

## Part D: Deploy an Application to Cloud Foundry

**Estimated time needed:** 30 minutes

### Lab Overview

In this hands-on lab, you will deploy a "Hello world" Node.js application to IBM Cloud using Cloud Foundry and the CLI (Command Line Interface).

### Objectives

After completing this lab, you will be able to:

1. Launch the IBM Cloud Shell
2. Explain how to use the IBM Cloud CLI to deploy applications to Cloud Foundry

### Lab Instructions

This lab is broken up into the following tasks:

- [Part D: Deploy an Application to Cloud Foundry](#)
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  - [Objectives](#)
  - [Lab Instructions](#)
    - [1. Launch the IBM Cloud Shell](#)
    - [Fork the repository and clone in the shell](#)
    - [3. Change application name in the manifest file](#)
    - [5. Deploy the application](#)
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#### 1. Launch the IBM Cloud Shell

For this next step we'll be using the *IBM Cloud Shell*, which is available by clicking on the terminal icon on the top right.

IBM Cloud

Search resources and offerings...

Q

Catalog

Docs

Support

Manage

Cloudapp Devs

Resource list

Create resource +

Name	Group	Location	Offering	Status	Tags
Filter by name or IP address...	Filter by group or org...	Filter...	Q Filter...	Q Filter...	Filter...
Devices (0)					
VPC infrastructure (0)					
Clusters (0)					
Cloud Foundry apps (1)					
movies-reviews-database-38a	cloudappdevs@gmail.com / dev	Dallas	SDK for Node.js™	Started	—
Cloud Foundry services (2)					
cloudappdevs-cloudant	cloudappdevs@gmail.com / dev	Dallas	Cloudant	Provisioned	—
cloudappdevs-nlu	cloudappdevs@gmail.com / dev	Dallas	Natural Language Understanding	Provisioned	—
Services (2)					
cloudappdevs-cloudant	Default	Dallas	Cloudant	Active	—
cloudappdevs-nlu	Default	Dallas	Natural Language Understanding	Active	—
Storage (0)					
Network (0)					
Cloud Foundry enterprise environments (0)					

FEEDBACK

{ width=1024 height=1024 }

You should see a terminal

```
IBM Cloud Shell
Location: Dallas Change
Session 1 x +
Current account: Cloudapp Devs

Welcome to IBM Cloud Shell!
Image version: 1.0.8
Help us improve future releases by clicking Feedback to share your experience!

Note: Your Cloud Shell session is running in Dallas (us-south). Your workspace includes 500 MB of temporary storage. This session will close after an hour of inactivity. If you don't have any active sessions for an hour or you reach the 50-hour weekly usage limit, your workspace data is removed. To track your usage, go to Usage quota in the Cloud Shell menu.

Tip: Enter 'ibmcloud' to use the IBM Cloud CLI. The Dallas (us-south) region is targeted by default. You can switch the region by running 'ibmcloud target -r <region-name>'.

cloudappdevs@cloudshell:~$ pwd
/home/cloudappdevs
cloudappdevs@cloudshell:~$
```

## Fork the repository and clone in the shell

Open the [Movies Reviews Database Repository](https://github.com/ibm-developer-skills-network/qkfls-Movie-Reviews-Database) available at

<https://github.com/ibm-developer-skills-network/qkfls-Movie-Reviews-Database>

master

1 branch

0 tags

Go to file

Add file

Code

About



liddleupk removing hard coded link in index page

94bc161 6 days ago

8 commits



utils

renaming html to ejs, updating footer, adding error che...

10 days ago



views

removing hard coded link in index page

6 days ago



.cfignore

adding error detection with services

12 days ago



.env.sample

using IBM credentials for cloudant service

19 days ago



.gitignore

merging with remote initial version

22 days ago



Dockerfile

adding project

22 days ago



LICENSE

merging with remote initial version

22 days ago



README.md

renaming html to ejs, updating footer, adding error che...

10 days ago



manifest.yml

renaming html to ejs, updating footer, adding error che...

10 days ago



package-lock.json

adding error detection with services

12 days ago



package.json

adding error detection with services

12 days ago



server.js

renaming html to ejs, updating footer, adding error che...

10 days ago

No description, website, or topics provided.

