Using IBM DevOps Services & Bluemix Services
Part 2: Deploying an App that Uses a Data Management service

This series of labs demonstrates how easy it is to use IBM DevOps Services and Bluemix together to plan, code, and deploy applications. Each part of the workshop guides you through the steps to experiment with key DevOps Services features

- Part 1: Deploy and make change to a simple application.
- Part 2: Add a data management Bluemix service and enable automatic deployment.
- Part 3: Use the planning capabilities to add a text messaging service, and enable traceability between code changes and work items.
- Part 4: Leverage automated builds and deployments, then explore integration between DevOps Services and Rational Team Concert (RTC)

After completing each part of the workshop, as a bonus, you'll also get applications that you can use to demonstrate DevOps Services and Bluemix capabilities to your colleagues and friends..

Learning Objective

In this lab, you will learn how to do the following:

- Create and deploy an application on Bluemix.
- Add a database service to an application deployed on Bluemix
- Enable automatic deployment for your project

Time Required

This workshop takes about 30 minutes to complete.

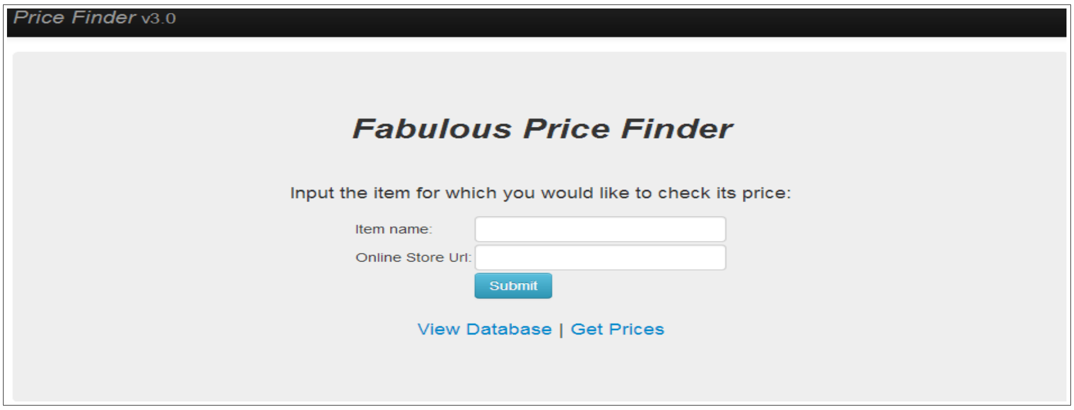
Before you begin

This lab is a continuation of Part 1 - Deploying and Updating a Simple App. If you have not completed part 1, please go to http://bluelabs.mybluemix.net first.
You'll also need one of the following modern browsers:

- Firefox 15 / Chrome 21 / Internet Explorer 10 / Safari 7 or later versions of thses browser

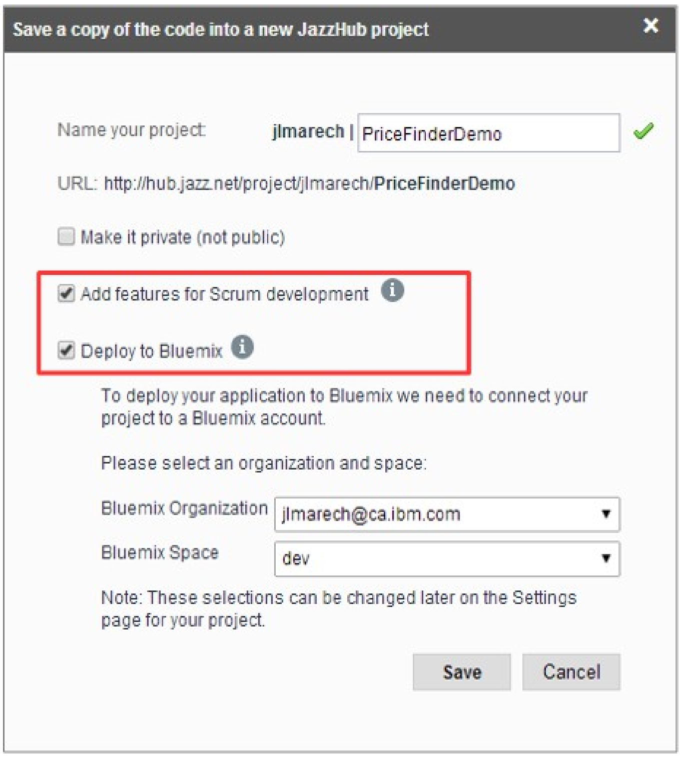
About the Apps

In this lab, you'll be working with the "Lovely Landscapes" app you created in part 1. You'll also be working with "Price Finder" application. The Fabulous Price Finder allows you to get the current prices of items you're interested in purchasing online with the simple click of a button. Now that we have the online store ready, let's get our Fabulous Price Finder running!


