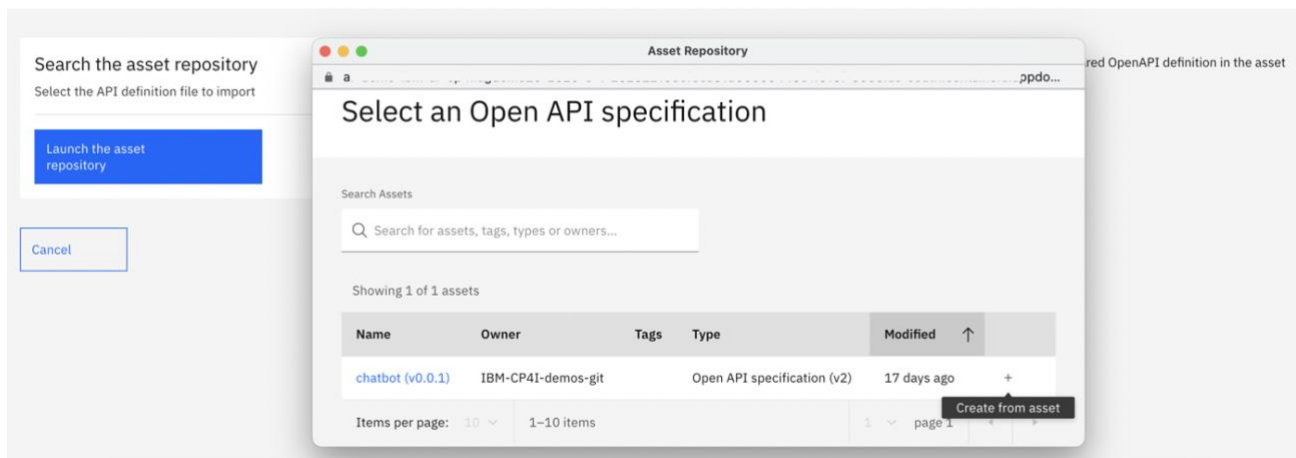
OpenAPI

In the next window you will be provided an option to launch the asset repository. When you click on it a pop-up window opens. You should be logged in automatically using SSO. If not, use 'admin' and the same password you used to log into the cloud pak home page. which might ask you to login again.

Select the 'chatbot' Open API specification.

Develop / Select API Type /

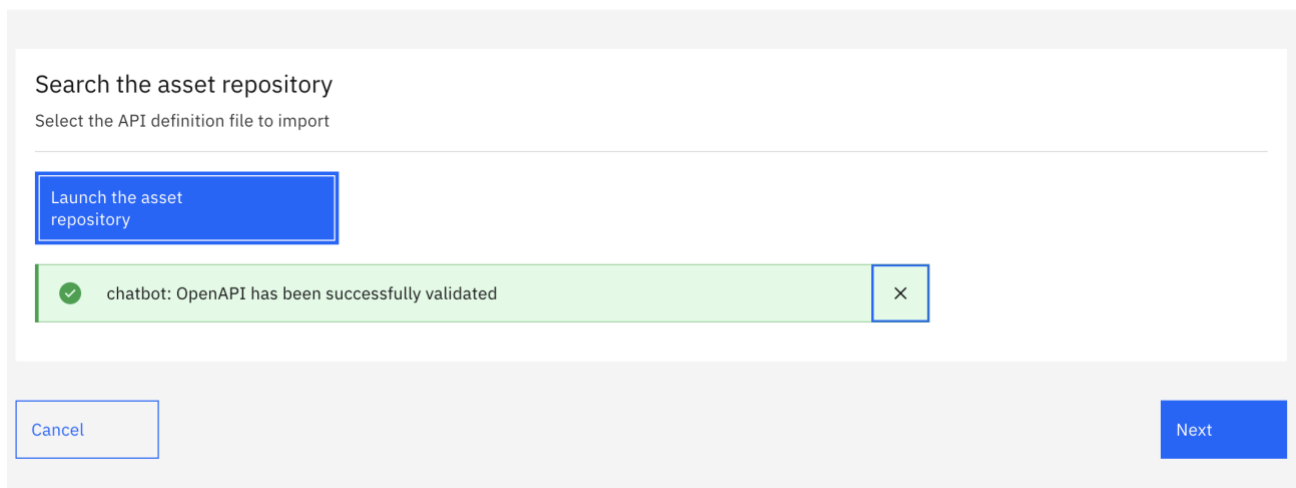
Import OpenAPI definition from asset repository



Once our asset is validated, we can click ‘Next’ to proceed with the import.

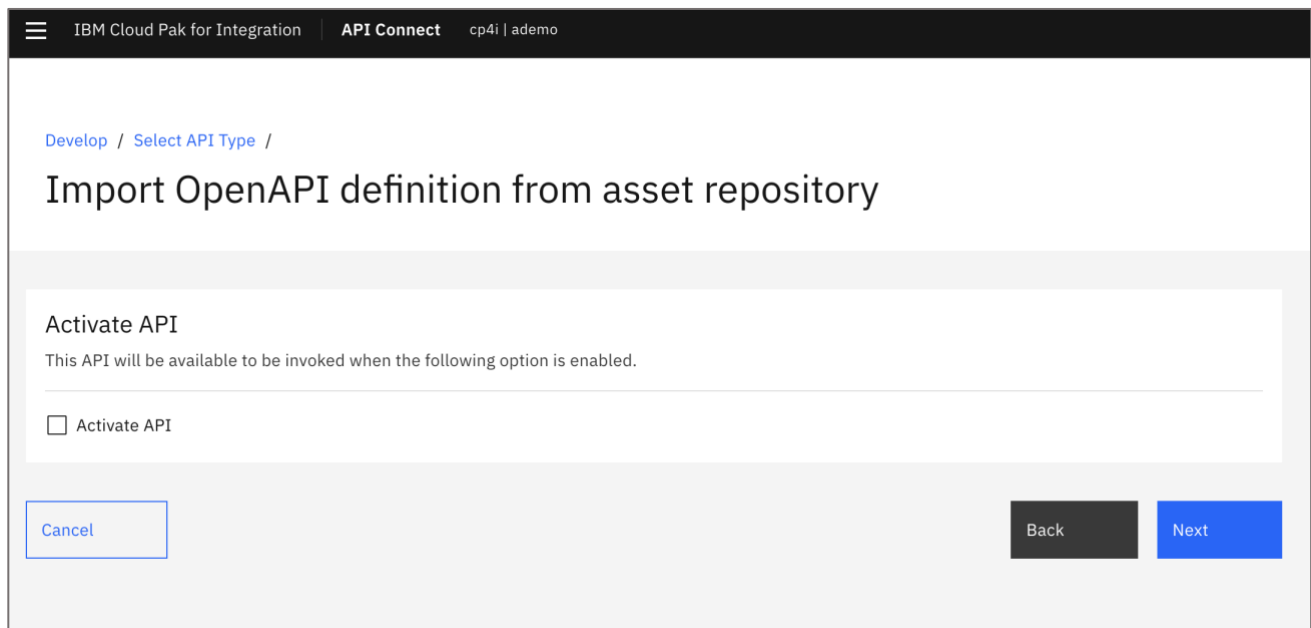
Develop / Select API Type /

Import OpenAPI definition from asset repository



In the next window, you can configure to Activate API option which creates a draft Product, adds the API to the Product, and publishes the Product to the Sandbox Catalog so that the API is available to be called. We want to only publish to our demo catalog, so will not select this option.

Click 'Next'.

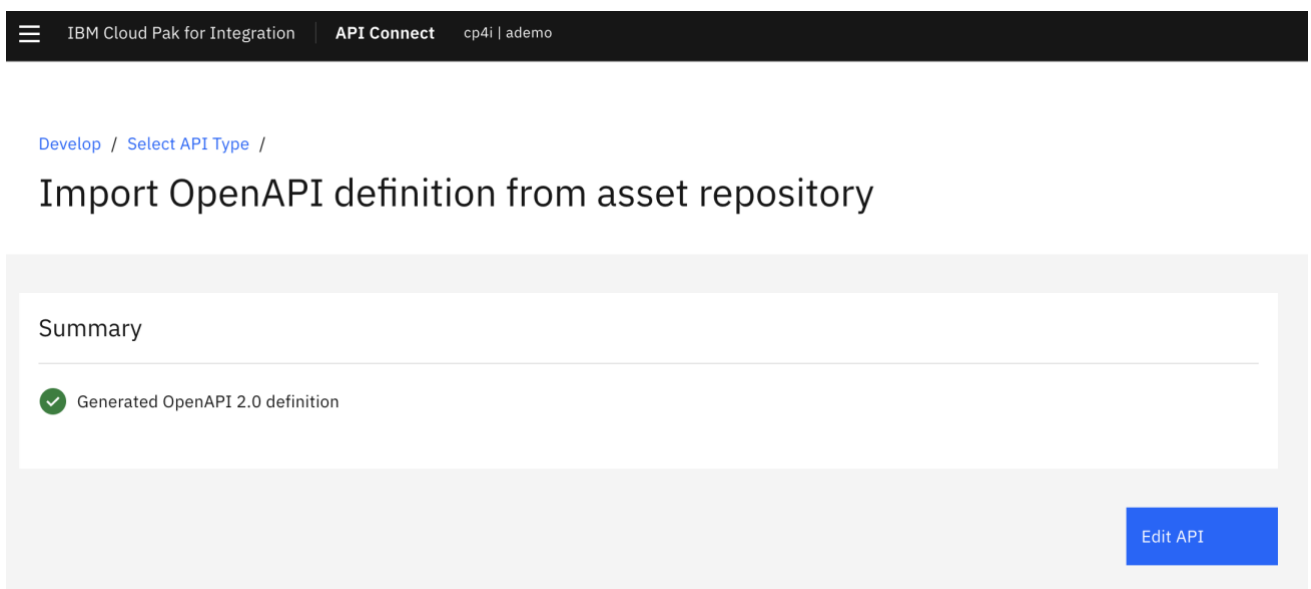


The screenshot shows the 'Import OpenAPI definition from asset repository' page in the IBM Cloud Pak for Integration API Connect console. The breadcrumb trail is 'Develop / Select API Type /'. The main heading is 'Import OpenAPI definition from asset repository'. Below this, there is a section titled 'Activate API' with the text 'This API will be available to be invoked when the following option is enabled.' and a checkbox labeled 'Activate API'. At the bottom left is a 'Cancel' button, and at the bottom right are 'Back' and 'Next' buttons.

7.2 Reviewing and editing our Facade API Flow

The Import API Summary panel indicates that the YAML file is loaded and valid.

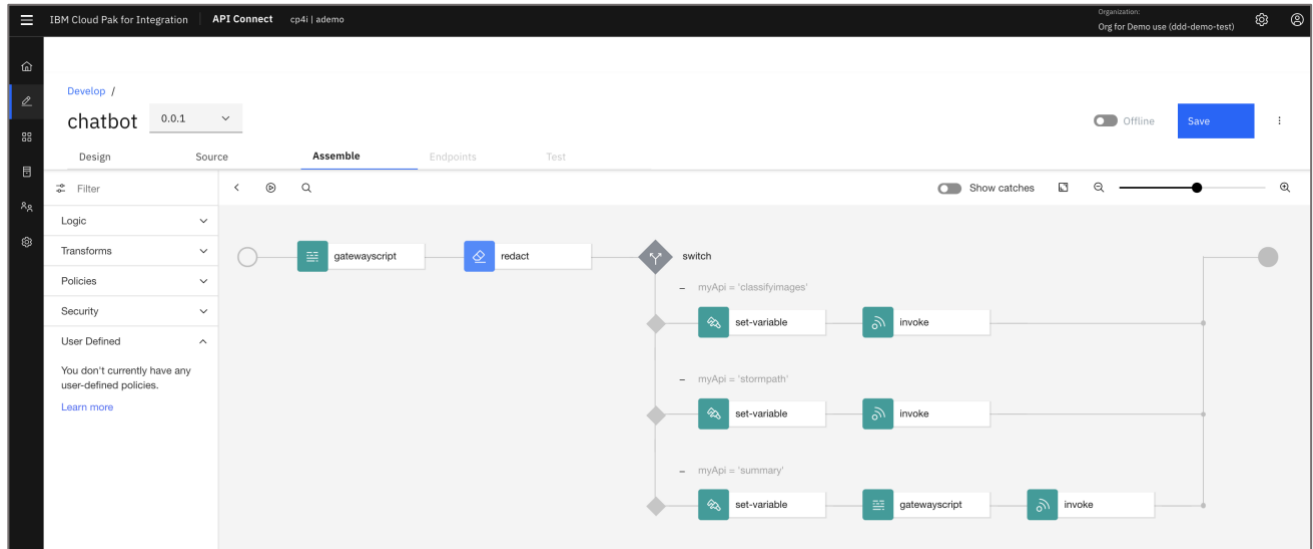
Click 'Edit API'.



