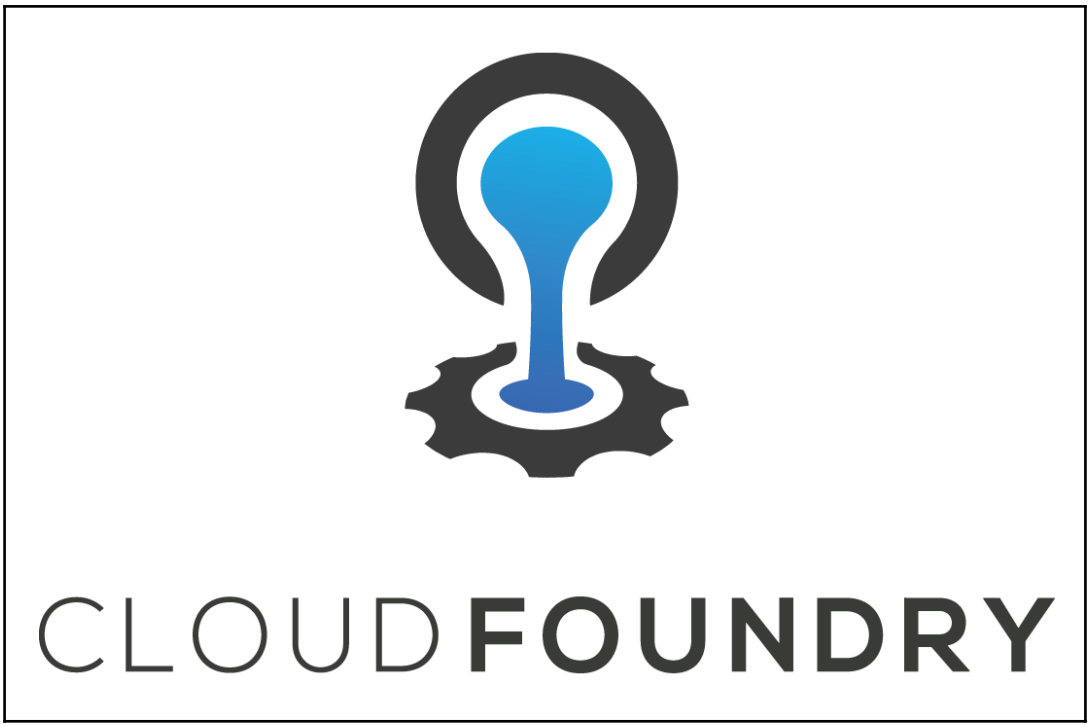
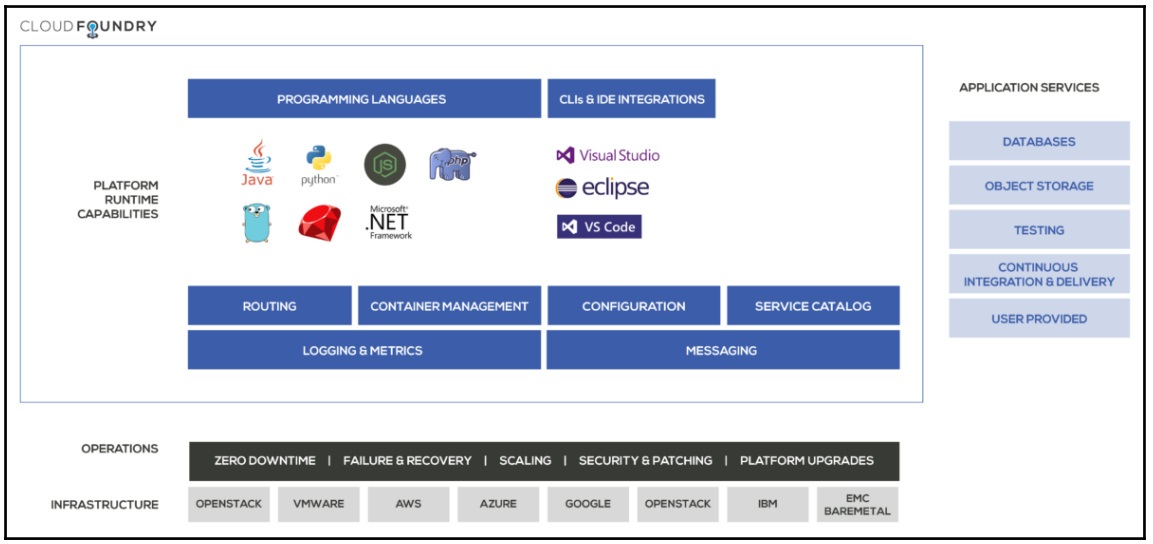
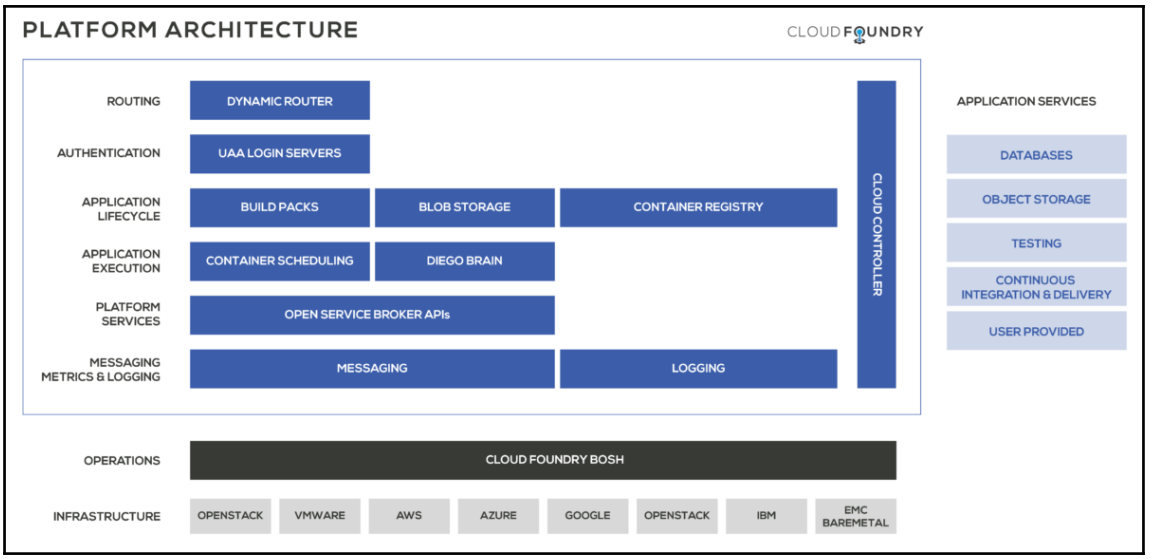
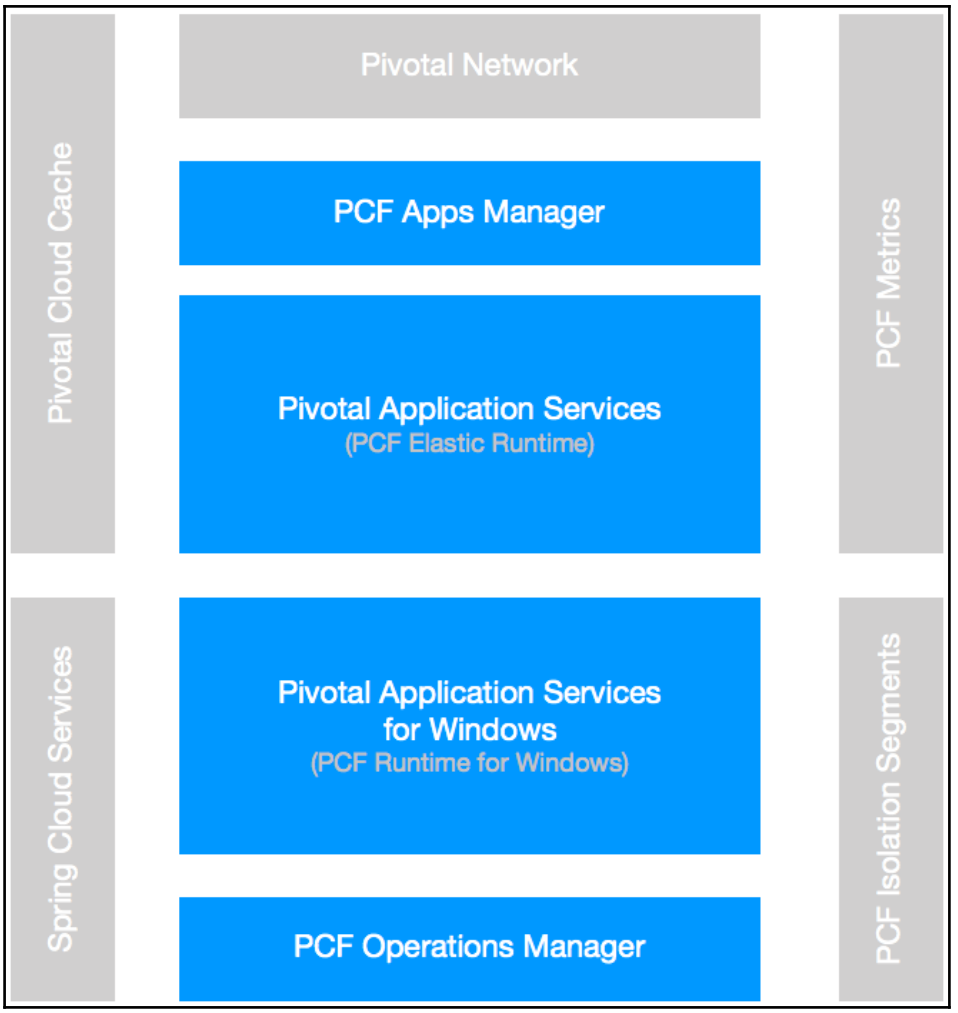
Chapter 1: Cloud Foundry Introduction

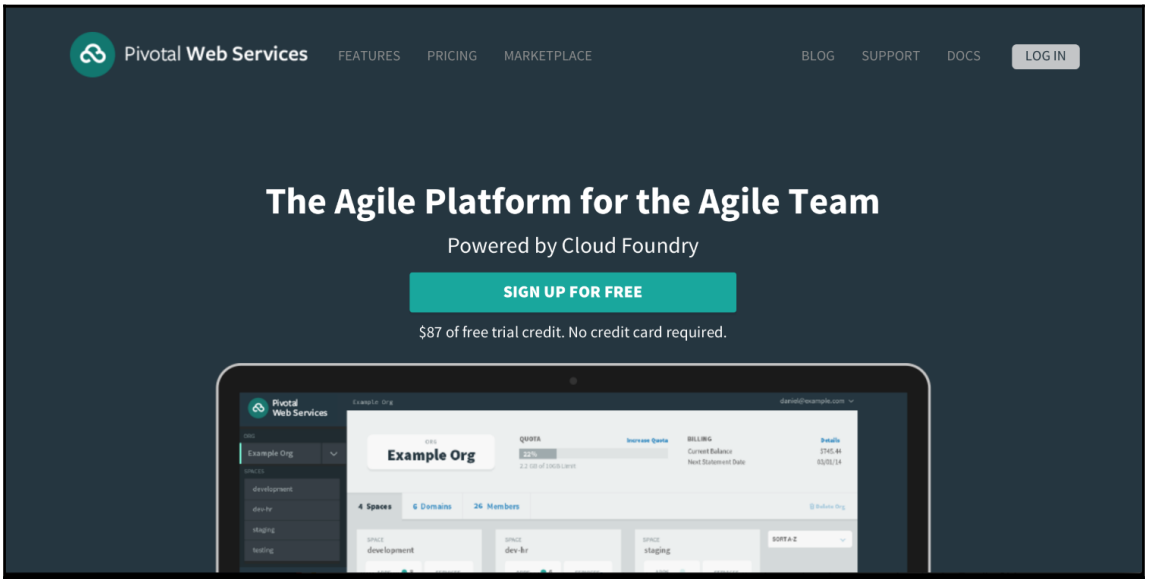

CLOUDFOUNDRY

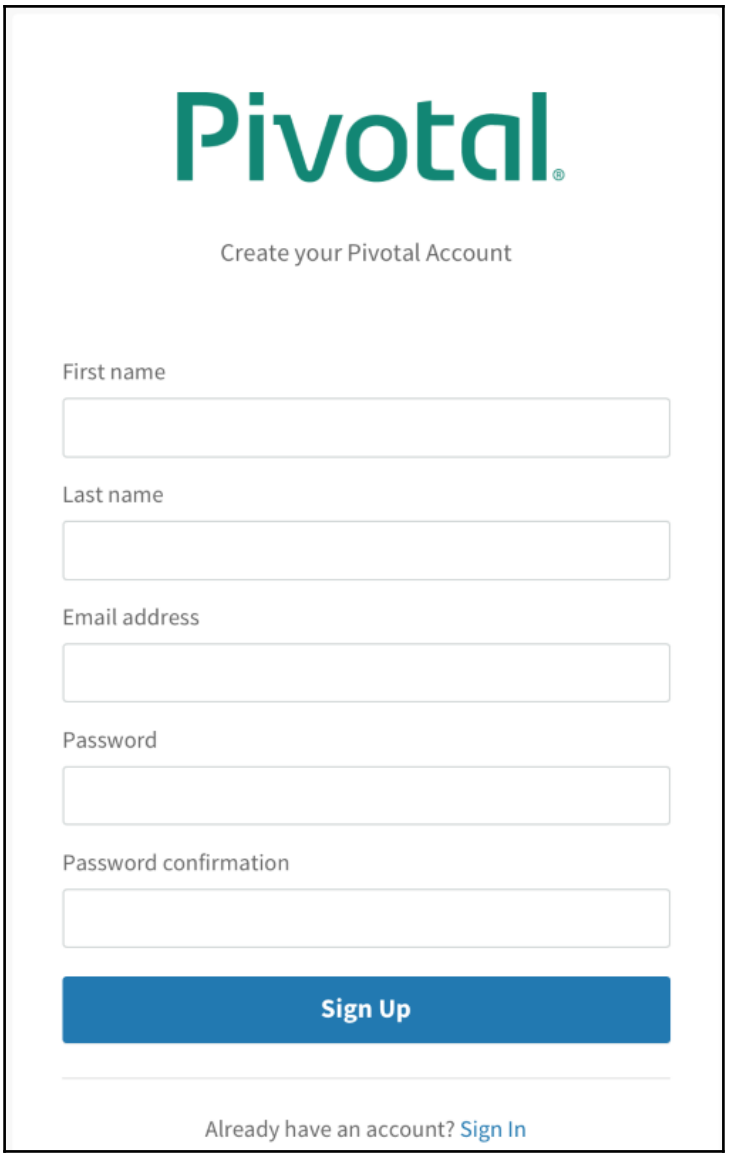

CLOUDFOUNDRY
PROGRAMMING LANGUAGES
CLIs & IDE INTEGRATIONS
PLATFORM RUNTIME CAPABILITIES
Java
python
Visual Studio
eclipse
VS Code
Microsoft .NET Framework
ROUTING
CONTAINER MANAGEMENT
CONFIGURATION
SERVICE CATALOG
LOGGING & METRICS
MESSAGING
APPLICATION SERVICES
DATABASES
OBJECT STORAGE
TESTING
CONTINUOUS INTEGRATION & DELIVERY
USER PROVIDED
OPERATIONS
ZERO DOWNTIME | FAILURE & RECOVERY | SCALING | SECURITY & PATCHING | PLATFORM UPGRADES
INFRASTRUCTURE
OPENSTACK
VMWARE
AWS
AZURE
GOOGLE
OPENSTACK
IBM
EMC BAREMETAL


PLATFORM ARCHITECTURE
CLOUD FOUNDRY
ROUTING
DYNAMIC ROUTER
AUTHENTICATION
UAA LOGIN SERVERS
APPLICATION LIFECYCLE
BUILD PACKS
BLOB STORAGE
CONTAINER REGISTRY
APPLICATION EXECUTION
CONTAINER SCHEDULING
DIEGO BRAIN
PLATFORM SERVICES
OPEN SERVICE BROKER APIs
MESSAGING METRICS & LOGGING
MESSAGING
LOGGING
CLOUD CONTROLLER
APPLICATION SERVICES
DATABASES
OBJECT STORAGE
TESTING
CONTINUOUS INTEGRATION & DELIVERY
USER PROVIDED
OPERATIONS
CLOUD FOUNDRY BOSH
INFRASTRUCTURE
OPENSTACK
VMWARE
AWS
AZURE
GOOGLE
OPENSTACK
IBM
EMC BAREMETAL


Pivotal Cloud Cache
Pivotal Network
PCF Apps Manager
Pivotal Application Services
(PCF Elastic Runtime)
PCF Metrics
Spring Cloud Services
Pivotal Application Services
for Windows
(PCF Runtime for Windows)
PCF Operations Manager
PCF Isolation Segments

Chapter 2: Cloud Foundry CLI and Apps Manager




Pivotal
Create your Pivotal Account
First name
Last name
Email address
Password
Password confirmation
Sign Up
Already have an account? Sign In

Welcome to the future of agile development!

You can rapidly update and scale across multiple environments and let Pivotal Web Services maintain your app's health in production.

Start by pushing your first app with our 15-minute tutorial.

Get Started

Until next time,
The Pivotal Web Services Team

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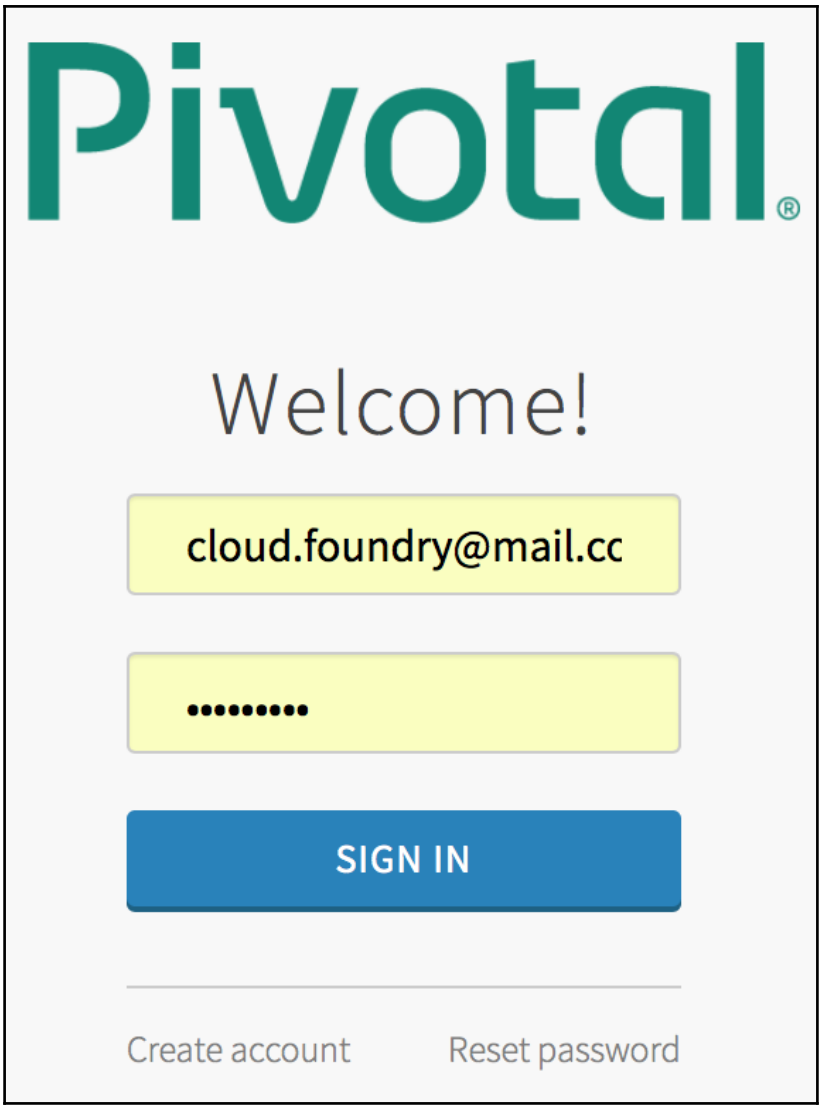
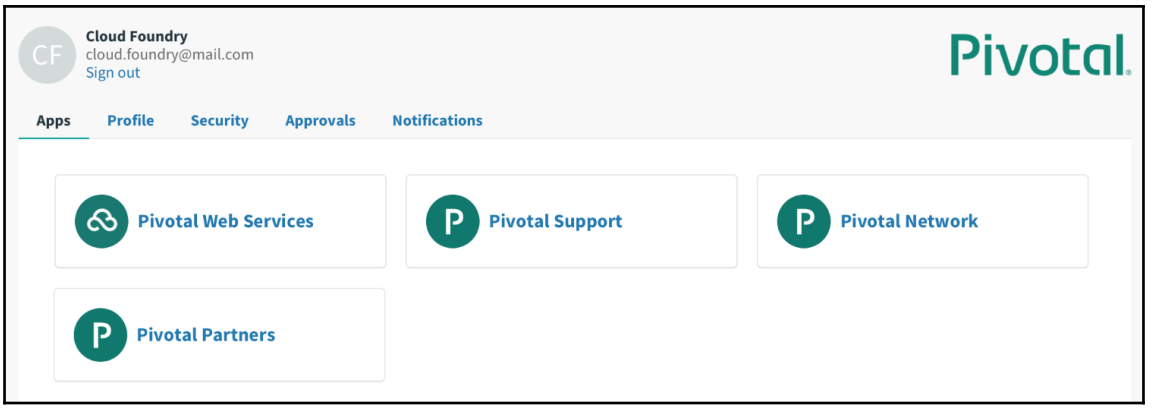
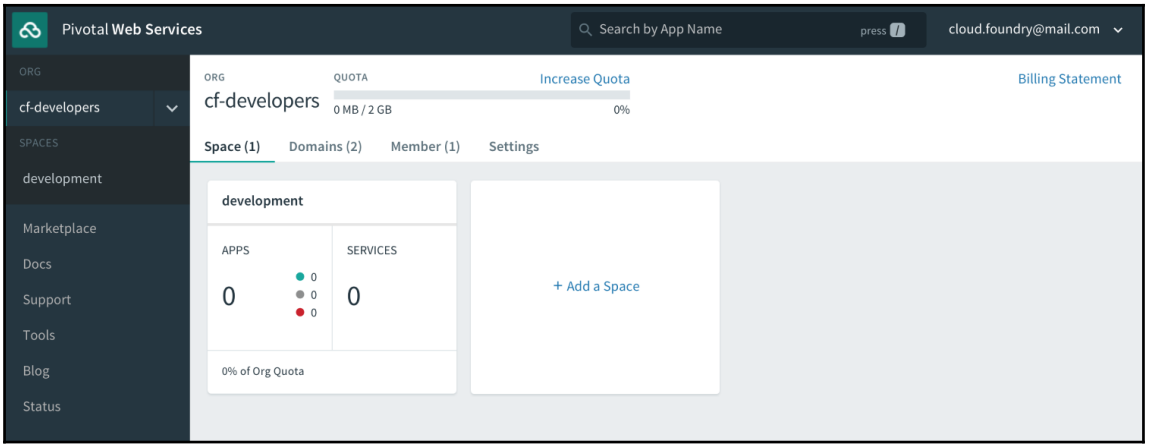

Pivotal
Welcome!
cloud.foundry@mail.cc
SIGN IN
Create account
Reset password


CF
Cloud Foundry
cloud.foundry@mail.com
Sign out
Pivotal
Apps
Profile
Security
Approvals
Notifications
Pivotal Web Services
Pivotal Support
Pivotal Network
Pivotal Partners


Pivotal Web Services
Search by App Name
press /
cloud.foundry@mail.com
ORG
cf-developers
SPACES
development
Marketplace
Docs
Support
Tools
Blog
Status
ORG
cf-developers
QUOTA
0 MB / 2 GB
Increase Quota
0%
Billing Statement
Space (1)
Domains (2)
Member (1)
Settings
development
APPS
0
0
0
0
SERVICES
0
0% of Org Quota
+ Add a Space

```
└$ cf
cf version 6.29.0+ff886fa93.2017-07-24, Cloud Foundry command line tool
Usage: cf [global options] command [arguments...] [command options]

Before getting started:
  config    login,l      target,t
  help,h    logout,lo

Application lifecycle:
  apps,a         run-task,rt    events
  push,p         logs           set-env,se
  start,st       ssh            create-app-manifest
  stop,sp        app
  restart,rs     env,e
  restage,rg     scale

Services integration:
  marketplace,m         create-user-provided-service,cups
  services,s            update-user-provided-service,uups
  create-service,cs     create-service-key,csk
  update-service        delete-service-key,dsk
  delete-service,ds     service-keys,sk
  service               service-key
  bind-service,bs       bind-route-service,brs
  unbind-service,us     unbind-route-service,urs

Route and domain management:
  routes,r         delete-route     create-domain
  domains          map-route
  create-route     unmap-route

Space management:
  spaces          create-space     set-space-role
  space-users     delete-space     unset-space-role

Org management:
  orgs,o        set-org-role
  org-users     unset-org-role

CLI plugin management:
```

```
[ └─$ cf help | grep "service"
   marketplace,m          create-user-provided-service,cups
   services,s             update-user-provided-service,uups
   create-service,cs      create-service-key,csk
   update-service         delete-service-key,dsk
   delete-service,ds      service-keys,sk
   service                service-key
   bind-service,bs        bind-route-service,brs
   unbind-service,us      unbind-route-service,urs
```

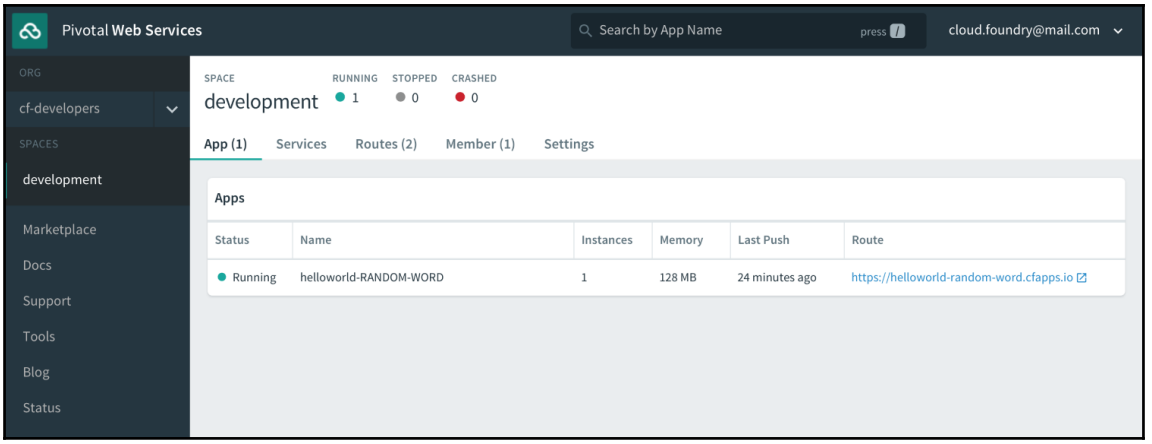
```
[ └─$ cf api --help
NAME:
   api - Set or view target api url

USAGE:
   cf api [URL]

OPTIONS:
   --skip-ssl-validation      Skip verification of the API endpoint. Not recommended!
   --unset                    Remove all api endpoint targeting

SEE ALSO:
   auth, login, target
```

```
[ └─$ cf api https://api.run.pivotal.io
Setting api endpoint to https://api.run.pivotal.io...
OK

api endpoint:   https://api.run.pivotal.io
api version:    2.89.0
```

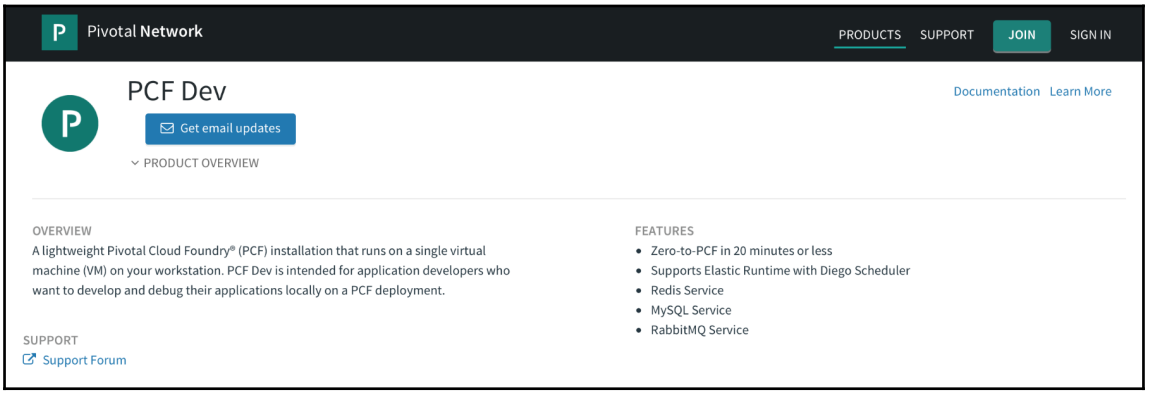
```
[ └─$ cf login
API endpoint: https://api.run.pivotal.io

Email> cloud.foundry@mail.com

[Password>
Authenticating...
OK

Targeted org cf-developers

Targeted space development



API endpoint:   https://api.run.pivotal.io (API version: 2.89.0)
User:           cloud.foundry@mail.com
Org:            cf-developers
Space:          development
```