Price Finder v3.0
Fabulous Price Finder
Input the item for which you would like to check its price:
Item name:
Online Store Url:
Submit
View Database | Get Prices

1- Fork the Price Finder application

1. Navigate to https://hub.jazz.net/project/jlmarech/PriceFinderDemo/overview
2. Click the **EDIT CODE** button in the upper-right corner. If you are not logged to DevOps Services, you will be asked to sign in before you can edit code.
3. Click the **FORK** button in the upper-left corner. Once the code is forked, you own a copy of the project.
4. Type a name for your project. Make sure that the options for **Scrum development** and **Bluemix deployment** are checked, as shown below. If you miss this step, you won't be able to complete next lab.



Save a copy of the code into a new JazzHub project

Name your project: jlmarech | PriceFinderDemo ✓

URL: http://hub.jazz.net/project/jlmarech/PriceFinderDemo

☐ Make it private (not public)

☑ Add features for Scrum development

☑ Deploy to Bluemix

To deploy your application to Bluemix we need to connect your project to a Bluemix account.

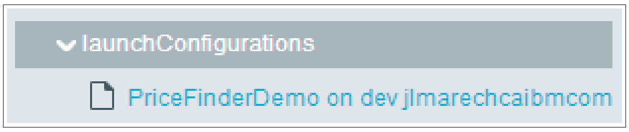
Please select an organization and space:

Bluemix Organization: jlmarech@ca.ibm.com

Bluemix Space: dev

Note: These selections can be changed later on the Settings page for your project.

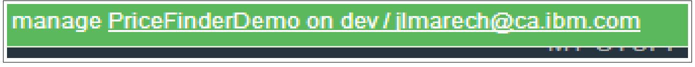
5. Then click **Save** to create a copy of this project in your DevOps Services environment.
6. After the fork operation completes, verify if your project contains a **launchConfigurations** folder. If it does, delete the folder and the file it contains.



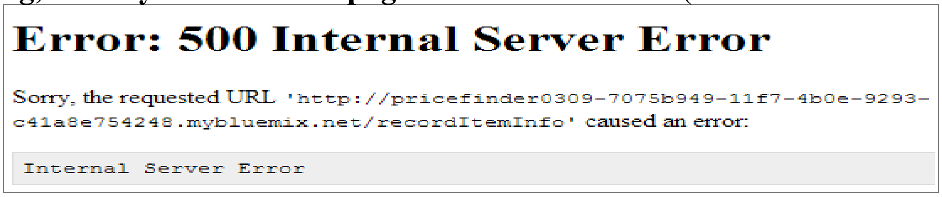
2- Deploy the Price Finder application

The Price Finder leverages the mongodb service hosted at Bluemix. To get the Price Finder running, we will deploy the application and then bind a new datamanagement service to the application.

1. Click the **DEPLOY** button in the upper-left corner.
2. In the Configure Application Deployment dialog, select the Organization and Space you would like to deploy your application to (the defaults are fine) and click **DEPLOY**.
3. When the application has finished deploying, click the link to manage your application in the green bar at the top of the page. You will be redirected to your application's page on Bluemix (log in may be required).



4. In the upper left corner, click the link (Routes) to your application. It opens a new window to the deployed application on bluemix. **Here you can see that the application is up and running, but any action on the page will cause an error** (500 Internal Server Error).

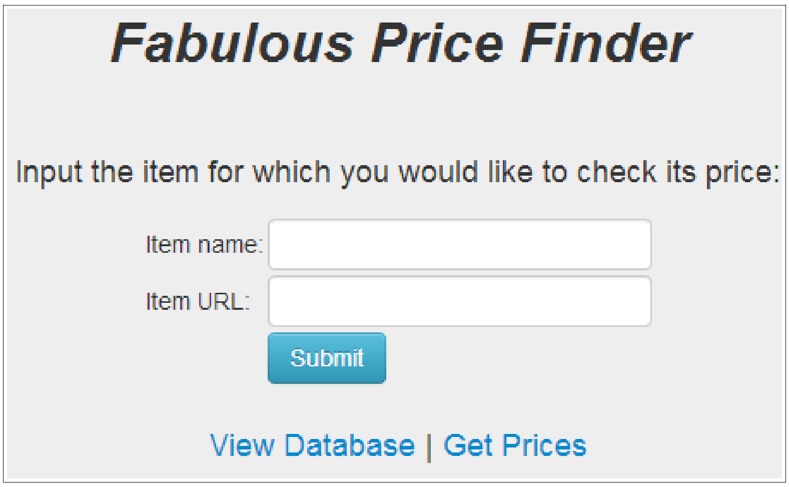


Error: 500 Internal Server Error

Sorry, the requested URL `'http://pricefinder0309-7075b949-11f7-4b0e-9293-c41a8e754248.mybluemix.net/recordItemInfo'` caused an error:

```
Internal Server Error
```