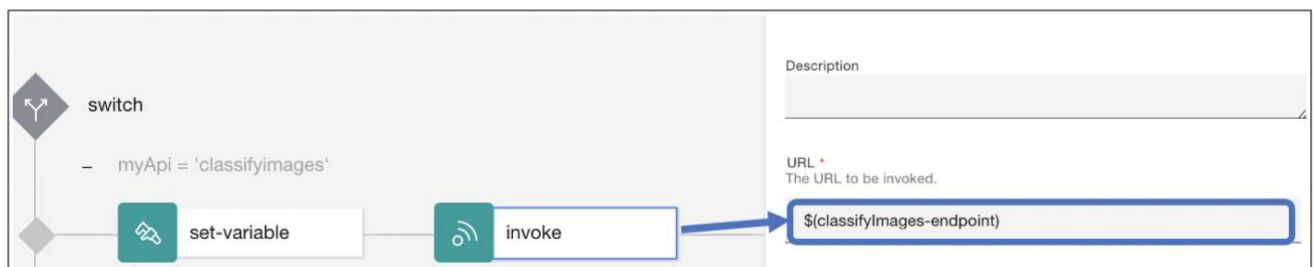
The screenshot shows the 'Import OpenAPI definition from asset repository' page in the IBM Cloud Pak for Integration API Connect console. The breadcrumb trail is 'Develop / Select API Type /'. The main heading is 'Import OpenAPI definition from asset repository'. Below this, there is a section titled 'Summary' with a green checkmark icon and the text 'Generated OpenAPI 2.0 definition'. At the bottom right is an 'Edit API' button.

You can switch to the 'Assemble' tab to view the implementation details.

This is a simple facade API secured by an API key which routes the incoming requests to our integration APIs based on request content. But you can always enrich the flow with additional error handling or security constructs depending on your requirements. For the purpose of this demo, we will stick to our simple façade API 😊



Each invoke policy uses property values to specify the URL for our target integration APIs. (such as classifyImages-endpoint)



Next, we need to update these endpoint properties to point to our deployed integration APIs.

Switch to 'Design' tab and select 'Properties'.

IBM Cloud Pak for Integration | API Connect | cp4i | demo | Organization: Org for Demo use (ddd-demo-test)

Develop / chatbot 0.0.1

Design Source Assemble Endpoints Test

Security Definitions Security Paths Definitions **Properties** Target Services Categories Activity Log

Properties Add

Property Name	Encoded	Description
username	false	:
passw	false	:
summary-endpoint	false	:
summary-key	false	:
stormpath-endpoint	false	:
stormpath-key	false	:
classifyImages-key	false	:
classifyImages-endpoint	false	:

First, click 'summary-endpoint' property and click 'Add' to define a catalog specific value.

Develop / Properties / Edit Property

Edit Property

Name

summary-endpoint

Default value (optional)

https://XXXX.us-south.containers.appdomain.cloud/IncidentSummary/summary

Description (optional)

☐ Encoded

Define catalog specific values for this property Add

CATALOG	VALUE
You currently don't have any catalog specific values for this property.	

Select our demo catalog and type the endpoint value of the 'IncidentSummary API'.

☐ Encoded

Define catalog specific values for this property

Add

CATALOG	VALUE	Delete
ddd-demo-test-catalog		

Make sure you use the correct endpoint value here.

It should be in the following format:

<http://<incidentsummary-hostname>/IncidentSummary/summary>

You can check the value of the hostname from App Connect Dashboard.

IBM Cloud Pak for Integration
 App Connect Dashboard
 cp4i | ace-dashboard-demo

Dashboard / Server: incidentsummary / API: IncidentSummary

IncidentSummary
 Started

Documentation Contents Properties Other resources

Filter
 Filter
 Overview
 GET /summary/{incidentNumber}
 Definitions

Find a model instance by {{id}} from the data source.
 summary

GET
 http://incidentsummary-http-cp4i.a...-0000.us-sout
 h.containers.appdomain.cloud:80/IncidentSummary/summary/{incidentNumber}

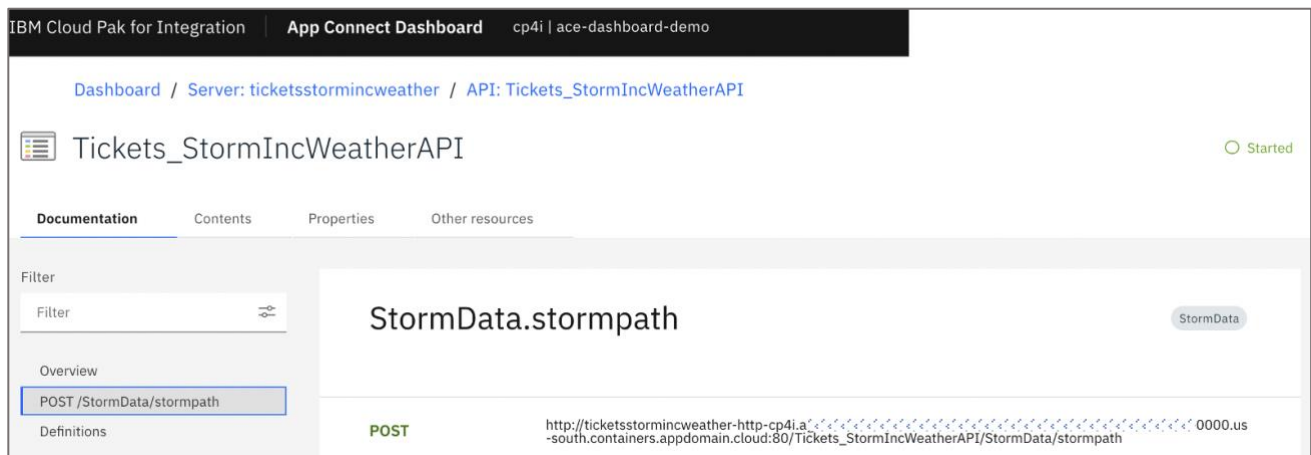
Next, click 'stormpath-endpoint' property and click 'Add' to define a catalog specific value. Select our demo catalog and type the endpoint value of the 'Tickets_StormIncWeatherAPI'.

Make sure you use the correct endpoint value here.

It should be in the following format:

http://<stormpath-hostname>/Tickets_StormIncWeatherAPI/StormData/stormpath

You can check the value of the hostname from App Connect Dashboard.



Lastly, click 'classifyImages-endpoint' property and click 'Add' to define a catalog specific value. Select our demo catalog and type the endpoint value of the 'classifyImagesV4 API'.

Make sure you use the correct endpoint value here.

It should be in the following format:

<http://<classifyImages-hostname>/classifyImagesV4/images/classify>

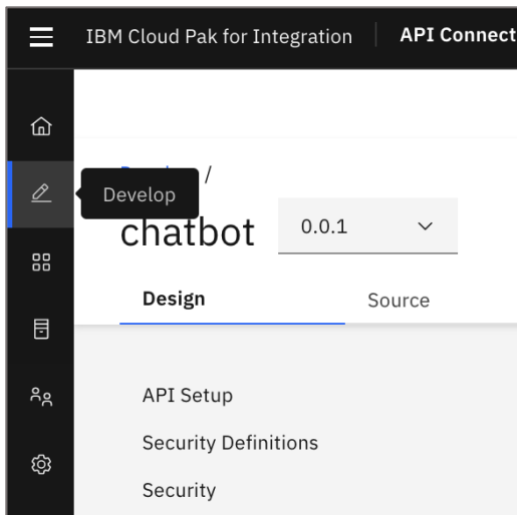
You can check the value of the hostname from App Connect Dashboard.



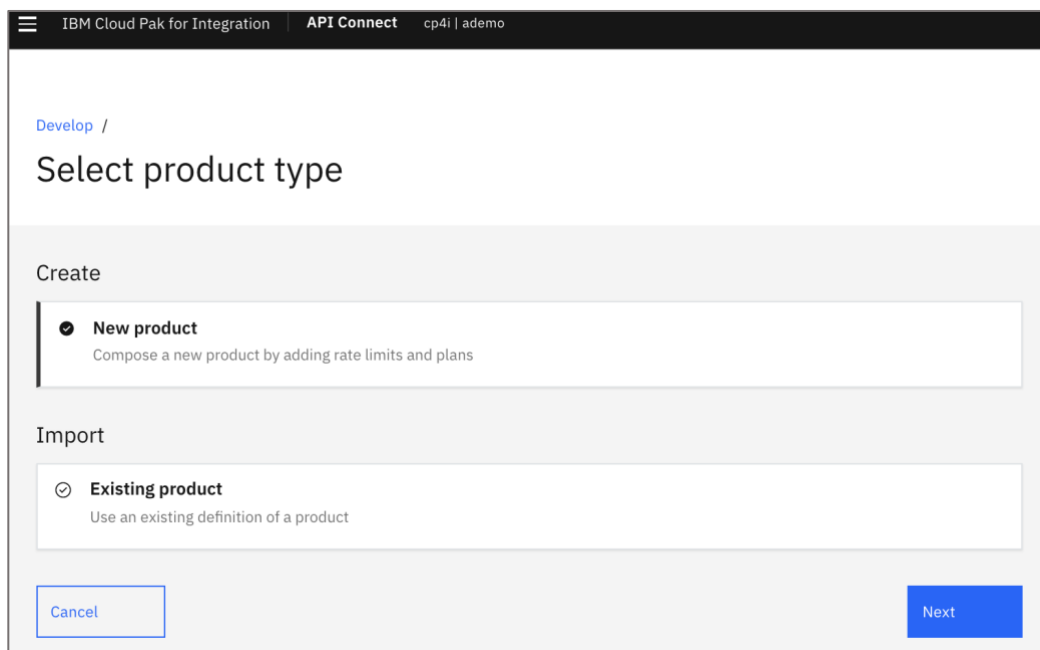
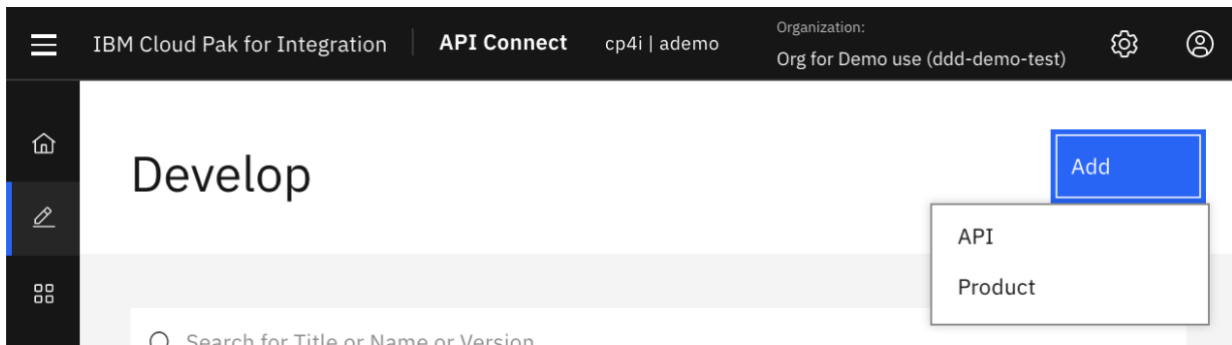
We finished editing our API, let's create a product! A product is a way of grouping together APIs. Consumers subscribe to products rather than individual APIs.

7.3 Publishing our Facade API Flow

Click the 'Develop' menu on the left.



Click 'Add' and select 'Product'.



Enter a product name such as 'Storm Insurance APIs' and a version '1.0.0' will do.

IBM Cloud Pak for Integration

API Connect

cp4i | ademo

[Develop](#) / [Select product type](#) /

Create New Product

Info

Enter details of the product

Title

Storm Insurance APIs

Name

storm-insurance-apis

Version

1.0.0

Summary (optional)

Cancel

Next

Select 'chatbot' API to add to the product and click 'Next'

IBM Cloud Pak for Integration

API Connect

cp4i | ademo

[Develop](#) / [Select product type](#) /

Create New Product

APIs

Select APIs to add to this product

<input checked="" type="checkbox"/>	Title	Version	Description
<input checked="" type="checkbox"/>	chatbot	0.0.1	

Items per page 10 ▾

1-1 of 1 items

1 ▾

1 of 1 pages

◀

▶

Cancel

Back

Next

You can add multiple rate limits and plans. But for now, Default plan will do.

IBM Cloud Pak for Integration

API Connect

cp4i | demo

Develop / Select product type /

Create New Product

Plans

Compose a new product by adding rate limits and plans

Add

Default Plan

Default Plan

Title

Default Plan

Description (optional)

Default Plan

Rate Limit

100 / 1 hour

Cancel

Back

Next

Finally configure the 'visibility and subscribability' settings. You can leave the default settings. We will leave the 'Publish product' checkbox empty as we want to publish to our demo catalog later.

IBM Cloud Pak for Integration

API Connect

cp4i | demo

[Develop](#) / [Select product type](#) /

Create New Product

Publish

Enable publishing of this product

☐ Publish product

Visibility

Select the organizations or groups you would like to make this product visible to

☒ Public
☐ Authenticated
☐ Custom

Subscribability

Select the organizations or groups you would like to subscribe to this product

☒ Authenticated
☐ Custom

Cancel

Back

Next

Click 'Done'. You will be redirected to the 'Develop' page. Now, we are ready to publish to the Portal!