Readme

Apache-2.0 License

## Releases

No releases published

[Create a new release](#)

## Packages

No packages published

[Publish your first package](#)

## Contributors 2



liddleupk Upkar Lidder

Once the repository is forked successfully, you will be taken to your copy under your github account.

lidderupk / qkfls-Movie-Reviews-Database
Watch 0
Star 0
Fork 5

forked from [ibm-developer-skills-network/qkfls-Movie-Reviews-Database](#)

<> Code
Pull requests
Actions
ZenHub
Projects
Wiki
Security
Insights
Settings

master
1 branch
0 tags
Go to file
Add file
Code

This branch is 1 commit ahead, 1 commit behind [ibm-developer-skills-network:master](#).

Pull request
Compare

lidderupk updated title on the index page
dc6e359 10 days ago
8 commits

utils	renaming html to ejs, updating footer, adding error che...	10 days ago
views	updated title on the index page	10 days ago
.cfignore	adding error detection with services	12 days ago
.env.sample	using IBM credentials for cloudant service	19 days ago
.gitignore	merging with remote initial version	22 days ago
Dockerfile	adding project	22 days ago
LICENSE	merging with remote initial version	22 days ago
README.md	renaming html to ejs, updating footer, adding error che...	10 days ago
manifest.yml	renaming html to ejs, updating footer, adding error che...	10 days ago
package-lock.json	adding error detection with services	12 days ago
package.json	adding error detection with services	12 days ago
server.js	renaming html to ejs, updating footer, adding error che...	10 days ago

### About

No description, website, or topics provided.

Readme

Apache-2.0 License

### Releases

No releases published

[Create a new release](#)

### Packages

No packages published

[Publish your first package](#)

### Languages

- JavaScript 89.4%
- HTML 10.2%
- Dockerfile 0.4%

Next, clone the forked code repository that has the source code we want to deploy. Copy the following command into the terminal. You can get the [https](#) URL of the repository as shown here:

forked from ibm-developer-skills-network/qkfls-Movie-Reviews-Database

master 1 branch 0 tags

Go to file Add file Code

This branch is 1 commit ahead, 1 commit behind ibm-developer-skills-network:master.

lidderupk updated title on the index page ...

- utils renaming html to ejs, up
- views updated title on the ind
- .cfignore adding error detection v

Clone

HTTPS SSH GitHub CLI

[https://github.com/lidderupk/qkfls-](https://github.com/lidderupk/qkfls-Movie-Reviews-Database)

Use Git or checkout with SVN using the web URL.

Open with GitHub Desktop

Download ZIP

About

No description, website, or topics provided.

Readme

Apache-2.0 License

Releases

No releases published

Create a new release

In my case, the command looks as follows:

```
git clone https://github.com/lidderupk/qkfls-Movie-Reviews-Database.git
```

Welcome to IBM Cloud Shell!

Image version: 1.0.9

Help us improve future releases by clicking [Feedback](#) to share your experience!

**Note:** Your Cloud Shell session is running in Dallas (us-south). Your workspace includes 500 MB of temporary storage. This session will close after an hour of inactivity. If you don't have any active sessions for an hour or you reach the 50-hour weekly usage limit, your workspace data is removed. To track your usage, go to [Usage quota](#) in the Cloud Shell menu.

**Tip:** Enter 'ibmcloud' to use the IBM Cloud CLI. The Dallas (us-south) region is targeted by default. You can switch the region by running 'ibmcloud target -r <region-name>'.

```
ulidder@cloudshell:~$ git clone https://github.com/lidderupk/qkfls-Movie-Reviews-Database.git
```

```
Cloning into 'qkfls-Movie-Reviews-Database'...
```

```
remote: Enumerating objects: 73, done.
```

```
remote: Counting objects: 100% (73/73), done.
```

```
remote: Compressing objects: 100% (47/47), done.
```

```
remote: Total 73 (delta 23), reused 62 (delta 16), pack-reused 0
```

```
Unpacking objects: 100% (73/73), done.
```

```
ulidder@cloudshell:~$
```

Go into the directory of the cloned repository

```
cd qkfls-Movie-Reviews-Database
```

### 3. Change application name in the manifest file

Let's modify the source code to produce your changes. Use the Nano text editor to open the manifest.yml file.

```
nano manifest.yml
```

```
IBM Cloud Shell                                     Location: Dallas  Change  ↑  ↓  Ⓢ  ⋮

Session 1 x  +                                     ⓘ Current account: Cloudapp Devs

GNU nano 2.9.3                                     manifest.yml

--
applications:
- name: movies-reviews-database
  random-route: true
  memory: 128M

^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify   ^C Cur Pos   M-U Undo
^X Exit      ^R Read File  ^\ Replace  ^U Uncut Text ^T To Spell  ^_ Go To Line M-E Redo

FEEDBACK
```

Figure 1-13 Nano text editor

1. Using the cursor keys to navigate, change the application name from **movies-reviews-database** to the name of your application **movies-reviews-database-xxx**.