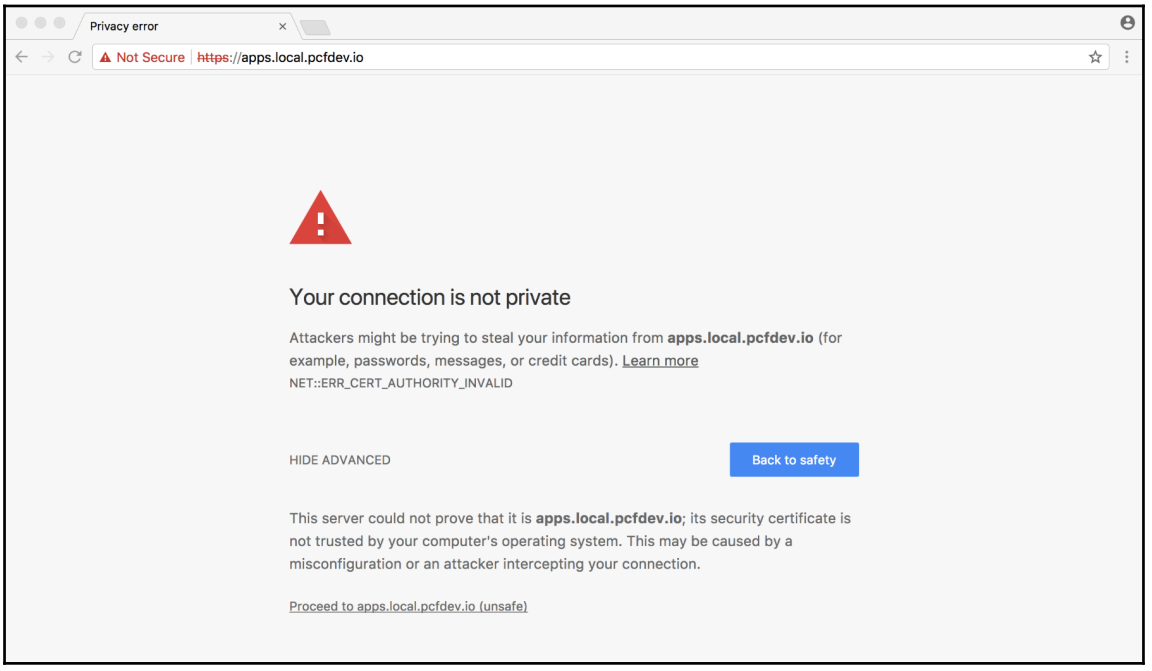
```
App helloworld-RANDOM-WORD was started using this command `$HOME/boot.sh`

Showing health and status for app helloworld-RANDOM-WORD in org cf-developers / space development as clou
d.foundry@mail.com...
OK

requested state: started
instances: 1/1
usage: 128M x 1 instances
urls: helloworld-random-word.cfapps.io
last uploaded: Mon Jul 31 05:11:17 UTC 2017
stack: cflinuxfs2
buildpack: staticfile_buildpack

     state     since                  cpu    memory      disk      details
#0   running   2017-07-30 11:11:36 PM   0.0%   0 of 128M   0 of 1G
```

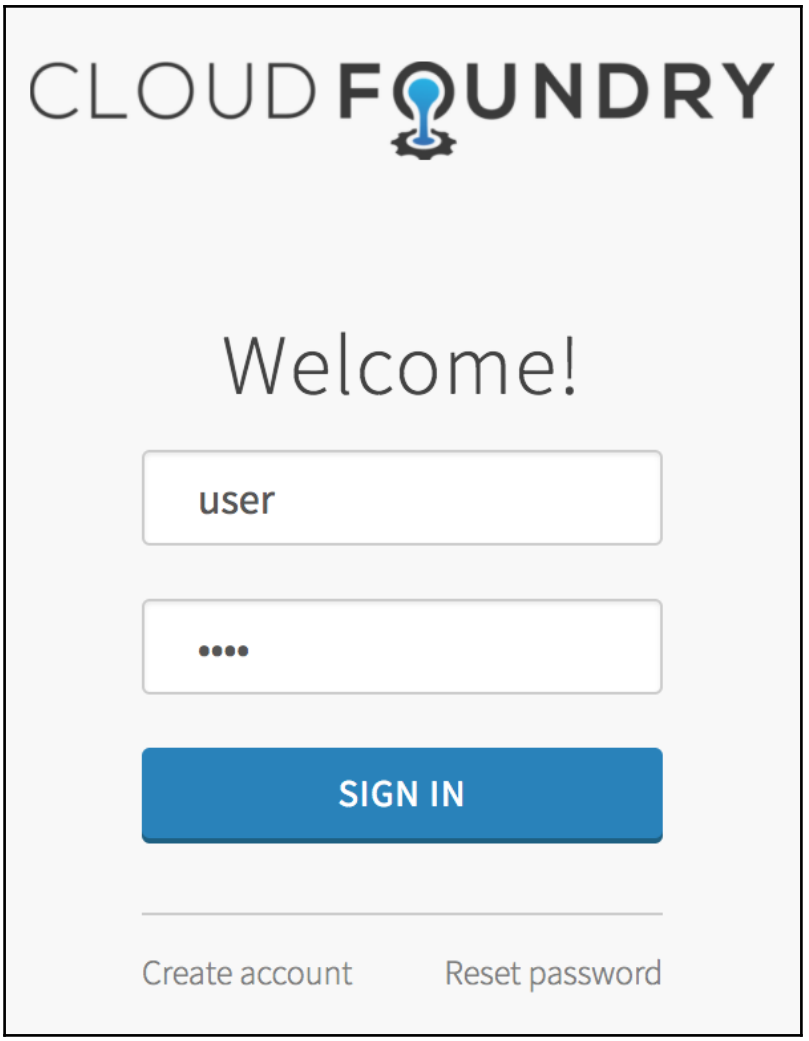
Hello World!

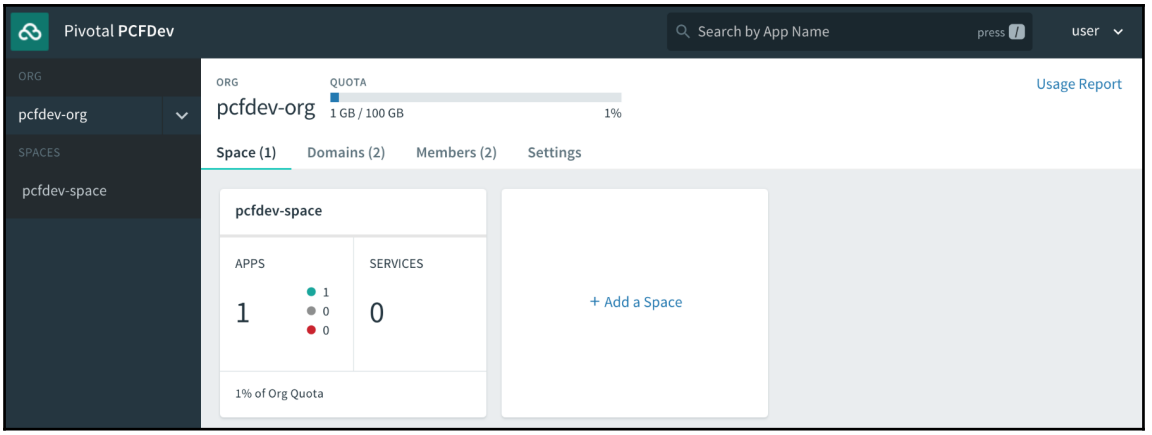

Pivotal Web Services
Search by App Name
press /
cloud.foundry@mail.com
ORG
cf-developers
SPACES
development
Marketplace
Docs
Support
Tools
Blog
Status
SPACE
development
RUNNING
1
STOPPED
0
CRASHED
0
App (1)
Services
Routes (2)
Member (1)
Settings
Apps
Status
Name
Instances
Memory
Last Push
Route
Running
helloworld-RANDOM-WORD
1
128 MB
24 minutes ago
https://helloworld-random-word.cfapps.io

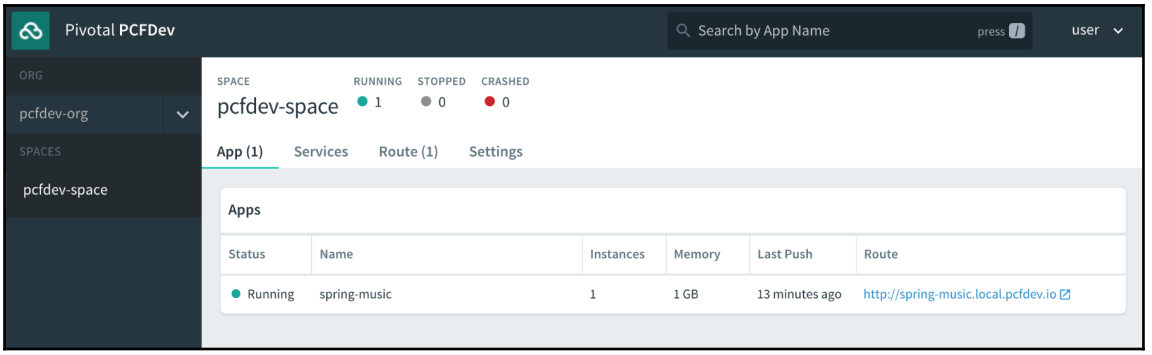
Chapter 3: Getting Started with PCF Dev

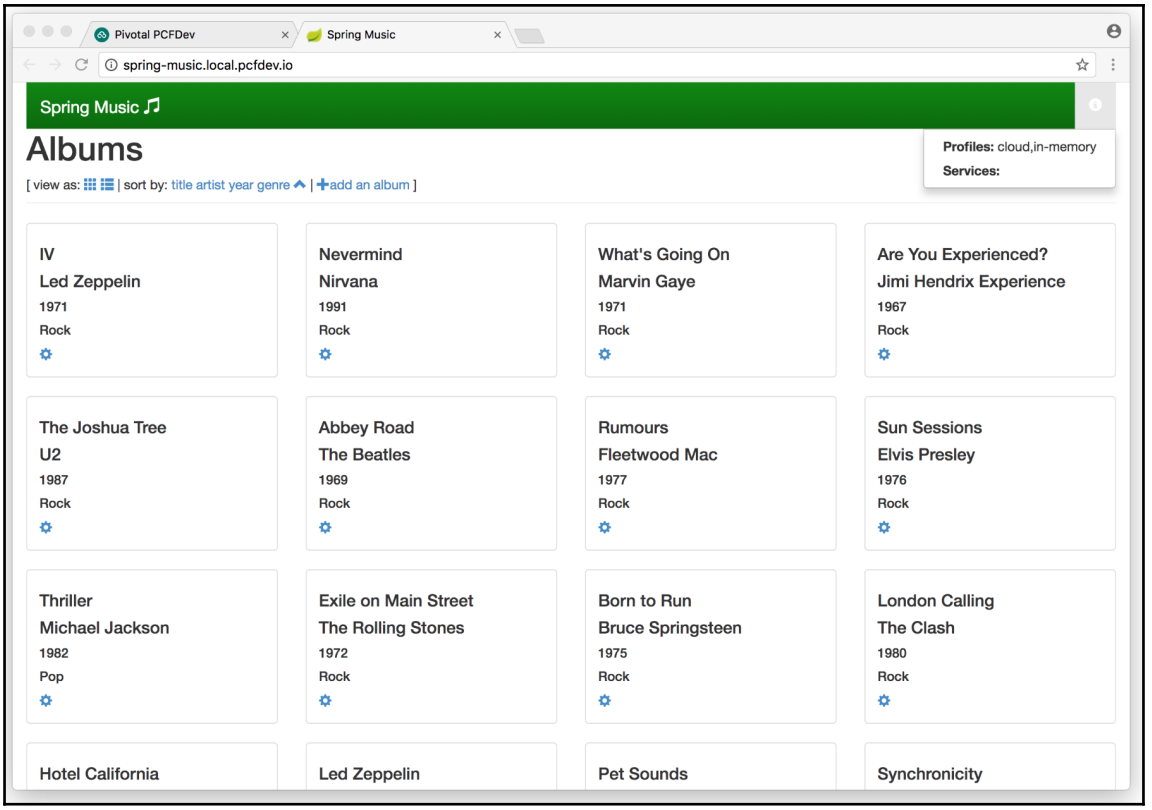


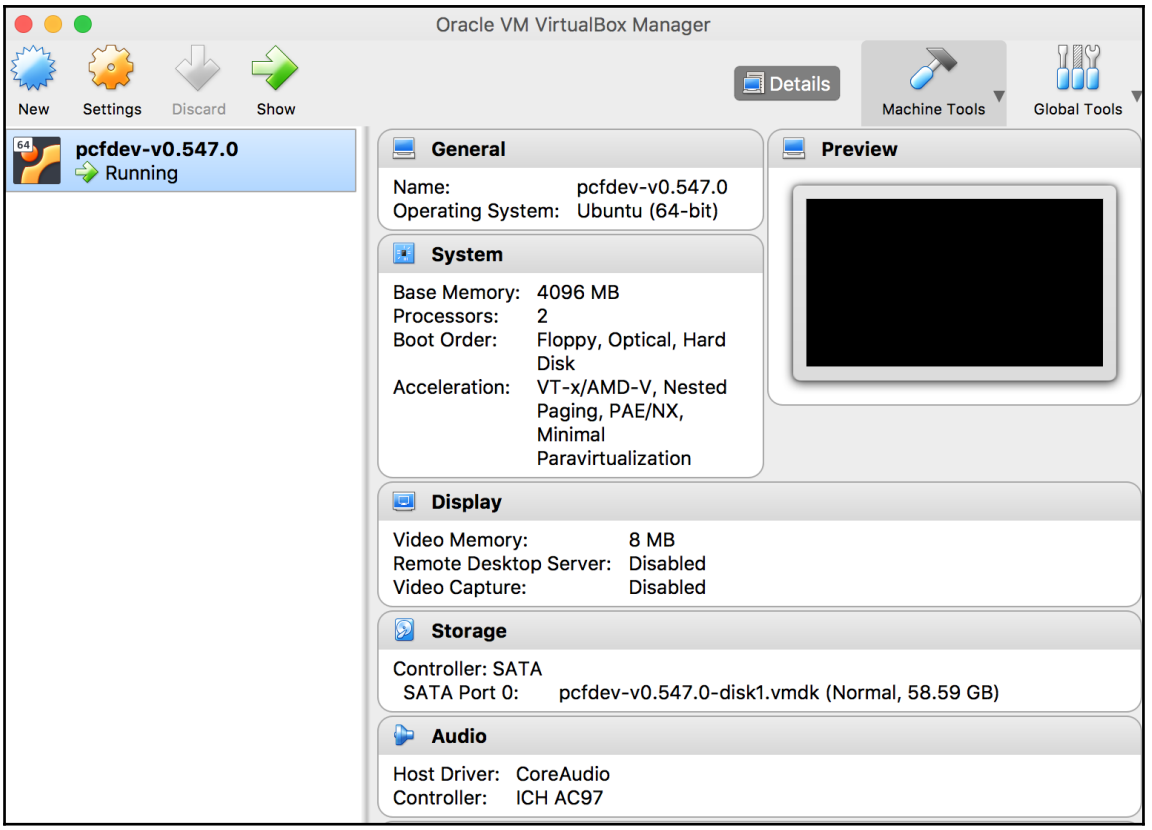


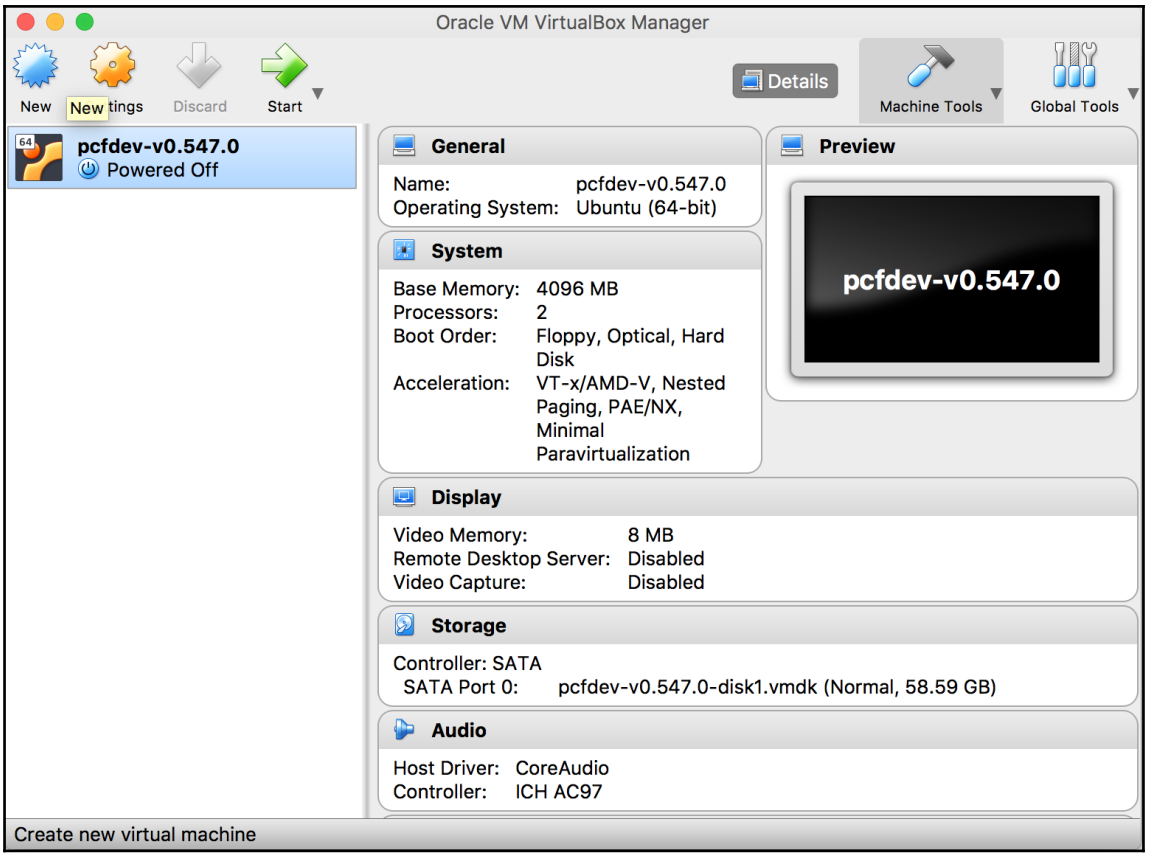

CLOUD FOUNDRY
Welcome!
user
••••
SIGN IN
Create account
Reset password


Pivotal PCFDev
Search by App Name
press /
user
ORG
pcfdev-org
SPACES
pcfdev-space
ORG
pcfdev-org
QUOTA
1 GB / 100 GB
1%
Usage Report
Space (1)
Domains (2)
Members (2)
Settings
pcfdev-space
APPS
1
1
0
0
SERVICES
0
1% of Org Quota
+ Add a Space


Pivotal PCFDev
Search by App Name
press /
user
ORG
pcfdev-org
SPACES
pcfdev-space
SPACE
pcfdev-space
RUNNING
1
STOPPED
0
CRASHED
0
App (1)
Services
Route (1)
Settings
Apps
Status
Name
Instances
Memory
Last Push
Route
Running
spring-music
1
1 GB
13 minutes ago
http://spring-music.local.pcfdev.io

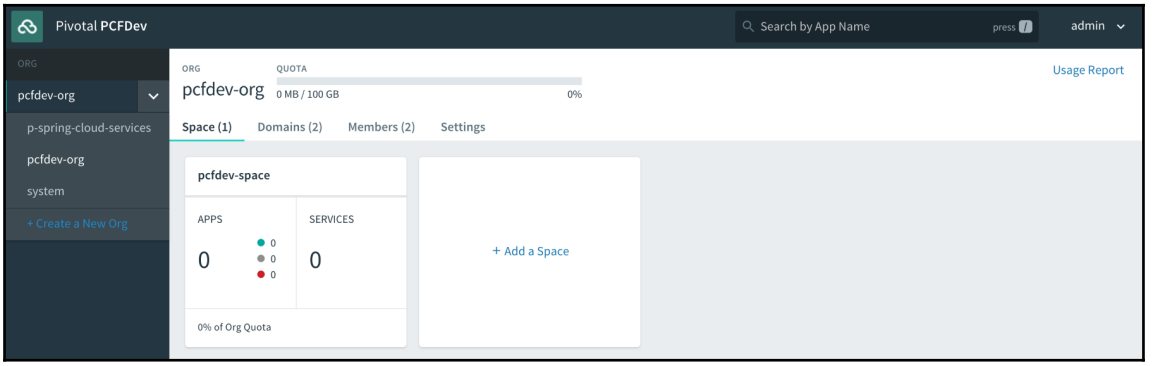

Pivotal PCFDev
Spring Music
spring-music.local.pcfdev.io
Spring Music
Albums
[view as: | sort by: title artist year genre | add an album]
Profiles: cloud,in-memory
Services:
IV
Led Zeppelin
1971
Rock
Nevermind
Nirvana
1991
Rock
What's Going On
Marvin Gaye
1971
Rock
Are You Experienced?
Jimi Hendrix Experience
1967
Rock
The Joshua Tree
U2
1987
Rock
Abbey Road
The Beatles
1969
Rock
Rumours
Fleetwood Mac
1977
Rock
Sun Sessions
Elvis Presley
1976
Rock
Thriller
Michael Jackson
1982
Pop
Exile on Main Street
The Rolling Stones
1972
Rock
Born to Run
Bruce Springsteen
1975
Rock
London Calling
The Clash
1980
Rock
Hotel California
Led Zeppelin
Pet Sounds
Synchronicity

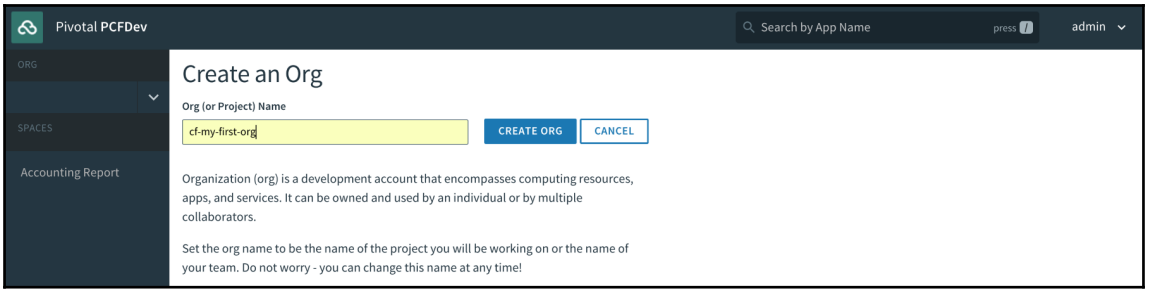

Oracle VM VirtualBox Manager
New
Settings
Discard
Show
Details
Machine Tools
Global Tools
pcfdev-v0.547.0
Running
General
Name: pcfdev-v0.547.0
Operating System: Ubuntu (64-bit)
System
Base Memory: 4096 MB
Processors: 2
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, Minimal Paravirtualization
Preview
Display
Video Memory: 8 MB
Remote Desktop Server: Disabled
Video Capture: Disabled
Storage
Controller: SATA
SATA Port 0: pcfdev-v0.547.0-disk1.vmdk (Normal, 58.59 GB)
Audio
Host Driver: CoreAudio
Controller: ICH AC97

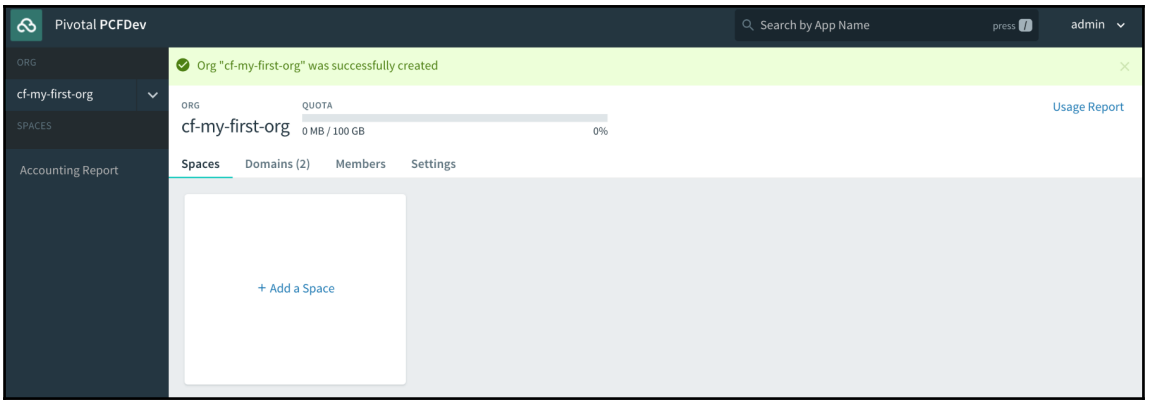

Oracle VM VirtualBox Manager
New
New
tings
Discard
Start
Details
Machine Tools
Global Tools
pcfdev-v0.547.0
Powered Off
General
Name: pcfdev-v0.547.0
Operating System: Ubuntu (64-bit)
System
Base Memory: 4096 MB
Processors: 2
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, Minimal Paravirtualization
Preview
pcfdev-v0.547.0
Display
Video Memory: 8 MB
Remote Desktop Server: Disabled
Video Capture: Disabled
Storage
Controller: SATA
SATA Port 0: pcfdev-v0.547.0-disk1.vmdk (Normal, 58.59 GB)
Audio
Host Driver: CoreAudio
Controller: ICH AC97
Create new virtual machine

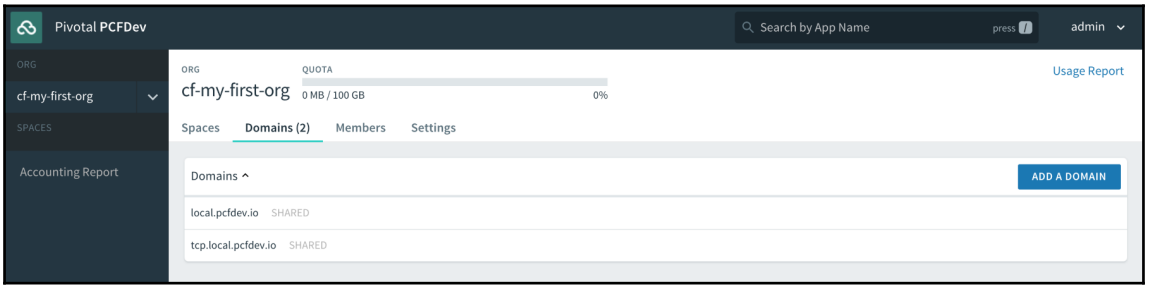
Chapter 4: Users, Orgs, Spaces, and Roles

```
~ cf dev status
Running
CLI Login: cf login -a https://api.local.pcfdev.io --skip-ssl-validation
Apps Manager URL: https://apps.local.pcfdev.io
Admin user => Email: admin / Password: admin
Regular user => Email: user / Password: pass
```







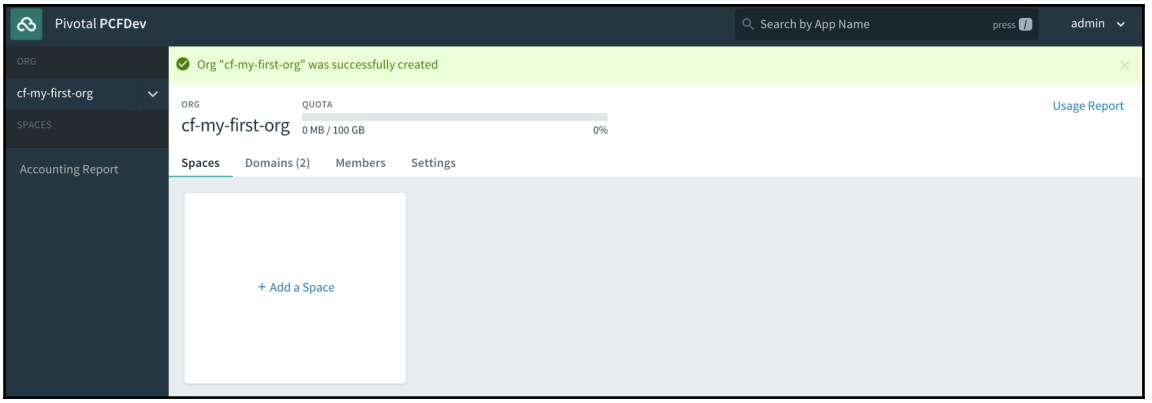


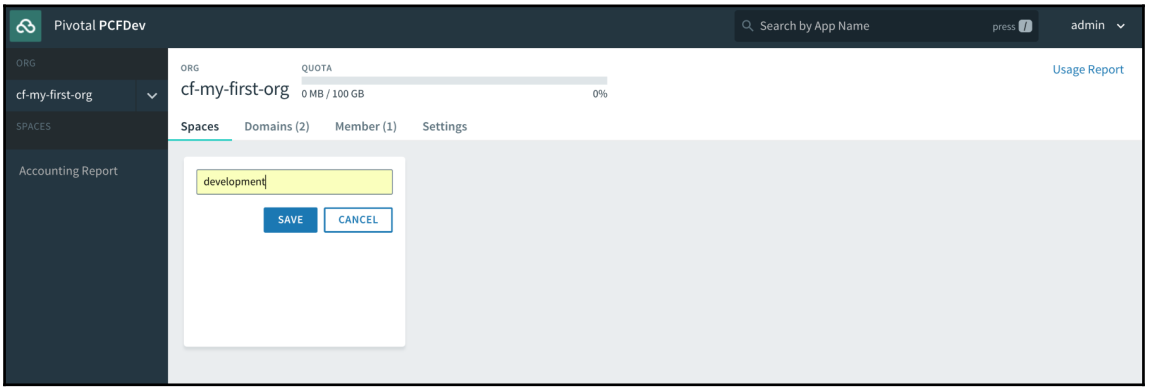

```
[~ ❯❯❯ cf create-org --help                                                  ]
NAME:
   create-org - Create an org

USAGE:
   cf create-org ORG

ALIAS:
   co

OPTIONS:
   -q      Quota to assign to the newly created org (excluding this option resul
ts in assignment of default quota)

SEE ALSO:
   create-space, orgs, quotas, set-org-role
```