IBM Cloud Pak for Integration

API Connect

cp4i | demo

[Develop](#) / [Select product type](#) /

Create New Product

Summary

✓ Created new product

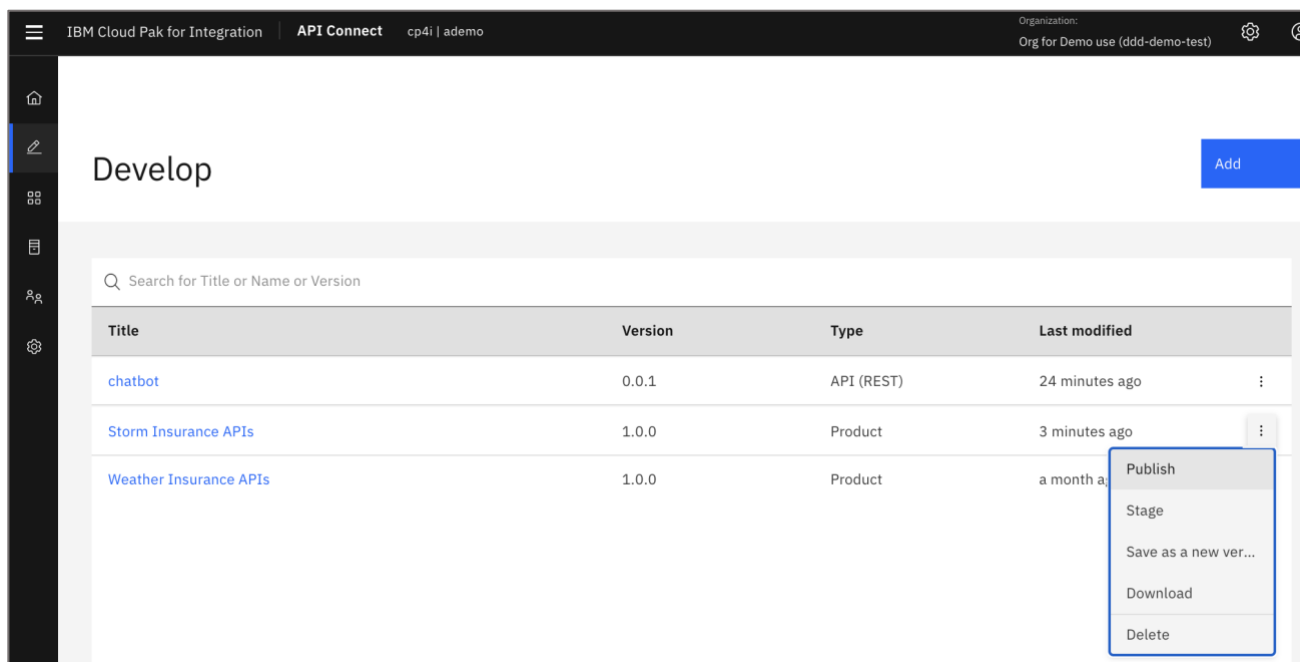
✓ Added APIs

✓ Added rate limits

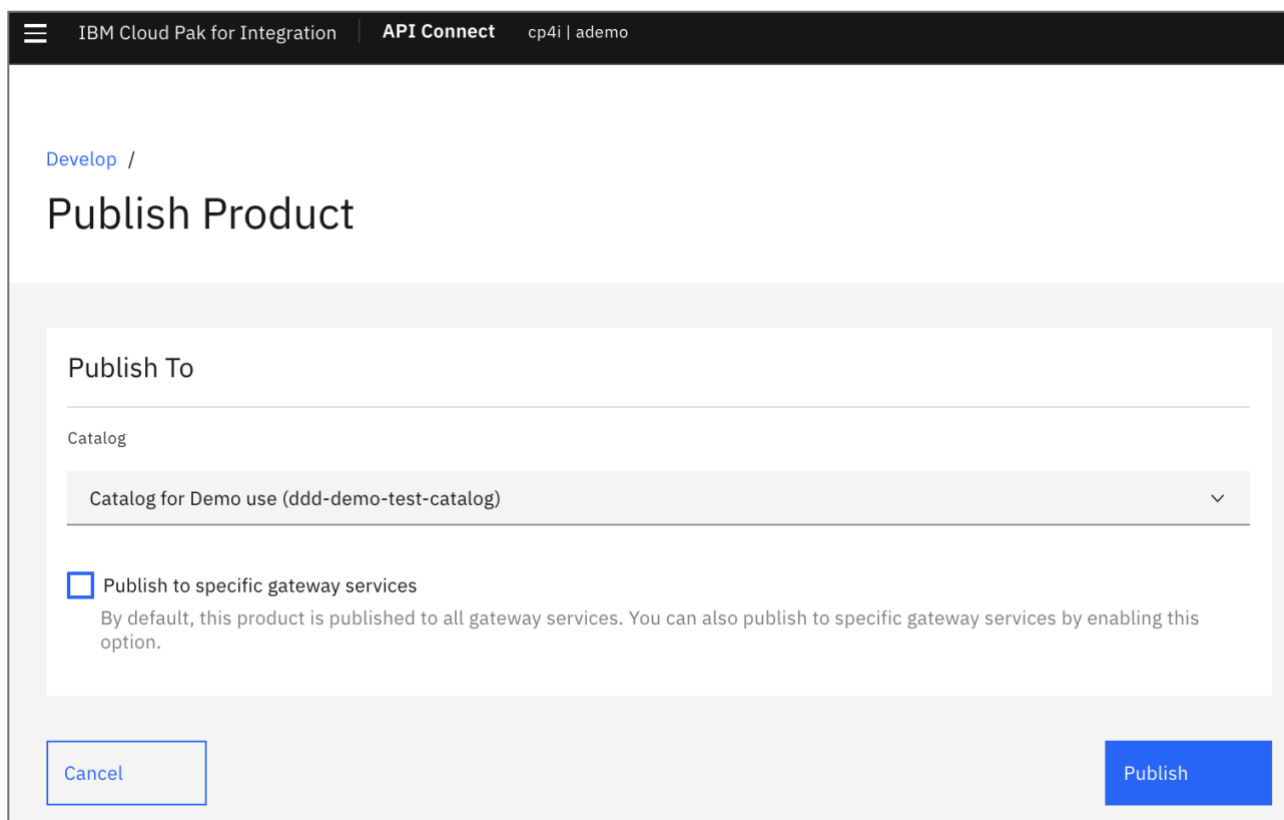
Edit Product

Done

Now click on the three-dot overflow menu by the 'Storm Insurance APIs' product and click 'publish'.

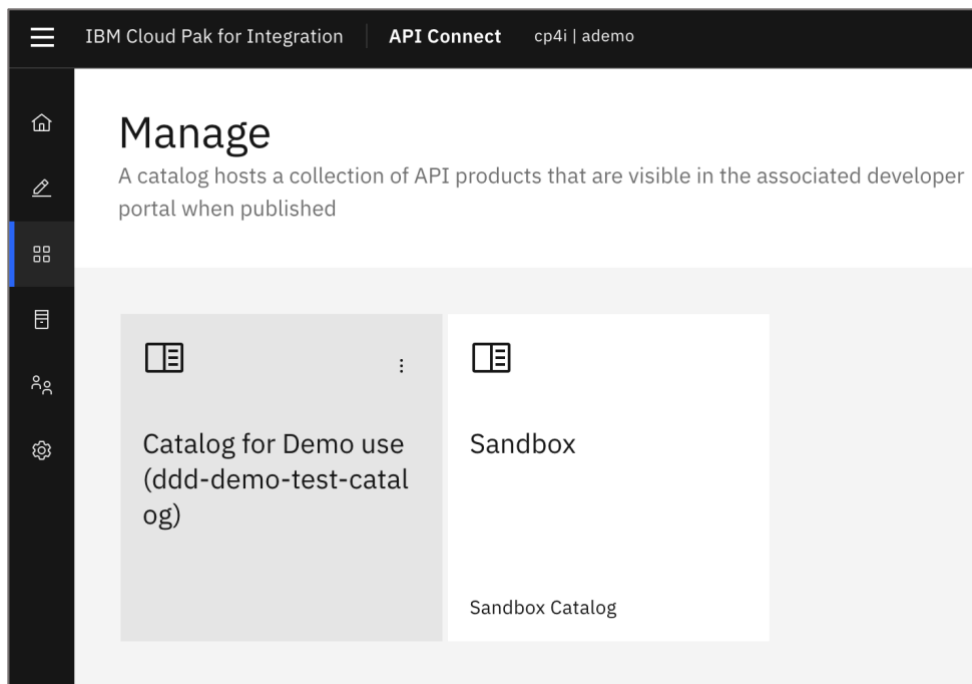


You'll be prompted for a catalog to publish to – select 'Catalog for Demo use'. We only have one gateway installed so we can leave the checkbox blank – click 'Publish'



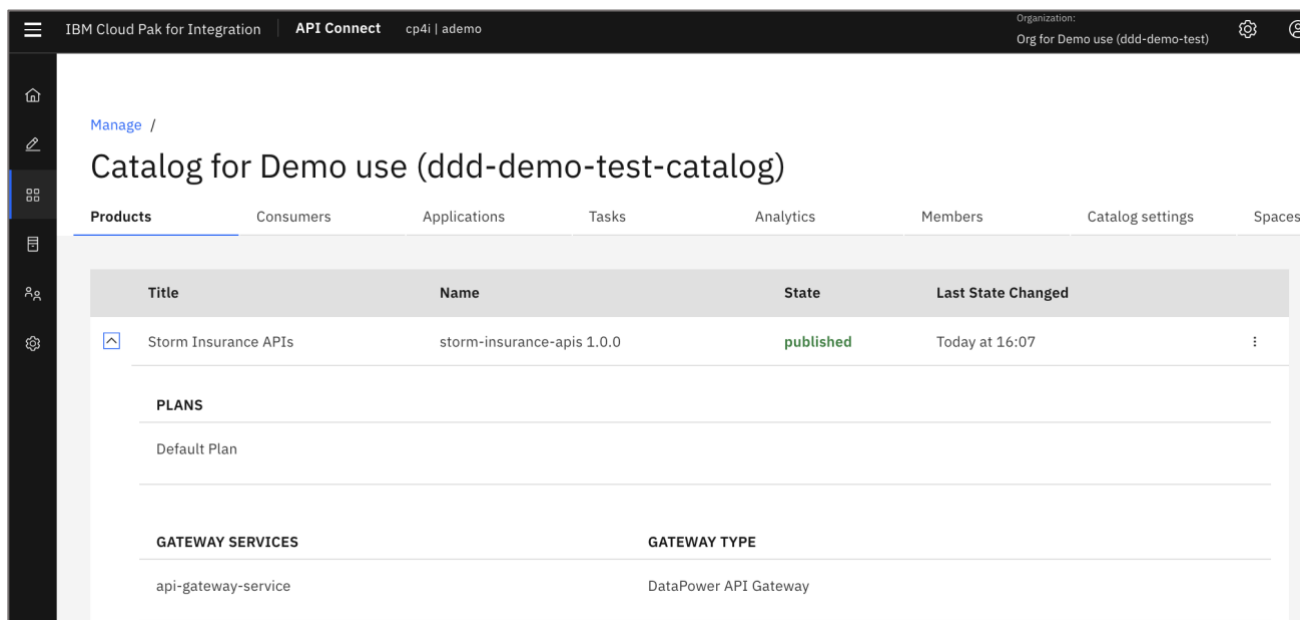
You will see a notification once the publish finishes. (in seconds)

If you now go back to your catalog and look for products, you can see the status is 'published' (go to the 'Manage' menu and then click on the Catalog for Demo use)



You can see our Default plan added into the product. You can also see that we've published our API to a secure DataPower Gateway.

The gateway has been configured as an APIC gateway service and bound to the catalog as part of the 1-click demo installation for this lab.

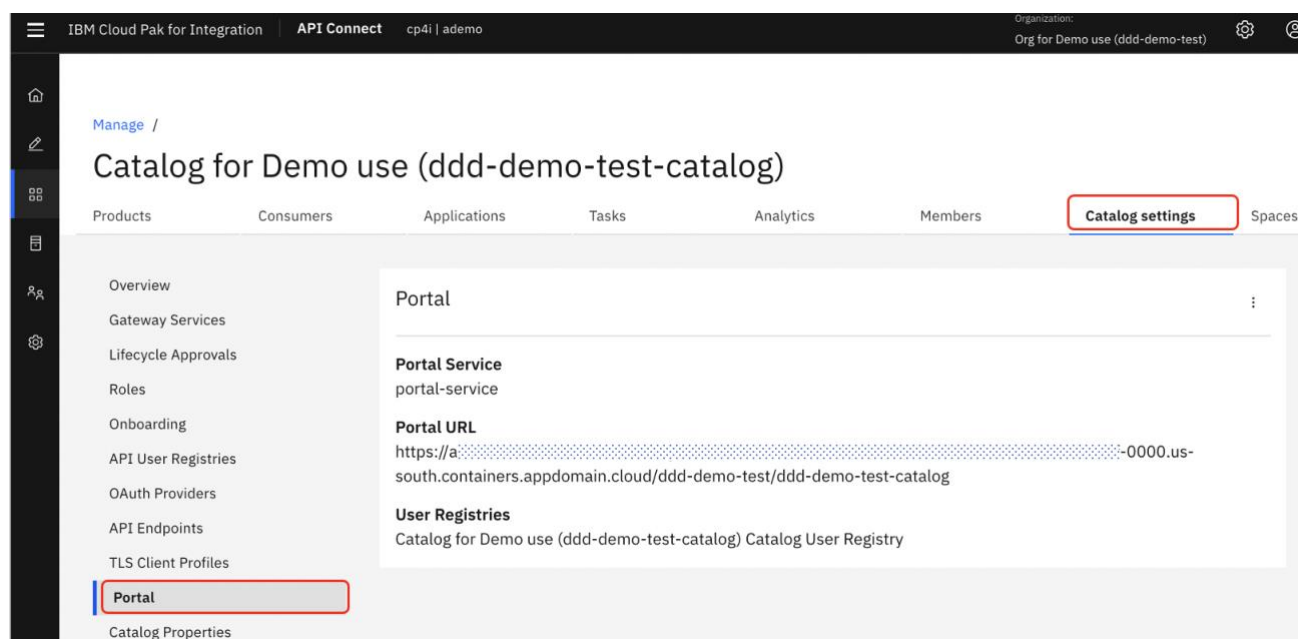


7.4 Discovering and consuming our API

Now that we've published our API, we need to make sure that our API consumers can discover it and use it.

