



CLOUD **FOUNDRY**

# Pivotal Cloud Foundry Developer

## Lab Instructions

Application Deployment using Pivotal Cloud  
Foundry

Version 1.11.a

**Pivotal**

# Copyright Notice

- Copyright © 2017 Pivotal Software, Inc. All rights reserved. This manual and its accompanying materials are protected by U.S. and international copyright and intellectual property laws.
- Pivotal products are covered by one or more patents listed at <http://www.pivotal.io/patents>.
- Pivotal is a registered trademark or trademark of Pivotal Software, Inc. in the United States and/or other jurisdictions. All other marks and names mentioned herein may be trademarks of their respective companies. The training material is provided “as is,” and all express or implied conditions, representations, and warranties, including any implied warranty of merchantability, fitness for a particular purpose or non-infringement, are disclaimed, even if Pivotal Software, Inc., has been advised of the possibility of such claims. This training material is designed to support an instructor-led training course and is intended to be used for reference purposes in conjunction with the instructor-led training course. The training material is not a standalone training tool. Use of the training material for self-study without class attendance is not recommended.
- These materials and the computer programs to which it relates are the property of, and embody trade secrets and confidential information proprietary to, Pivotal Software, Inc., and may not be reproduced, copied, disclosed, transferred, adapted or modified without the express written approval of Pivotal Software, Inc.



---

# Table of Contents

<b>1. Buildpack .....</b>	<b>1</b>
1.1. Preface .....	1
1.2. Exercises .....	1
1.2.1. Use a Custom Buildpack .....	1
1.2.2. Change the Java version .....	3
1.2.3. Questions .....	3

---

# Chapter 1. Buildpack

*Estimated Time: 25 minutes*


## 1.1. Preface

We've learned that buildpacks produce the droplets that are needed to run our applications. But how do we customize their behavior? In this lab, you'll explore ways to configure the version of the java runtime that the java buildpack provisions for your application.

## 1.2. Exercises

### 1.2.1. Use a Custom Buildpack

1. Review the documentation on [deploying with custom buildpacks](#) and how dependencies are handled with the Java Buildpack [online package](#) and the [offline package](#).
2. Review the Java Version reported by `articulate`.



Articulate
Scale & HA
Services
Blue-Green
Spring Boot ▾

## Welcome to Articulate!

The purpose of this application is to articulate some basic concepts and capabilities of the Pivotal Cloud Foundry platform, specifically the Elastic Runtime which is responsible for running application workloads.

### Application Architecture

**articulate** is a web application that exposes friendly, browsable user interface. However, it does not work with data directly. It depends on the **attendee-service** application to manage data. The **attendee-service** persists data to a MySQL database.



### How to use this Application

Each menu item above links to a page that helps demonstrate a set of capabilities provided by the platform. The last item, Spring Boot, highlights capabilities that come with **Spring Boot** to help build production ready microservices in minutes.

Each page has the same layout with the Accordion control and up to 3 groups:

- Application Environment Information** - This provides information about the application environment when running inside PCF. You can see the Application Name, Container and Services information. This is useful to show things like load balancing, self healing, service binding among other things.
- Description** - additional context for the given page.
- The Twelve-Factor App** - a methodology for building modern, scalable applications. Links to applicable factors will be provided.

Provided to you by Pivotal!

#### Application Environment Information

Application Name: articulate

Instance Index: 0

Container Address: 10.254.0.66:8080

Cell Address: 10.10.115.117:64676

Java Version: 1.8.0\_65

#### Services

user-provided: attendee-service

#### Description

The 12 Factor App

### 3. Review which buildpack is in use.

```
cf app articulate
```

### 4. Push **articulate** again, but this time specify a custom buildpack. In this case, we will use the latest version of the [Java Buildpack](#) on GitHub.

```
$> cd ../pivotal-cloud-foundry-developer-workshop/articulate/
$> cf push articulate -p ./articulate-0.2.jar -b https://github.com/cloudfoundry/java-buildpack.git
```

### 5. Using your browser, refresh the **articulate** application.

It's likely (but not required) that the `Java Version` changed.

## What Just Happened?

We instructed our application to use a custom buildpack (as opposed to a system provided one).

In this case, we used the Java Buildpack source on Github as our custom buildpack. The Java Buildpack source is continuously updated and it is an [online](#) package of the buildpack. Meaning it has access to all dependencies via the network (it has access to all JRE versions, etc). Whereas, the system provided Java buildpack is [offline](#), with a limited set of dependencies. For both the online and offline packages, unless the Java version is specified the application is run with the latest version of Java available to the buildpack.

## 1.2.2. Change the Java version

1. Review the Java Buildpack [configuration and extension documentation](#).
2. Let's assume that we want to run `articulate` on a specific version Java.

```
cf set-env articulate JBP_CONFIG_OPEN_JDK_JRE "{jre: { version: 1.8.0_45 }}"
```

3. Using your browser, refresh the `articulate` application.

**QUESTION:** Is the `articulate` running with `1.8.0_45`? Why not?

4. Restage `articulate`.

```
cf restage articulate
```

**QUESTION:** Would `cf restart` be sufficient instead of `cf restage`? Why not?

5. Using your browser, refresh the `articulate` application.

## 1.2.3. Questions

- What other items are easily customized with the Java Buildpack?
- How would you go about customizing the java buildpack to use a different version of the new relic agent jar?
- If you use Java, what items do you think would need customization in your environment?