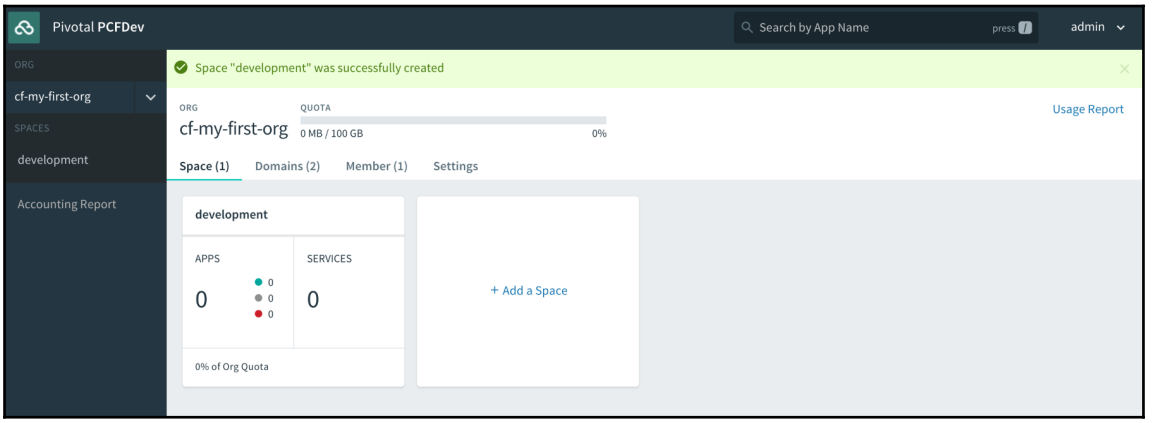
```
~ ››› cf create-org cf-my-first-org
Creating org cf-my-first-org as admin...
OK

Assigning role OrgManager to user admin in org cf-my-first-org ...
OK

TIP: Use 'cf target -o "cf-my-first-org"' to target new org
```

```
~ ››› cf create-org cf-my-first-org
Creating org cf-my-first-org as admin...
OK
Org cf-my-first-org already exists
```

```
~ ››› cf orgs
Getting orgs as admin...

name
cf-my-first-org
p-spring-cloud-services
pcfdev-org
system
```


Pivotal PCFDev
Search by App Name
press /
admin
ORG
cf-my-first-org
SPACES
Accounting Report
Org "cf-my-first-org" was successfully created
ORG
cf-my-first-org
QUOTA
0 MB / 100 GB
0%
Usage Report
Spaces
Domains (2)
Members
Settings
+ Add a Space


Pivotal PCFDev
Search by App Name
press /
admin
ORG
cf-my-first-org
SPACES
Accounting Report
ORG
cf-my-first-org
QUOTA
0 MB / 100 GB
0%
Usage Report
Spaces
Domains (2)
Member (1)
Settings
development
SAVE
CANCEL


Pivotal PCFDev
Search by App Name
press /
admin
ORG
cf-my-first-org
SPACES
development
Accounting Report
Space "development" was successfully created
ORG
cf-my-first-org
QUOTA
0 MB / 100 GB
0%
Usage Report
Space (1)
Domains (2)
Member (1)
Settings
development
APPS
0
0
0
0
SERVICES
0
0% of Org Quota
+ Add a Space

```
~ ››› cf login -a https://api.local.pcfdev.io --skip-ssl-validation
API endpoint: https://api.local.pcfdev.io

Email> admin

Password>
Authenticating...
OK
```

```
Select an org (or press enter to skip):
1. cf-my-first-org
2. p-spring-cloud-services
3. pcfdev-org
4. system

Org> 1
Targeted org cf-my-first-org



API endpoint:   https://api.local.pcfdev.io (API version: 2.82.0)
User:           admin
Org:            cf-my-first-org
Space:          No space targeted, use 'cf target -s SPACE'
```

```
~ ››› cf create-space development
Creating space development in org cf-my-first-org as admin...
OK
Assigning role RoleSpaceManager to user admin in org cf-my-first-org / space dev
elopment as admin...
OK
Assigning role RoleSpaceDeveloper to user admin in org cf-my-first-org / space d
evelopment as admin...
OK

TIP: Use 'cf target -o "cf-my-first-org" -s "development"' to target new space
```

```
~ ››› cf create-space development
Creating space development in org cf-my-first-org as admin...
OK
Space development already exists
```

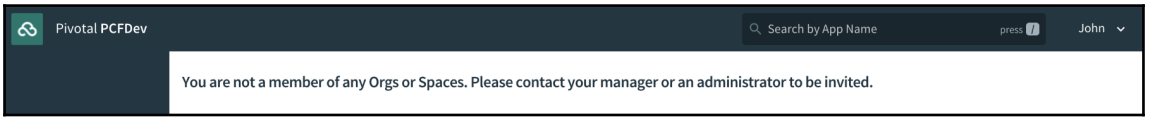
```
~ ››› cf target -o cf-my-first-org -s development
api endpoint:   https://api.local.pcfdev.io
api version:    2.82.0
user:           admin
org:            cf-my-first-org
space:          development
```

```
~ ››› cf spaces
Getting spaces in org cf-my-first-org as admin...

name
development
```

```
~ ››› cf login -a https://api.local.pcfdev.io --skip-ssl-validation
API endpoint: https://api.local.pcfdev.io

Email> admin

Password>
Authenticating...
OK
```

```
Select an org (or press enter to skip):
1. cf-my-first-org
2. p-spring-cloud-services
3. pcfdev-org
4. system

Org> 1
Targeted org cf-my-first-org

Targeted space development



API endpoint:   https://api.local.pcfdev.io (API version: 2.82.0)
User:           admin
Org:            cf-my-first-org
Space:          development
```

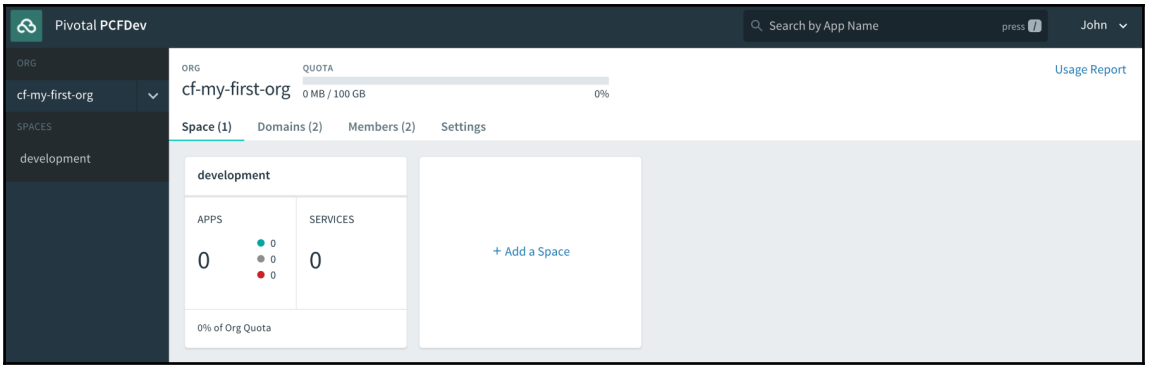
```
~ ››› cf create-user John welcome
Creating user John...
user John already exists
OK

TIP: Assign roles with 'cf set-org-role' and 'cf set-space-role'.
```

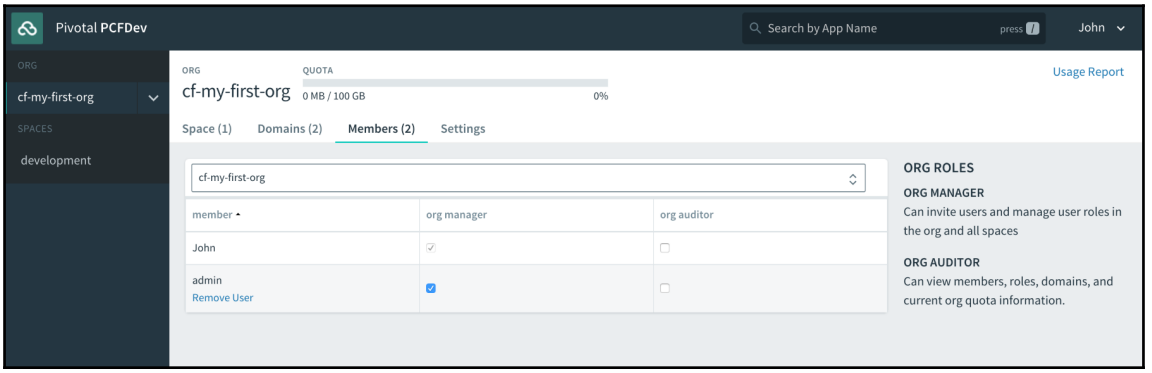


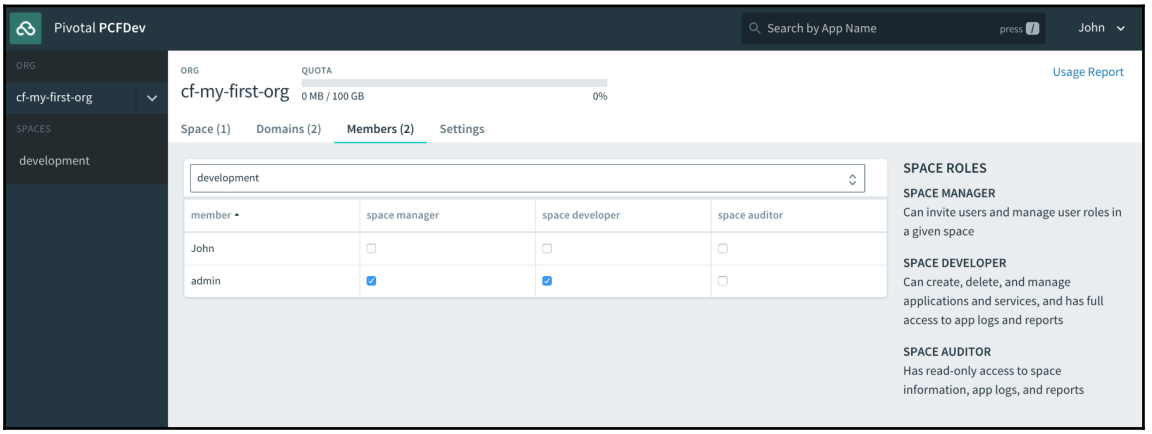
```
~ ❯❯❯ cf login -a https://api.local.pcfdev.io --skip-ssl-validation
API endpoint: https://api.local.pcfdev.io

Email> admin

Password>
Authenticating...
OK
```

```
Select an org (or press enter to skip):
1. cf-my-first-org
2. p-spring-cloud-services
3. pcfdev-org
4. system

Org> 1
Targeted org cf-my-first-org

Targeted space development



API endpoint:   https://api.local.pcfdev.io (API version: 2.82.0)
User:           admin
Org:            cf-my-first-org
Space:          development
```

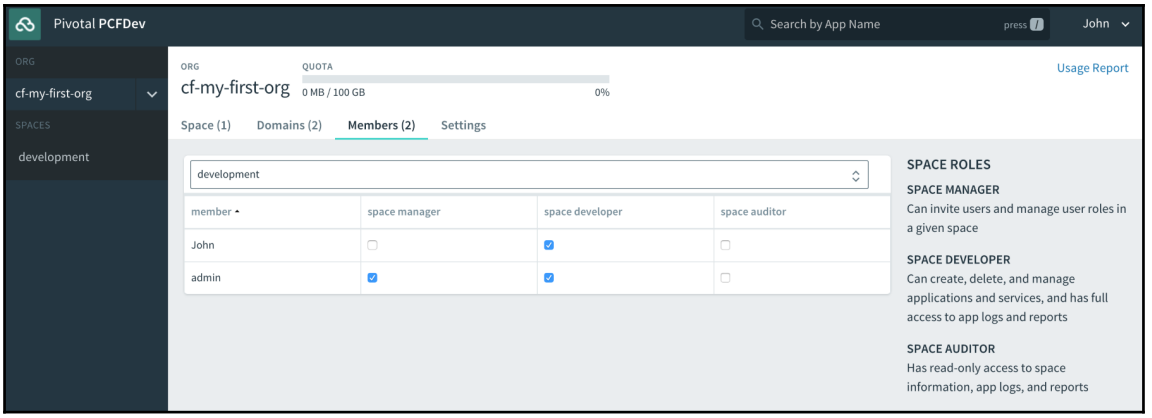
```
~ ❯❯❯ cf set-org-role John cf-my-first-org OrgManager
Assigning role OrgManager to user John in org cf-my-first-org as admin...
OK
```



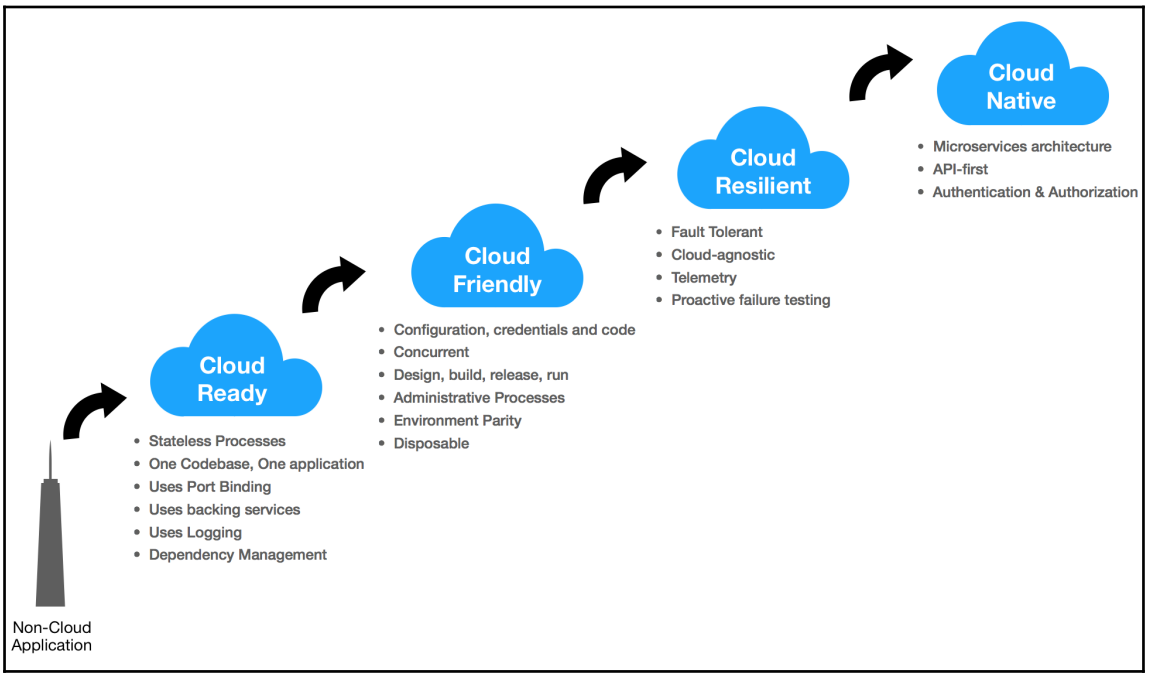


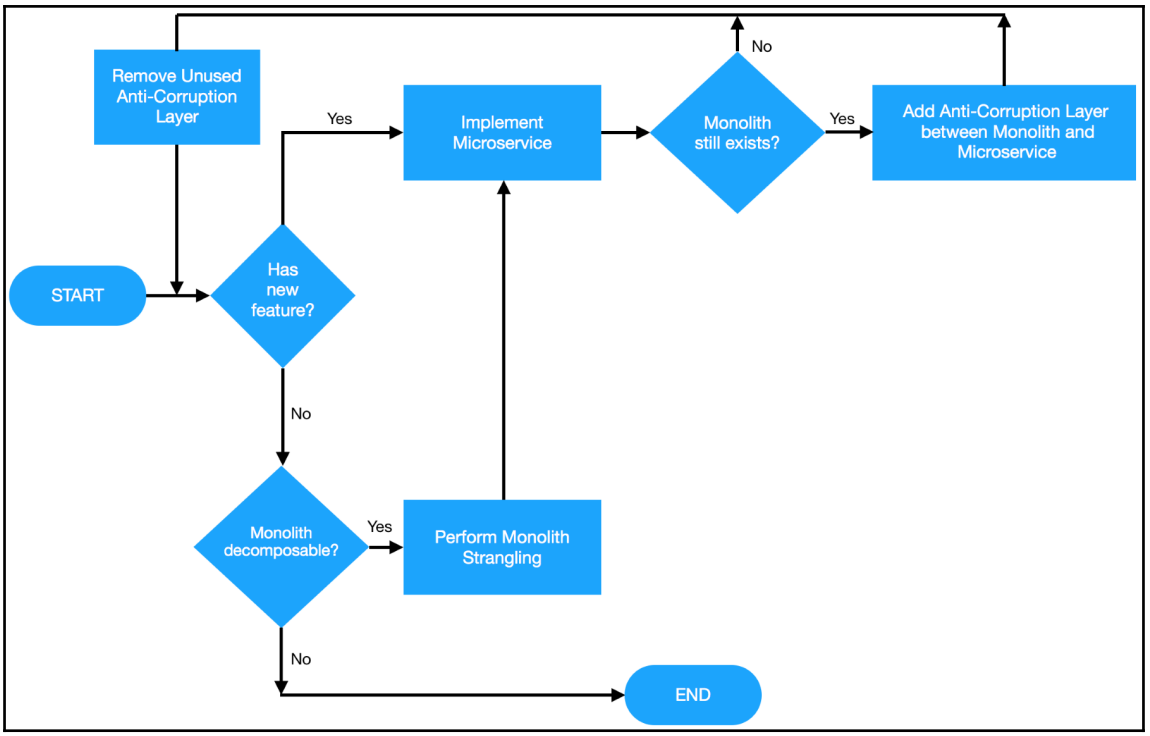


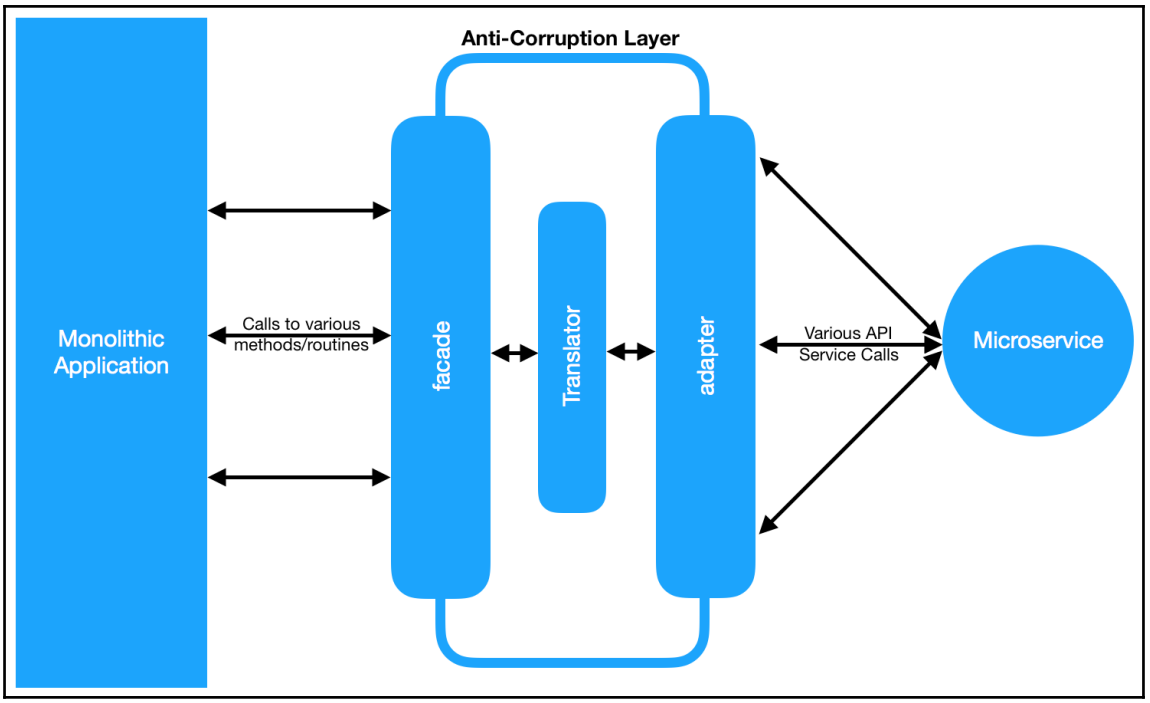

```
[~ ››› cf set-space-role John cf-my-first-org development SpaceDeveloper ]
Assigning role RoleSpaceDeveloper to user John in org cf-my-first-org / space de
velopment as admin...
OK
```

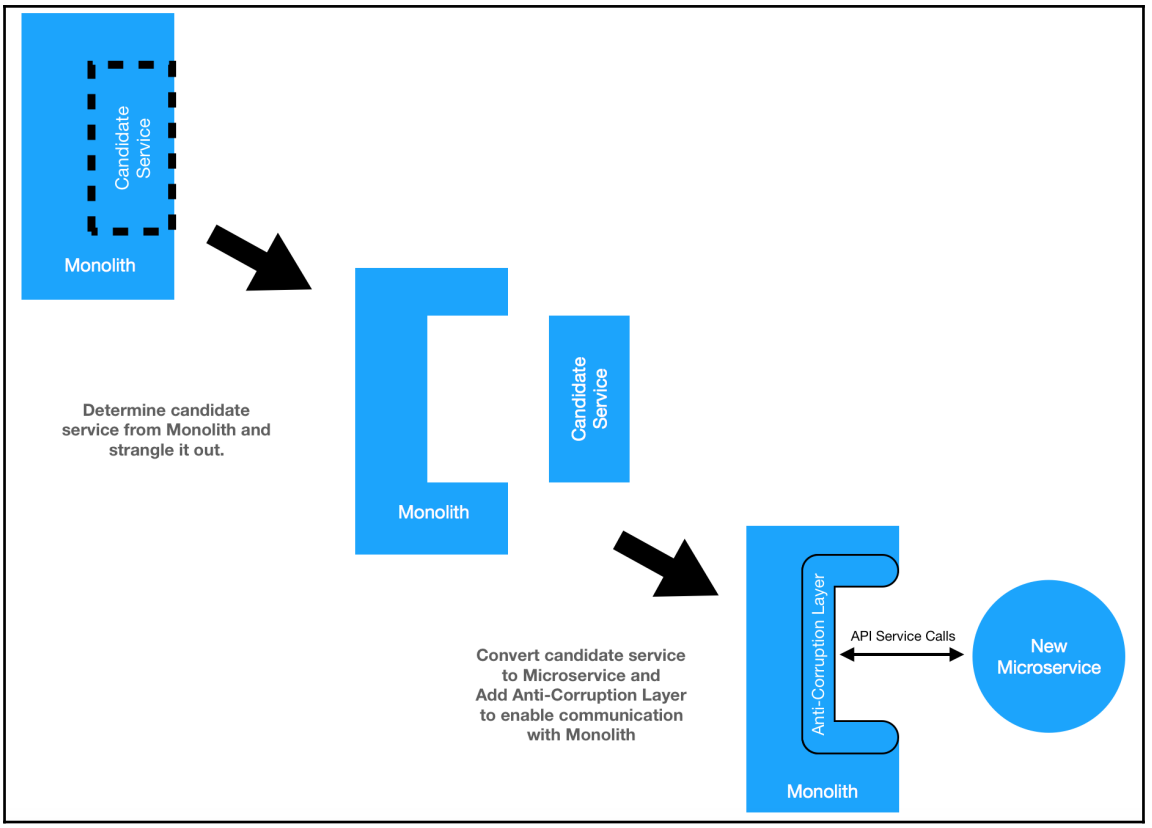

Pivotal PCFDev
Search by App Name
press /
John
ORG
cf-my-first-org
SPACES
development
ORG
cf-my-first-org
QUOTA
0 MB / 100 GB
0%
Usage Report
Space (1)
Domains (2)
Members (2)
Settings
development
member
space manager
space developer
space auditor
John
admin
SPACE ROLES
SPACE MANAGER
Can invite users and manage user roles in a given space
SPACE DEVELOPER
Can create, delete, and manage applications and services, and has full access to app logs and reports
SPACE AUDITOR
Has read-only access to space information, app logs, and reports

Chapter 5: Architecting and Building Apps for the Cloud




Remove Unused Anti-Corruption Layer
Yes
Implement Microservice
Monolith still exists?
No
Yes
Add Anti-Corruption Layer between Monolith and Microservice
START
Has new feature?
No
Monolith decomposable?
Yes
Perform Monolith Strangling
No
END


Anti-Corruption Layer
Monolithic Application
Calls to various methods/routines
facade
Translator
adapter
Various API Service Calls
Microservice


Candidate Service
Monolith
Determine candidate service from Monolith and strangle it out.
Monolith
Candidate Service
Convert candidate service to Microservice and Add Anti-Corruption Layer to enable communication with Monolith
Anti-Corruption Layer
API Service Calls
New Microservice
Monolith

Chapter6: Deploying Apps to Cloud Foundry

```
~ ››› cf marketplace
Getting services from marketplace in org pcfdev-org / space development as user...
OK

service        plans            description
local-volume   free-local-disk   Local service docs: https://github.com/cloudfoundry-incubator/local-volume-release/
p-mysql        512mb, 1gb       MySQL databases on demand
p-rabbitmq     standard         RabbitMQ is a robust and scalable high-performance multi-protocol messaging broker.
p-redis        shared-vm        Redis service to provide a key-value store

TIP:  Use 'cf marketplace -s SERVICE' to view descriptions of individual plans of a given service.
~ ›››
```

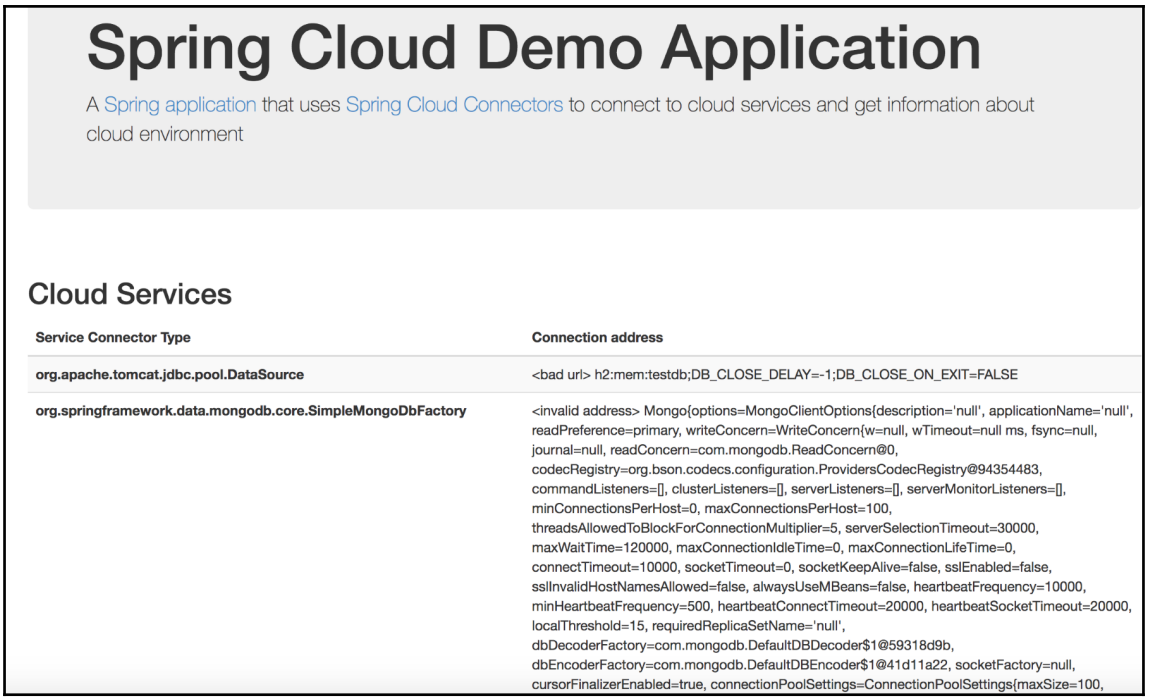
```
~ ››› cf create-service p-mysql 1gb my-database-service
Creating service instance my-database-service in org pcfdev-org / space development as admin...
OK
~ ›››
```

```
~ ››› cf services
Getting services in org pcfdev-org / space development as admin...
OK

name                  service   plan   bound apps   last operation
my-database-service   p-mysql   1gb                 create succeeded
~ ›››
```

```
~ ››› cf service my-database-service

Service instance: my-database-service
Service: p-mysql
Bound apps:
Tags:
Plan: 1gb
Description: MySQL databases on demand
Documentation url:
Dashboard: http://mysql-broker.local.pcfdev.io/manage/instances/fd9dc363-4a46-4918-9174-e45179f87221

Last Operation
Status: create succeeded
Message:
Started: 2017-09-24T13:48:19Z
Updated: 2017-09-24T13:48:19Z
~ ›››
```