Our Portal will allow customers to view the APIs, sign up and subscribe to plans in a self-service manner, test the APIs, download the OpenAPI / Swagger documents and more.

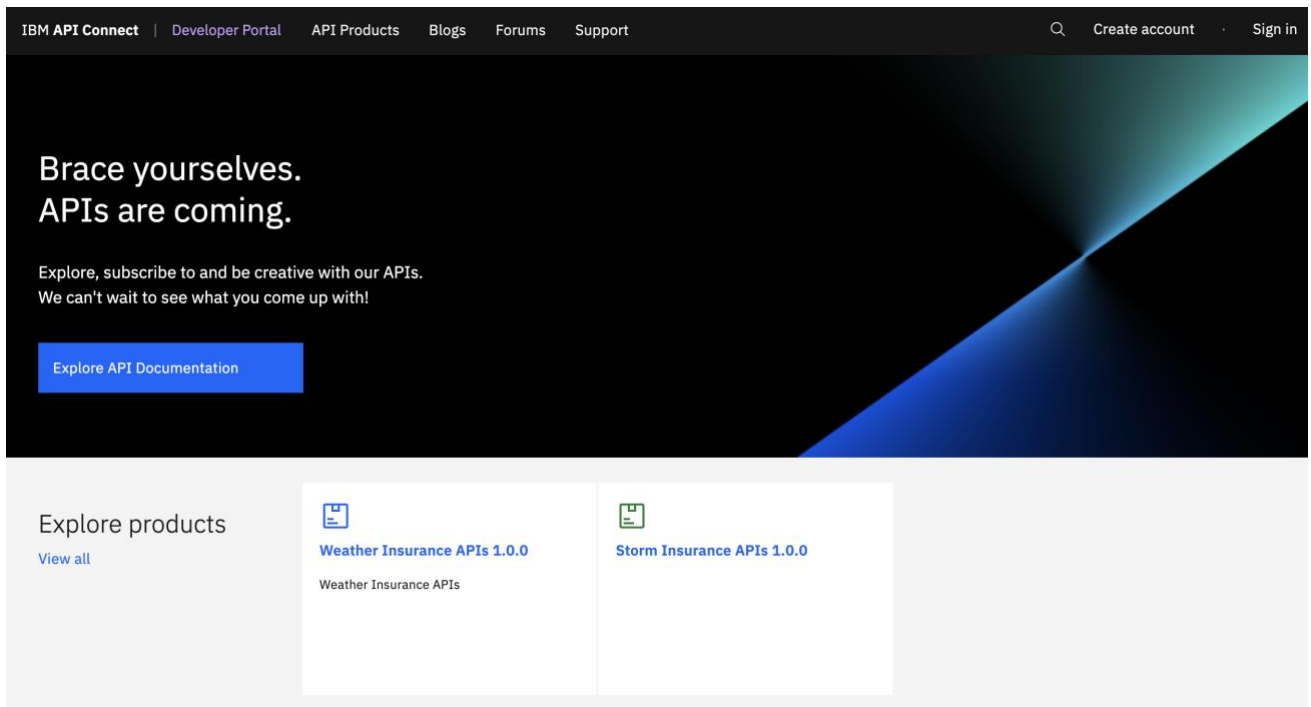
Click 'Catalog settings' and 'Portal'.



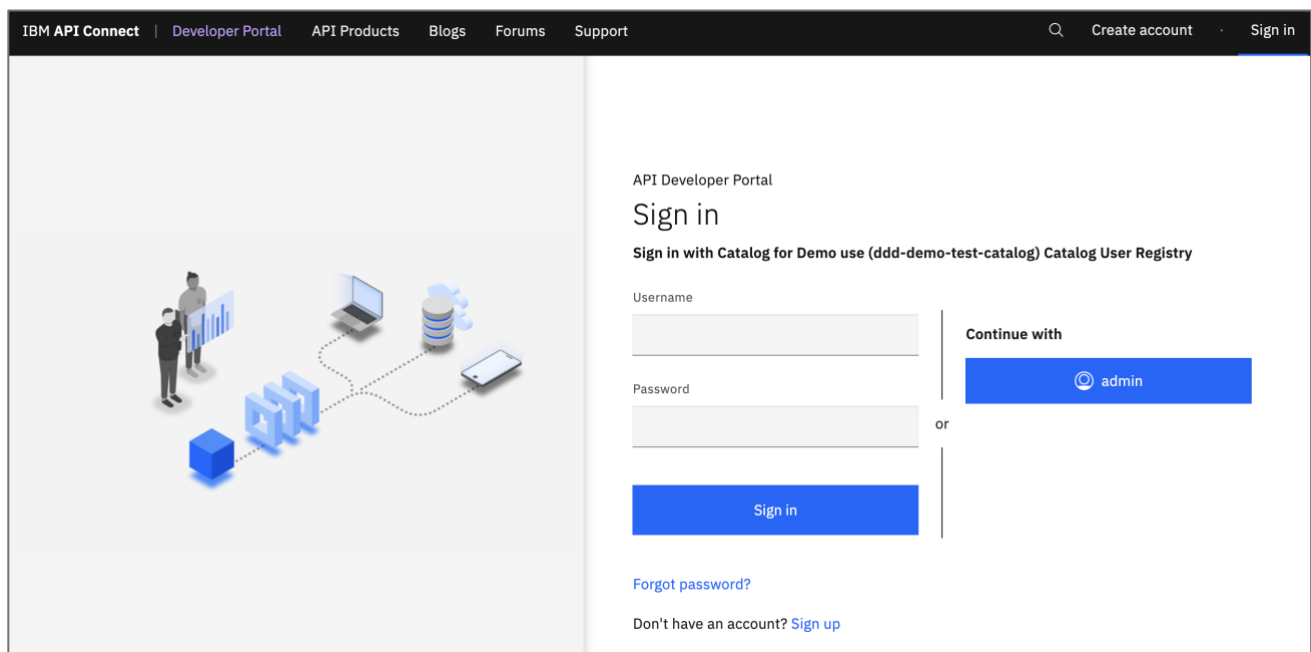
You can see that a portal service has been created for you as part of the 1-click demo installation.

You can directly access to the Portal URL from your browser. Notice that 'Storm Insurance APIs' are already visible as we set the visibility as 'public'.

We're going to need to register a consumer and get an API key – luckily, we can do that self-service! Click 'Sign in'.




Click 'Sign up' to create a new account. (if you don't have already one)



Fill in your details and then click 'sign up'.

IBM API Connect | [Developer Portal](#) | [API Products](#) | [Blogs](#) | [Forums](#) | [Support](#) | [Create account](#) | [Sign in](#)



Sign up

Sign up with Catalog for Demo use (ddd-demo-test-catalog)
Catalog User Registry

Username *

Email address *

First Name *

Last Name *

Consumer organization *

Password *

Password strength:

Confirm password *

Minimum password character types: 3

Password character length of at least 8 characters

Password must not contain the user's username.

Password Strength minimum score of 2

Maximum consecutive identical characters: 3

Sign up

Tip: If you're using mailtrap.io as your mail server, you can use any email address. Use 'chatbot@example.com' to be safe – example.com is guaranteed to not be a real domain.

✓ Your account was created successfully. You will receive an email with activation instructions.

Brace yourselves. APIs are coming.

Explore, subscribe to and be creative with our APIs.
We can't wait to see what you come up with!

[Explore API Documentation](#)

We'll need to get the email: You'll find it in your email page in your mailtrap.io. account.

API Connect thinks you are now a new consumer user and has sent you an email to welcome you.

[Home](#) / [Demo inbox](#) / Catalog for Demo use developer portal account registration

Catalog for Demo use developer portal account registration

From: APIC Administrator <admin@apiconnect.net>
To: <r@example.com>

[Show Info](#)

HTML HTML Source Text Raw Analysis SMTP info

Hello

Thank you for signing up for an account on the Catalog for Demo use developer portal.

To complete your registration, use this link:


<https://south.containers.appdomain.cloud/demoorg/democatalog/user/activation?activation=ZY1KaGTHY21PaInTVXpTMU5pSYNTh1T1V0NjNklrcFhW00o5ImV5SnFkR2tpT21Id05Uz2VObIIV3T1MwM11UC>

Copy and paste the link into the browser in the lab desktop machine. You should eventually get the portal with the notice:

✓ Your account has been activated. You can now [Sign In.](#)

Make sure you're using demo catalog user registry and sign in with your credentials you just created.

IBM API Connect | Developer Portal | API Products | Blogs | Forums | 🔍 | Create account | Sign in



API Developer Portal

Sign in


Sign in with Catalog for Demo use (ddd-demo-test-catalog) Catalog User Registry

Username

Password

Sign in

Continue with

 admin

or


[Forgot password?](#)

Don't have an account? [Sign up](#)

You'll get the following home screen:

IBM API Connect | Developer Portal | API Products | Apps | Blogs | Forums | Support | 🔍 | UcuOrg | ⌵ | ●


Welcome, let's get started!



Explore API Products

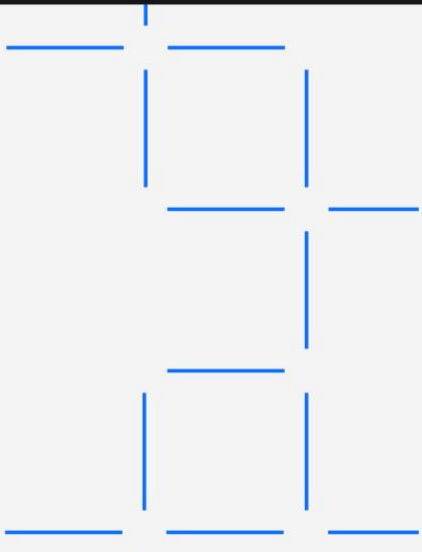
Take a look at our API products and quickly find the APIs you need.

[Take me to the homepage →](#)



Create a new App

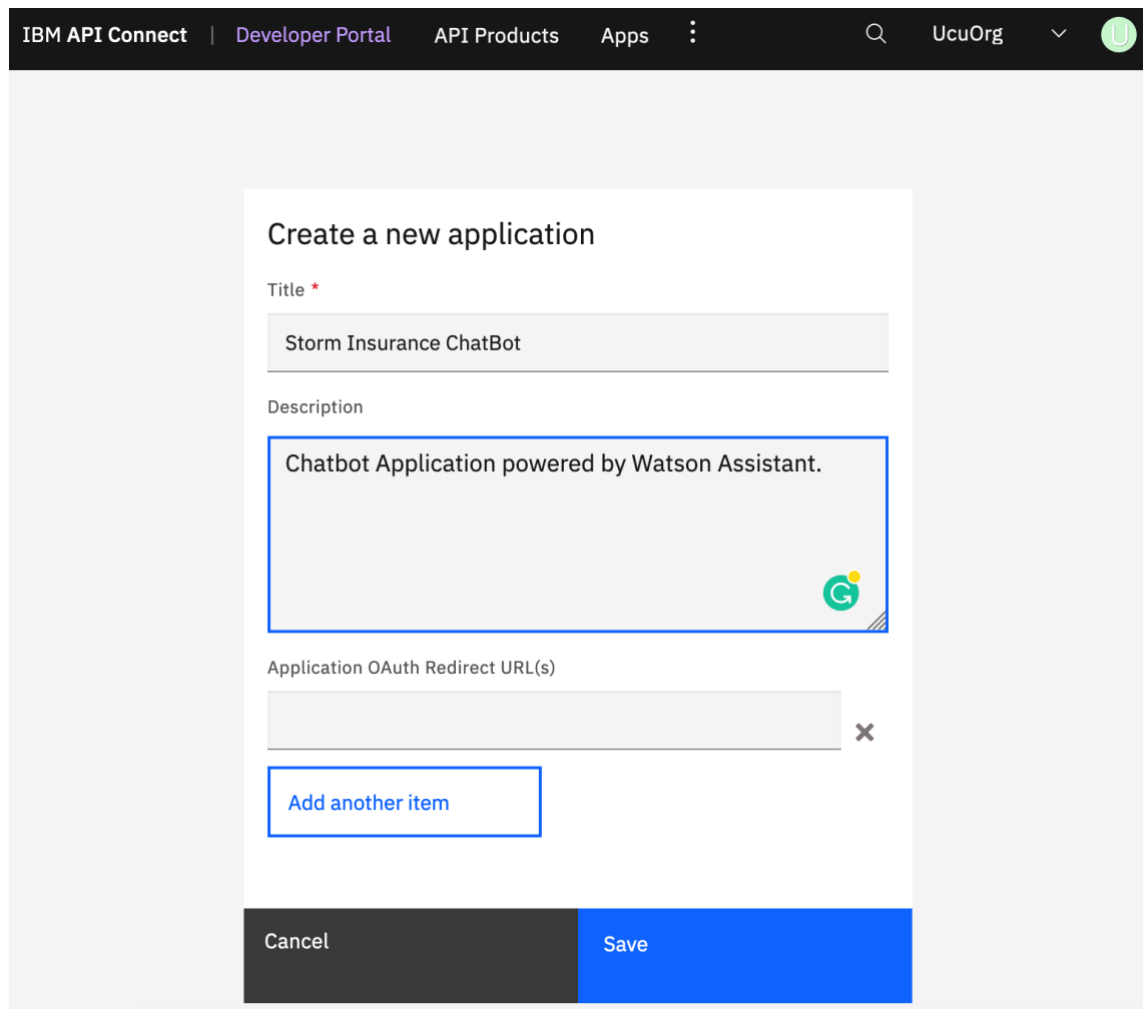
Create an App so you can subscribe to our API Products and start building your application.