The screenshot shows the IBM Cloud Shell interface. At the top, it says "IBM Cloud Shell" and "Location: Dallas" with a "Change" link and several icons. Below this, there's a "Session 1" tab and "Current account: Cloudapp Devs". The main area is a terminal window running "GNU nano 2.9.3" editing "manifest.yml". The file content is:

```
applications:
- name: movies-reviews-database-38a
  random-route: true
  memory: 128M
```

The cursor is at the end of the first line of the application definition. At the bottom, there's a help bar with various shortcuts: ^G Get Help, ^O Write Out, ^W Where Is, ^K Cut Text, ^J Justify, ^C Cur Pos, ^M-U Undo, ^X Exit, ^R Read File, ^\ Replace, ^U Uncut Text, ^T To Spell, ^\_ Go To Line, ^M-E Redo. A vertical "FEEDBACK" button is on the right side.

Figure 1-14 Editing text

2. Press CTRL+X to save the file, press Y to save the modified buffer.

The screenshot shows the IBM Cloud Shell interface. At the top, it says "IBM Cloud Shell" and "Location: Dallas" with a "Change" link and icons for navigation. Below this, there's a "Session 1" tab and a status bar indicating "Current account: Cloudapp Devs". The main area is a terminal window running "GNU nano 2.9.3" editing "manifest.yml". The file content is:

```
---
applications:
- name: movies-reviews-database-38a
  random-route: true
  memory: 128M
```

At the bottom, a prompt asks "Save modified buffer? (Answering 'No' will DISCARD changes.)" with options "Y Yes", "N No", and a "Ctrl+C Cancel" option. A vertical "FEEDBACK" button is on the right side of the terminal window.

Figure 1-15 Saving the file

3. Verify that the **File Name to Write** is **manifest.yml**, and then press Enter.

IBM Cloud Shell

Location: Dallas [Change](#) ⬆ ⬇ Ⓞ ⋮

Session 1 x + ⓘ Current account: Cloudapp Devs

GNU nano 2.9.3 manifest.yml Modified

```
applications:
- name: movies-reviews-database-38a
  random-route: true
  memory: 128M
```

File Name to Write: manifest.yml

⌘ Get Help	⌘-D DOS Format	⌘-A Append	⌘-B Backup File
⌘ Cancel	⌘-M Mac Format	⌘-P Prepend	⌘-T To Files

FEEDBACK

Figure 1-15 verify the file

You can confirm that the manifest file has the right application name by writing it to the terminal using the **cat** command.

IBM Cloud Shell

Location: Dallas [Change](#)



Session 1 x +

 Current account: Cloudapp Devs

```
cloudappdevs@cloudshell:~/qkfls-Movie-Reviews-Database$ cat manifest.yml
---
applications:
- name: movies-reviews-database-38a
  random-route: true
  memory: 128M
cloudappdevs@cloudshell:~/qkfls-Movie-Reviews-Database$
```

FEEDBACK

## 5. Deploy the application

To deploy the application with Cloud Foundry we first we need to target a Cloud Foundry API endpoint. To do this, run the following interactive command.

```
ibmcloud target --cf
```

You should see output like the example below:

IBM Cloud Shell

Location: Dallas [Change](#)



Session 1 x +

Current account: Cloudapp Devs

```
cloudappdevs@cloudshell:~/qkfls-Movie-Reviews-Database$ ibmcloud target --cf
Targeted Cloud Foundry (https://api.us-south.cf.cloud.ibm.com)

Targeted org cloudappdevs@gmail.com

Targeted space dev

API endpoint:      https://cloud.ibm.com
Region:           us-south
User:             cloudappdevs@gmail.com
Account:          Cloudapp Devs (c1efa0d5bbda462dac88a908e27570cd)
Resource group:    No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:   https://api.us-south.cf.cloud.ibm.com (API version: 2.153.0)
Org:              cloudappdevs@gmail.com
Space:            dev
cloudappdevs@cloudshell:~/qkfls-Movie-Reviews-Database$
```