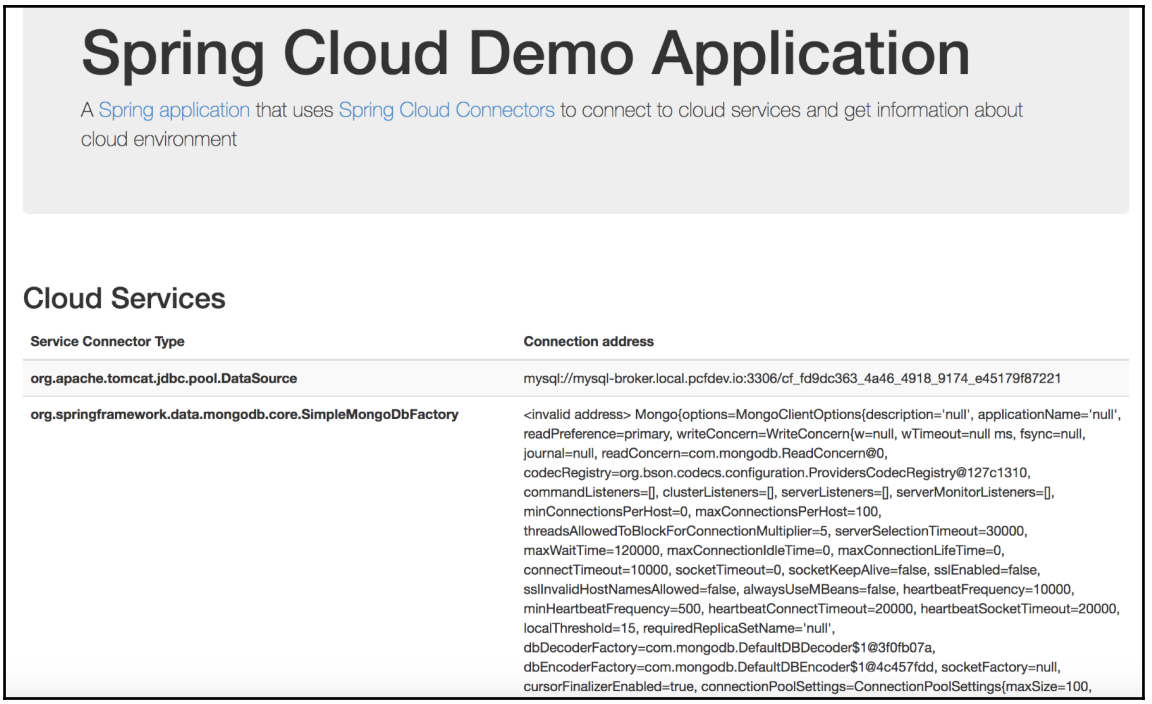
```
~ ››› cf buildpacks
Getting buildpacks...

buildpack              position   enabled   locked   filename
java_buildpack         1          true      false    java-buildpack-offline-v3.13.zip
ruby_buildpack         2          true      false    ruby_buildpack-cached-v1.6.37.zip
nodejs_buildpack       3          true      false    nodejs_buildpack-cached-v1.5.32.zip
go_buildpack           4          true      false    go_buildpack-cached-v1.8.1.zip
python_buildpack       5          true      false    python_buildpack-cached-v1.5.18.zip
php_buildpack          6          true      false    php_buildpack-cached-v4.3.31.zip
staticfile_buildpack   7          true      false    staticfile_buildpack-cached-v1.4.5.zip
binary_buildpack       8          true      false    binary_buildpack-cached-v1.0.11.zip
dotnet-core_buildpack  9          true      false    dotnet-core_buildpack-cached-v1.0.15.zip
~ ›››
```

```
~/hello-spring-cloud ❯❯❯ cf push
Using manifest file /Users/damu/hello-spring-cloud/manifest.yml

Creating app hello-spring-cloud in org pcfdev-org / space development as admin...
OK

Creating route hello-spring-cloud-calisthenical-padeye.local.pcfdev.io...
OK

Binding hello-spring-cloud-calisthenical-padeye.local.pcfdev.io to hello-spring-cloud...
OK

Uploading hello-spring-cloud...
Uploading app files from: /var/folders/45/n3wsmxkj61n4vssl53q3lr7h0000gn/T/unzipped-app185161434
Uploading 24M, 137 files
Done uploading
OK

Starting app hello-spring-cloud in org pcfdev-org / space development as admin...
Downloading ruby_buildpack...
Downloading dotnet-core_buildpack...
Downloading java_buildpack...
Downloading go_buildpack...
Downloading python_buildpack...
Downloaded python_buildpack
Downloading php_buildpack...
Downloaded java_buildpack
Downloaded ruby_buildpack
Downloading staticfile_buildpack...
Downloading binary_buildpack...
Downloaded dotnet-core_buildpack
Downloaded go_buildpack
Downloading nodejs_buildpack...
Downloaded php_buildpack
Downloaded binary_buildpack
Downloaded nodejs_buildpack
Downloaded staticfile_buildpack
Creating container
Successfully created container
Downloading app package...
Downloaded app package (30.7M)
Staging...
-----> Java Buildpack Version: v3.13 (offline) | https://github.com/cloudfoundry/java-buildpack.git#03b493f
-----> Downloading Open Jdk JRE 1.8.0_121 from https://java-buildpack.cloudfoundry.org/openjdk/trusty/x86_64/openjdk-1.8.0_121.tar.gz
(found in cache)
       Expanding Open Jdk JRE to .java-buildpack/open_jdk_jre (1.3s)
-----> Downloading Open JDK Like Memory Calculator 2.0.2_RELEASE from https://java-buildpack.cloudfoundry.org/memory-calculator/trusty
/x86_64/memory-calculator-2.0.2_RELEASE.tar.gz (found in cache)
       Memory Settings: -Xss349K -XX:MetaspaceSize=104857K -Xms681574K -Xmx681574K -XX:MaxMetaspaceSize=104857K
-----> Downloading Container Certificate Trust Store 2.0.0_RELEASE from https://java-buildpack.cloudfoundry.org/container-certificate-
trust-store/container-certificate-trust-store-2.0.0_RELEASE.jar (found in cache)
       Adding certificates to .java-buildpack/container_certificate_trust_store/truststore.jks (0.3s)
-----> Downloading Spring Auto Reconfiguration 1.10.0_RELEASE from https://java-buildpack.cloudfoundry.org/auto-reconfiguration/auto-r
econfiguration-1.10.0_RELEASE.jar (found in cache)
Exit status 0
Staging complete
Uploading droplet, build artifacts cache...
Uploading droplet...
Uploading build artifacts cache...
Uploaded build artifacts cache (108B)
Uploaded droplet (76.1M)
Uploading complete
Destroying container
Successfully destroyed container

0 of 1 instances running, 1 starting
1 of 1 instances running


App started


OK

App hello-spring-cloud was started using this command `CALCULATED_MEMORY=$($PWD/.java-buildpack/open_jdk_jre/bin/java-buildpack-memory
-calculator-2.0.2_RELEASE -memorySizes=metaspace:64m..,stack:228k.. -memoryWeights=heap:65,metaspace:10,native:15,stack:10 -memoryInit
ials=heap:100%,metaspace:100% -stackThreads=300 -totMemory=$MEMORY_LIMIT) && JAVA_OPTS="-Djava.io.tmpdir=$TMPDIR -XX:OnOutOfMemoryError
r=$PWD/.java-buildpack/open_jdk_jre/bin/killjava.sh $CALCULATED_MEMORY -Djavax.net.ssl.trustStore=$PWD/.java-buildpack/container_certi
ficate_trust_store/truststore.jks -Djavax.net.ssl.trustStorePassword=java-buildpack-trust-store-password" && SERVER_PORT=$PORT eval ex
ec $PWD/.java-buildpack/open_jdk_jre/bin/java $JAVA_OPTS -cp $PWD/. org.springframework.boot.loader.JarLauncher`

Showing health and status for app hello-spring-cloud in org pcfdev-org / space development as admin...
OK

requested state: started
instances: 1/1
usage: 256M x 1 instances
urls: hello-spring-cloud-calisthenical-padeye.local.pcfdev.io
last uploaded: Sun Sep 24 16:41:29 UTC 2017
stack: cflinuxfs2
buildpack: container-certificate-trust-store=2.0.0_RELEASE java-buildpack=v3.13-offline-https://github.com/cloudfoundry/java-buildpack
.git#03b493f java-main open-jdk-like-jre=1.8.0_121 open-jdk-like-memory-calculator=2.0.2_RELEASE spring-auto-reconfiguration=1.10...

     state     since                    cpu    memory          disk           details
#0   running   2017-09-24 11:42:04 AM   0.0%   229.3M of 256M   157M of 512M
~/hello-spring-cloud ❯❯❯
```




```
~ ››› cf bind-service hello-spring-cloud my-database-service
Binding service my-database-service to app hello-spring-cloud in org pcfdev-org / space development as admin...
OK
TIP: Use 'cf restage hello-spring-cloud' to ensure your env variable changes take effect
~ ›››
```

```
~ ❯❯❯ cf restart hello-spring-cloud
Stopping app hello-spring-cloud in org pcfdev-org / space development as admin...
OK

Starting app hello-spring-cloud in org pcfdev-org / space development as admin...

0 of 1 instances running, 1 starting
0 of 1 instances running, 1 starting
0 of 1 instances running, 1 starting
1 of 1 instances running

App started


OK

App hello-spring-cloud was started using this command `CALCULATED_MEMORY=$($PWD/.java-buildpack/open_jdk_jre/bin/java-buildpack-memory-calculator-2.0.2_RELEASE -memorySizes=metaspace:64m..,stack:228k.. -memoryWeights=heap:65,metaspace:10,native:15,stack:10 -memoryInitials=heap:100%,metaspace:100% -stackThreads=300 -totMemory=$MEMORY_LIMIT) && JAVA_OPTS="-Djava.io.tmpdir=$TMPDIR -XX:OnOutOfMemoryError=$PWD/.java-buildpack/open_jdk_jre/bin/killjava.sh $CALCULATED_MEMORY -Djavax.net.ssl.trustStore=$PWD/.java-buildpack/container_certificate_trust_store/truststore.jks -Djavax.net.ssl.trustStorePassword=java-buildpack-trust-store-password" && SERVER_PORT=$PORT eval exec $PWD/.java-buildpack/open_jdk_jre/bin/java $JAVA_OPTS -cp $PWD/. org.springframework.boot.loader.JarLauncher`

Showing health and status for app hello-spring-cloud in org pcfdev-org / space development as admin...
OK

requested state: started
instances: 1/1
usage: 256M x 1 instances
urls: hello-spring-cloud-calisthenical-padeye.local.pcfdev.io
last uploaded: Sun Sep 24 16:41:29 UTC 2017
stack: cflinuxfs2
buildpack: container-certificate-trust-store=2.0.0_RELEASE java-buildpack=v3.13-offline-https://github.com/cloudfoundry/java-buildpack.git#03b493f java-main open-jdk-like-jre=1.8.0_121 open-jdk-like-memory-calculator=2.0.2_RELEASE spring-auto-reconfiguration=1.10...

     state     since                  cpu    memory           disk           details
#0   running   2017-09-24 05:10:46 PM   0.0%   225.4M of 256M   157M of 512M
~ ❯❯❯
```




```
~/hello-spring-cloud ››› cat manifest.yml
---
applications:
- name: hello-spring-cloud
  instances: 1
  host: hello-spring-cloud-${random-word}
  path: target/hello-spring-cloud-0.0.1.BUILD-SNAPSHOT.jar
~/hello-spring-cloud ›››
```

```
~/hello-spring-cloud ››› cf apps
Getting apps in org pcfdev-org / space development as admin...
OK

name                requested state   instances   memory   disk   urls
hello-spring-cloud   started           2/2         512M     512M   hello-spring-cloud-calisthenical-padeye.local.pcfdev.io
~/hello-spring-cloud ›››
```

```
~/hello-spring-cloud ››› cf app hello-spring-cloud
Showing health and status for app hello-spring-cloud in org pcfdev-org / space development as admin...
OK

requested state: started
instances: 2/2
usage: 512M x 2 instances
urls: hello-spring-cloud-calisthenical-padeye.local.pcfdev.io
last uploaded: Mon Sep 25 16:12:39 UTC 2017
stack: cflinuxfs2
buildpack: container-certificate-trust-store=2.0.0_RELEASE java-buildpack=v3.13-offline-https://github.com/cloudfoundry/java-buildpack.git#
03b493f java-main open-jdk-like-jre=1.8.0_121 open-jdk-like-memory-calculator=2.0.2_RELEASE spring-auto-reconfiguration=1.10...

     state     since                  cpu    memory           disk           details
#0   running   2017-09-25 11:13:21 AM   0.3%   303.6M of 512M   157M of 512M
#1   running   2017-09-25 11:13:24 AM   0.3%   304.9M of 512M   157M of 512M
~/hello-spring-cloud ›››
```

```
~/hello-spring-cloud ››› cf logs hello-spring-cloud --recent
Connected, dumping recent logs for app hello-spring-cloud in org pcfdev-org / space development as admin...

2017-09-25T11:13:23.04-0500 [APP/PROC/WEB/1]OUT       - @ConditionalOnMissingBean (types: org.springframework.boot.web.client.RestTemplateB
uilder; SearchStrategy: all) did not find any beans (OnBeanCondition)
2017-09-25T11:13:23.04-0500 [APP/PROC/WEB/1]OUT    WebMvcAutoConfiguration matched:
2017-09-25T11:13:23.04-0500 [APP/PROC/WEB/1]OUT    WebMvcAutoConfiguration#hiddenHttpMethodFilter matched:
2017-09-25T11:13:23.04-0500 [APP/PROC/WEB/1]OUT       - @ConditionalOnMissingBean (types: org.springframework.web.filter.HiddenHttpMethodFi
lter; SearchStrategy: all) did not find any beans (OnBeanCondition)
2017-09-25T11:13:23.04-0500 [APP/PROC/WEB/1]OUT       - @ConditionalOnProperty (spring.mvc.formcontent.putfilter.enabled) matched (OnProper
tyCondition)
2017-09-25T11:13:23.04-0500 [APP/PROC/WEB/1]OUT       - @ConditionalOnMissingBean (types: org.springframework.web.filter.HttpPutFormContent
Filter; SearchStrategy: all) did not find any beans (OnBeanCondition)
2017-09-25T11:13:23.04-0500 [APP/PROC/WEB/1]OUT    WebMvcAutoConfiguration.WebMvcAutoConfigurationAdapter#defaultViewResolver matched:
2017-09-25T11:13:23.04-0500 [APP/PROC/WEB/1]OUT       - @ConditionalOnMissingBean (types: org.springframework.web.servlet.view.InternalReso
urceViewResolver; SearchStrategy: all) did not find any beans (OnBeanCondition)
2017-09-25T11:13:23.04-0500 [APP/PROC/WEB/1]OUT    WebMvcAutoConfiguration.WebMvcAutoConfigurationAdapter#requestContextFilter matched:
2017-09-25T11:13:23.04-0500 [APP/PROC/WEB/1]OUT    WebMvcAutoConfiguration.WebMvcAutoConfigurationAdapter#viewResolver matched:
2017-09-25T11:13:23.04-0500 [APP/PROC/WEB/1]OUT    WebMvcAutoConfiguration.WebMvcAutoConfigurationAdapter.FaviconConfiguration matched:
2017-09-25T11:13:23.05-0500 [APP/PROC/WEB/1]OUT    SecurityFilterAutoConfiguration:
2017-09-25T11:13:23.05-0500 [APP/PROC/WEB/1]OUT       Did not match:
2017-09-25T11:13:23.05-0500 [APP/PROC/WEB/1]OUT          - @ConditionalOnClass did not find required classes 'org.springframework.security.
web.context.AbstractSecurityWebApplicationInitializer', 'org.springframework.security.config.http.SessionCreationPolicy' (OnClassCondition)
2017-09-25T11:13:23.05-0500 [APP/PROC/WEB/1]OUT    SendGridAutoConfiguration:
2017-09-25T11:13:23.05-0500 [APP/PROC/WEB/1]OUT       Did not match:
2017-09-25T11:13:23.05-0500 [APP/PROC/WEB/1]OUT          - @ConditionalOnClass did not find required class 'com.sendgrid.SendGrid' (OnClass
Condition)
2017-09-25T11:13:23.05-0500 [APP/PROC/WEB/1]OUT    SessionAutoConfiguration:
2017-09-25T11:13:23.05-0500 [APP/PROC/WEB/1]OUT       Did not match:
2017-09-25T11:13:23.05-0500 [APP/PROC/WEB/1]OUT          - @ConditionalOnClass did not find required class 'org.springframework.session.Ses
sion' (OnClassCondition)
2017-09-25T11:13:23.05-0500 [APP/PROC/WEB/1]OUT    SitePreferenceAutoConfiguration:
2017-09-25T11:13:23.05-0500 [APP/PROC/WEB/1]OUT       Did not match:
2017-09-25T11:13:23.05-0500 [APP/PROC/WEB/1]OUT          - @ConditionalOnClass did not find required classes 'org.springframework.mobile.de
vice.site.SitePreferenceHandlerInterceptor', 'org.springframework.mobile.device.site.SitePreferenceHandlerMethodArgumentResolver' (OnClassC
ondition)
```

```
~/hello-spring-cloud ››› cf logs hello-spring-cloud
Connected, tailing logs for app hello-spring-cloud in org pcfdev-org / space development as admin...
```

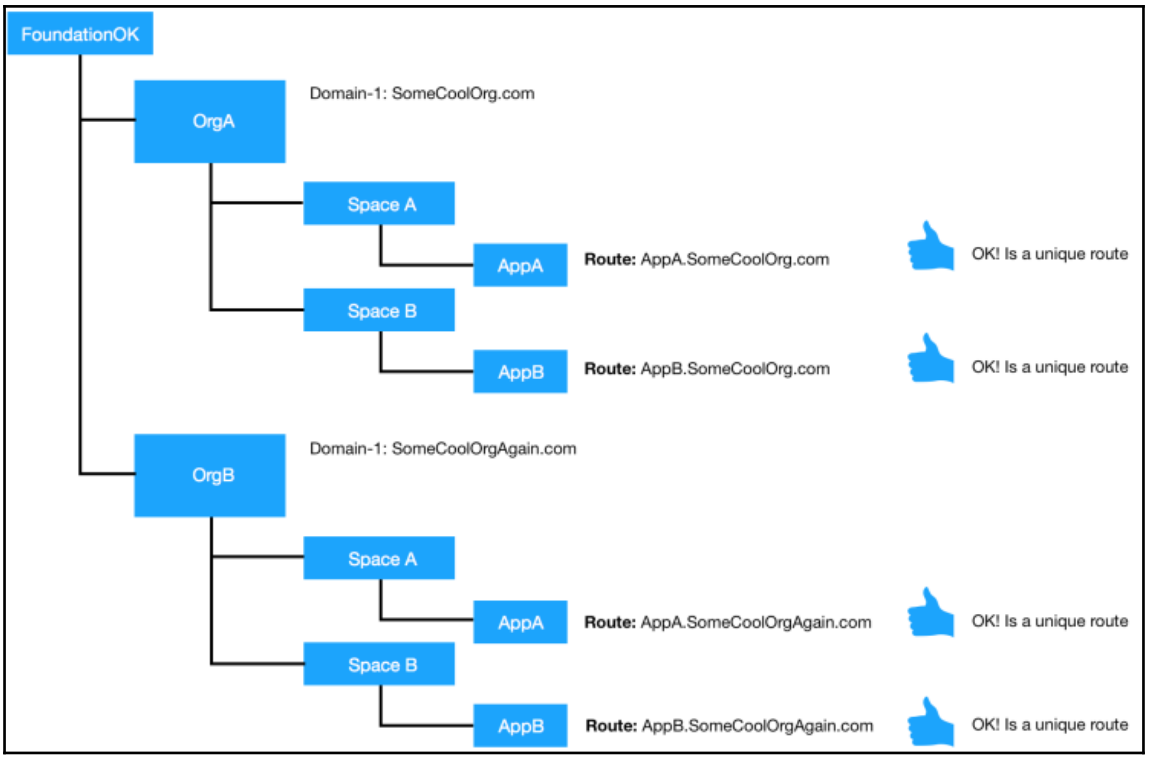
```
~/hello-spring-cloud ››› cf logs hello-spring-cloud
Connected, tailing logs for app hello-spring-cloud in org pcfdev-org / space development as admin...

2017-09-25T12:03:36.46-0500 [APP/PROC/WEB/1]OUT 2017-09-25 17:03:36.459  INFO 6 --- [nio-8080-exec-2] o.a.c.c.C.[Tomcat].[localhost].[/]
    : Initializing Spring FrameworkServlet 'dispatcherServlet'
2017-09-25T12:03:36.46-0500 [APP/PROC/WEB/1]OUT 2017-09-25 17:03:36.459  INFO 6 --- [nio-8080-exec-2] o.s.web.servlet.DispatcherServlet
    : FrameworkServlet 'dispatcherServlet': initialization started
2017-09-25T12:03:36.47-0500 [APP/PROC/WEB/1]OUT 2017-09-25 17:03:36.479  INFO 6 --- [nio-8080-exec-2] o.s.web.servlet.DispatcherServlet
    : FrameworkServlet 'dispatcherServlet': initialization completed in 19 ms
2017-09-25T12:03:36.50-0500 [APP/PROC/WEB/1]OUT 2017-09-25 17:03:36.501 DEBUG 6 --- [nio-8080-exec-2] o.s.b.w.f.OrderedRequestContextFilter
    : Bound request context to thread: org.apache.catalina.connector.RequestFacade@962dda4
2017-09-25T12:03:36.55-0500 [APP/PROC/WEB/1]OUT 2017-09-25 17:03:36.553  INFO 6 --- [nio-8080-exec-2] org.mongodb.driver.cluster
    : Cluster description not yet available. Waiting for 30000 ms before timing out
2017-09-25T12:04:06.58-0500 [APP/PROC/WEB/1]OUT 2017-09-25 17:04:06.575 DEBUG 6 --- [nio-8080-exec-2] org.thymeleaf.TemplateEngine
    : [THYMELEAF] INITIALIZING TEMPLATE ENGINE
2017-09-25T12:04:06.64-0500 [APP/PROC/WEB/1]OUT 2017-09-25 17:04:06.645 DEBUG 6 --- [nio-8080-exec-2] o.t.t.AbstractTemplateResolver
    : [THYMELEAF] INITIALIZING TEMPLATE RESOLVER: org.thymeleaf.spring4.templateresolver.SpringResourceTemplateResolver
2017-09-25T12:04:06.64-0500 [APP/PROC/WEB/1]OUT 2017-09-25 17:04:06.645 DEBUG 6 --- [nio-8080-exec-2] o.t.t.AbstractTemplateResolver
    : [THYMELEAF] TEMPLATE RESOLVER INITIALIZED OK
2017-09-25T12:04:06.64-0500 [APP/PROC/WEB/1]OUT 2017-09-25 17:04:06.645 DEBUG 6 --- [nio-8080-exec-2] o.t.m.AbstractMessageResolver
    : [THYMELEAF] INITIALIZING MESSAGE RESOLVER: org.thymeleaf.spring4.messageresolver.SpringMessageResolver
2017-09-25T12:04:06.64-0500 [APP/PROC/WEB/1]OUT 2017-09-25 17:04:06.645 DEBUG 6 --- [nio-8080-exec-2] o.t.m.AbstractMessageResolver
    : [THYMELEAF] MESSAGE RESOLVER INITIALIZED OK
2017-09-25T12:04:06.65-0500 [APP/PROC/WEB/1]OUT 2017-09-25 17:04:06.651 DEBUG 6 --- [nio-8080-exec-2] org.thymeleaf.TemplateEngine.CONFIG
    : [THYMELEAF] TEMPLATE ENGINE CONFIGURATION:
2017-09-25T12:04:06.65-0500 [APP/PROC/WEB/1]OUT [THYMELEAF] * Cache Factory implementation: org.thymeleaf.cache.StandardCacheManager
2017-09-25T12:04:06.65-0500 [APP/PROC/WEB/1]OUT [THYMELEAF] * Template modes:
2017-09-25T12:04:06.65-0500 [APP/PROC/WEB/1]OUT [THYMELEAF]     * VALIDXHTML
2017-09-25T12:04:06.65-0500 [APP/PROC/WEB/1]OUT [THYMELEAF]     * HTML5
2017-09-25T12:04:06.65-0500 [APP/PROC/WEB/1]OUT [THYMELEAF]     * LEGACYHTML5
```

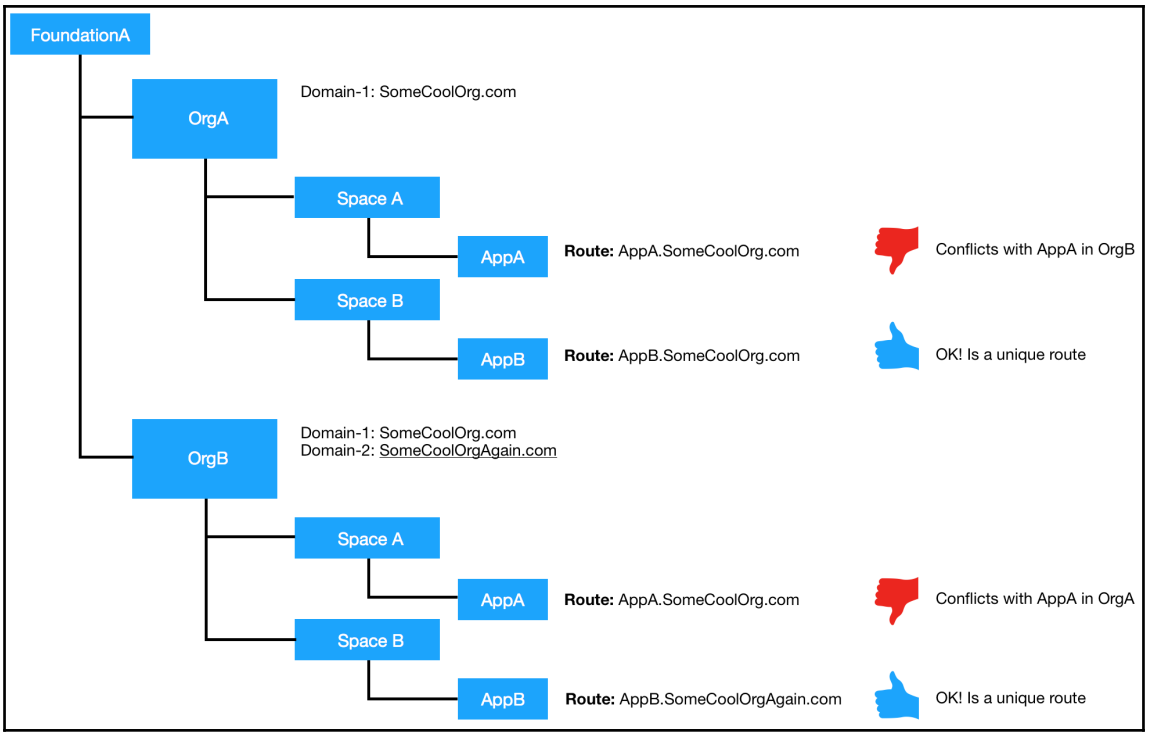
```
~ ››› cf scale hello-spring-cloud
Showing current scale of app hello-spring-cloud in org pcfdev-org / space development as admin...
OK

memory: 512M
disk: 512M
instances: 2
~ ›››
```

```
~ ››› cf scale hello-spring-cloud -i 1 -k 256M -m 256M

This will cause the app to restart. Are you sure you want to scale hello-spring-cloud?> yes

Scaling app hello-spring-cloud in org pcfdev-org / space development as admin...
OK
Stopping app hello-spring-cloud in org pcfdev-org / space development as admin...
OK

Starting app hello-spring-cloud in org pcfdev-org / space development as admin...

0 of 1 instances running, 1 starting
0 of 1 instances running, 1 starting
0 of 1 instances running, 1 starting
1 of 1 instances running

App started


OK

App hello-spring-cloud was started using this command `CALCULATED_MEMORY=$($PWD/.java-buildpack/open_jdk_jre/bin/java-buildpack-memory-calculator-2.0.2_RELEASE -memorySizes=metaspace:64m..,stack:228k.. -memoryWeights=heap:65,metaspace:10,native:15,stack:10 -memoryInitials=heap:100%,metaspace:100% -stackThreads=300 -totMemory=$MEMORY_LIMIT) && JAVA_OPTS="-Djava.io.tmpdir=$TMPDIR -XX:OnOutOfMemoryError=$PWD/.java-buildpack/open_jdk_jre/bin/killjava.sh $CALCULATED_MEMORY -Djavax.net.ssl.trustStore=$PWD/.java-buildpack/container_certificate_trust_store/truststore.jks -Djavax.net.ssl.trustStorePassword=java-buildpack-trust-store-password" && SERVER_PORT=$PORT eval exec $PWD/.java-buildpack/open_jdk_jre/bin/java $JAVA_OPTS -cp $PWD/. org.springframework.boot.loader.JarLauncher`

Showing health and status for app hello-spring-cloud in org pcfdev-org / space development as admin...
OK

requested state: started
instances: 1/1
usage: 256M x 1 instances
urls: hello-spring-cloud-calisthenical-padeye.local.pcfdev.io
last uploaded: Mon Sep 25 16:12:39 UTC 2017
stack: cflinuxfs2
buildpack: container-certificate-trust-store=2.0.0_RELEASE java-buildpack=v3.13-offline-https://github.com/cloudfoundry/java-buildpack.git#03b493f java-main open-jdk-like-jre=1.8.0_121 open-jdk-like-memory-calculator=2.0.2_RELEASE spring-auto-reconfiguration=1.10...

     state     since                  cpu    memory           disk           details
#0   running   2017-09-25 10:50:33 PM   0.3%   303.6M of 256M   157M of 256M
~ ›››
```

```
~ ››› cf run-task hello-spring-cloud "ls -al" --name my-ls
Creating task for app hello-spring-cloud in org pcfdev-org / space development as admin...
OK

Task has been submitted successfully for execution.
Task name:   my-ls
Task id:     1
~ ›››
```

```
~ ››› cf logs hello-spring-cloud --recent | grep "my-ls"
2017-09-26T00:45:30.59-0500 [APP/TASK/my-ls/0]OUT Creating container
2017-09-26T00:45:30.86-0500 [APP/TASK/my-ls/0]OUT Successfully created container
2017-09-26T00:45:33.39-0500 [APP/TASK/my-ls/0]OUT total 24
2017-09-26T00:45:33.39-0500 [APP/TASK/my-ls/0]OUT drwxr-xr-x 6 vcap root 4096 Sep 26 05:44 .
2017-09-26T00:45:33.39-0500 [APP/TASK/my-ls/0]OUT drwx------ 7 vcap vcap 4096 Sep 26 05:44 ..
2017-09-26T00:45:33.39-0500 [APP/TASK/my-ls/0]OUT drwxr-xr-x 5 vcap vcap 4096 Sep 26 05:44 .java-buildpack
2017-09-26T00:45:33.39-0500 [APP/TASK/my-ls/0]OUT drwxr-xr-x 4 vcap vcap 4096 Sep 26 05:44 BOOT-INF
2017-09-26T00:45:33.39-0500 [APP/TASK/my-ls/0]OUT drwxr-xr-x 3 vcap vcap 4096 Sep 26 05:44 META-INF
2017-09-26T00:45:33.39-0500 [APP/TASK/my-ls/0]OUT drwxr-xr-x 3 vcap vcap 4096 Sep 26 05:44 org
2017-09-26T00:45:33.39-0500 [APP/TASK/my-ls/0]OUT Exit status 0
2017-09-26T00:45:33.41-0500 [APP/TASK/my-ls/0]OUT Destroying container
2017-09-26T00:45:33.92-0500 [APP/TASK/my-ls/0]OUT Successfully destroyed container
~ ›››
```