We're going to create a new application: This will give us an API key so we can call our APIs.

Click on 'Create a new App'.

Give our App a title e.g Storm Insurance Chatbot and click 'Submit':



The screenshot shows the 'Create a new application' form in the IBM API Connect Developer Portal. The form is titled 'Create a new application' and has a 'Title' field with the value 'Storm Insurance ChatBot'. Below the title is a 'Description' field with the value 'Chatbot Application powered by Watson Assistant.' and a small green 'G' icon. There is an 'Application OAuth Redirect URL(s)' field which is currently empty, with an 'Add another item' button below it. At the bottom of the form are two buttons: 'Cancel' and 'Save'.

This gives us an API key and secret. You'll only ever be able to see the secret once here. For this lab, we haven't asked for secrets, so you won't need to remember it.

Click 'Copy' () to get your API key. Copy it somewhere safe then click 'Ok'

New application credentials

The API Key and Secret have been generated for your application.

Key

75

Secret

fa5

The Secret will only be displayed here one time. Please copy your API Secret and keep it for your records.

OK

You'll now see the details for your application. Dashboard tab shows you the stats of your application. At the moment, we don't have an API calls, so no stats...

We've not also subscribed to any APIs yet – click on 'Why not browse the available APIs?'

IBM API Connect
Developer Portal
API Products
Apps
Blogs
Forums
Support
UcuOrg

Applications
Storm Insurance ChatBot
Dashboard
Subscriptions

Credentials

Credential for Stor...

Client ID

75410357b937b149b834b0193ff96930

Client Secret

Verify

Subscriptions

Product	Plan
No subscriptions found. Why not browse the available APIs?	



Click on the 'Storm Insurance APIs' product.



API Products

Filters and Sorting:

- Name:
- Category:
- Sort by:
- Order:
- Items per page:
- [Apply](#) [Reset](#)


Name	Category	Sort by	Order	Items per page
 Storm Insurance APIs 1.0.0 ★★★★★				
 Weather Insurance APIs 1.0.0 ★★★★★				
chatbot 0.0.1				

You can now see the plans:

We have only Default plan. Click on 'subscribe'.

Products / **Storm Insurance APIs 1.0.0** ★★★★★

APIs

 chatbot 0.0.1

REST • Online •

Plans

Plan	Details
Default Plan	100 calls per hour Default Plan Subscribe

chatbot 0.0.1 100 calls per hour

[Hide details ^](#)

Select the 'Storm Insurance ChatBot' application we have just created.

Subscribe to Storm Insurance APIs 1.0.0

☒ Select Application ☐ Subscribe ☐ Summary

Select an existing application or create a new application



Storm Insurance ChatBot

Chatbot Application powered by Watson Assistant.

[+ Create Application](#)

We now need to confirm our subscription – click ‘Next’.

Subscribe to Storm Insurance APIs 1.0.0

☐ Select Application ☒ Subscribe ☐ Summary

Confirm Subscription

Product	Application	Plan
Storm Insurance APIs	Storm Insurance ChatBot	Default Plan: Free subscription for 100 calls per hour

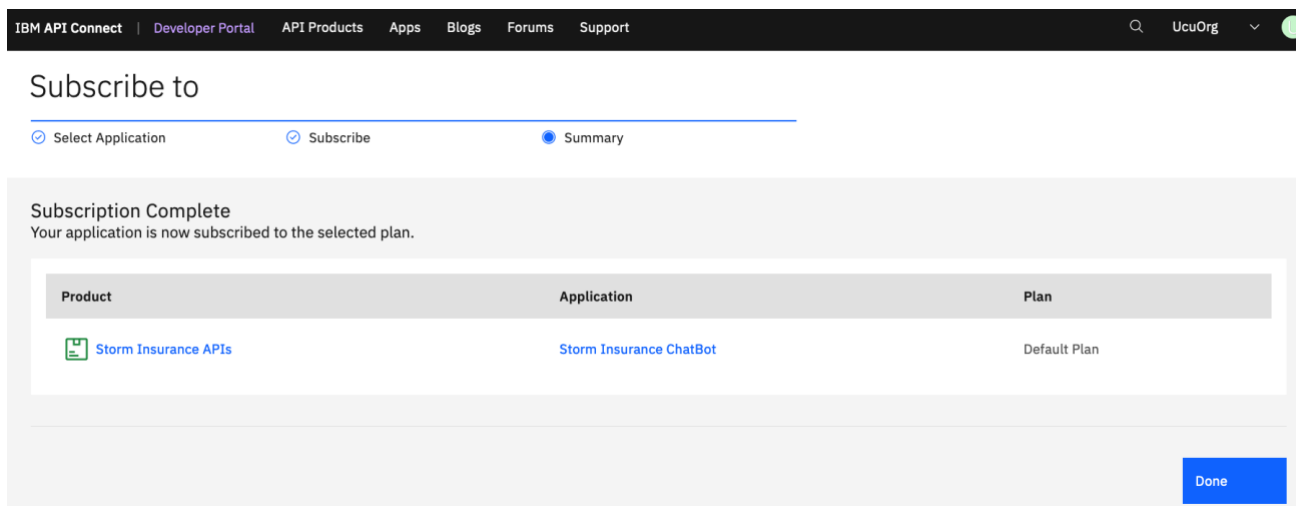
[Previous](#)

[Next](#)

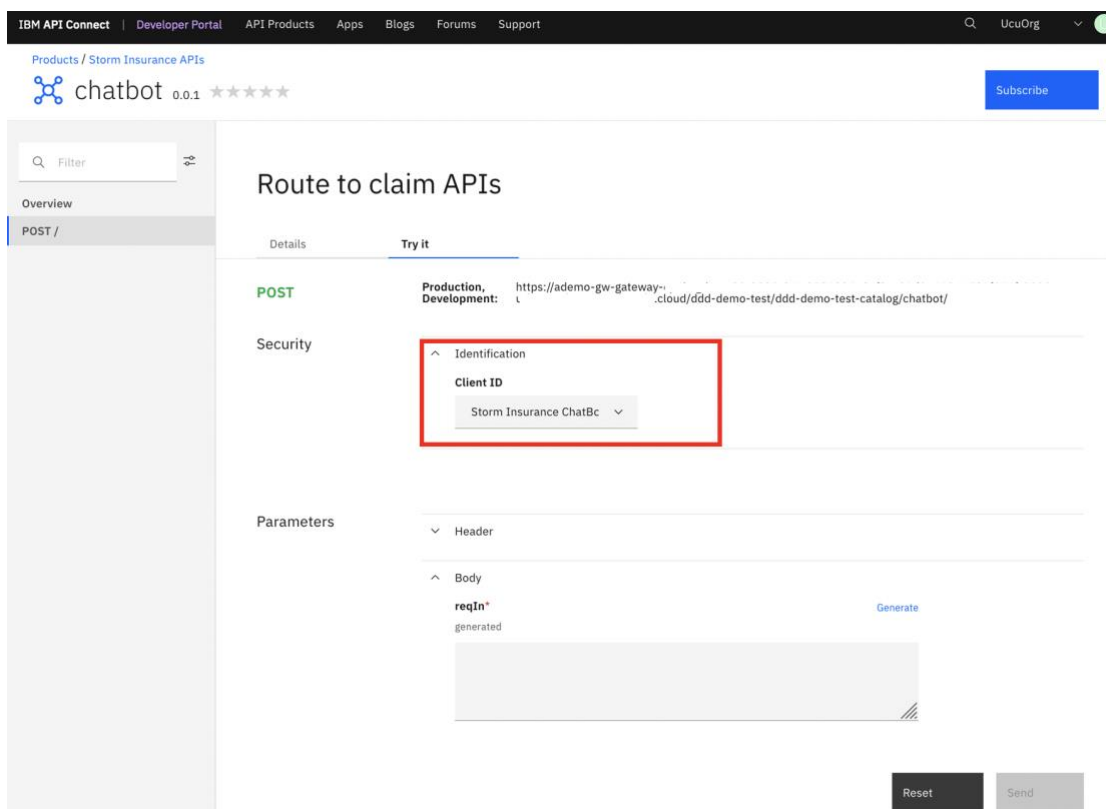
Now our application subscribed to the ‘Default plan’ of the ‘Storm Insurance APIs’ product.

What does this mean?

This means, ChatBot application can make 100 calls per hour for free.



We're now back at the product screen – click on the API itself, not the plan. Click on POST – note the portal has everything you need to call your API – if you scroll down, it's even generated clients in various languages for you (that's how we created our test clients in curl in our scripts for this lab).



You can go ahead and test your API.

Notice that API key will be automatically filled by the 'Storm Insurance Chatbot' application's client id.

You can use the below request examples. Remember to use the incident number returned from the first call in the subsequent calls.

1) Route to ticketsstormincweather API

```
{
  "apiName": "stormpath",
  "postCode": "70510:US",
  "date": "2018-07-13",
  "name": "John ACE"
}
```

2) Route to classifyimages API

```
{
  "apiName": "classifyImages",
  "image_url": " https://raw.githubusercontent.com/IBM/cp4i-demos/main/ace-weather-
chatbot/images/car.jpg",
  "incident_id": "REPLACE_INCIDENTNUMBER",
  "image_name": "My damaged car using a URL"
}
```

3) Route to incidentssummary API

```
{
  "incidentId": "REPLACE_INCIDENTNUMBER",
  "apiName": "summary"
}
```

Now we are ready to consume our API from Watson Assistant chatbot!

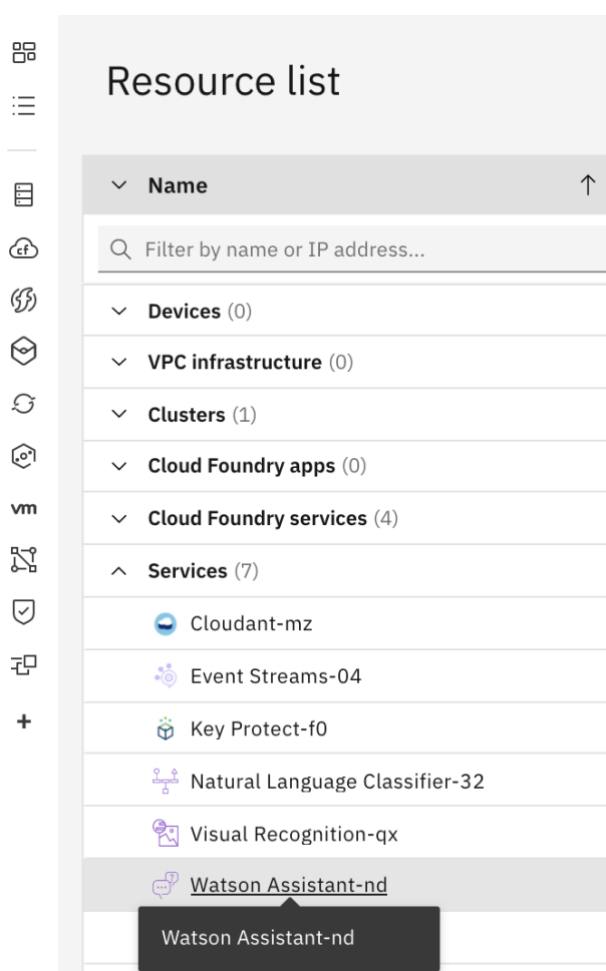
8 Create your Watson Assistant chatbot

Now it is time to create our chatbot which will consume the APIs we've created before.

Login to your cloud account. (sign in at <https://cloud.ibm.com> Use your IBM ID, or if you're an IBMer, you may go through a Single Sign-on process).

Once you're in, you'll be presented with the cloud dashboard showing which services you have provisioned.

From the 'Resource summary' tile click on the 'Services', you'll find your Watson Assistant service that you've created before.



An assistant helps your customers complete tasks and get information faster. It may clarify requests, search for answers from a knowledge base, and can also direct your customer to a human if needed. In our demo,

- it will search for answers to queries like 'can customer claim a storm insurance?' via validating the storm occurrence with IBM Weather Service.

- it will analyse the image uploaded by customer to get an estimate value for the damage via connecting to Watson Visual Recognition service.
- And moreover, it will automate the claim creation process.

Click on your new service and you'll see the 'Manage' tab. Click 'Launch Watson Assistant'.

The screenshot shows the 'Manage' tab for a Watson Assistant service. The left sidebar has a 'Manage' section with sub-items: 'Service credentials', 'Plan', and 'Connections'. The main content area is titled 'Start by launching the tool' and contains a blue button 'Launch Watson Assistant', a link 'Getting started tutorial' with an external icon, and a link 'API reference'. On the right, there's a 'Plan' section showing 'Lite' and an 'Upgrade' button. Below this, the 'Credentials' section displays the 'API key' (masked with dots) and a 'URL' (https://api.eu-gb.assistant.watson.cloud.ibm.com/instances/c7815e5b-d3ad-4d9a-9081-381e363b6f). There are links for 'Download' and 'Show credentials'.