It is because the application uses a database service that you will configure in the next steps.



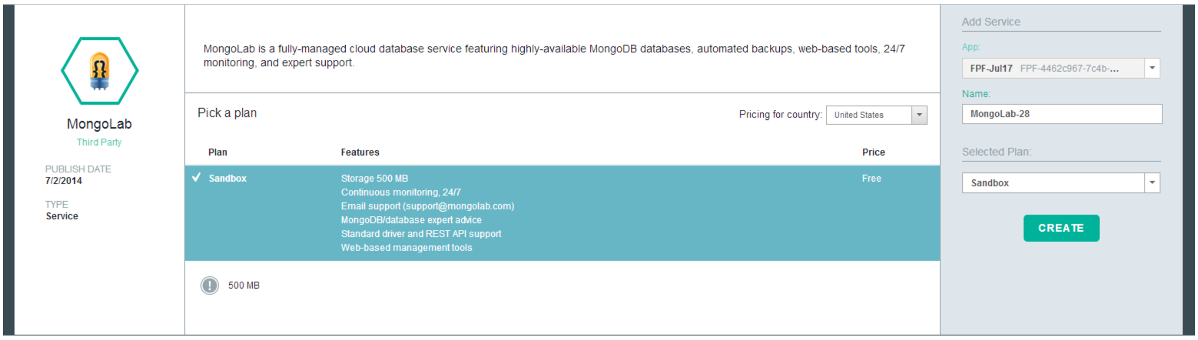
Fabulous Price Finder

Input the item for which you would like to check its price:

3- Add a data management service from the Bluemix catalog

The Price Finder application leverages the MongoLab service hosted on Bluemix. To get the Price Finder running, you need to bind a new service to the deployed application. The data management service will be used to store information on items.

1. Go back to your application page on Bluemix.
2. Click the **ADD A SERVICE** button.
3. Scroll down until you see the **MongoLab** service (it will likely be in the Data Management section–the catalog is constantly being updated with new services!).



MongoLab
Third Party
PUBLISH DATE
7/2/2014
TYPE
Service

MongoLab is a fully-managed cloud database service featuring highly-available MongoDB databases, automated backups, web-based tools, 24/7 monitoring, and expert support.

Pick a plan

Pricing for country: United States

Plan	Features	Price
✓ Sandbox	Storage 500 MB Continuous monitoring, 24/7 Email support (support@mongolab.com) MongoDB/database expert advice Standard driver and REST API support Web-based management tools	Free

500 MB

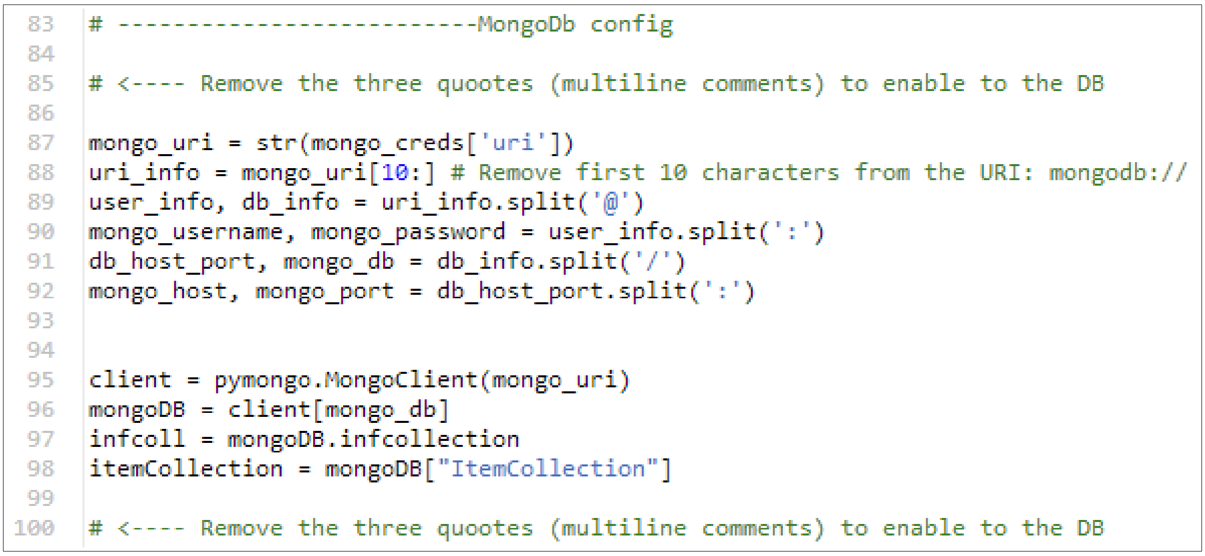
Add Service
App: FPF-Jul17 FPF-4462c967-7c4b-...
Name: MongoLab-28
Selected Plan: Sandbox