FoundationOK
OrgA
Domain-1: SomeCoolOrg.com
Space A
AppA
Route: AppA.SomeCoolOrg.com
OK! Is a unique route
Space B
AppB
Route: AppB.SomeCoolOrg.com
OK! Is a unique route
OrgB
Domain-1: SomeCoolOrgAgain.com
Space A
AppA
Route: AppA.SomeCoolOrgAgain.com
OK! Is a unique route
Space B
AppB
Route: AppB.SomeCoolOrgAgain.com
OK! Is a unique route

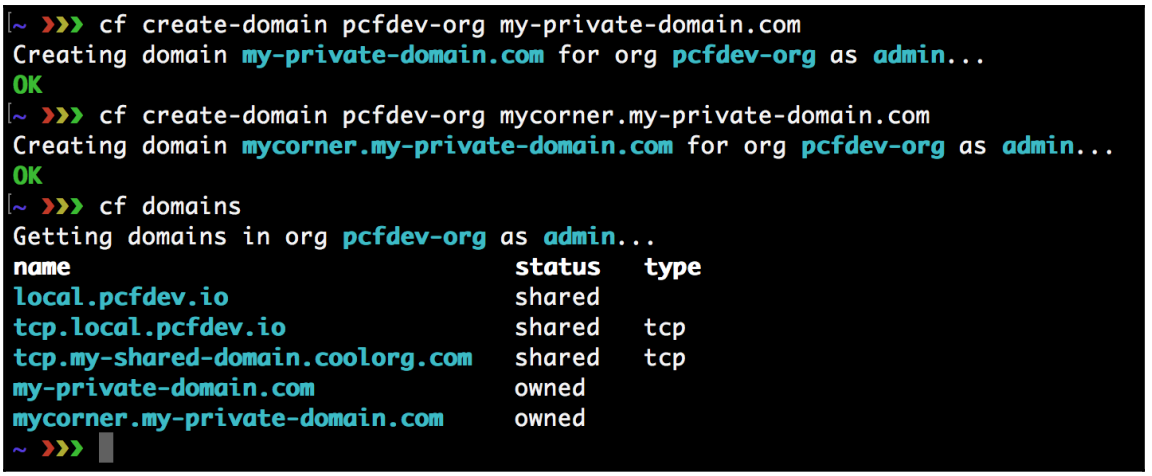


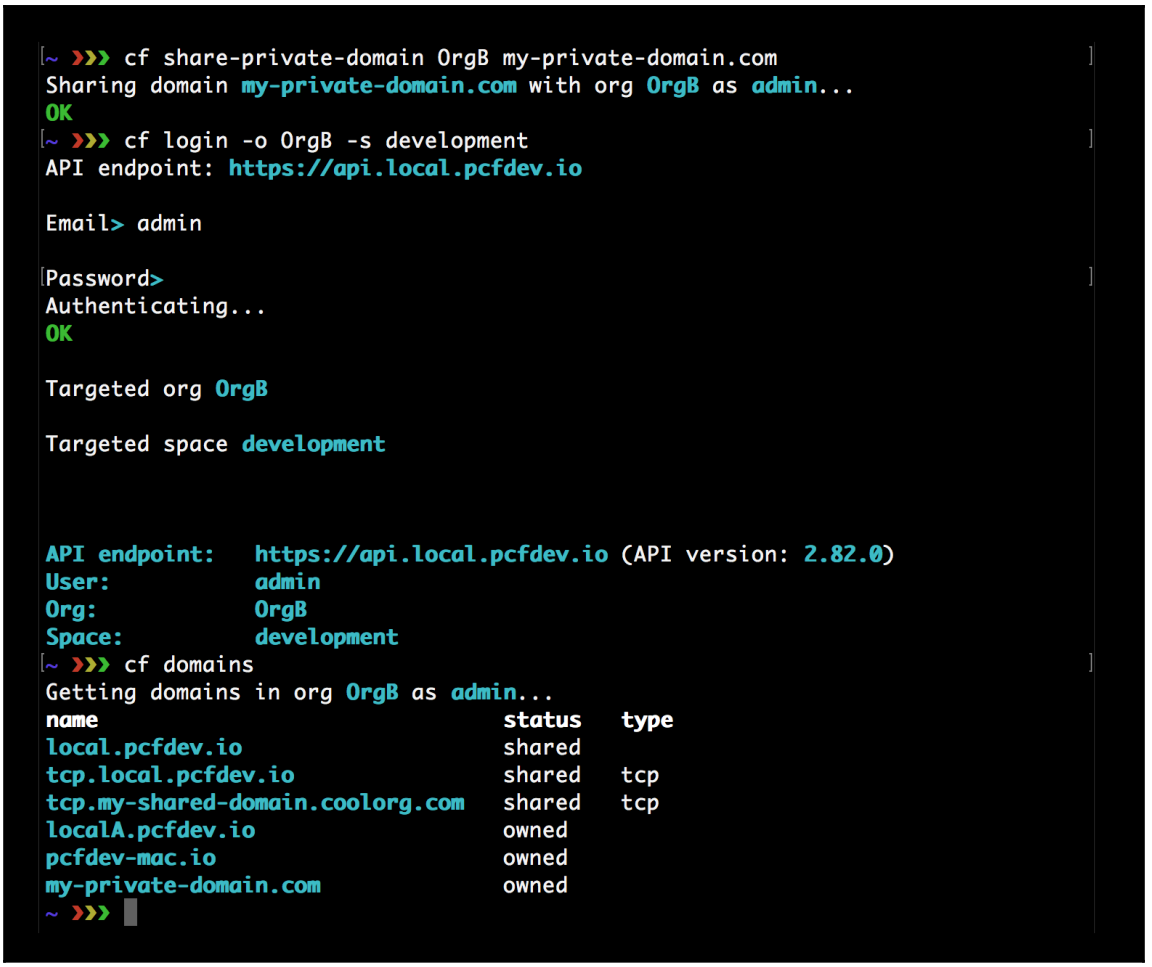

```
~ ❯❯❯ cf domains
Getting domains in org pcfdev-org as admin...
name                    status   type
local.pcfdev.io         shared
tcp.local.pcfdev.io     shared   tcp
~ ❯❯❯
```

```
~ ››› cf create-shared-domain my-shared-domain.coolorg.com
Creating shared domain my-shared-domain.coolorg.com as admin...
OK
~ ››› cf domains
Getting domains in org pcfdev-org as admin...
name                              status   type
local.pcfdev.io                   shared
tcp.local.pcfdev.io               shared   tcp
my-shared-domain.coolorg.com      shared
~ ›››
```

```
~ ››› cf delete-shared-domain my-shared-domain.coolorg.com
Deleting domain my-shared-domain.coolorg.com as admin...

This domain is shared across all orgs.
Deleting it will remove all associated routes, and will make any app with this domain unreachable.
Are you sure you want to delete the domain my-shared-domain.coolorg.com? > yes
OK
~ ››› cf domains
Getting domains in org pcfdev-org as admin...
name                status   type
local.pcfdev.io     shared
tcp.local.pcfdev.io shared   tcp
~ ›››
```

```
~ ››› cf router-groups
Getting router groups as admin ...

name          type
default-tcp   tcp
~ ››› cf create-shared-domain tcp.my-shared-domain.coolorg.com --router-group default-tcp
Creating shared domain tcp.my-shared-domain.coolorg.com as admin...
OK
~ ››› cf domains
Getting domains in org pcfdev-org as admin...
name                              status   type
local.pcfdev.io                   shared
tcp.local.pcfdev.io               shared   tcp
tcp.my-shared-domain.coolorg.com  shared   tcp
~ ›››
```


~ ››› cf create-domain pcfdev-org my-private-domain.com
Creating domain my-private-domain.com for org pcfdev-org as admin...
OK
~ ››› cf create-domain pcfdev-org mycorner.my-private-domain.com
Creating domain mycorner.my-private-domain.com for org pcfdev-org as admin...
OK
~ ››› cf domains
Getting domains in org pcfdev-org as admin...
name status type
local.pcfdev.io shared
tcp.local.pcfdev.io shared tcp
tcp.my-shared-domain.coolorg.com shared tcp
my-private-domain.com owned
mycorner.my-private-domain.com owned
~ ›››


~ ››› cf share-private-domain OrgB my-private-domain.com
Sharing domain my-private-domain.com with org OrgB as admin...
OK
~ ››› cf login -o OrgB -s development
API endpoint: https://api.local.pcfdev.io
Email> admin
Password>
Authenticating...
OK
Targeted org OrgB
Targeted space development
API endpoint: https://api.local.pcfdev.io (API version: 2.82.0)
User: admin
Org: OrgB
Space: development
~ ››› cf domains
Getting domains in org OrgB as admin...
name status type
local.pcfdev.io shared
tcp.local.pcfdev.io shared tcp
tcp.my-shared-domain.coolorg.com shared tcp
localA.pcfdev.io owned
pcfdev-mac.io owned
my-private-domain.com owned
~ ›››

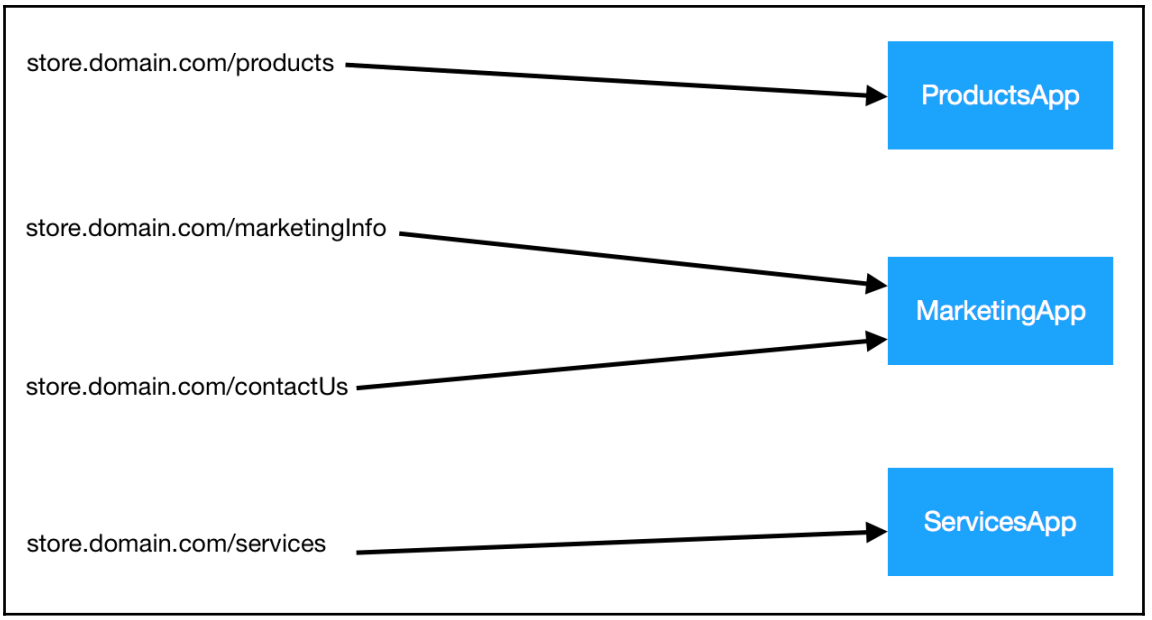
```
~ ››› cf unshare-private-domain OrgB my-private-domain.com
Unsharing domain my-private-domain.com from org OrgB as admin...
OK
~ ››› cf domains
Getting domains in org OrgB as admin...
name                                status   type
local.pcfdev.io                     shared
tcp.local.pcfdev.io                 shared   tcp
tcp.my-shared-domain.coolorg.com    shared   tcp
localA.pcfdev.io                    owned
pcfdev-mac.io                       owned
~ ›››
```

```
~ ››› cf routes
Getting routes for org pcfdev-org / space development as admin ...

space         host                                  domain           port   path   type   apps                service
development   hello-spring-cloud-calisthenical-padeye   local.pcfdev.io
development   spring-music-unshotted-laker          local.pcfdev.io
development   my-app                                local.pcfdev.io                       my-app
development   my-app2                               local.pcfdev.io                       my-app2
development   batch-app                             local.pcfdev.io                       batch-app
development   app2                                  local.pcfdev.io                       app2
development   hello-spring-cloud-cationic-callowness local.pcfdev.io
development   hello-spring-cloud-overground-bongo    local.pcfdev.io                       hello-spring-cloud
development   hellocl                               local.pcfdev.io                       hellocl
~ ›››
```

```
~ ››› cf create-route development my-private-domain.com
Creating route my-private-domain.com for org pcfdev-org / space development as admin...
OK
~ ›››
```

```
~ ››› cf create-route development local.pcfdev.io --hostname "superRoute"
Creating route superRoute.local.pcfdev.io for org pcfdev-org / space development as admin...
OK
~ ›››
```

```
~ ››› cf create-route development local.pcfdev.io --hostname "*"
Creating route *.local.pcfdev.io for org pcfdev-org / space development as admin...
OK
~ ›››
```



manifest.yml

```yaml
---
applications:
- name: hello-spring-cloud-home
  instances: 1
  routes:
  - route: hello-spring-cloud-context-path.local.pcfdev.io/home
  path: target/hello-spring-cloud-0.0.1.BUILD-SNAPSHOT.jar
```

manifest.yml

```yaml
---
applications:
- name: hello-spring-cloud-services
  instances: 1
  routes:
  - route: hello-spring-cloud-context-path.local.pcfdev.io/services
  path: target/hello-spring-cloud-0.0.1.BUILD-SNAPSHOT.jar
```

home.html

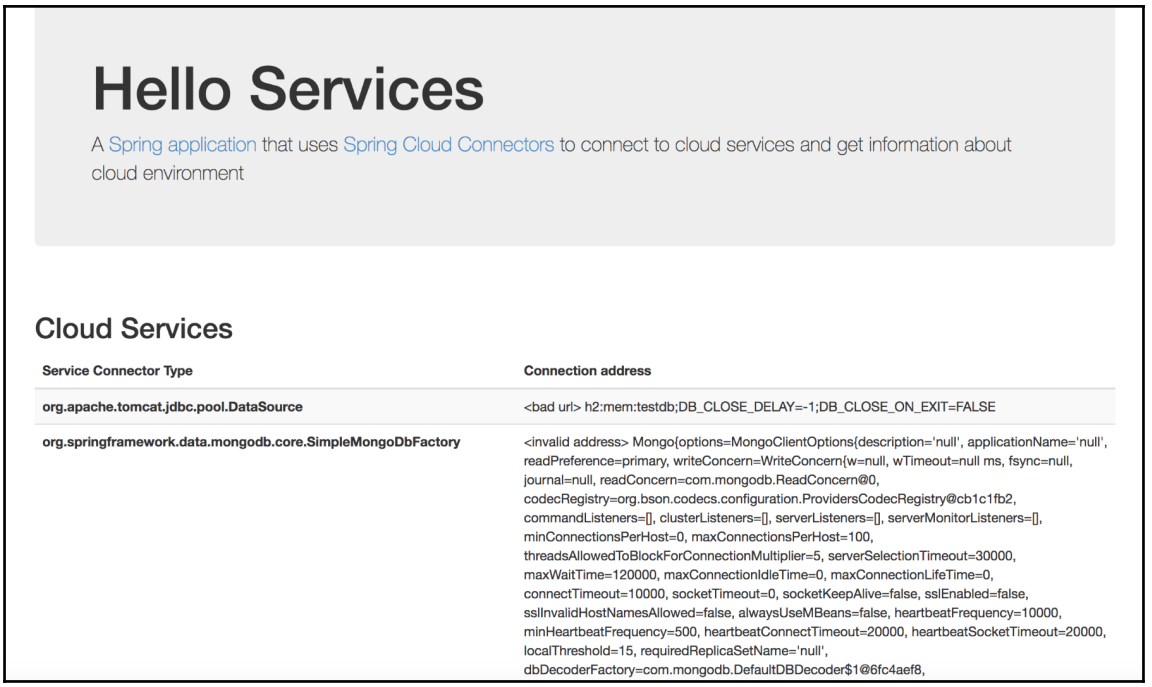
```
<!DOCTYPE HTML>
<html xmlns:th="http://www.thymeleaf.org">
<head>
    <title>Getting Started: Serving Web Content</title>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    <link rel="stylesheet" href="http://netdna.bootstrapcdn.com/bootstrap/3.1.1/css/bootstrap.min.css"/>
</head>
<body>
    <div class="container">
        <div class="jumbotron">
                <h1>Hello Services</h1>
            <p>A <a href="http://github.com/cloudfoundry-samples/hello-spring-cloud">Spring application</a>
               that uses <a href="https://cloud.spring.io/spring-cloud-connectors/">Spring Cloud Connectors</a> to cor
               cloud services and get information about cloud environment</p>
        </div>
```

Spring Cloud Demo Application

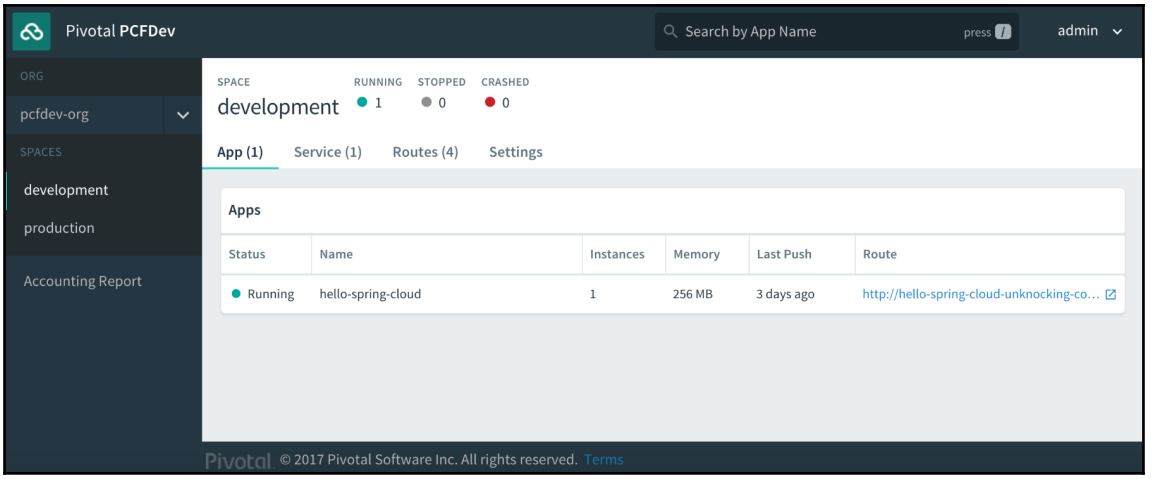
A Spring application that uses Spring Cloud Connectors to connect to cloud services and get information about cloud environment

Cloud Services

Service Connector Type	Connection address
org.apache.tomcat.jdbc.pool.DataSource	<bad url> h2:mem:testdb;DB_CLOSE_DELAY=-1;DB_CLOSE_ON_EXIT=FALSE
org.springframework.data.mongodb.core.SimpleMongoDbFactory	<invalid address> Mongo{options=MongoClientOptions{description='null', applicationName='null', readPreference=primary, writeConcern=WriteConcern{w=null, wTimeout=null ms, fsync=null, journal=null, readConcern=com.mongodb.ReadConcern@0, codecRegistry=org.bson.codecs.configuration.ProvidersCodecRegistry@740dba66, commandListeners=[], clusterListeners=[], serverListeners=[], serverMonitorListeners=[], minConnectionsPerHost=0, maxConnectionsPerHost=100, threadsAllowedToBlockForConnectionMultiplier=5, serverSelectionTimeout=30000, maxWaitTime=120000, maxConnectionIdleTime=0, maxConnectionLifeTime=0, connectTimeout=10000, socketTimeout=0, socketKeepAlive=false, sslEnabled=false, sslInvalidHostNamesAllowed=false, alwaysUseMBeans=false, heartbeatFrequency=10000, minHeartbeatFrequency=500, heartbeatConnectTimeout=20000, heartbeatSocketTimeout=20000, localThreshold=15, requiredReplicaSetName='null', dbDecoderFactory=com.mongodb.DefaultDBDecoder$1@18a70c4f,




```
~ ❯❯❯ cf delete hello-spring-cloud

Really delete the app hello-spring-cloud?> yes
Deleting app hello-spring-cloud in org pcfdev-org / space development as admin...
OK
~ ❯❯❯
```


Pivotal PCFDev
Search by App Name
press /
admin
ORG
pcfdev-org
SPACES
development
production
Accounting Report
SPACE
development
RUNNING
1
STOPPED
0
CRASHED
0
App (1)
Service (1)
Routes (4)
Settings
Apps
Status
Name
Instances
Memory
Last Push
Route
Running
hello-spring-cloud
1
256 MB
3 days ago
http://hello-spring-cloud-unknocking-co…
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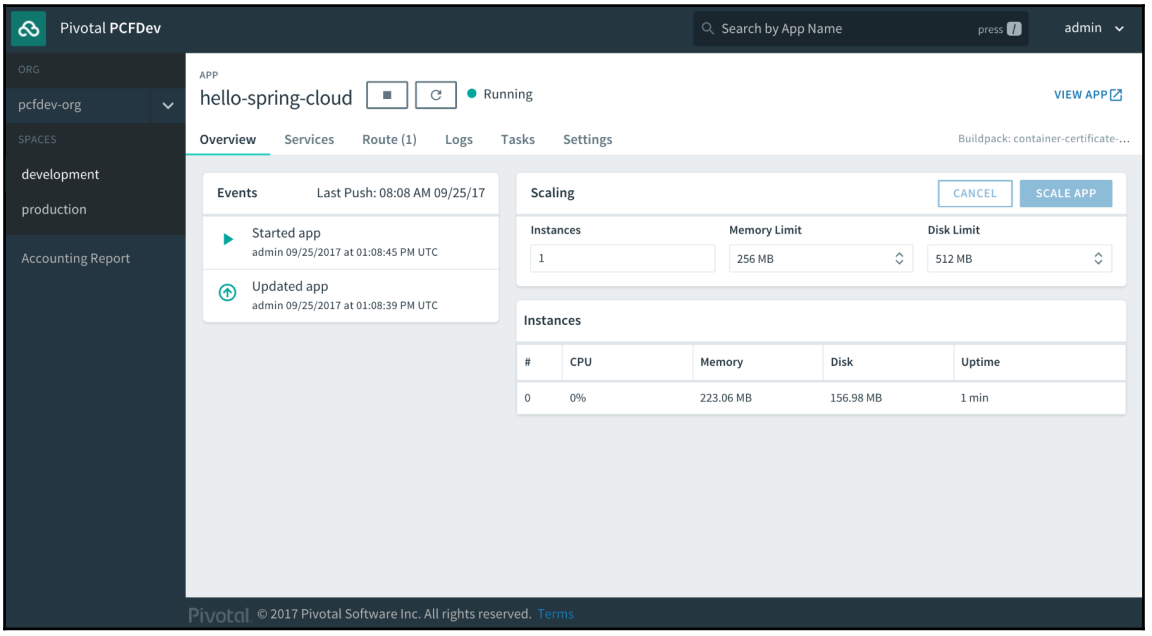
Pivotal PCFDev
Search by App Name
press /
admin
ORG
pcfdev-org
SPACES
development
production
Accounting Report
APP
hello-spring-cloud
Running
VIEW APP
Overview
Services
Route (1)
Logs
Tasks
Settings
Buildpack: container-certificate-…
Events
Last Push: 08:08 AM 09/25/17
Started app
admin 09/25/2017 at 01:08:45 PM UTC
Updated app
admin 09/25/2017 at 01:08:39 PM UTC
Scaling
CANCEL
SCALE APP
Instances
Memory Limit
Disk Limit
1
256 MB
512 MB
Instances
#
CPU
Memory
Disk
Uptime
0
0%
223.06 MB
156.98 MB
1 min
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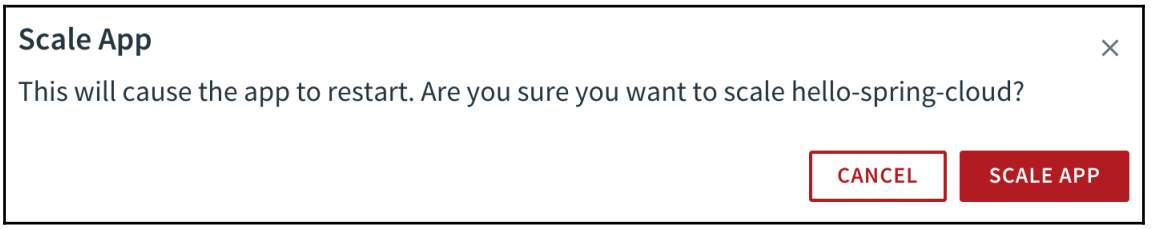
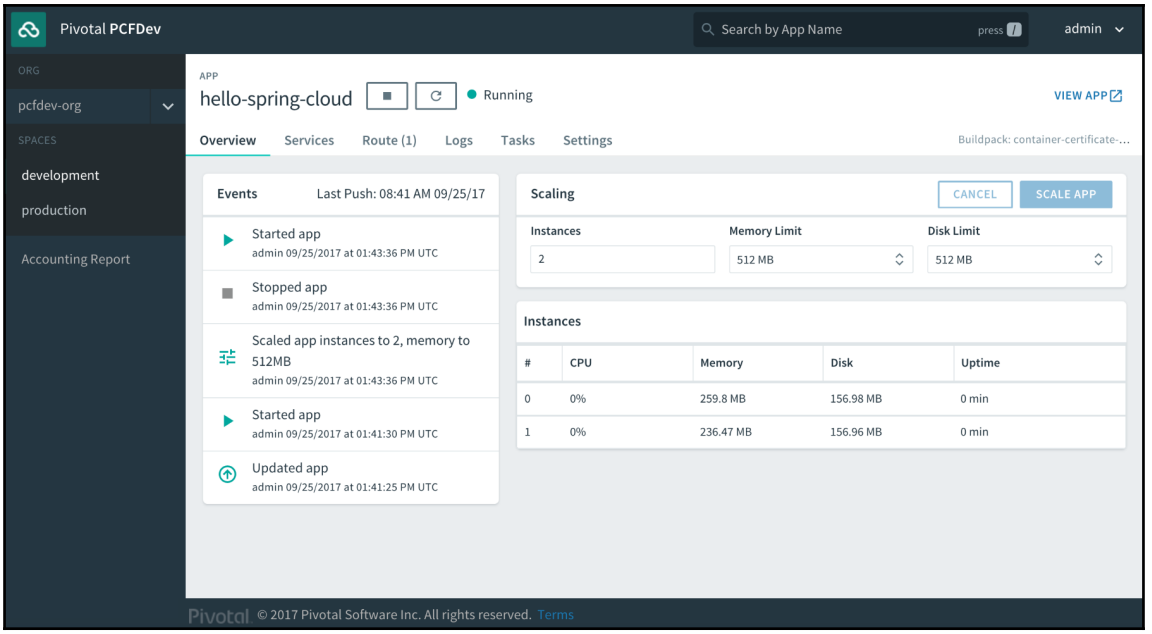

Scale App
This will cause the app to restart. Are you sure you want to scale hello-spring-cloud?
CANCEL
SCALE APP