Click 'Create assistant'.

The screenshot shows the 'Assistants' page in the IBM Watson Assistant console. The header is 'IBM Watson Assistant'. The left sidebar has a 'Create assistant' button. The main content area has the title 'Assistants' and a description: 'An assistant helps your customers complete tasks and get information faster. It may clarify requests, search for answers from a knowledge base, and can also direct your customer to a human if needed.' Below the description is a blue button labeled 'Create assistant'.

Name the Watson Assistance instance 'Storm Insurance' and click 'Create assistant'.

Create assistant

Create an assistant to deploy the skill that addresses your customers' goals.

Name

Storm Insurance

Name your assistant, for example **Banking** or **Customer Care**.

Description (optional)

Add a description for this assistant

Web chat ⓘ

☒ Enable web chat

Preview link ⓘ

☒ Enable preview link

Create assistant

Next, we are going to add the dialog skill that is hosted on our Git repo (<https://github.com/IBM/cp4i-demos/tree/main/ace-weather-chatbot/assets/watson-assistant-skills>).

A dialog skill is a container for the artifacts that define the flow of a conversation that your assistant can have with your customers.

Download or clone the dialog skill ([skill-Stormy-Insurance.json](#)).

Click 'Add dialog skill'.

IBM Watson Assistant Lite Upgrade

← Assistants

Storm Insurance

Actions Beta

Build conversations easier than ever

- Have an assistant ready to chat in less time, with less effort
- Compose step-by-step flows for any range of simple or complex conversations
- Focus more on your customer's goals and experience
- Collaborate and work more intuitively, made so that anybody can build

[Learn more](#)

[Add an actions skill](#)

Dialog

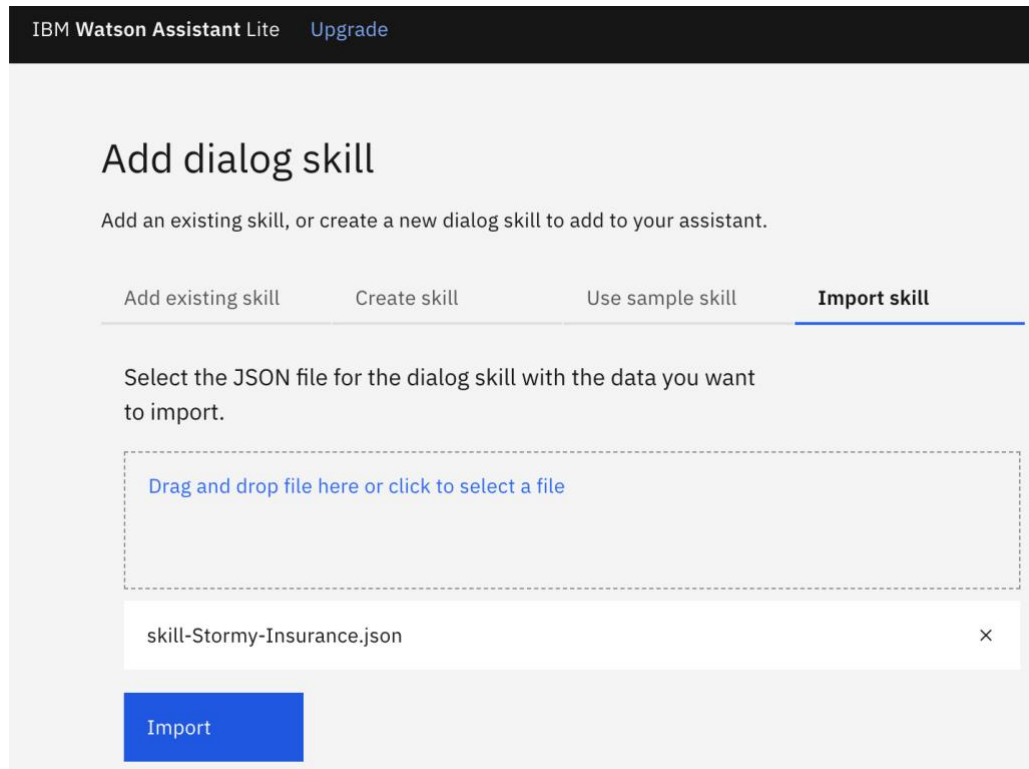
Our full-feature conversation builder

Dialog offers all the smarts, power, and flexibility you've come to trust. Select to keep building with the tools you know and love. [Learn more](#)

[Add dialog skill](#)

Click 'Import skill' tab.

Select 'skill-Stormy-Insurance.json' file that you've downloaded from Git repo and click 'Import'



IBM Watson Assistant Lite [Upgrade](#)

Add dialog skill

Add an existing skill, or create a new dialog skill to add to your assistant.

[Add existing skill](#) [Create skill](#) [Use sample skill](#) **[Import skill](#)**

Select the JSON file for the dialog skill with the data you want to import.

Drag and drop file here or [click to select a file](#)

skill-Stormy-Insurance.json ×

Import


You will see that dialog is added to your assistant.


A webhook is a mechanism that allows you to call out to an external program based on something happening in your program. When used in a dialog skill, a webhook is triggered when the assistant processes a node that has a webhook enabled. The webhook collects data that you specify or that you collect from the user during the conversation and saves in context variables.

In the URL text box, type the endpoint value of your chatbot API (that you've exposed via API Connect)

In the 'X-IBM-Client-Id' Header value text box, type the Client ID (API key) value of your chatbot API (that you've exposed via API Connect).

IBM Watson Assistant Lite [Upgrade](#)

 Stormy Insurance



Intents

Entities

Dialog

Options

Webhooks

Disambiguation

Autocorrection

Irrelevance Detection

Intent Detection New

Analytics

Versions

Content Catalog

Webhooks

A webhook is a mechanism that allows you to call out to an external program based on events in your dialog.

Webhook setup


Specify the request URL for an external API you want to be able to invoke from dialog nodes. Watson will call this URL when configured to do so from a dialog node. [Learn more](#)

URL

https://XXX.appdomain.cloud/demoorg/democatalog/chatbot


Headers

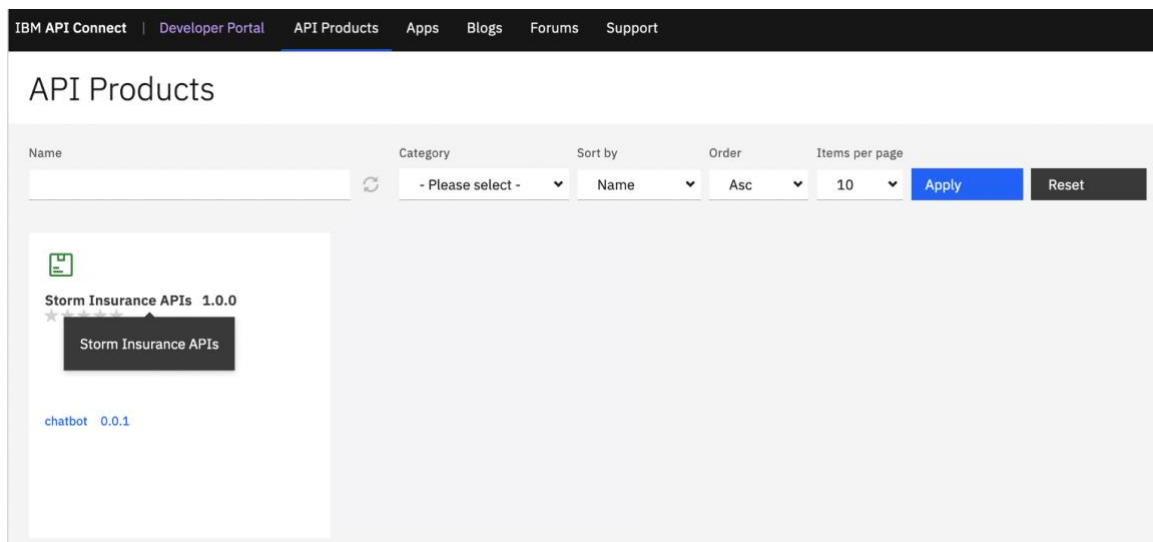
Add HTTP headers for authorization or any other parameters required for invoking the webhook.

Header name	Header value
X-IBM-Client-Id	dbf8xxxxxxxxxxxxxxxxxx: 

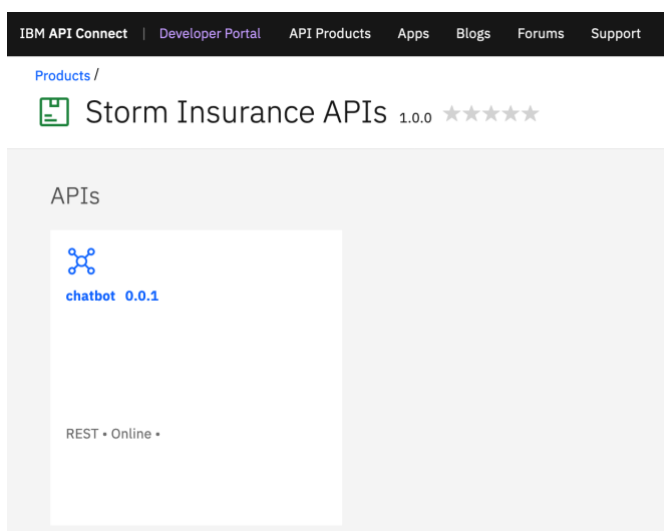
Note: If you didn't take a note of these values you can follow the steps below to access

From the API Connect Portal dashboard, click on the tile for the Storm Insurance APIs product.





Click on the tile for the chatbot API.



From the 'Overview' copy the Endpoint URL

This is used as your webhook `URL`

The screenshot shows the IBM API Connect Developer Portal interface. The top navigation bar includes 'IBM API Connect', 'Developer Portal', 'API Products', 'Apps', 'Blogs', 'Forums', and 'Support'. The main header displays 'Products / Storm Insurance APIs' and the API name 'chatbot' with version '0.0.1' and a five-star rating. A 'Subscribe' button is in the top right. On the left, a sidebar contains a search filter and a list of tabs: 'Overview' (selected), 'POST /', and others. The main content area is titled 'Overview' and shows the API type as 'REST'. A red box highlights the 'Endpoint' section, which lists 'Production' and 'Development' endpoints. The 'Security' section shows 'clientIdHeader' as 'X-IBM-Client-Id' with a note 'apiKey located in header'.

Endpoint	Production, Development:	Endpoint
	https://adei-o-test-catalog/chatbot	ddd-demo-test/ddd-dem

Security	clientIdHeader	Value
	X-IBM-Client-Id	apiKey located in header

Next, we need to get the value to use as 'X-IBM-Client-Id' HTTP Header value.

From the API Connect Portal dashboard, click 'Apps'.

Click on the tile for the 'Storm Insurance APIs' product and navigate 'Subscriptions' tab.

The 'Client ID' is the value to use as 'X-IBM-Client-Id' HTTP Header value.

The screenshot shows the 'Storm Insurance ChatBot' page in the IBM API Connect Developer Portal. The top navigation bar is the same as the previous screenshot. The main header shows 'Applications' and 'Create and manage your apps'. The page title is 'Storm Insurance ChatBot'. Below the title, there are tabs for 'Dashboard' and 'Subscriptions' (selected). The 'Subscriptions' section is divided into two main areas: 'Credentials' and 'Subscriptions'. The 'Credentials' section shows a 'Credential for Stor...' with a 'Client ID' field containing '7541i' and a 'Client Secret' field with a 'Verify' button. The 'Subscriptions' section shows a table with columns 'Product' and 'Plan'.

Product	Plan
Storm Insurance APIs (1.0.0)	Default Plan

51

9 Node Chat Application

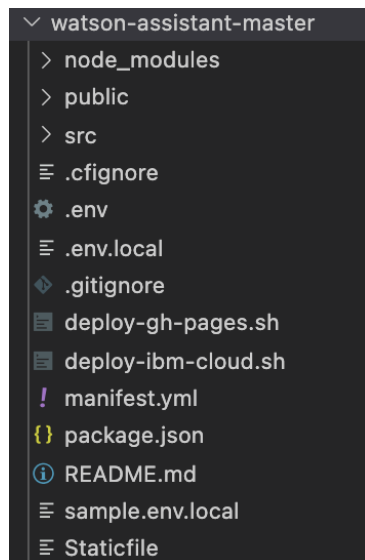
The application deals with text and image responses only from the Watson assistant. This project was bootstrapped with Create React App. This project deploys a react application that connects to a Watson API.

9.1 Installation

0. Clone this repo (<https://github.com/IBM/cp4i-demos/tree/main/ace-weather-chatbot/assets/watson-assistant>)
1. [install 'yarn'](#): follow the instructions for your OS
 - a. Mac-specific: if you do not have it already, you will need to install xcode. [This article](#) gives detailed instructions.
2. Install the dependencies: yarn install

9.2 Configuration

Once you cloned the repository and installed the yarn packages, you will see a similar folder structure.



You can now configure the project with your preferences and demo environment details.

9.2.1 Set access credentials in `.env.local`

The chatbot has the following immediate dependencies;

- The API Credentials specific to your Watson Assistant
- The credentials to access an image processing API, which is provided by an App Connect API Flow

The credentials for these are stored in the `.env.local` file, which you will need to create, in the same directory that you cloned this repo to. We have supplied a sample

`sample.env.local` that you should edit and rename to `.env.local`.