We can now deploy our application with `cf push`.

```
ibmcloud app push
```

You should see output like the example below:

```
$ ibmcloud cf push
Invoking 'cf push'...

Pushing from manifest to org cloudappdevs@gmail.com / space dev as
cloudappdevs@gmail.com...
Using manifest file /home/cloudappdevs/qkfls-Movie-Reviews-Database/manifest.yml
Getting app info...
Updating app with these attributes...
```

```
name:          movies-reviews-database-38a
path:          /home/cloudappdevs/qkfls-Movie-Reviews-Database
command:       npm start
disk quota:    1G
health check type: port
instances:     1- memory:          64M
+ memory:      128M
stack:         cflinuxfs3
services:
  cloudappdevs-cloudant
  cloudappdevs-nlu
routes:
  movies-reviews-database-38a.us-south.cf.appdomain.cloud
```

Updating app movies-reviews-database-38a...

Mapping routes...

Comparing local files to remote cache...

Packaging files to upload...

...

Waiting for app to start...

```
name:          movies-reviews-database-38a
requested state: started
routes:        movies-reviews-database-38a.us-south.cf.appdomain.cloud
last uploaded: Mon 26 Oct 19:31:17 UTC 2020
stack:         cflinuxfs3
buildpacks:    sdk-for-nodejs
```

```
type:          web
instances:     1/1
memory usage:  128M
start command: npm start
```

	state	since	cpu	memory	disk	details
#0	running	2020-10-26T19:31:41Z	0.0%	40K of 128M	8K of 1G	

```
IBM Cloud Shell
Location: Dallas Change
Session 1 x +
Current account: Cloudapp Devs

cloudappdevs@cloudshell:~/qkfls-Movie-Reviews-Database$ ibmcloud app push
Invoking 'cf push'...

Pushing from manifest to org cloudappdevs@gmail.com / space dev as cloudappdevs@gmail.com...
Using manifest file /home/cloudappdevs/qkfls-Movie-Reviews-Database/manifest.yml
Getting app info...
Updating app with these attributes...
  name: movies-reviews-database-38a
  path: /home/cloudappdevs/qkfls-Movie-Reviews-Database
  command: npm start
  disk quota: 1G
  health check type: port
  instances: 1
- memory: 64M
+ memory: 128M
  stack: cflinuxfs3
  services:
    cloudappdevs-cloudant
    cloudappdevs-nlu
  routes:
    movies-reviews-database-38a.us-south.cf.appdomain.cloud

Updating app movies-reviews-database-38a...
Mapping routes...
Comparing local files to remote cache...
Packaging files to upload...
Uploading files...
 31.21 KiB / 31.21 KiB [=====] 100.00% 1s

Waiting for API to complete processing files...

Stopping app...

Staging app and tracing logs...
  Downloading liberty-for-java_v3_50-20201019-1521...
  Downloading dotnet-core...
  Downloading sdk-for-nodejs...
  Downloading swift_buildpack...
  Downloaded dotnet-core
  Downloading noop-buildpack...
  Downloaded swift_buildpack
  Downloading xpages_buildpack...
  Downloaded sdk-for-nodejs
  Downloading swift_buildpack_v2_0_18-20190303-1915...
  Downloaded liberty-for-java_v3_50-20201019-1521
  Downloading swift_buildpack_v2_0_20-20190401-2122...
  Downloaded noop-buildpack
  Downloading staticfile_buildpack...
```

FEEDBACK

## 5. Access the web app

Navigate to the URL that is show in the **routes** value, in the example above it is:

movies-reviews-database-38a.us-south.cf.appdomain.cloud

If all goes well - you should see a website with two menu items. **Home** should have a form that lets the user enter a movie review. **Reviews** should show the reviews that users have already entered. If the services were not created or connected to the application, you will see some error messages on both pages. If everything was connected properly, the pages will look as follows:

Home  
page:

VPN

http://movies-reviews-database-38a.us-south.cf.appdomain.cloud/

Home Reviews

First Name

Spider

Last Name

Man

Movie

Captain America: The First Avenger ▾

Review

This was not a good movie. You should watch spider man instead!

Submit



Reviews  
page:



## Current Reviews

### Captain America: The First Avenger

Spider Man

This was not a good movie. You should watch spider man instead!

**Congratulations!** We hope you've deployed an application to Cloud Foundry on IBM Cloud using the command line interface.