Pivotal PCFDev
Search by App Name
press /
admin
ORG
pcfdev-org
SPACES
development
production
Accounting Report
APP
hello-spring-cloud
Running
VIEW APP
Overview
Services
Route (1)
Logs
Tasks
Settings
Buildpack: container-certificate-...
Events
Last Push: 08:41 AM 09/25/17
Started app
admin 09/25/2017 at 01:43:36 PM UTC
Stopped app
admin 09/25/2017 at 01:43:36 PM UTC
Scaled app instances to 2, memory to 512MB
admin 09/25/2017 at 01:43:36 PM UTC
Started app
admin 09/25/2017 at 01:41:30 PM UTC
Updated app
admin 09/25/2017 at 01:41:25 PM UTC
Scaling
CANCEL
SCALE APP
Instances
Memory Limit
Disk Limit
2
512 MB
512 MB
Instances
CPU Memory Disk Uptime
0 0% 259.8 MB 156.98 MB 0 min
1 0% 236.47 MB 156.96 MB 0 min
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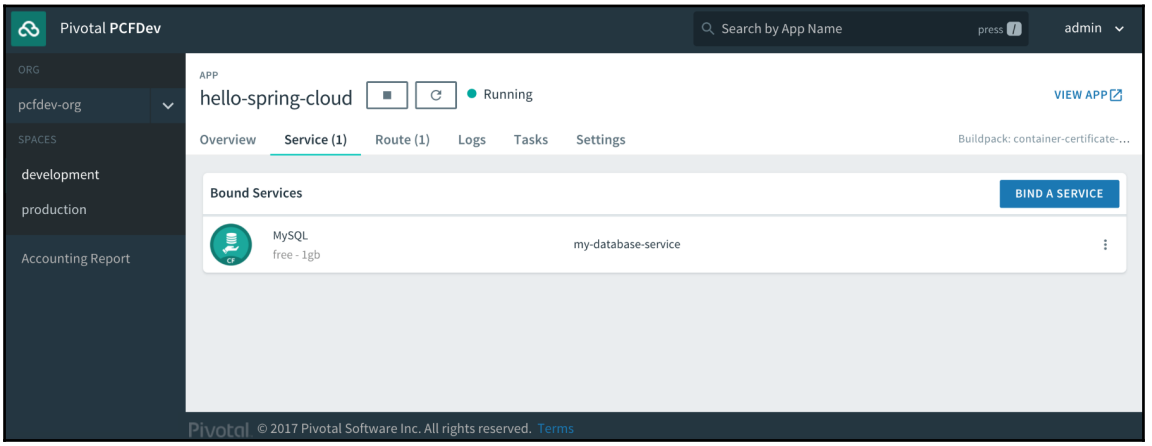
Pivotal PCFDev
Search by App Name
press /
admin
ORG
pcfdev-org
SPACES
development
production
Accounting Report
APP
hello-spring-cloud
Running
VIEW APP
Overview
Service (1)
Route (1)
Logs
Tasks
Settings
Buildpack: container-certificate-...
Bound Services
BIND A SERVICE
MySQL
free - 1gb
my-database-service
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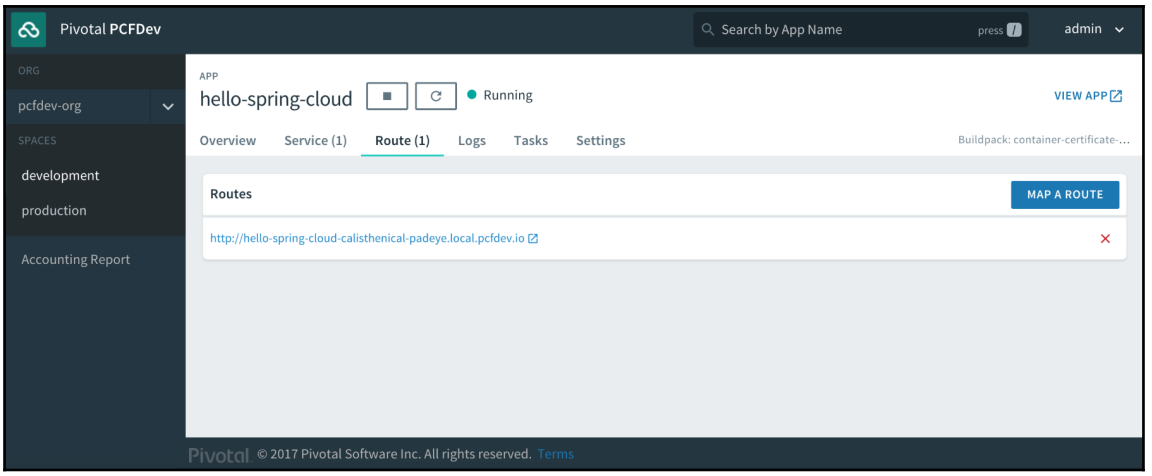
Pivotal PCFDev
Search by App Name
press /
admin
ORG
pcfdev-org
SPACES
development
production
Accounting Report
APP
hello-spring-cloud
Running
VIEW APP
Overview
Service (1)
Route (1)
Logs
Tasks
Settings
Buildpack: container-certificate-...
Routes
MAP A ROUTE
http://hello-spring-cloud-calisthenical-padeye.local.pcfdev.io
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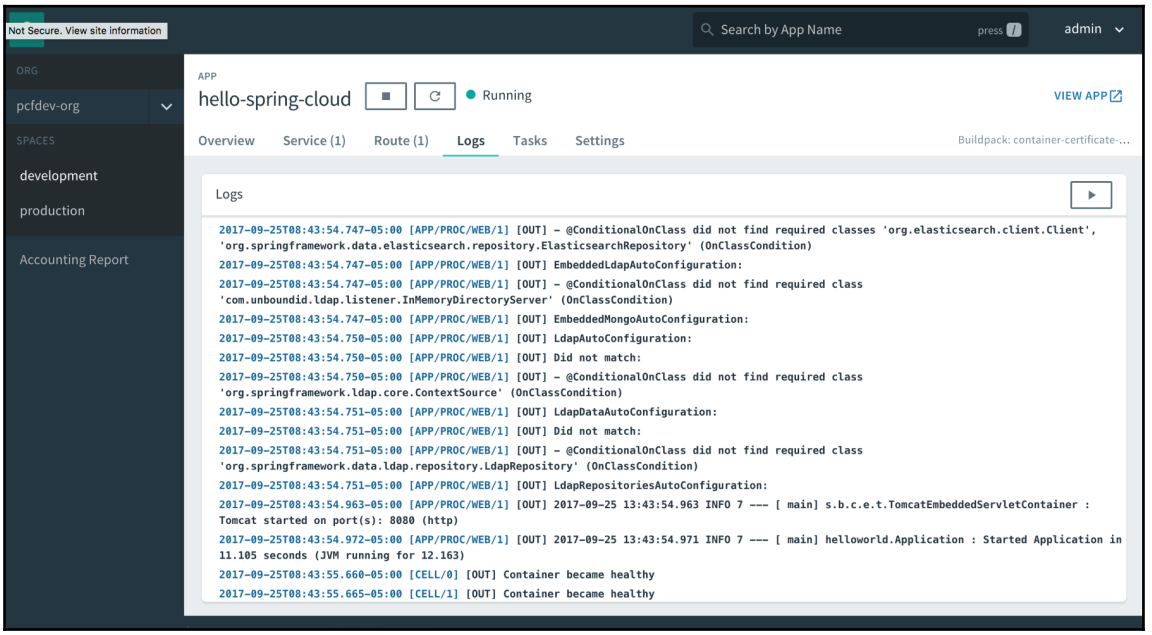
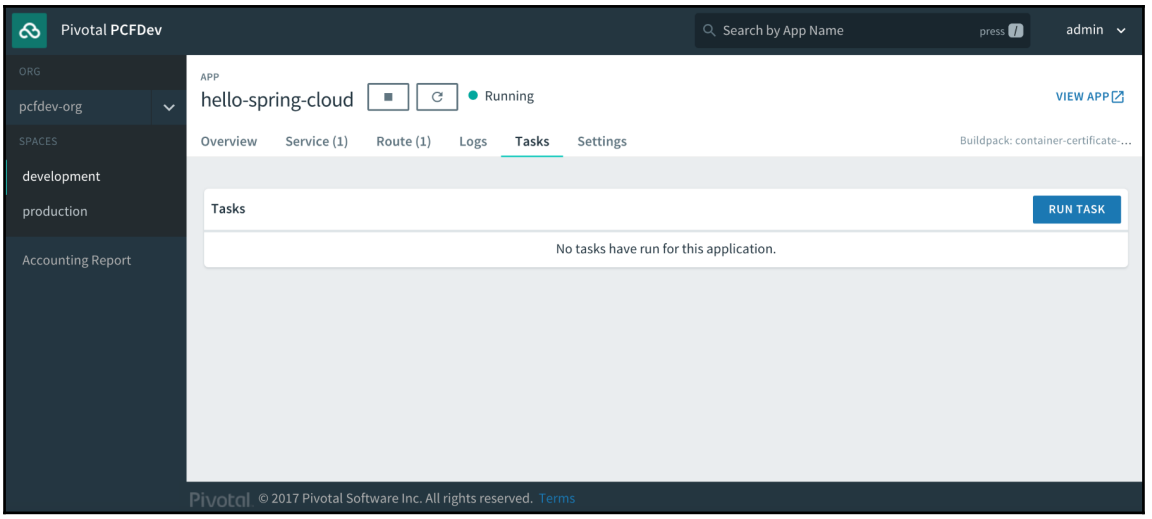

Not Secure. View site information
Search by App Name
press /
admin
ORG
pcfdev-org
SPACES
development
production
Accounting Report
APP
hello-spring-cloud
Running
VIEW APP
Overview
Service (1)
Route (1)
Logs
Tasks
Settings
Buildpack: container-certificate-...
Logs
2017-09-25T08:43:54.747-05:00 [APP/PROC/WEB/1] [OUT] - @ConditionalOnClass did not find required classes 'org.elasticsearch.client.Client', 'org.springframework.data.elasticsearch.repository.ElasticsearchRepository' (OnClassCondition)
2017-09-25T08:43:54.747-05:00 [APP/PROC/WEB/1] [OUT] EmbeddedLdapAutoConfiguration:
2017-09-25T08:43:54.747-05:00 [APP/PROC/WEB/1] [OUT] - @ConditionalOnClass did not find required class 'com.unboundid.ldap.listener.InMemoryDirectoryServer' (OnClassCondition)
2017-09-25T08:43:54.747-05:00 [APP/PROC/WEB/1] [OUT] EmbeddedMongoAutoConfiguration:
2017-09-25T08:43:54.750-05:00 [APP/PROC/WEB/1] [OUT] LdapAutoConfiguration:
2017-09-25T08:43:54.750-05:00 [APP/PROC/WEB/1] [OUT] Did not match:
2017-09-25T08:43:54.750-05:00 [APP/PROC/WEB/1] [OUT] - @ConditionalOnClass did not find required class 'org.springframework.ldap.core.ContextSource' (OnClassCondition)
2017-09-25T08:43:54.751-05:00 [APP/PROC/WEB/1] [OUT] LdapDataAutoConfiguration:
2017-09-25T08:43:54.751-05:00 [APP/PROC/WEB/1] [OUT] Did not match:
2017-09-25T08:43:54.751-05:00 [APP/PROC/WEB/1] [OUT] - @ConditionalOnClass did not find required class 'org.springframework.data.ldap.repository.LdapRepository' (OnClassCondition)
2017-09-25T08:43:54.751-05:00 [APP/PROC/WEB/1] [OUT] LdapRepositoriesAutoConfiguration:
2017-09-25T08:43:54.963-05:00 [APP/PROC/WEB/1] [OUT] 2017-09-25 13:43:54.963 INFO 7 --- [main] s.b.c.e.t.TomcatEmbeddedServletContainer : Tomcat started on port(s): 8080 (http)
2017-09-25T08:43:54.972-05:00 [APP/PROC/WEB/1] [OUT] 2017-09-25 13:43:54.971 INFO 7 --- [main] helloworld.Application : Started Application in 11.105 seconds (JVM running for 12.163)
2017-09-25T08:43:55.660-05:00 [CELL/0] [OUT] Container became healthy
2017-09-25T08:43:55.665-05:00 [CELL/1] [OUT] Container became healthy


Pivotal PCFDev
Search by App Name
press /
admin
ORG
pcfdev-org
SPACES
development
production
Accounting Report
APP
hello-spring-cloud
Running
VIEW APP
Overview
Service (1)
Route (1)
Logs
Tasks
Settings
Buildpack: container-certificate-...
Tasks
RUN TASK
No tasks have run for this application.
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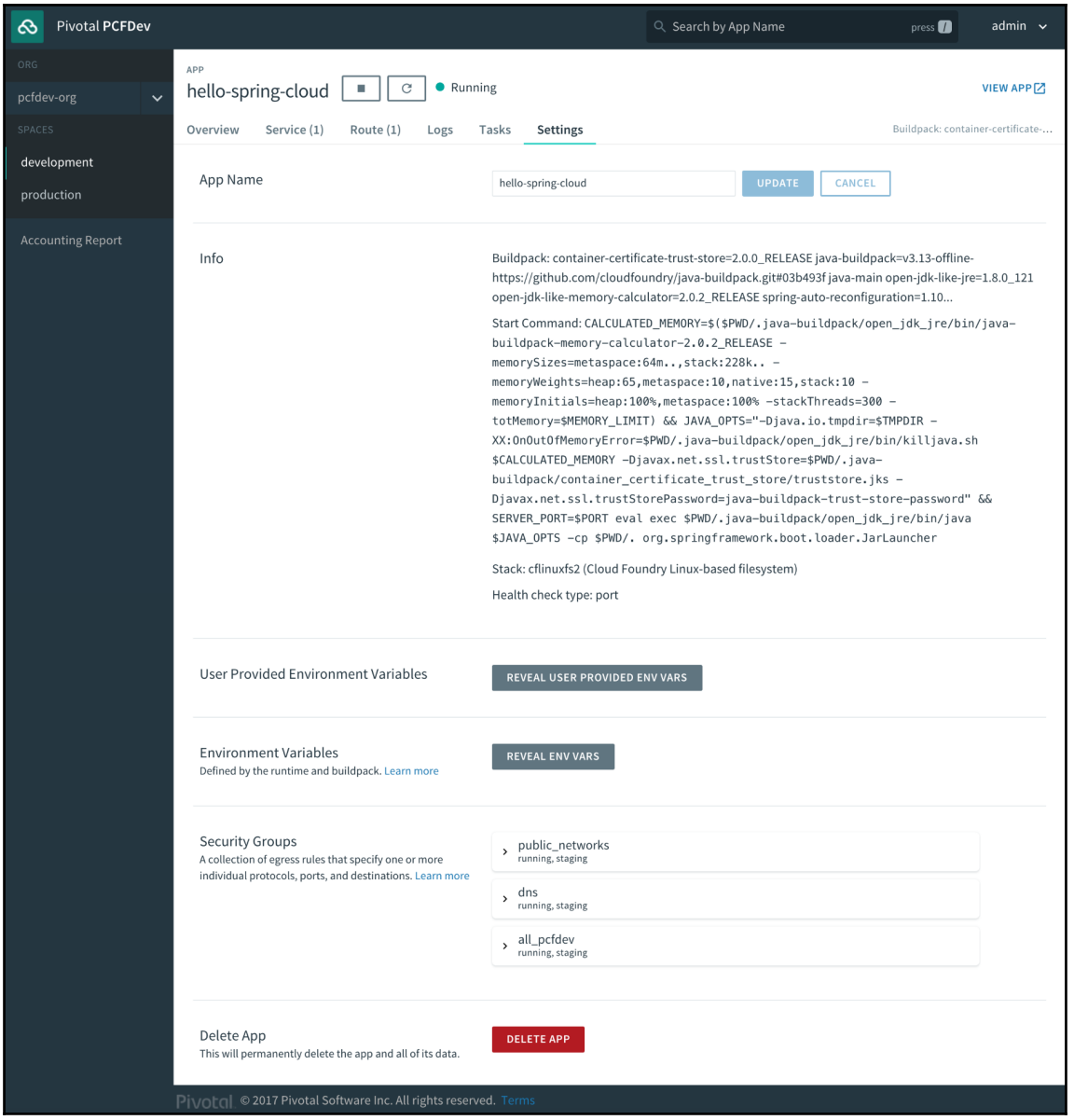
Pivotal PCFDev
Search by App Name
press /
admin
ORG
pcfdev-org
SPACES
development
production
Accounting Report
APP
hello-spring-cloud
Running
VIEW APP
Overview
Service (1)
Route (1)
Logs
Tasks
Settings
Buildpack: container-certificate-...
App Name
hello-spring-cloud
UPDATE
CANCEL
Info
Buildpack: container-certificate-trust-store=2.0.0_RELEASE java-buildpack=v3.13-offline-https://github.com/cloudfoundry/java-buildpack.git#03b493f java-main open-jdk-like-jre=1.8.0_121 open-jdk-like-memory-calculator=2.0.2_RELEASE spring-auto-reconfiguration=1.10...
Start Command: CALCULATED_MEMORY=$($PWD/.java-buildpack/open_jdk_jre/bin/java-buildpack-memory-calculator-2.0.2_RELEASE -memorySizes=metaspace:64m..,stack:228k.. -memoryWeights=heap:65,metaspace:10,native:15,stack:10 -memoryInitials=heap:100%,metaspace:100% -stackThreads=300 -totMemory=$MEMORY_LIMIT) && JAVA_OPTS="-Djava.io.tmpdir=$TMPDIR -XX:OnOutOfMemoryError=$PWD/.java-buildpack/open_jdk_jre/bin/killjava.sh $CALCULATED_MEMORY -Djavax.net.ssl.trustStore=$PWD/.java-buildpack/container_certificate_trust_store/truststore.jks -Djavax.net.ssl.trustStorePassword=java-buildpack-trust-store-password" && SERVER_PORT=$PORT eval exec $PWD/.java-buildpack/open_jdk_jre/bin/java $JAVA_OPTS -cp $PWD/. org.springframework.boot.loader.JarLauncher
Stack: cflinuxfs2 (Cloud Foundry Linux-based filesystem)
Health check type: port
User Provided Environment Variables
REVEAL USER PROVIDED ENV VARS
Environment Variables
Defined by the runtime and buildpack. Learn more
REVEAL ENV VARS
Security Groups
A collection of egress rules that specify one or more individual protocols, ports, and destinations. Learn more
public_networks
running, staging
dns
running, staging
all_pcfdev
running, staging
Delete App
This will permanently delete the app and all of its data.
DELETE APP
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Chapter 7: Microservices and Worker Applications

```
[~/D/w/fortune-teller ››› cf create-org cloudfoundry-for-developers
Creating org cloudfoundry-for-developers as admin...
OK

Assigning role OrgManager to user admin in org cloudfoundry-for-developers ...
OK

TIP: Use 'cf target -o "cloudfoundry-for-developers"' to target new org
~/D/w/fortune-teller ›››
```

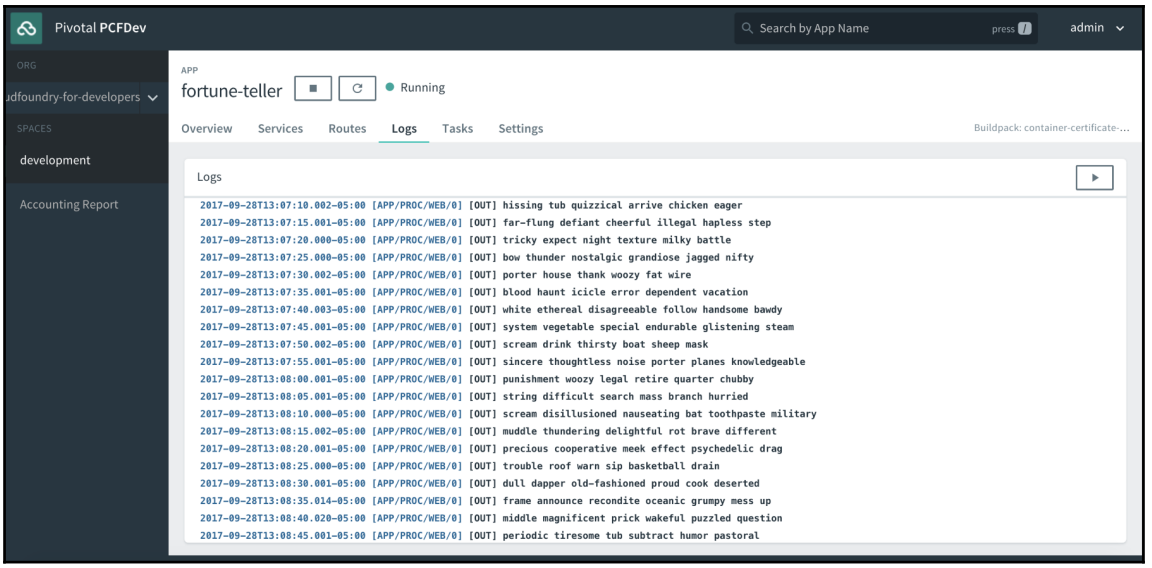
```
[~/D/w/fortune-teller ››› cf create-space -o cloudfoundry-for-developers development   ✘ 1 master ]
Creating space development in org cloudfoundry-for-developers as admin...
OK
Assigning role RoleSpaceManager to user admin in org cloudfoundry-for-developers / space developm
ent as admin...
OK
Assigning role RoleSpaceDeveloper to user admin in org cloudfoundry-for-developers / space develo
pment as admin...
OK

TIP: Use 'cf target -o "cloudfoundry-for-developers" -s "development"' to target new space
~/D/w/fortune-teller ›››                                                                  master ]
```

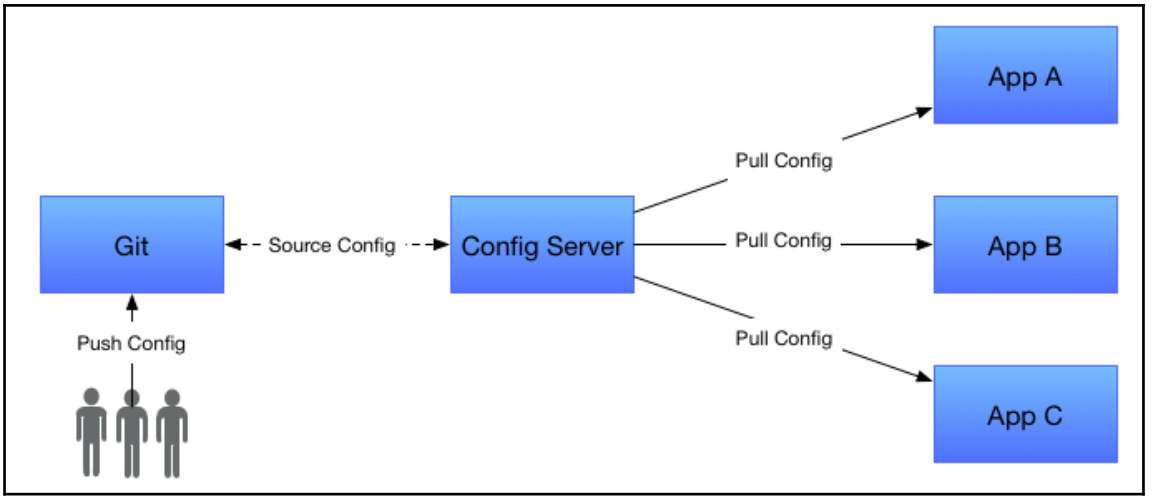
```
[~/D/w/fortune-teller ››› cf target -o "cloudfoundry-for-developers" -s "development"              ]
api endpoint:   https://api.local.pcfdev.io
api version:    2.82.0
user:           admin
org:            cloudfoundry-for-developers
space:          development
```

```
~/D/w/fortune-teller ››› cf push fortune-teller -p target/fortune-teller-0.0.1-SNAPSHOT.jar --no-
route --health-check-type=process
Creating app fortune-teller in org cloudfoundry-for-developers / space development as admin...
OK

App fortune-teller is a worker, skipping route creation
Uploading fortune-teller...
Uploading app files from: /var/folders/8s/wn8_npdn52gch24n6mqdg20m0000gn/T/unzipped-app206782810
Uploading 174.2K, 81 files
Done uploading
OK

Starting app fortune-teller in org cloudfoundry-for-developers / space development as admin...
```

```
Showing health and status for app fortune-teller in org cloudfoundry-for-developers / space devel
opment as admin...
OK

requested state: started
instances: 1/1
usage: 256M x 1 instances
urls:
last uploaded: Thu Sep 28 14:55:21 UTC 2017
stack: cflinuxfs2
buildpack: container-certificate-trust-store=2.0.0_RELEASE java-buildpack=v3.13-offline-https://g
ithub.com/cloudfoundry/java-buildpack.git#03b493f java-main open-jdk-like-jre=1.8.0_121 open-jdk-
like-memory-calculator=2.0.2_RELEASE spring-auto-reconfiguration=1.10...

     state     since                  cpu    memory          disk            details
#0   running   2017-09-28 09:55:42 AM   0.0%   93.5M of 256M   128.9M of 512M
```

```
~/D/w/book-contents ››› cf logs fortune-teller                                          master ✱ ■
Retrieving logs for app fortune-teller in org cloudfoundry-for-developers / space development as admin...

   2017-09-28T10:04:25.00-0500 [APP/PROC/WEB/0] OUT hate secretary nut touch concern telephone
   2017-09-28T10:04:30.00-0500 [APP/PROC/WEB/0] OUT freezing trot agree polite letters muscle
   2017-09-28T10:04:35.00-0500 [APP/PROC/WEB/0] OUT obnoxious subsequent baby beam arch youthful
   2017-09-28T10:04:40.00-0500 [APP/PROC/WEB/0] OUT stitch threatening puny cast humorous love
^C
```

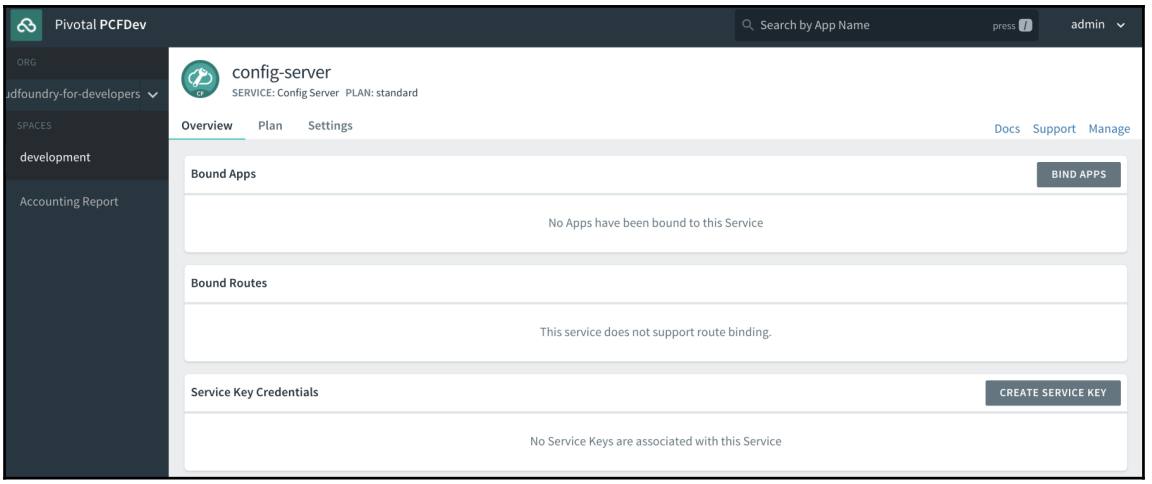

Pivotal PCFDev
Search by App Name
press /
admin
ORG
udfoundry-for-developers
SPACES
development
Accounting Report
APP
fortune-teller
Running
Overview
Services
Routes
Logs
Tasks
Settings
Buildpack: container-certificate-...
Logs
2017-09-28T13:07:10.002-05:00 [APP/PROC/WEB/0] [OUT] hissing tub quizzical arrive chicken eager
2017-09-28T13:07:15.001-05:00 [APP/PROC/WEB/0] [OUT] far-flung defiant cheerful illegal hapless step
2017-09-28T13:07:20.000-05:00 [APP/PROC/WEB/0] [OUT] tricky expect night texture milky battle
2017-09-28T13:07:25.000-05:00 [APP/PROC/WEB/0] [OUT] bow thunder nostalgic grandiose jagged nifty
2017-09-28T13:07:30.002-05:00 [APP/PROC/WEB/0] [OUT] porter house thank woozy fat wire
2017-09-28T13:07:35.001-05:00 [APP/PROC/WEB/0] [OUT] blood haunt icicle error dependent vacation
2017-09-28T13:07:40.003-05:00 [APP/PROC/WEB/0] [OUT] white ethereal disagreeable follow handsome bawdy
2017-09-28T13:07:45.001-05:00 [APP/PROC/WEB/0] [OUT] system vegetable special endurable glistening steam
2017-09-28T13:07:50.002-05:00 [APP/PROC/WEB/0] [OUT] scream drink thirsty boat sheep mask
2017-09-28T13:07:55.001-05:00 [APP/PROC/WEB/0] [OUT] sincere thoughtless noise porter planes knowledgeable
2017-09-28T13:08:00.001-05:00 [APP/PROC/WEB/0] [OUT] punishment woozy legal retire quarter chubby
2017-09-28T13:08:05.001-05:00 [APP/PROC/WEB/0] [OUT] string difficult search mass branch hurried
2017-09-28T13:08:10.000-05:00 [APP/PROC/WEB/0] [OUT] scream disillusioned nauseating bat toothpaste military
2017-09-28T13:08:15.002-05:00 [APP/PROC/WEB/0] [OUT] muddle thundering delightful rot brave different
2017-09-28T13:08:20.001-05:00 [APP/PROC/WEB/0] [OUT] precious cooperative meek effect psychedelic drag
2017-09-28T13:08:25.000-05:00 [APP/PROC/WEB/0] [OUT] trouble roof warn sip basketball drain
2017-09-28T13:08:30.001-05:00 [APP/PROC/WEB/0] [OUT] dull dapper old-fashioned proud cook deserted
2017-09-28T13:08:35.014-05:00 [APP/PROC/WEB/0] [OUT] frame announce recondite oceanic grumpy mess up
2017-09-28T13:08:40.020-05:00 [APP/PROC/WEB/0] [OUT] middle magnificent prick wakeful puzzled question
2017-09-28T13:08:45.001-05:00 [APP/PROC/WEB/0] [OUT] periodic tiresome tub subtract humor pastoral