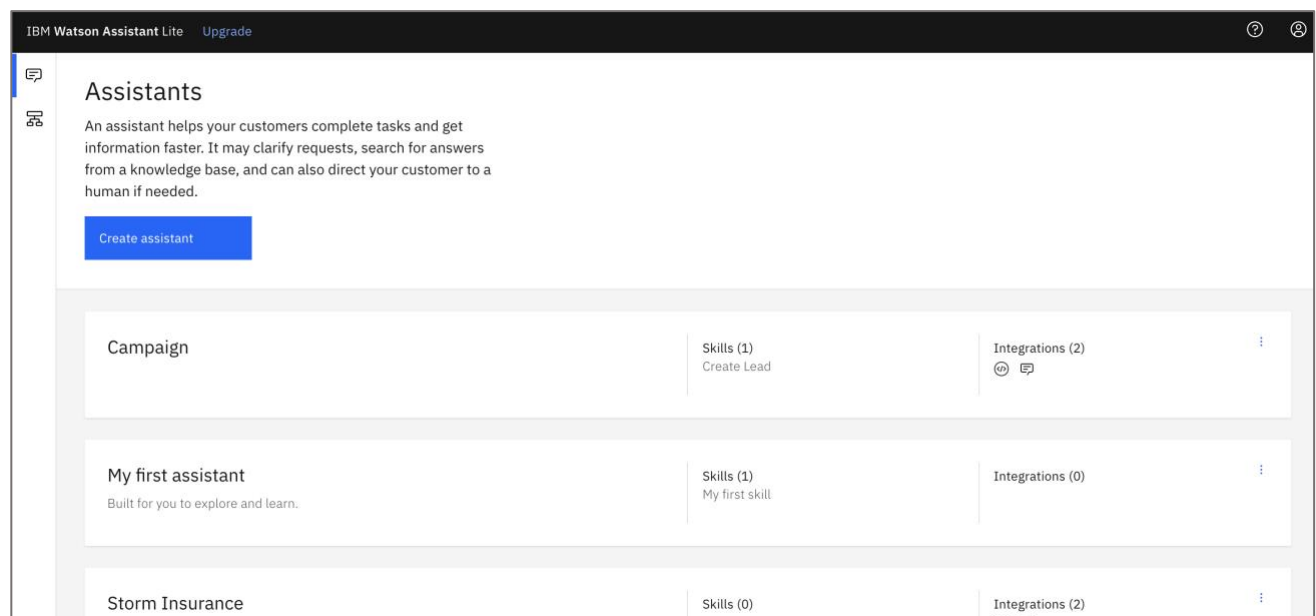
```
REACT_APP_ASSISTANT_URL="https://..."
REACT_APP_ASSISTANT_API_KEY="xxxYYYzzz"
REACT_APP_IMAGE_PROCESS_URL="https://..."
REACT_APP_IMAGE_PROCESS_API_KEY="xxxYYYzzz"
```

For your Watson assistant

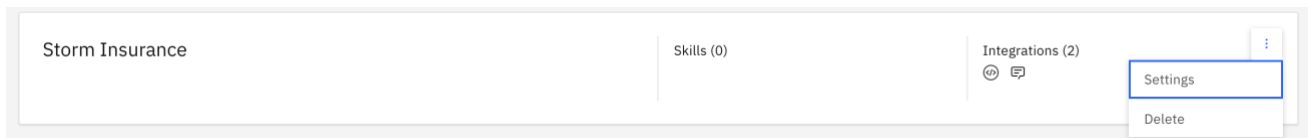
- The API URL for your Watson Assistant: `REACT_APP_ASSISTANT_URL`
- The API key for accessing your Watson Assistant instance: `REACT_APP_ASSISTANT_API_KEY`

To get these;

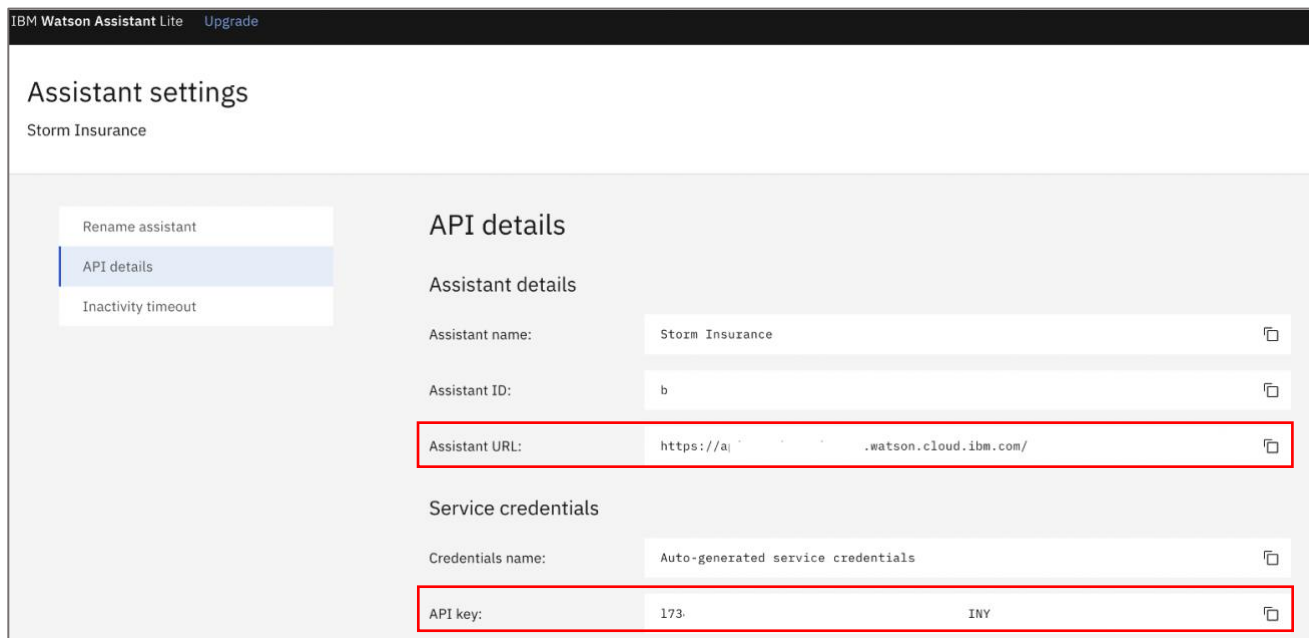
Browse to your list of assistants on assistant.watson.cloud.ibm.com



Choose the assistant for this demo; from its overflow menu (:) select 'Settings'.



Select the 'API details' tab, where you will find "Assistant URL" and "API Key".

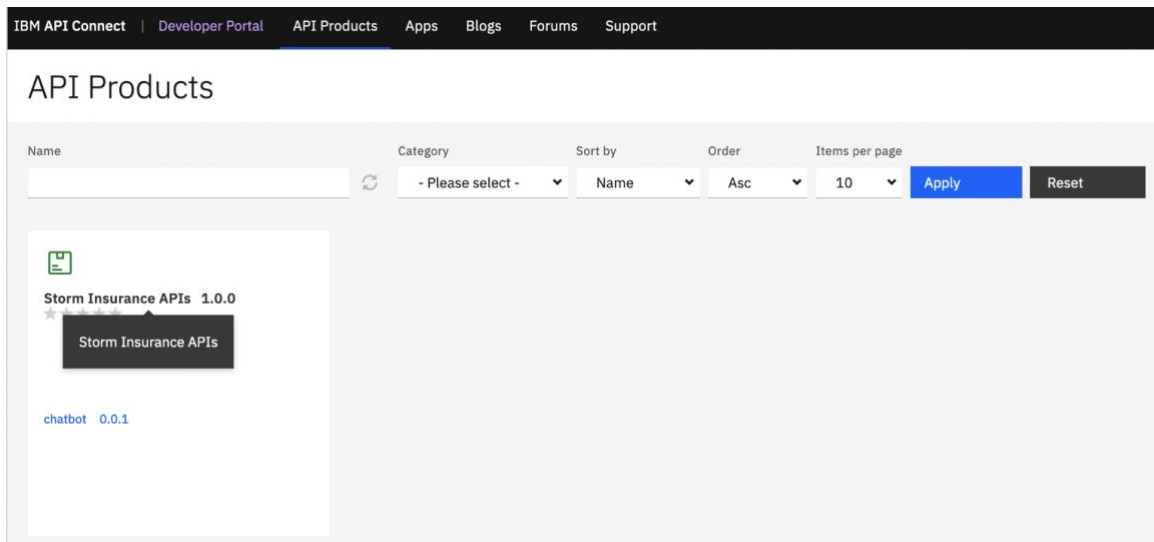


For your App Connect Image Processing flow

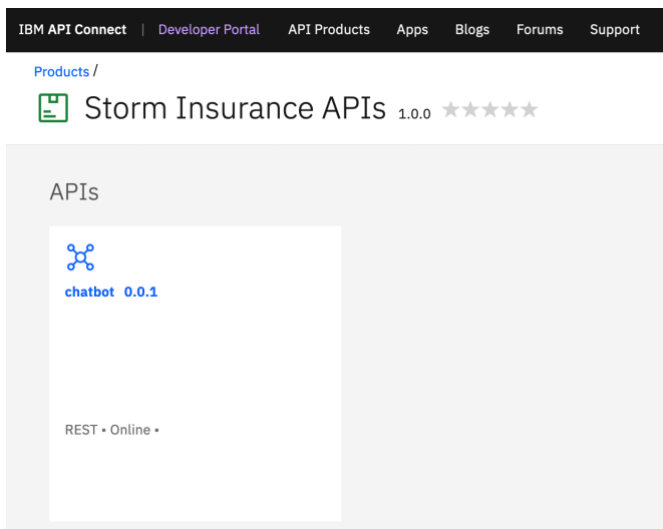
- The URL for your image processing API: `REACT_APP_IMAGE_PROCESS_URL`
- The API Key for accessing your image processing API: `REACT_APP_IMAGE_PROCESS_API_KEY`

To get these;

From the API Connect Portal dashboard, click on the tile for the Storm Insurance APIs product.



Click on the tile for the chatbot API.



From the 'Overview' copy the Endpoint URL

This is used as your `REACT_APP_IMAGE_PROCESS_URL`

IBM API Connect | Developer Portal | API Products | Apps | Blogs | Forums | Support

Products / Storm Insurance APIs

chatbot 0.0.1 ★★★★★

Subscribe

Filter

Overview

POST /

Overview

Type	REST
Endpoint	Production, https://adei Development: o-test-catalog/chatbot ddd-demo-test/ddd-dem
Security	clientIdHeader X-IBM-Client-Id apiKey located in header

Next, we need to get the value to use as `REACT_APP_IMAGE_PROCESS_API_KEY`.

From the API Connect Portal dashboard, click 'Apps'.

Click on the tile for the 'Storm Insurance APIs' product and navigate 'Subscriptions' tab.

The 'Client ID' is the value to use as `REACT_APP_IMAGE_PROCESS_API_KEY`

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Applications

Create and manage your apps

Storm Insurance ChatBot

Dashboard Subscriptions

Credentials

Credential for Stor...

Client ID

7541i :0

Client Secret

Verify

Subscriptions

Product	Plan
Storm Insurance APIs (1.0.0)	Default Plan

9.2.2 Set the value of proxy in `package.json`

You must set the value of proxy in `package.json`. You need to do this to allow your client to communicate with Watson assistant - which does not allow 'Cross Origin' requests. This must be set to the same value as the base part of your `REACT_APP_ASSISTANT_URL`. For example, if your `.env.local` has;

```
REACT_APP_ASSISTANT_URL="https://api.us-south.assistant.watson.cloud.ibm.com/instances/ffcc1122/..."
```

then your `package.json` should contain;

```
...  
"proxy": "https://api.us-south.assistant.watson.cloud.ibm.com",  
...
```

9.2.3 File uploads

The `Assistant.js` component is currently configured to accept jpg, png and gif. Change the following line to update that.

```
const imageTypes = ["jpg", "jpeg", "png", "gif"];
```

9.2.4 File processing code

The file is processed via code in [src/utils/imageApiCall.js](#). The supplied implementation calls an API, and constructs a Watson Assistant message based on the response.

This code is called from within [src/components/Assistant.js](#) using this code;

```
imageApiCall(result.value.data).then(  
  (response) => {  
    //addUserMessage(response)  
    sendUserMessage(response)  
      .then((res) => {  
        console.log(JSON.stringify(res.data, null, 2))  
        setConversation((prevState) => [...prevState, res.data]);  
      })  
      .catch((err) => {  
        console.dir(err);  
      });  
  })  
)
```

The current implementation sends the result of 'imageApiCall' to Watson Assistant (`sendUserMessage`) but does not display it in the chat dialog. The message can be displayed in the dialog by uncommenting the call to 'addUserMessage'.

9.2.5 The dialog

The dialog adds both images the user adds and a text message depending on the number of files uploaded.

- "file: uploads failed"
- "file: upload failed"
- "file: uploads successful"
- "file: upload successful"

Comment out the 'addUserMessage' that follows these strings in Assistant.js to avoid displaying this string.

```
addUserMessage(msg);
```

9.2.6 Assistant response to files

The same text messages are sent to the Watson Assistant using 'sendUserMessage(msg)'.