4. Click on the **MongoLab** service.
5. In the MongoLab dialog, keep the default (and free) options, then click **CREATE**. The service is added to your Bluemix application.
6. When prompted if you want to restart your application now, click **CANCEL**. You need to update the code of the application first.
7. On the MongoLab service that you have added, click the **Show Credentials** link. It displays key information that are shared with the Bluemix environment. At runtime, you will use this information to connect to the data management service.

4- Modify code in the application to access the data management service

In Bluemix, new services can be added on the fly to existing application. All you need to do is to add the relevant code to leverage those new services. As you have added a data management service, you will here modify your application to connect to this service and store data in the hosted datebase.

1. Go back to the Price Finder project in IBM DevOps Services
2. On the left pane, select the **wsgi.py** file. Look for the section named MongoDb config, around line 83. It contains commented code to configure access to a MongoDB service
3. Remove the comments. In Python, multiline comments are identified with three simple quotes (''') at the begening and the end of the commented block. Once you have removed the comments, the code will look at shown below.



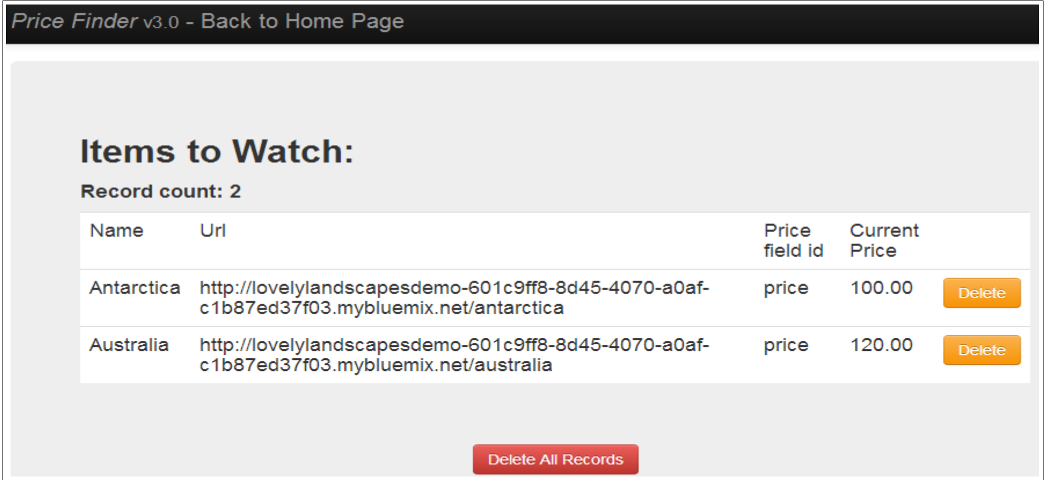
```
# --------------------------MongoDb config

# <---- Remove the three quootes (multiline comments) to enable to the DB

mongo_uri = str(mongo_creds['uri'])
uri_info = mongo_uri[10:] # Remove first 10 characters from the URI: mongodb://
user_info, db_info = uri_info.split('@')
mongo_username, mongo_password = user_info.split(':')
db_host_port, mongo_db = db_info.split('/')
mongo_host, mongo_port = db_host_port.split(':')


client = pymongo.MongoClient(mongo_uri)
mongoDB = client[mongo_db]
infcoll = mongoDB.infcollection
itemCollection = mongoDB["ItemCollection"]

# <---- Remove the three quootes (multiline comments) to enable to the DB
```

4. Save the file, then click the **DEPLOY** button
5. When deploy completes, click the link in the green bar to open the **root folder page.**
6. On the root folder page, scroll down the right pane until you see the Manual Deployment Information section.
7. Click “PriceFinderDemo” in the Manual Deployment Information section to open your application. You are ready to test your new application

5- Test the Price Finder application

The home page of the Price Finder allows you to record the items of which you want to check the prices. We’ll begin with the Antarctica print from the Lovely Landscapes application that you deployed in lab 1.