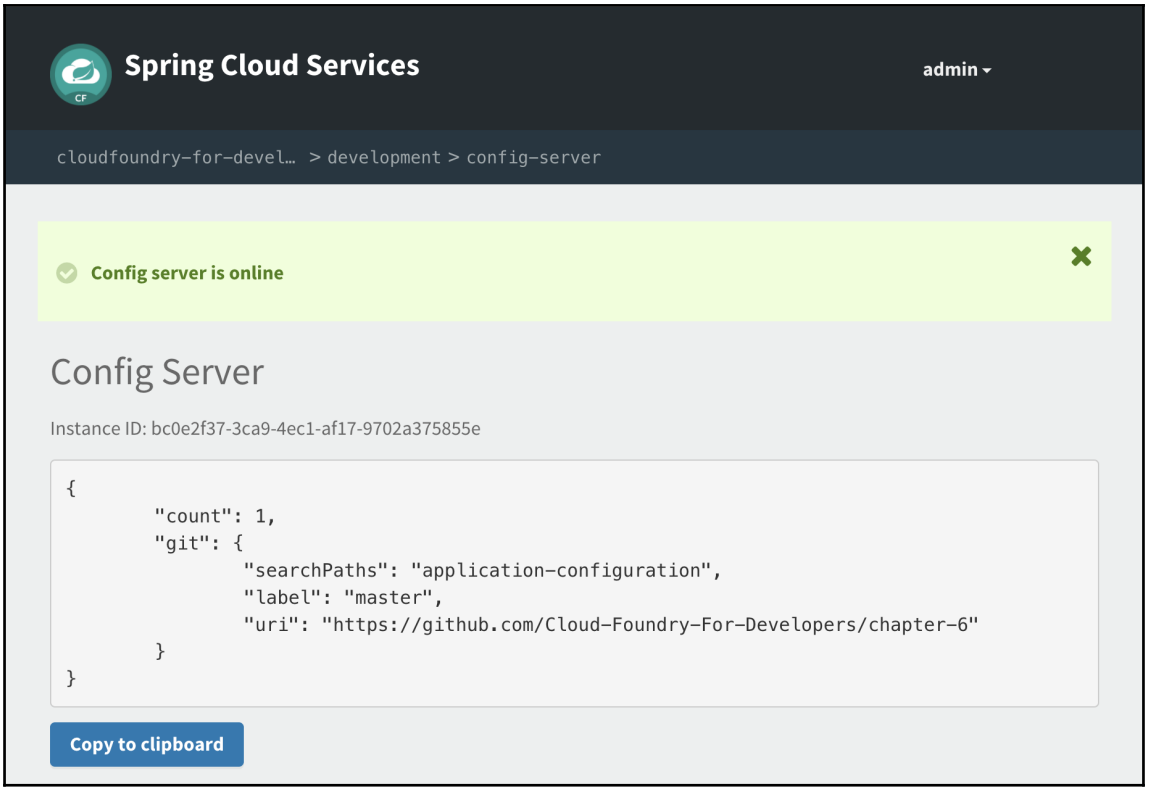

App A
Pull Config
Git
Source Config
Config Server
Pull Config
App B
Push Config
Pull Config
App C

```
[~/D/w/c/fortune-teller-with-config-server ››› cf marketplace                                    master ■ ]
Getting services from marketplace in org cloudfoundry-for-developers / space development as admin...
OK

service                      plans            description
local-volume                 free-local-disk  Local service docs: https://github.com/cloudfoundry-incubator/local-volu
me-release/
p-circuit-breaker-dashboard  standard         Circuit Breaker Dashboard for Spring Cloud Applications
p-config-server              standard         Config Server for Spring Cloud Applications
p-mysql                      512mb, 1gb       MySQL databases on demand
p-rabbitmq                   standard         RabbitMQ is a robust and scalable high-performance multi-protocol messag
ing broker.
p-redis                      shared-vm        Redis service to provide a key-value store
p-service-registry           standard         Service Registry for Spring Cloud Applications

TIP:  Use 'cf marketplace -s SERVICE' to view descriptions of individual plans of a given service.
~/D/w/c/fortune-teller-with-config-server ›››                                                    master ■
```

```
[~/D/w/c/fortune-teller-with-config-server ››› cf create-service -c '{"git": { "uri": "https://github.com/Cloud-Foundry-F]
or-Developers/chapter-6", "label": "master", "searchPaths" : "application-configuration" } }' p-config-server standard c
onfig-server
Creating service instance config-server in org cloudfoundry-for-developers / space development as admin...
OK

Create in progress. Use 'cf services' or 'cf service config-server' to check operation status.
```

```
[~/D/w/c/fortune-teller-with-config-server ››› cf service config-server                          master ]

Service instance: config-server
Service: p-config-server
Bound apps:
Tags:
Plan: standard
Description: Config Server for Spring Cloud Applications
Documentation url: http://docs.pivotal.io/spring-cloud-services/
Dashboard: https://spring-cloud-broker.local.pcfdev.io/dashboard/p-config-server/bc0e2f37-3ca9-4ec1-af17-9702a375855e

Last Operation
Status: create succeeded
Message:
Started: 2017-09-29T06:29:56Z
Updated: 2017-09-29T06:30:59Z
```


Pivotal PCFDev
Search by App Name
press /
admin
ORG
udfoundry-for-developers
SPACES
development
Accounting Report
config-server
SERVICE: Config Server PLAN: standard
Overview
Plan
Settings
Docs
Support
Manage
Bound Apps
BIND APPS
No Apps have been bound to this Service
Bound Routes
This service does not support route binding.
Service Key Credentials
CREATE SERVICE KEY
No Service Keys are associated with this Service


Spring Cloud Services
admin
cloudfoundry-for-devel… > development > config-server
Config server is online
Config Server
Instance ID: bc0e2f37-3ca9-4ec1-af17-9702a375855e
{
"count": 1,
"git": {
"searchPaths": "application-configuration",
"label": "master",
"uri": "https://github.com/Cloud-Foundry-For-Developers/chapter-6"
}
}
Copy to clipboard

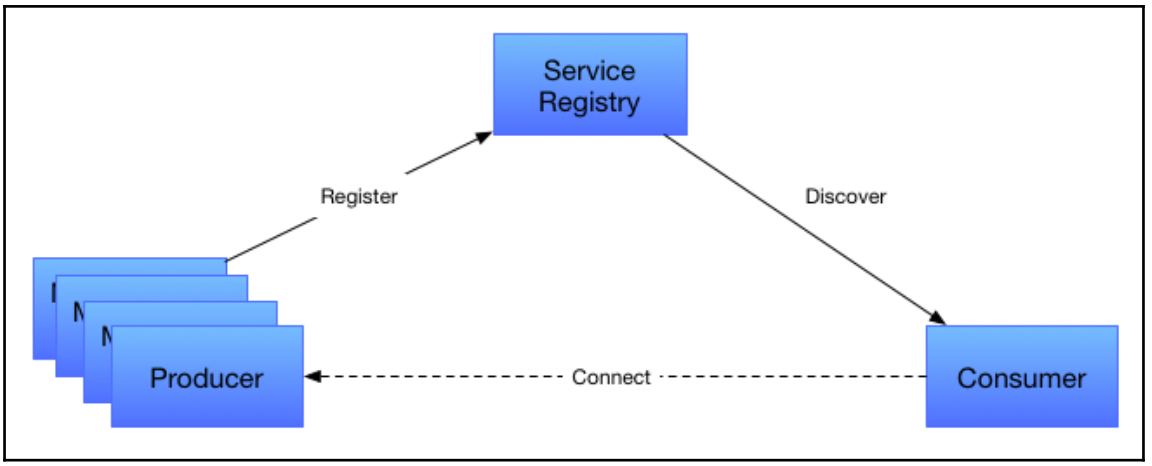
```
[~/D/w/c/fortune-teller-with-config-server ❯❯❯ cf push fortune-teller -p target/fortune-teller-with-config-server-0.0.1-S
NAPSHOT.jar --no-route --health-check-type=process --no-start
Updating app fortune-teller in org cloudfoundry-for-developers / space development as admin...
OK

App fortune-teller is a worker, skipping route creation
Uploading fortune-teller...
Uploading app files from: /var/folders/8s/wn8_npdn52gch24n6mqdg20m0000gn/T/unzipped-app806096377
Uploading 484.7K, 96 files
Done uploading
OK
```

```
[~/D/w/c/fortune-teller-with-config-server ❯❯❯ cf bind-service fortune-teller config-server                    master ]
Binding service config-server to app fortune-teller in org cloudfoundry-for-developers / space development as admin...
OK
TIP: Use 'cf restage fortune-teller' to ensure your env variable changes take effect
~/D/w/c/fortune-teller-with-config-server ❯❯❯                                                                 master
```

```
~/D/w/c/fortune-teller-with-config-server ❯❯❯ cf start fortune-teller                                         master ]
Starting app fortune-teller in org cloudfoundry-for-developers / space development as admin...

Staging app and tracing logs...
   Downloaded dotnet-core_buildpack
   Downloading python_buildpack...
   Downloading ruby_buildpack...
   Downloaded python_buildpack
   Downloading go_buildpack...
   Downloaded php_buildpack
   Downloading dotnet-core_buildpack...
   Downloading php_buildpack...
   Downloading java_buildpack...
   Downloaded java_buildpack
   Downloading staticfile_buildpack...
   Downloaded ruby_buildpack
   Downloading binary_buildpack...
   Downloading nodejs_buildpack...
   Downloaded nodejs_buildpack
   Downloaded staticfile_buildpack
```

```
name:              fortune-teller
requested state:   started
instances:         1/1
usage:             256M x 1 instances
routes:
last uploaded:     Fri 29 Sep 01:53:59 CDT 2017
stack:             cflinuxfs2
buildpack:         container-certificate-trust-store=2.0.0_RELEASE
                   java-buildpack=v3.13-offline-https://github.com/cloudfoundry/java-buildpack.git#03b493f java-main
                   open-jdk-like-jre=1.8.0_121 open-jdk-like-memory-calculator=2.0.2_RELEASE
                   spring-auto-reconfiguration=1.10...
start command:     CALCULATED_MEMORY=$($PWD/.java-buildpack/open_jdk_jre/bin/java-buildpack-memory-calculator-2.0.2_RELE
ASE
                   -memorySizes=metaspace:64m..,stack:228k.. -memoryWeights=heap:65,metaspace:10,native:15,stack:10
                   -memoryInitials=heap:100%,metaspace:100% -stackThreads=300 -totMemory=$MEMORY_LIMIT) &&
                   JAVA_OPTS="-Djava.io.tmpdir=$TMPDIR
                   -XX:OnOutOfMemoryError=$PWD/.java-buildpack/open_jdk_jre/bin/killjava.sh $CALCULATED_MEMORY
                   -Djavax.net.ssl.trustStore=$PWD/.java-buildpack/container_certificate_trust_store/truststore.jks
                   -Djavax.net.ssl.trustStorePassword=java-buildpack-trust-store-password" && SERVER_PORT=$PORT eval
                   exec $PWD/.java-buildpack/open_jdk_jre/bin/java $JAVA_OPTS -cp $PWD/.
                   org.springframework.boot.loader.JarLauncher

     state     since                  cpu    memory      disk        details
#0   running   2017-09-29T06:57:01Z   0.0%   0 of 256M   0 of 512M
~/D/w/c/fortune-teller-with-config-server >>>                                                    master
```

```
[~/D/w/c/fortune-teller-with-config-server >>> cf logs fortune-teller                            master ]
 Retrieving logs for app fortune-teller in org cloudfoundry-for-developers / space development as admin...

    2017-09-29T02:00:55.00-0500 [APP/PROC/WEB/0] OUT brocaded prestigious waucht effortlessness telex
    2017-09-29T02:01:00.00-0500 [APP/PROC/WEB/0] OUT interhabitation copulation painstakingness pelorus pentasyllable
    2017-09-29T02:01:05.00-0500 [APP/PROC/WEB/0] OUT prestigious mitzi unmurmuring pentasyllable pentasyllable
    2017-09-29T02:01:10.00-0500 [APP/PROC/WEB/0] OUT unassuring misallying unstinted penlite convictional
    2017-09-29T02:01:15.00-0500 [APP/PROC/WEB/0] OUT reprosecuting gobo convictional auricularly rhumbatron
    2017-09-29T02:01:20.00-0500 [APP/PROC/WEB/0] OUT ectosteal arimathea tsuga ectosteal unassuring
    2017-09-29T02:01:25.00-0500 [APP/PROC/WEB/0] OUT puttied puttied brocaded fitful brocaded
    2017-09-29T02:01:30.00-0500 [APP/PROC/WEB/0] OUT pilaf austrian aromatise fisticuff cabling
    2017-09-29T02:01:35.00-0500 [APP/PROC/WEB/0] OUT telex makings painstakingness biconcave xanthophyllous
    2017-09-29T02:01:40.00-0500 [APP/PROC/WEB/0] OUT flab unstinted phototherapist menseless cabling
    2017-09-29T02:01:45.00-0500 [APP/PROC/WEB/0] OUT effortlessness pelorus boer tsuga gobo
```




```
[~/D/w/c/fortune-teller-api ❯❯❯ cf push fortune-teller-api -p target/fortune-teller-api-0.0.1-SNAPSHOT.jar --no-start
Creating app fortune-teller-api in org cloudfoundry-for-developers / space development as admin...
OK

Creating route fortune-teller-api.local.pcfdev.io...
OK

Binding fortune-teller-api.local.pcfdev.io to fortune-teller-api...
OK

Uploading fortune-teller-api...
Uploading app files from: /var/folders/8s/wn8_npdn52gch24n6mqdg20m0000gn/T/unzipped-app236503645
Uploading 800.6K, 114 files
Done uploading
OK
```

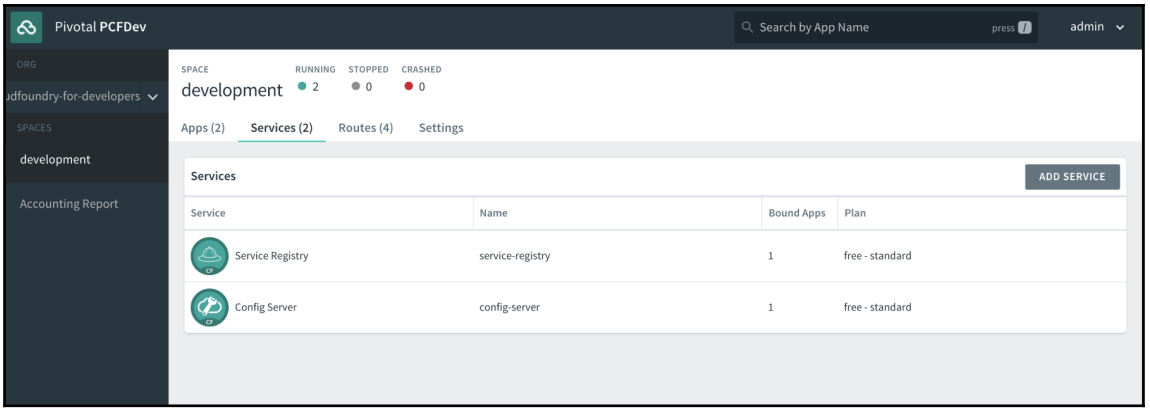
```
[~/D/w/c/fortune-teller-api ❯❯❯ cf create-service p-service-registry standard service-registry                    master ]
Creating service instance service-registry in org cloudfoundry-for-developers / space development as admin...
OK

Create in progress. Use 'cf services' or 'cf service service-registry' to check operation status.
```

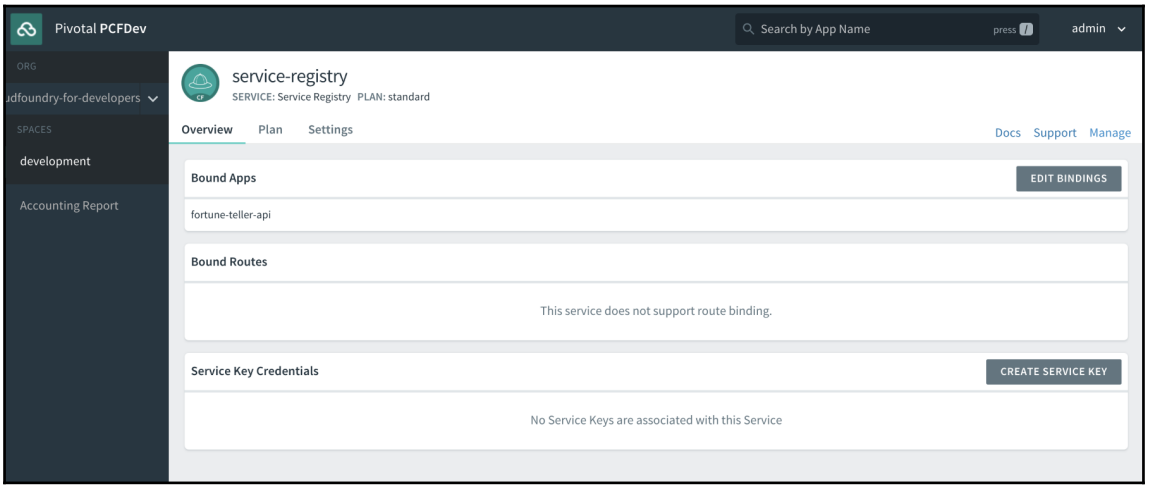
```
[~/D/w/c/fortune-teller-api ❯❯❯ cf service service-registry                                          ✘ 130 master ]

Service instance: service-registry
Service: p-service-registry
Bound apps:
Tags:
Plan: standard
Description: Service Registry for Spring Cloud Applications
Documentation url: http://docs.pivotal.io/spring-cloud-services/
Dashboard: https://spring-cloud-broker.local.pcfdev.io/dashboard/p-service-registry/dce2c83d-e32a-4380-847c-8c370e243625

Last Operation
Status: create succeeded
Message:
Started: 2017-09-29T08:02:55Z
Updated: 2017-09-29T08:04:59Z
```

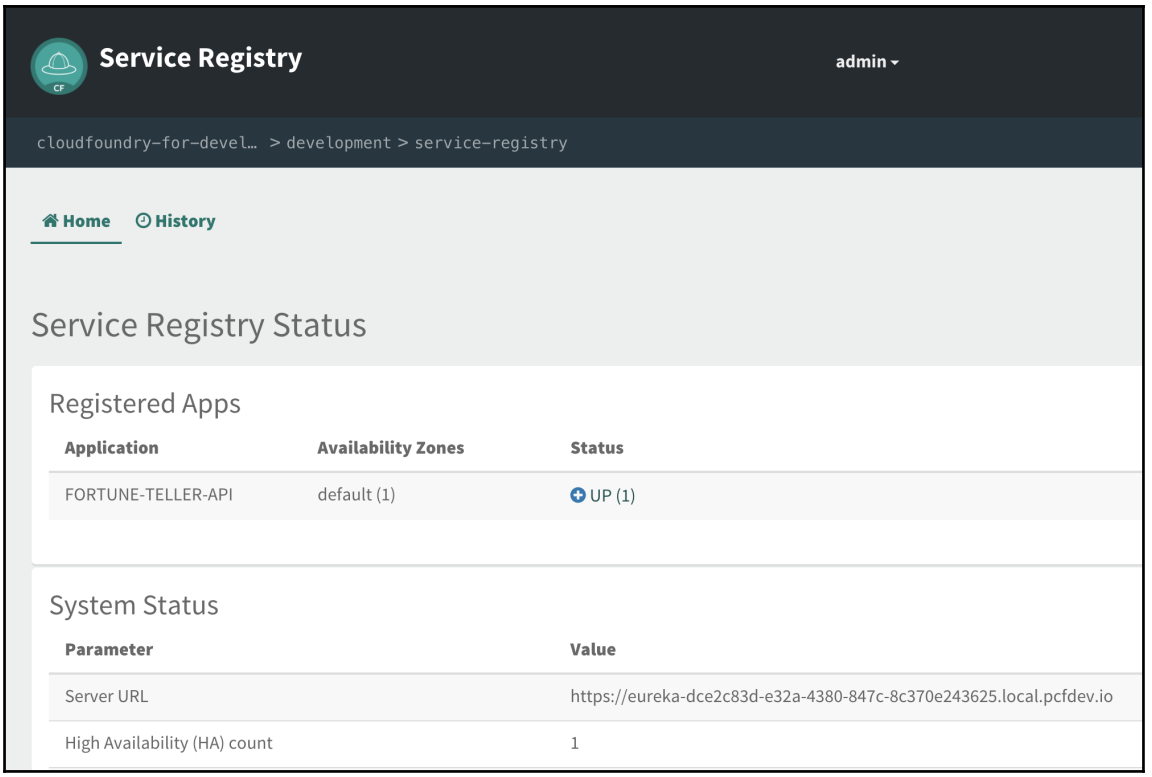
```
~/D/w/c/fortune-teller-api ❯❯❯ cf bind-service fortune-teller-api service-registry                    master ]
Binding service service-registry to app fortune-teller-api in org cloudfoundry-for-developers / space development as adm
in...
OK
TIP: Use 'cf restage fortune-teller-api' to ensure your env variable changes take effect
```

```
~/D/w/c/fortune-teller-api ❯❯❯ cf start fortune-teller-api                                           master ]
Starting app fortune-teller-api in org cloudfoundry-for-developers / space development as admin...

Staging app and tracing logs...
   Downloading dotnet-core_buildpack...
   Downloading python_buildpack...
   Downloading php_buildpack...
   Downloading java_buildpack...
   Downloading ruby_buildpack...
   Downloaded dotnet-core_buildpack
   Downloading nodejs_buildpack...
   Downloaded php_buildpack
   Downloaded java_buildpack
   Downloading go_buildpack...
   Downloading staticfile_buildpack...
```

```
Waiting for app to start...

name:              fortune-teller-api
requested state:   started
instances:         1/1
usage:             256M x 1 instances
routes:            fortune-teller-api.local.pcfdev.io
last uploaded:     Fri 29 Sep 02:59:29 CDT 2017
stack:             cflinuxfs2
buildpack:         container-certificate-trust-store=2.0.0_RELEASE
                   java-buildpack=v3.13-offline-https://github.com/cloudfoundry/java-buildpack.git#03b493f java-main
                   open-jdk-like-jre=1.8.0_121 open-jdk-like-memory-calculator=2.0.2_RELEASE
                   spring-auto-reconfiguration=1.10...
start command:     CALCULATED_MEMORY=$($PWD/.java-buildpack/open_jdk_jre/bin/java-buildpack-memory-calculator-2.0.2_RELE
ASE
                   -memorySizes=metaspace:64m..,stack:228k.. -memoryWeights=heap:65,metaspace:10,native:15,stack:10
                   -memoryInitials=heap:100%,metaspace:100% -stackThreads=300 -totMemory=$MEMORY_LIMIT) &&
                   JAVA_OPTS="-Djava.io.tmpdir=$TMPDIR
                   -XX:OnOutOfMemoryError=$PWD/.java-buildpack/open_jdk_jre/bin/killjava.sh $CALCULATED_MEMORY
                   -Djavax.net.ssl.trustStore=$PWD/.java-buildpack/container_certificate_trust_store/truststore.jks
                   -Djavax.net.ssl.trustStorePassword=java-buildpack-trust-store-password" && SERVER_PORT=$PORT eval
                   exec $PWD/.java-buildpack/open_jdk_jre/bin/java $JAVA_OPTS -cp $PWD/.
                   org.springframework.boot.loader.JarLauncher

     state     since                  cpu      memory          disk            details
#0   running   2017-09-29T08:10:32Z   156.2%   230.9M of 256M   162.7M of 512M
~/D/w/c/fortune-teller-api ❯❯❯                                                                       master
```


Pivotal PCFDev
Search by App Name
press /
admin
ORG
udfoundry-for-developers
SPACES
development
Accounting Report
SPACE
development
RUNNING
2
STOPPED
0
CRASHED
0
Apps (2)
Services (2)
Routes (4)
Settings
Services
ADD SERVICE
Service
Name
Bound Apps
Plan
Service Registry
service-registry
1
free - standard
Config Server
config-server
1
free - standard


Pivotal PCFDev
Search by App Name
press /
admin
ORG
udfoundry-for-developers
SPACES
development
Accounting Report
service-registry
SERVICE: Service Registry PLAN: standard
Overview
Plan
Settings
Docs
Support
Manage
Bound Apps
EDIT BINDINGS
fortune-teller-api
Bound Routes
This service does not support route binding.
Service Key Credentials
CREATE SERVICE KEY
No Service Keys are associated with this Service




```
~/D/w/c/fortune-teller-with-config-server-and-service-registry ❯❯❯ cf push fortune-teller -p target/fortune-teller-with-
config-server-and-service-registry-0.0.1-SNAPSHOT.jar --no-route --health-check-type=process --no-start
Updating app fortune-teller in org cloudfoundry-for-developers / space development as admin...
OK

App fortune-teller is a worker, skipping route creation
Uploading fortune-teller...
Uploading app files from: /var/folders/8s/wn8_npdn52gch24n6mqdg20m0000gn/T/unzipped-app692830068
Uploading 820.6K, 116 files
Done uploading
OK

Stopping app fortune-teller in org cloudfoundry-for-developers / space development as admin...
OK
```

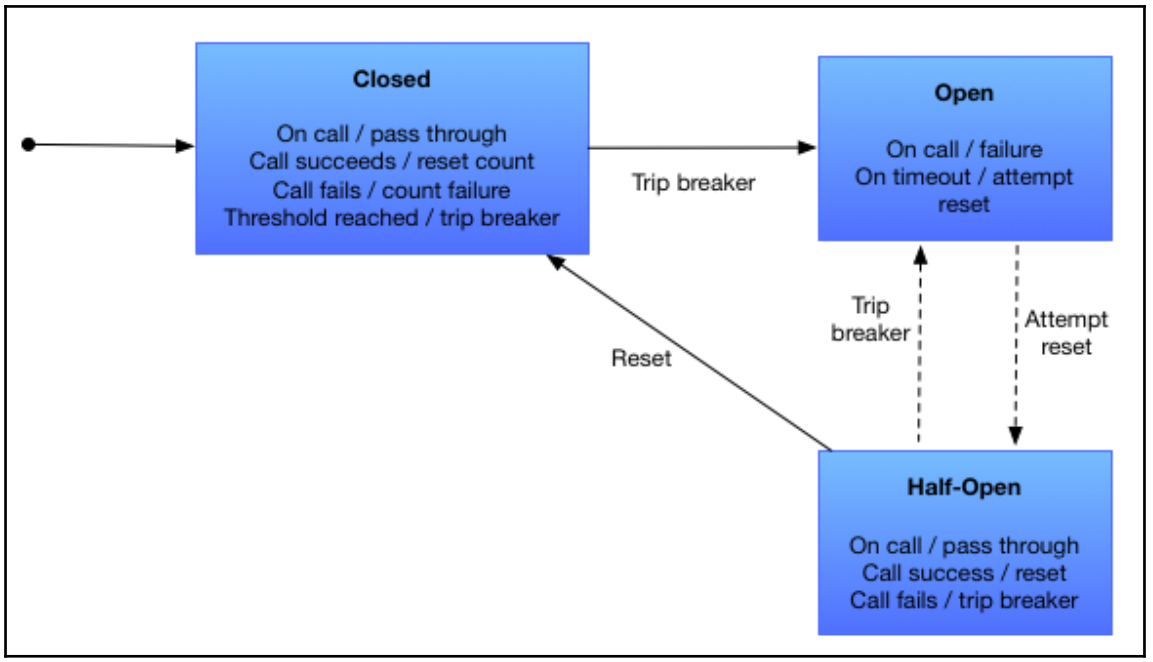
```
~/D/w/c/fortune-teller-with-config-server-and-service-registry ❯❯❯ cf bind-service fortune-teller service-registry
Binding service service-registry to app fortune-teller in org cloudfoundry-for-developers / space development as admin..
.
OK
TIP: Use 'cf restage fortune-teller' to ensure your env variable changes take effect
```

```
Waiting for app to start...

name:              fortune-teller
requested state:   started
instances:         1/1
usage:             256M x 1 instances
routes:
last uploaded:     Fri 29 Sep 03:27:36 CDT 2017
stack:             cflinuxfs2
buildpack:         container-certificate-trust-store=2.0.0_RELEASE
                   java-buildpack=v3.13-offline-https://github.com/cloudfoundry/java-buildpack.git#03b493f java-main
                   open-jdk-like-jre=1.8.0_121 open-jdk-like-memory-calculator=2.0.2_RELEASE
                   spring-auto-reconfiguration=1.10...
start command:     CALCULATED_MEMORY=$($PWD/.java-buildpack/open_jdk_jre/bin/java-buildpack-memory-calculator-2.0.2_RELE
ASE
                   -memorySizes=metaspace:64m..,stack:228k.. -memoryWeights=heap:65,metaspace:10,native:15,stack:10
                   -memoryInitials=heap:100%,metaspace:100% -stackThreads=300 -totMemory=$MEMORY_LIMIT) &&
                   JAVA_OPTS="-Djava.io.tmpdir=$TMPDIR
                   -XX:OnOutOfMemoryError=$PWD/.java-buildpack/open_jdk_jre/bin/killjava.sh $CALCULATED_MEMORY
                   -Djavax.net.ssl.trustStore=$PWD/.java-buildpack/container_certificate_trust_store/truststore.jks
                   -Djavax.net.ssl.trustStorePassword=java-buildpack-trust-store-password" && SERVER_PORT=$PORT eval
                   exec $PWD/.java-buildpack/open_jdk_jre/bin/java $JAVA_OPTS -cp $PWD/.
                   org.springframework.boot.loader.JarLauncher

     state     since                  cpu    memory      disk        details
#0   running   2017-09-29T08:32:54Z   0.0%   0 of 256M   0 of 512M
~/D/w/c/fortune-teller-with-config-server-and-service-registry ❯❯❯                                    master
```

```
   2017-09-29T03:33:25.54-0500 [APP/PROC/WEB/0] OUT },Server stats: [[Server:fortune-teller-api.local.pcfdev.io:8625854a
-069a-40ec-7dce-b6c3;   Zone:local.pcfdev.io;   Total Requests:0;       Successive connection failure:0;        Total bl
ackout seconds:0;       Last connection made:Thu Jan 01 00:00:00 UTC 1970;      First connection made: Thu Jan 01 00:00:
00 UTC 1970;    Active Connections:0;   total failure count in last (1000) msecs:0;     average resp time:0.0;  90 perce
ntile resp time:0.0;    95 percentile resp time:0.0;    min resp time:0.0;      max resp time:0.0;      stddev resp time
:0.0]
   2017-09-29T03:33:25.54-0500 [APP/PROC/WEB/0] OUT ]}ServerList:org.springframework.cloud.netflix.ribbon.eureka.DomainE
xtractingServerList@75353605
   2017-09-29T03:33:26.06-0500 [APP/PROC/WEB/0] OUT ARROM AVIDE GATHO ATCHE CLUSE
   2017-09-29T03:33:26.51-0500 [APP/PROC/WEB/0] OUT 2017-09-29 08:33:26.510  INFO 5 --- [erListUpdater-0] c.netflix.conf
ig.ChainedDynamicProperty  : Flipping property: fortune-teller-api.ribbon.ActiveConnectionsLimit to use NEXT property: n
iws.loadbalancer.availabilityFilteringRule.activeConnectionsLimit = 2147483647
   2017-09-29T03:33:30.01-0500 [APP/PROC/WEB/0] OUT HURAL CLUDE SAMAN LEVIT ASIVE
   2017-09-29T03:33:35.01-0500 [APP/PROC/WEB/0] OUT EQUIR ELOWN UPOIN EMPOL YEDED
   2017-09-29T03:33:40.02-0500 [APP/PROC/WEB/0] OUT PROCE CIELL PREAT SPANK LITIR
   2017-09-29T03:33:45.02-0500 [APP/PROC/WEB/0] OUT TWOUN FRART YOUSS BODUR OPEDE
   2017-09-29T03:33:50.01-0500 [APP/PROC/WEB/0] OUT CURCE ABOTE WRITA SKINA NERIT
   2017-09-29T03:33:55.01-0500 [APP/PROC/WEB/0] OUT OFFIN CEPET TRODY NANGE FLOWS
```

```
~/D/w/c/fortune-teller-with-config-server-and-service-registry ❯❯❯ cf stop fortune-teller-api                ✘ 1 master ]
Stopping app fortune-teller-api in org cloudfoundry-for-developers / space development as admin...
OK
```

```
Retrieving logs for app fortune-teller in org cloudfoundry-for-developers / space development as admin...

   2017-09-29T03:40:45.01-0500 [APP/PROC/WEB/0] OUT TABLE VEDED EQUIR VESTA GENSE
   2017-09-29T03:40:50.01-0500 [APP/PROC/WEB/0] OUT AWARY DUSIT HOLLE YOUGH RUCED
   2017-09-29T03:40:55.02-0500 [APP/PROC/WEB/0] OUT     at org.springframework.aop.framework.ReflectiveMethodInvocation.
proceed(ReflectiveMethodInvocation.java:157) ~[spring-aop-4.3.11.RELEASE.jar!/:4.3.11.RELEASE]
   2017-09-29T03:40:55.02-0500 [APP/PROC/WEB/0] OUT     at org.springframework.scheduling.support.ScheduledMethodRunnabl
e.run(ScheduledMethodRunnable.java:65) ~[spring-context-4.3.11.RELEASE.jar!/:4.3.11.RELEASE]
   2017-09-29T03:40:55.02-0500 [APP/PROC/WEB/0] OUT     at java.util.concurrent.Executors$RunnableAdapter.call(Executors
.java:511) [na:1.8.0_121]
   2017-09-29T03:40:55.02-0500 [APP/PROC/WEB/0] OUT     at java.lang.Thread.run(Thread.java:745) [na:1.8.0_121]
   2017-09-29T03:40:55.02-0500 [APP/PROC/WEB/0] OUT     at cf.developers.FortuneCookieGenerator$$FastClassBySpringCGLIB$
$e8442d48.invoke(<generated>) ~[classes/:na]
   2017-09-29T03:40:55.02-0500 [APP/PROC/WEB/0] OUT     at org.springframework.cglib.proxy.MethodProxy.invoke(MethodProx
y.java:204) ~[spring-core-4.3.11.RELEASE.jar!/:4.3.11.RELEASE]
   2017-09-29T03:40:55.02-0500 [APP/PROC/WEB/0] OUT     at cf.developers.FortuneTellerApplication.generateFortune(Fortun
eTellerApplication.java:33) ~[classes/:na]
   2017-09-29T03:40:55.02-0500 [APP/PROC/WEB/0] OUT 2017-09-29 08:40:55.024 ERROR 5 --- [pool-7-thread-1] o.s.s.s.TaskUt
```




```
[~/D/w/c/fortune-teller-with-config-server-and-service-registry-and-hystrix ❯❯❯ cf create-service p-circuit-breaker-dashb]
oard standard circuit-breaker
Creating service instance circuit-breaker in org cloudfoundry-for-developers / space development as admin...
OK

Create in progress. Use 'cf services' or 'cf service circuit-breaker' to check operation status.
```