- "file: uploads failed"
- "file: upload failed"
- "file: uploads successful"
- "file: upload successful"

These need to be configured as intents in the Watson assistant with responses in the dialog.

9.3 Running your Node Chat Application

We have installed and configured our application. Now we are ready to run it locally.

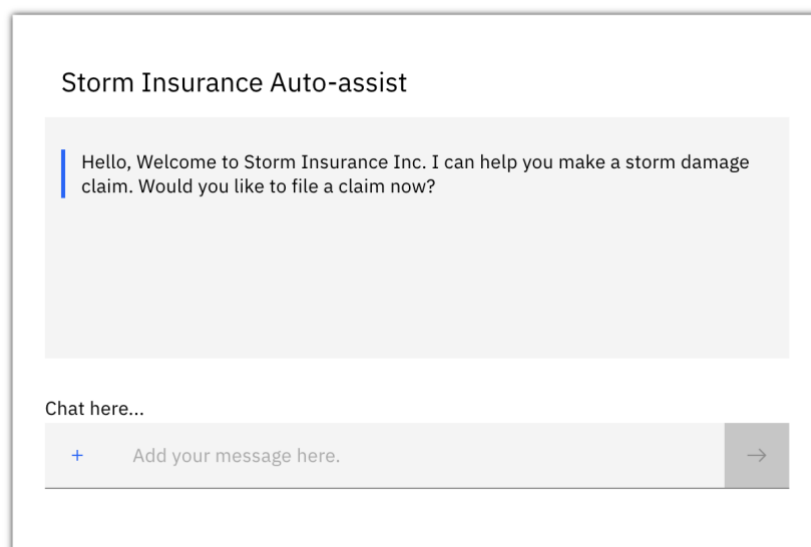
From your terminal navigate to your project folder and run the following command.

```
yarn start
```

Runs the app in the development mode.

Open <http://localhost:3000> to view it in the browser.

The page will reload if you make edits. You will also see any lint errors in the console.



There are some other scripts in the project directory that you can run to test, build and eject the application

```
yarn test
```

Launches the test runner in the interactive watch mode.
See the section about running tests for more information.

```
yarn build
```

Builds the app for production to the build folder.
It correctly bundles React in production mode and optimizes the build for the best performance.

The build is minified and the filenames include the hashes.
Your app is ready to be deployed!

See the section about [deployment](#) for more information.

```
yarn eject
```

Note: this is a one-way operation. Once you eject, you can't go back!

If you aren't satisfied with the build tool and configuration choices, you can 'eject' at any time. This command will remove the single build dependency from your project.

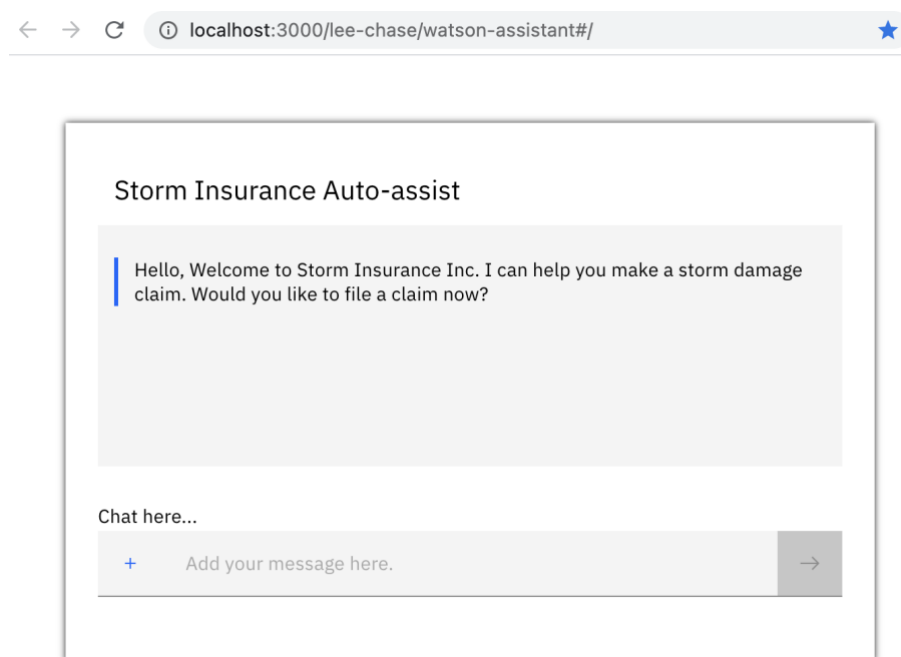
Instead, it will copy all the configuration files and the transitive dependencies (webpack, Babel, ESLint, etc) right into your project so you have full control over them. All of the commands except eject will still work, but they will point to the copied scripts so you can tweak them. At this point you're on your own.

You don't have to ever use 'eject'. The curated feature set is suitable for small and middle deployments, and you shouldn't feel obligated to use this feature. However we understand that this tool wouldn't be useful if you couldn't customize it when you are ready for it.

9.4 Test everything – your cognitive integrated insurance chatbot!

Let's test our application end to end.

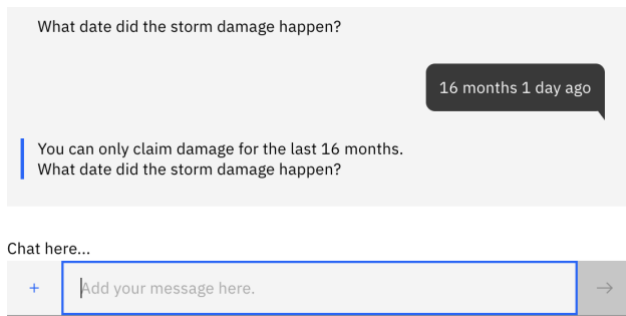
Open <http://localhost:3000> to view chatbot in the browser.



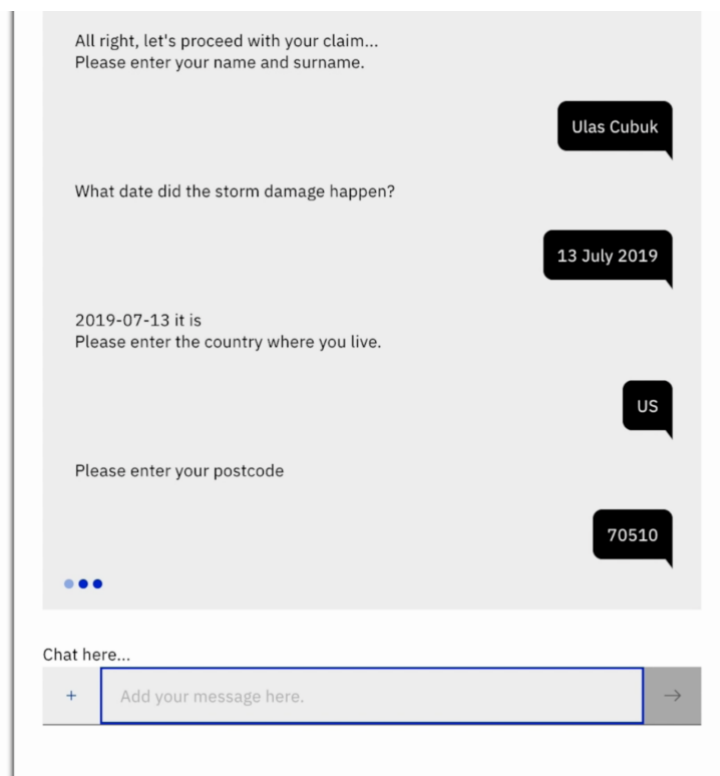
Type 'yes' to start your claim process.

Next the chatbot ask questions to collect details about you, your location and the date of the storm.

Please note that for the purpose of this demo we trained the chatbot to accept only US and UK postcodes. Also, we've embedded a logic to accept the claims requests that are not older than 16 months. In that case, it will ask you again to enter a valid date or you can refresh your page to start over again.



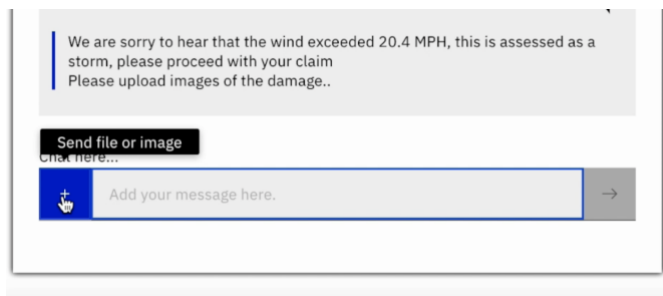
The location and the date given below in the screenshot is an occurrence that matches the criteria of storm in our integration flow. You can use the same or you can try other options.



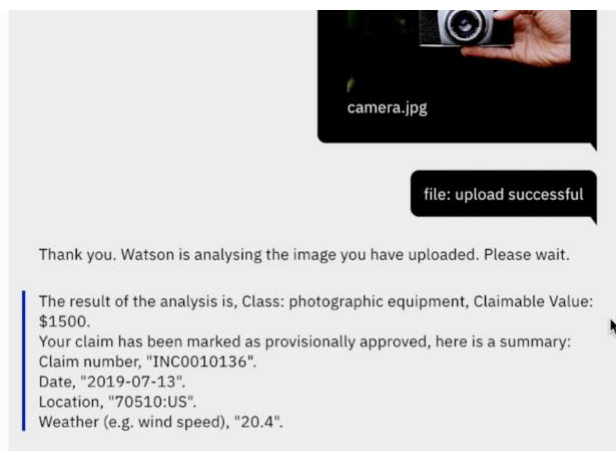
At this point the chatbot uses the power of integration to return back a dynamically retrieved assessment result. In addition to that it will trigger claim process and create a provisional claim.

You can see that your case is confirmed as a storm occurrence.

Now all you need to do is to upload the image of the damage.



Again, your chatbot, powered with integration and Watson Visual Recognition, will analyse the damaged object.



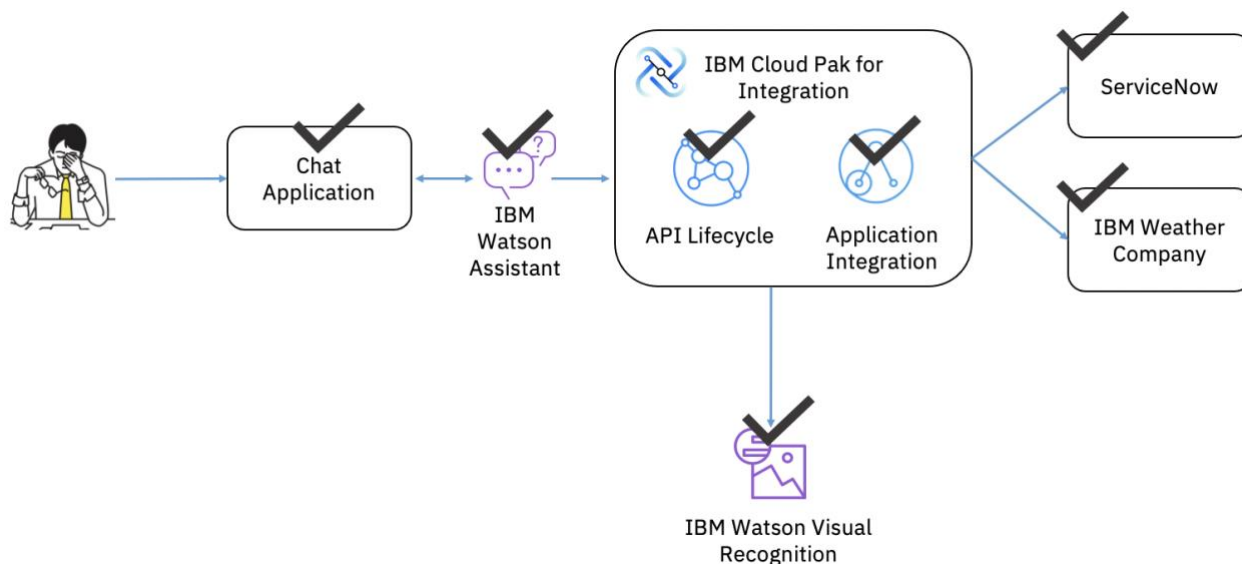
IBM Watson Assistant replies to the user the analyses result along with the provisional claim details. The chat application displays the answer to the user.

There you go! No need to worry about the issues like; how to make an insurance claim? what do I need to submit for an insurance claim? who will assess the damage? when should I make an insurance claim?... With couple of clicks your claim process has been initiated.

10 Summary

Well done, you've completed the lab!

Let's review what we have done...



Created a series of SaaS endpoints to do the lab with.

Created secure managed connections to each of these endpoints using the CP4I connectors.

Created a facade API and API integration flows to process storm damage claims.

Tested the connections from within the tooling, building your integration interactively.

Deployed your integration flows as a highly available, scalable resilient Kubernetes deployment of containers and pods onto CP4I runtime on OpenShift

CP4i secured credentials using a Kubernetes secret to abstract credentials from the integration flow

Configured API Connect with a Developer Organization and a Catalog, a secure Gateway and a Portal.

Created an API definition in API connect to securely route the requests to App Connect. Added an API Key security policy to keep your API secure and added a rate-limit policy to manage your API at 100 calls/minute. Published your API to a self-service portal.

Signed up as a new consumer of your API. Registered as a new consumer, used the portal self-service features including the interactive tester.

Created Watson Assistant chatbot and a Node application.