1. In the form on the home page, enter the following information
   - Item name: Antartica
   - Item URL: something similar to “http://lovelylandscapes-somelong-string-of-random-characters.mybluemix.net/antarctica”. The exact URL for the Antartica page can be found using your Lovely Landscapes application (lab 1)
2. Click **Submit.** You are redirected to the View Database page where you can see information about the item you just stored. You can record the details for other items if you’d like.
3. Go back to the Home Page and click **Get Prices**.
4. On the Success page, click **View Database**. Notice that the price of your item is now stored in the database. If you’d like, go back to your Lovely Lanscapes project, update the price of the Antarctica print (don’t forget to deploy your change!), and click **Get Prices** again. Note that the database reflects the new price of the print.



Price Finder v3.0 - Back to Home Page

Items to Watch:

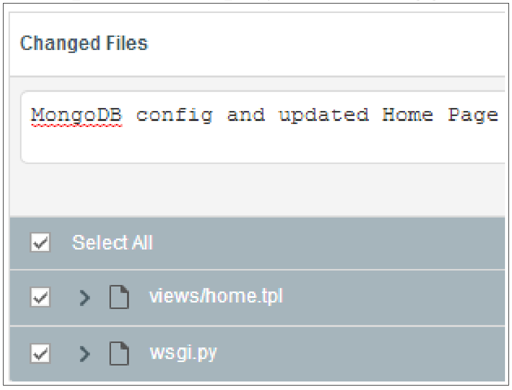
Record count: 2

Name	Url	Price field id	Current Price	
Antarctica	http://lovelylandscapesdemo-601c9ff8-8d45-4070-a0af-c1b87ed37f03.mybluemix.net/antarctica	price	100.00	Delete
Australia	http://lovelylandscapesdemo-601c9ff8-8d45-4070-a0af-c1b87ed37f03.mybluemix.net/australia	price	120.00	Delete

6- Enable automatic deployments

To support DevOps scenarios, IBM DevOps Services has a feature to makes deployment of applications to the IBM Bluemix cloud platform seamless and automatic (Delivery Pipeline). Here you will test the SIMPLE deployment option (you will use the ADVANCED option in next lab). With the simple deployment option, application are automatically deployed to Bleumix when a member of the team pushes a change to the repository.

1. Go to the DevOps Services page of your Price Finder project, and click the EDIT CODE button if necessary.
2. On the left pane, under the Views folder, select the *home.tpl* file.
3. Look for the following codem, around line 70. <h2 class="text-center"><em>Fabulous Price Finder</em><h2> </div>
4. Replace "*Fabulous Price Finder*" by the text of your choice, for instance: *My Amazing Price Finder.*
5. Save you change (even if the Web IDE comes with an autosave feature)
6. On the top right corner, click the **BUILD & DEPLOY** button. You will enable automted deploy instead of manually deploying your application.
7. Click the **SIMPLE** option. That's it. Auto deployed is enabled. Notice that a message on the screen indicated that you have outgoing changes in your repository. Click the **Git Repository View** link.
8. On the Git page, under the Changed Files section, enter a comment (e.g "Mongo DB config and updated Home Page"), check **Select All**, then clcik the **COMMIT 2 FILE(S)** button. At this point, no deployment is triggered.



Changed Files

MongoDB config and updated Home Page

☑ Select All

☑ views/home.tpl

☑ wsgi.py

9. In the OUTGOING section, click the PUSH button.
10. On the upper-right corner, click the BUILD & DEPLOY button. Notice that a deployment has been started and is in progress (STATUS = Pending).
11. When the deployment completes, click the link to your application to test it. Verify that the home page contains the changed you have made.

Congratulations, you have succesfully enabled automatic deployment on your project!

Summary

In this lab, you learned how to:

- Fork an existing project (copy code for reuse)
- Add a data management service (MongoLab) to your BlueMix application.
- Add code to connect to the new hosted database service
- Enable simple automated deployment (Delivery Pipeline)

Next Steps…

Continue on to PART 3 where you’ll learn how to use the planning capabilities in IBM DevOps Services to plan and track your app, how to add a new Bluemix messaging service to an application, and how to write code that leverages the Bluemix service.
http://bluelabs.mybluemix.net