**API Connect in Bluemix**

1. To begin, we will be first provisioning a tile in Bluemix for the API Connect service.
2. Login to your Bluemix account. You should be using the ‘new’ Bluemix experience, not the Classic console - if you are seeing the Classic console, follow the links at the top to the ‘new’ Bluemix experience.
3. From the Bluemix dashboard, click on the APIs link at the bottom-left. This brings you to the main API Connect console.



1. Assuming you do not yet have an API Connect tile provisioned, you will be greeted with a ‘work with APIs’ page that has several options - we’ll be focused on the API Connect section. Click on the provided link. You will now see a white screen with a ‘Get started with API Connect’ title. A ‘create’ button prompts you to create your first API Connect service. Click the ‘create’ button.





1. From here, you will see the default Bluemix service provisioning space - specifically for API Connect. You can view the normal details of the service in regards to descriptions, examples, pricing, etc. You can select a plan as well - we’ll stick with Essentials for the purposes of this exercise. Select the ‘Essentials’ plan and then click the ‘Create’ button at the bottom of the screen.



1. After the provisioning is successful, you will be brought to the Getting Started page - feel free to look through the various sections. Once you are done, click the ‘Launch API Manager’ button at the top-right.



1. This will bring you to the Catalogs view for API Connect. Before we move on, let’s create the developer portal for our Sandbox catalog. This ensures the dev portal will have time to load up after we have created our sample API.



1. Click on the ‘Sandbox’ catalog, and then the ‘settings’ section. Under the ‘settings’ section, click on the ‘portal’ link. Under the ‘Portal Configuration’ section, select the second button for the ‘IBM Developer Portal.’ Click ‘save’ and then ‘ok’ once the dialog pops up.



1. We’ll return here shortly - for now, we’ll start working with the API toolkit.

**API Designer**

1. This lab assumes you already have Node.js installed and have the latest apiconnect toolkit from the NPM site.
2. Let’s start by creating an API loopback application. This is done by simply running the ‘apic loopback’ command. Accept all of the default settings - this will create a sample API for us to work with.



1. Once your loopback application is setup, run the ‘apic edit’ command. This will bring up a new window in your browser for the API designer.
2. You must login with your Bluemix ID to the designer - do so now.



1. You are now in the API Designer. From here you can view the default products, APIs, models, and datasources.



1. Our sample application comes with an in-memory datasource and model created for us already. If we had a different datasource (DB2 or Oracle for example), we could add it from the Data Sources link at the top, and add a model to support the datasource from the Models link.
2. We can also test our API using the micro gateway. To do so, we’ll need to be in the ‘Assemble’ section of our API. From here, we’ll want to click the small play button (>) to bring up the test dialog.



1. Make sure the micro gateway is running at the bottom of the page - if it isn’t, click the play button to start it. From here you can select an operation to test and click the ‘invoke’ button to see the response.
2. Finally, we’ll want to publish our API to Bluemix. First, we need to change the assembly to use the Datapower Gateway instead of the micro gateway (Bluemix does not support the micro gateway currently). To do so, select the ‘APIs’ section and then select your API. From the top menu, click the ‘assemble’ section. You’ll notice from the left-hand menu that a radial button for the micro gateway is selected. Change this to the data power gateway, and then save the API.



1. Now let’s publish our API - Click the ‘publish’ link at the top of the screen. First we’ll need to add a target - select the ‘add or remove targets’ option.



1. Since we are targeting Bluemix in this lab, select the first option to ‘Add a Bluemix target’
2. After signing in, you will be prompted to select a region, organization, and space. Choose the options that match the API Connect instance you provisioned in the first part of the lab.



1. You should also see the Sandbox catalog we created the dev portal for. Select this catalog and click ‘Next.’
2. From here it will prompt you for a Bluemix application. You may not have one yet - this is fine, we’ll create a new one. In the bottom field, type in a new name for your application, such as ‘NewApplication’ and click the + button. Click save.



1. Now that we have created a target to publish to, Select the publish button again. Select the catalog you added as a target.



1. From here you are presented with several options. First select the option to publish your application. Second, select he option to Stage and Publish products. Leave the next two options unselected - we have the option to only stage or select specific products, but we want to publish everything we have. Click ‘publish.’



1. Once the application and API have finished publishing, you can return to your Bluemix instance.

**API Connect - Publishing, Discovering, Using, and Monitoring your API**

1. Let’s return to our Bluemix API Connect panel. You’ll see the application you published from your toolkit. Go to the Sandbox catalog, and then to the ’settings’ section, and finally to the ‘portal’ section. We created our developer portal a while ago, and by now it should be done configuring. Copy and paste the provided link into a new window of your browser.





1. This link brings you to the IBM Developer portal. You should see your API that you published from the toolkit here - since it is a publicly visible API, any user who visits your developer portal can see it. You can click on the API and view its details.



1. To actually use the API, you’ll need to subscribe to it first - and to do that, you’ll need to create a user and login.
2. Follow the appropriate links on the developer portal to Create an account, and then login.



1. After logging in, the first thing we’ll want to do is to create an application.
2. Follow the Apps link from the top menu. Register a new application - you can select any title you wish. For the time being, we’ll leave the other options blank. If, in the future, you require OAuth usage, you can setup the OAuth Redirect URI from here. Submit your application.



1. NOTE! The next screen will list your ONLY CHANCE to write down your client secret! If you forget, you will have to regenerate the secret. Write down your client secret and client ID.
2. Go back to the API Products page, and select your published API.
3. Click the Subscribe button, and select the app you created in step 6. Click the subscribe button.



1. Your app and client ID are now registered to the API. From here you can select the API in the left-hand panel and view the available operations, and even run some of the operations using your clientID and secret. The developer portal will fill in your client ID for you, but you must manually enter the client secret. Go ahead and run some of the test operations by clicking the ‘call operation’ button.



1. Now that you’ve run your API a few times, let’s return to the API Connect instance in Bluemix and monitor the API.
2. Click on the sandbox catalog again, and then select the ‘Analytics’ section.
3. From here, you can see a number of default options for analyzing the usage of your APIs, applications, and products. You can add new widgets to the panel, as well as create your own custom analytic dashboards.