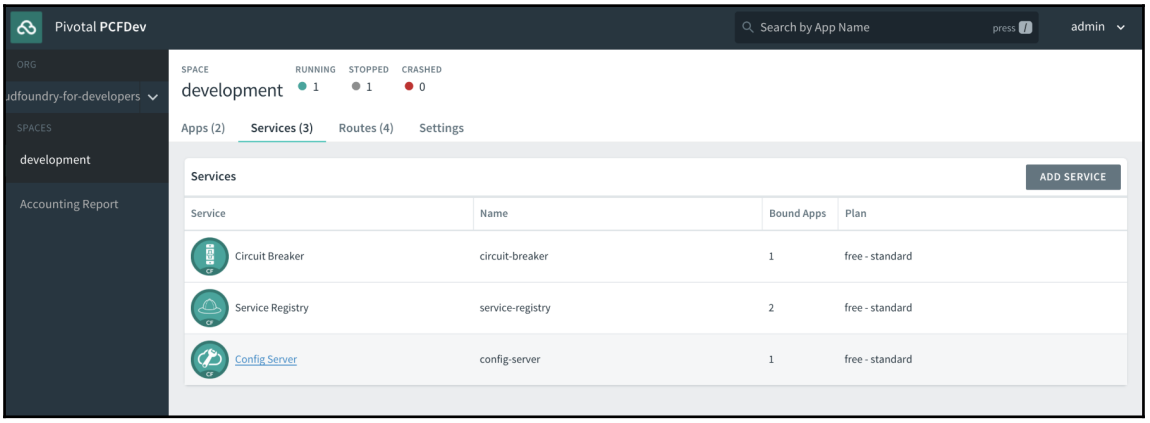
```
~/D/w/c/fortune-teller-with-config-server-and-service-registry-and-hystrix ››› cf push fortune-teller -p target/fortune-
teller-with-config-server-and-service-registry-and-hystrix-0.0.1-SNAPSHOT.jar --no-route --health-check-type=process --n
o-start
Updating app fortune-teller in org cloudfoundry-for-developers / space development as admin...
OK

App fortune-teller is a worker, skipping route creation
Uploading fortune-teller...
Uploading app files from: /var/folders/8s/wn8_npdn52gch24n6mqdg20m0000gn/T/unzipped-app329679622
Uploading 1.1M, 135 files
Done uploading
OK

Stopping app fortune-teller in org cloudfoundry-for-developers / space development as admin...
OK
```

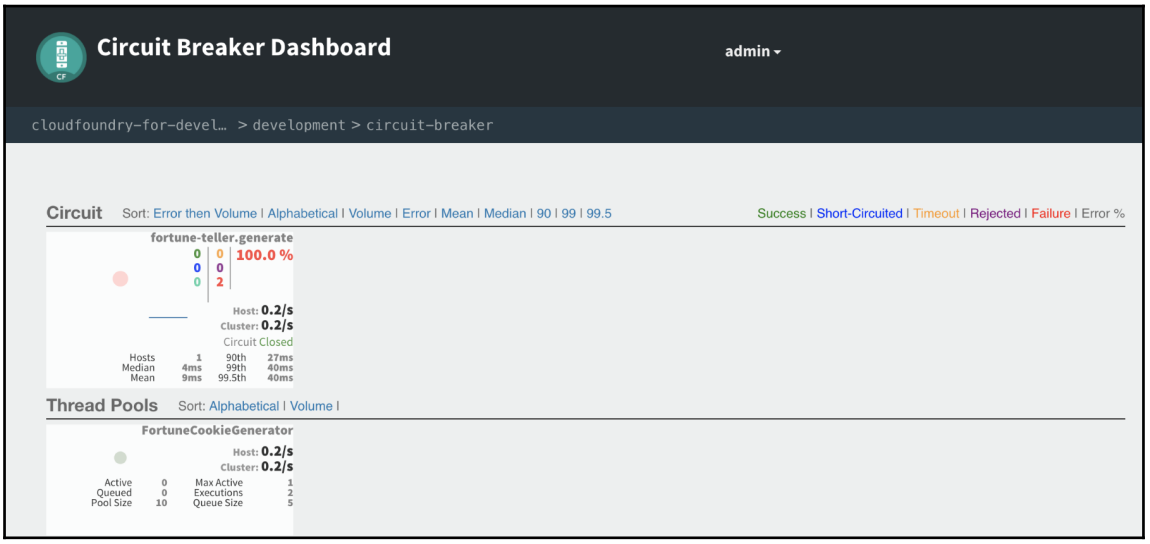
```
[~/D/w/c/fortune-teller-with-config-server-and-service-registry-and-hystrix ››› cf service circuit-breaker        master ]

Service instance: circuit-breaker
Service: p-circuit-breaker-dashboard
Bound apps:
Tags:
Plan: standard
Description: Circuit Breaker Dashboard for Spring Cloud Applications
Documentation url: http://docs.pivotal.io/spring-cloud-services/
Dashboard: https://spring-cloud-broker.local.pcfdev.io/dashboard/p-circuit-breaker-dashboard/310d780d-e6c0-4981-9781-95c
62c998db8

Last Operation
Status: create succeeded
Message:
Started: 2017-09-29T10:08:20Z
Updated: 2017-09-29T10:10:25Z
```

```
~/D/w/c/fortune-teller-with-config-server-and-service-registry-and-hystrix ››› cf bind-service fortune-teller circuit-br
eaker
Binding service circuit-breaker to app fortune-teller in org cloudfoundry-for-developers / space development as admin...
OK
TIP: Use 'cf restage fortune-teller' to ensure your env variable changes take effect
```

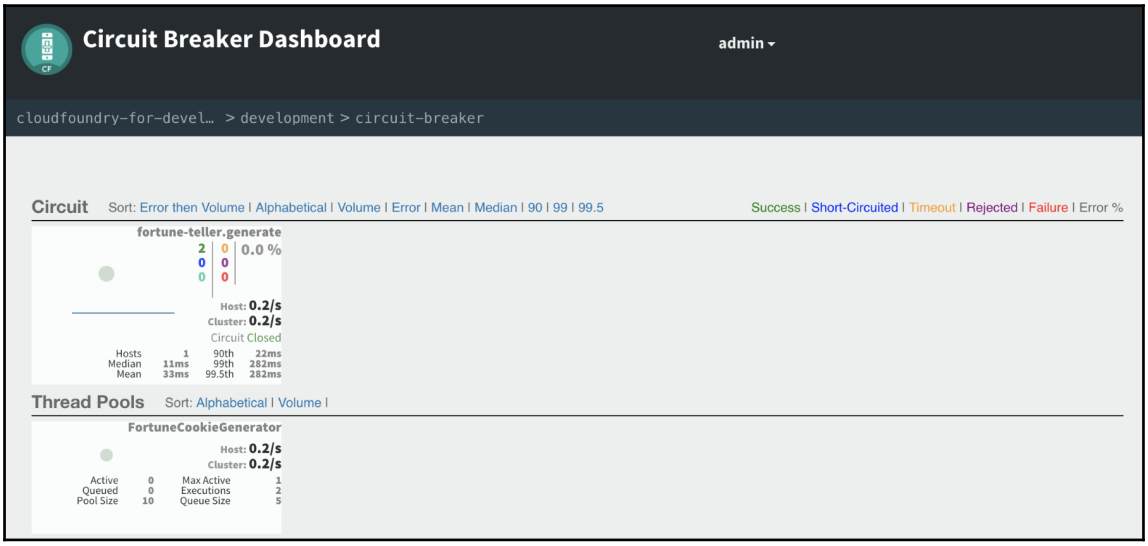
```
   2017-09-29T05:21:51.00-0500 [APP/PROC/WEB/0] OUT },Server stats: [[Server:fortune-teller-api.local.pcfdev.io:76da608d
-6d5b-412e-5b92-4f1c;   Zone:local.pcfdev.io;   Total Requests:0;       Successive connection failure:0;        Total bl
ackout seconds:0;       Last connection made:Thu Jan 01 00:00:00 UTC 1970;      First connection made: Thu Jan 01 00:00:
00 UTC 1970;    Active Connections:0;   total failure count in last (1000) msecs:0;     average resp time:0.0;  90 perce
ntile resp time:0.0;    95 percentile resp time:0.0;    min resp time:0.0;      max resp time:0.0;      stddev resp time
:0.0]
   2017-09-29T05:21:51.00-0500 [APP/PROC/WEB/0] OUT ]}ServerList:org.springframework.cloud.netflix.ribbon.eureka.DomainE
xtractingServerList@5dd3c9ef
   2017-09-29T05:21:51.19-0500 [APP/PROC/WEB/0] OUT ISTRA DAYEA ALSOM LOODY DELTH
   2017-09-29T05:21:51.95-0500 [APP/PROC/WEB/0] OUT 2017-09-29 10:21:51.955  INFO 6 --- [erListUpdater-0] c.netflix.conf
ig.ChainedDynamicProperty  : Flipping property: fortune-teller-api.ribbon.ActiveConnectionsLimit to use NEXT property: n
iws.loadbalancer.availabilityFilteringRule.activeConnectionsLimit = 2147483647
   2017-09-29T05:21:55.02-0500 [APP/PROC/WEB/0] OUT RABIT OUSID BLIGH AFTEE TONOT
   2017-09-29T05:22:00.01-0500 [APP/PROC/WEB/0] OUT VELTE HIRSO APEAL CRASS HATEE
   2017-09-29T05:22:05.01-0500 [APP/PROC/WEB/0] OUT EXPED ECIER THIGH OPECH ENDET
   2017-09-29T05:22:10.12-0500 [APP/PROC/WEB/0] OUT QUEST NALIF GUEND GROVE MAINT
   2017-09-29T05:22:15.02-0500 [APP/PROC/WEB/0] OUT NONOR GANTA KNOTH MUNGE ROBLE
   2017-09-29T05:22:20.01-0500 [APP/PROC/WEB/0] OUT NELOW SMATH IDEST PHESS MUNTA
```

```
^C
[~/D/w/book-contents ››› cf logs fortune-teller                                    ✘ 130 master ■ ]
Retrieving logs for app fortune-teller in org cloudfoundry-for-developers / space development as admin...

   2017-09-29T05:24:25.01-0500 [APP/PROC/WEB/0] OUT WRIER AUSEE HUSIT AMOUP BINUM
   2017-09-29T05:24:30.01-0500 [APP/PROC/WEB/0] OUT VANGS NARGE FOLED BEGAR EQUAL
   2017-09-29T05:24:35.03-0500 [APP/PROC/WEB/0] OUT reassimilate quill omnivore sham postpone
   2017-09-29T05:24:40.01-0500 [APP/PROC/WEB/0] OUT xanthophyllous omnivore tartarian trismic turniplike
   2017-09-29T05:24:45.00-0500 [APP/PROC/WEB/0] OUT remigial aromatise countrywomen austrian hims
   2017-09-29T05:24:50.01-0500 [APP/PROC/WEB/0] OUT nonleguminous pentasyllable penlite reassimilate waucht
^C
```





```
2017-09-29T05:35:50.02-0500 [APP/PROC/WEB/0] OUT seamanship kain radiobiology effortlessness menseless
2017-09-29T05:35:55.00-0500 [APP/PROC/WEB/0] OUT cavilled unassuring thriftiest mor waucht
2017-09-29T05:36:00.00-0500 [APP/PROC/WEB/0] OUT hyenoid unheeded wabasha puttied postpone
2017-09-29T05:36:05.00-0500 [APP/PROC/WEB/0] OUT solacing coadunate columellate klootchman saragossa
2017-09-29T05:36:10.01-0500 [APP/PROC/WEB/0] OUT klootchman postpone penlite significative phototherapist
2017-09-29T05:36:15.00-0500 [APP/PROC/WEB/0] OUT hyenoid remigial menseless illaudable boer
2017-09-29T05:36:20.00-0500 [APP/PROC/WEB/0] OUT hyenoid dinka penlite institutes brocaded
2017-09-29T05:36:25.28-0500 [APP/PROC/WEB/0] OUT ADIDE MRSTE IMMER ADMIT EACHE
2017-09-29T05:36:30.02-0500 [APP/PROC/WEB/0] OUT WRIAN TWEVE HEITY FULTE SMAKE
2017-09-29T05:36:35.02-0500 [APP/PROC/WEB/0] OUT ASHOP ESCRA HOTEL PULLS DOMEN
```



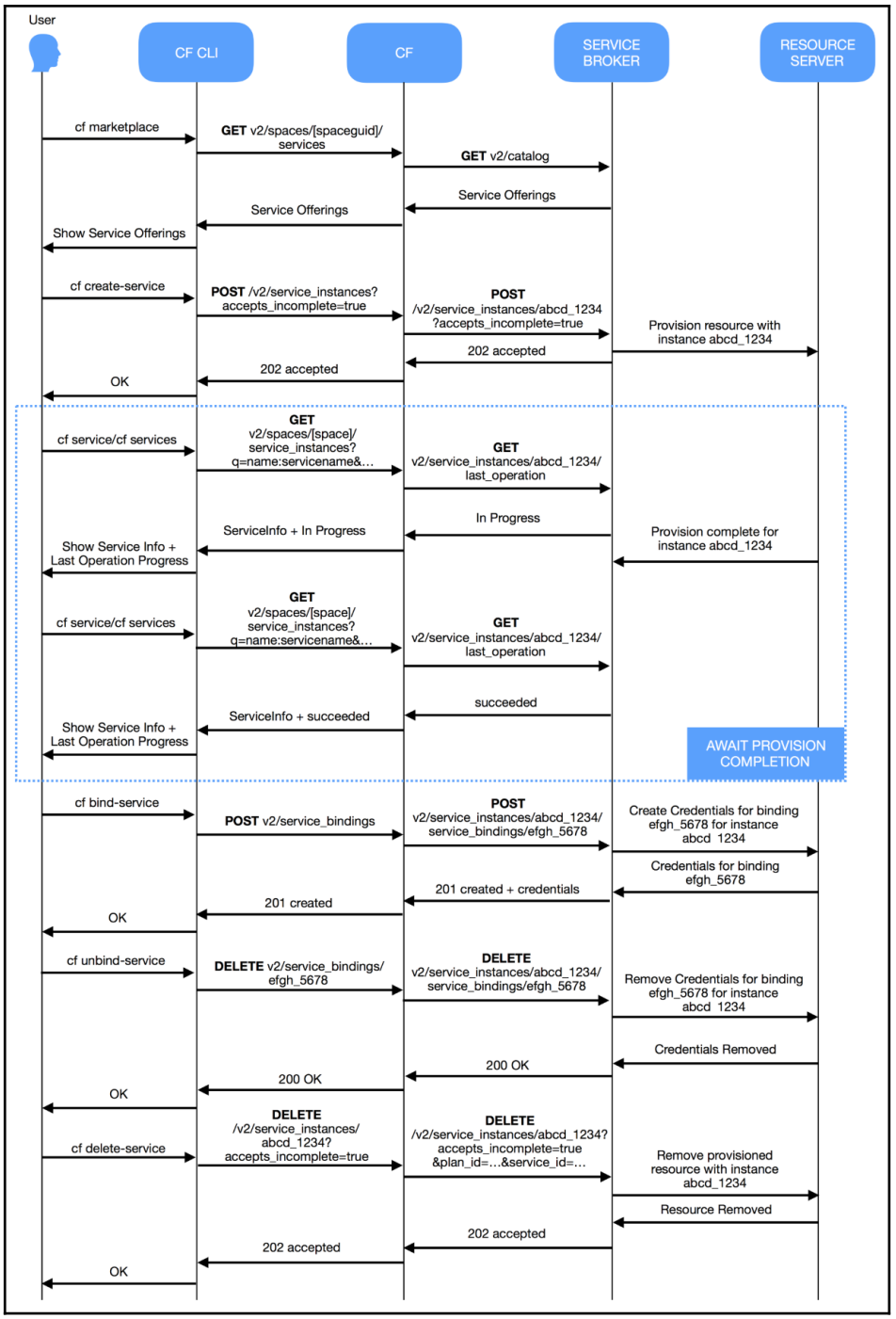
Chapter 8: Services and Service Brokers

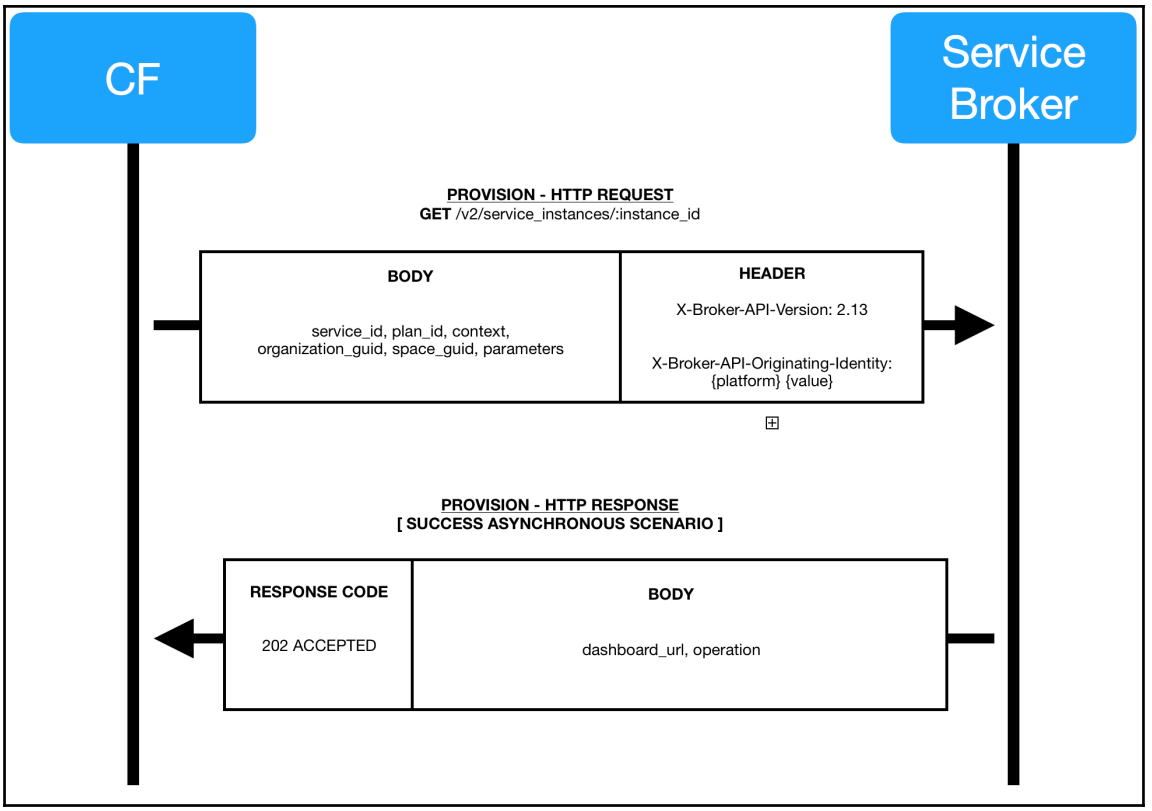
```
~/W/B/C/hello-spring-cloud ❯❯❯ cf env hello-spring-cloud
Getting env variables for app hello-spring-cloud in org pcfdev-org / space development as admin...
OK

System-Provided:


{
 "VCAP_APPLICATION": {
  "application_id": "9ba402ce-4f37-4d9b-b719-495cb1b29d54",
  "application_name": "hello-spring-cloud",
  "application_uris": [
   "hello-spring-cloud-overground-bongo.local.pcfdev.io",
   "hello-spring-cloud-radical-nonapproachabness.local.pcfdev.io"
  ],
  "application_version": "a73d36c5-61e1-44d3-b51d-df8f5ead7ea7",
  "cf_api": "http://api.local.pcfdev.io",
  "limits": {
   "disk": 512,
   "fds": 16384,
   "mem": 256
  },
  "name": "hello-spring-cloud",
  "space_id": "cba855d5-9728-42af-a77a-6189742f7140",
  "space_name": "development",
  "uris": [
   "hello-spring-cloud-overground-bongo.local.pcfdev.io",
   "hello-spring-cloud-radical-nonapproachabness.local.pcfdev.io"
  ],
  "users": null,
  "version": "a73d36c5-61e1-44d3-b51d-df8f5ead7ea7"
 }
}

No user-defined env variables have been set

No running env variables have been set

No staging env variables have been set

~/W/B/C/hello-spring-cloud ❯❯❯
```

```
~/W/B/C/hello-spring-cloud ❯❯❯ cf env hello-spring-cloud
Getting env variables for app hello-spring-cloud in org pcfdev-org / space development as admin...
OK

System-Provided:
{
 "VCAP_SERVICES": {
  "p-mysql": [
   {
    "credentials": {
     "hostname": "mysql-broker.local.pcfdev.io",
     "jdbcUrl": "jdbc:mysql://mysql-broker.local.pcfdev.io:3306/cf_f590661d_93f3_4741_b0ab_5a781914edce?user=R8cNWvNSLMrw2e1A\u0026password=oJqWMD0bQ8NZixFw",
     "name": "cf_f590661d_93f3_4741_b0ab_5a781914edce",
     "password": "oJqWMD0bQ8NZixFw",
     "port": 3306,
     "uri": "mysql://R8cNWvNSLMrw2e1A:oJqWMD0bQ8NZixFw@mysql-broker.local.pcfdev.io:3306/cf_f590661d_93f3_4741_b0ab_5a781914edce?reconnect=true",
     "username": "R8cNWvNSLMrw2e1A"
    },
    "label": "p-mysql",
    "name": "my-database-service",
    "plan": "1gb",
    "provider": null,
    "syslog_drain_url": null,
    "tags": [
     "mysql"
    ],
    "volume_mounts": []
   }
  ]
 }
}

{
 "VCAP_APPLICATION": {
  "application_id": "9ba402ce-4f37-4d9b-b719-495cb1b29d54",
  "application_name": "hello-spring-cloud",
  "application_uris": [
   "hello-spring-cloud-overground-bongo.local.pcfdev.io",
   "hello-spring-cloud-radical-nonapproachabness.local.pcfdev.io"
  ],
  "application_version": "a73d36c5-61e1-44d3-b51d-df8f5ead7ea7",
  "cf_api": "http://api.local.pcfdev.io",
  "limits": {
   "disk": 512,
   "fds": 16384,
   "mem": 256
  },
  "name": "hello-spring-cloud",
  "space_id": "cba855d5-9728-42af-a77a-6189742f7140",
  "space_name": "development",
  "uris": [
   "hello-spring-cloud-overground-bongo.local.pcfdev.io",
   "hello-spring-cloud-radical-nonapproachabness.local.pcfdev.io"
  ],
  "users": null,
  "version": "a73d36c5-61e1-44d3-b51d-df8f5ead7ea7"
 }
}

No user-defined env variables have been set

No running env variables have been set

No staging env variables have been set

~/W/B/C/hello-spring-cloud ❯❯❯
```

```
~/W/B/C/hello-spring-cloud ❯❯❯ cf create-user-provided-service my-user-service -p  '{"hostUrl": "www.service.com", "username": "dave", "password":"blah", "extraInfo":
"This is a user-provided service"}'
Creating user provided service my-user-service in org pcfdev-org / space development as admin...
OK
~/W/B/C/hello-spring-cloud ❯❯❯ cf services
Getting services in org pcfdev-org / space development as admin...
OK

name                 service         plan   bound apps                                 last operation
my-database-service  p-mysql         1gb    hello-spring-cloud, hello-spring-cloud-home   update succeeded
my-user-service      user-provided
~/W/B/C/hello-spring-cloud ❯❯❯
```

```
~/W/B/C/hello-spring-cloud ››› cf bind-service hello-spring-cloud my-user-service
Binding service my-user-service to app hello-spring-cloud in org pcfdev-org / space development as admin...
OK
TIP: Use 'cf restage hello-spring-cloud' to ensure your env variable changes take effect
~/W/B/C/hello-spring-cloud ››› cf env hello-spring-cloud
Getting env variables for app hello-spring-cloud in org pcfdev-org / space development as admin...
OK

System-Provided:
{
 "VCAP_SERVICES": {
  "p-mysql": [
   {
    "credentials": {
     "hostname": "mysql-broker.local.pcfdev.io",
     "jdbcUrl": "jdbc:mysql://mysql-broker.local.pcfdev.io:3306/cf_f590661d_93f3_4741_b0ab_5a781914edce?user=R8cNWvNSLMrw2e1A\u0026password=oJqWMD0bQ8NZixFw",
     "name": "cf_f590661d_93f3_4741_b0ab_5a781914edce",
     "password": "oJqWMD0bQ8NZixFw",
     "port": 3306,
     "uri": "mysql://R8cNWvNSLMrw2e1A:oJqWMD0bQ8NZixFw@mysql-broker.local.pcfdev.io:3306/cf_f590661d_93f3_4741_b0ab_5a781914edce?reconnect=true",
     "username": "R8cNWvNSLMrw2e1A"
    },
    "label": "p-mysql",
    "name": "my-database-service",
    "plan": "1gb",
    "provider": null,
    "syslog_drain_url": null,
    "tags": [
     "mysql"
    ],
    "volume_mounts": []
   }
  ],
  "user-provided": [
   {
    "credentials": {
     "extraInfo": "This is a user-provided service",
     "hostUrl": "www.service.com",
     "password": "blah",
     "username": "dave"
    },
    "label": "user-provided",
    "name": "my-user-service",
    "syslog_drain_url": "",
    "tags": [],
    "volume_mounts": []
   }
  ]
 }
}

{
 "VCAP_APPLICATION": {
  "application_id": "9ba402ce-4f37-4d9b-b719-495cb1b29d54",
  "application_name": "hello-spring-cloud",
  "application_uris": [
   "hello-spring-cloud-overground-bongo.local.pcfdev.io",
   "hello-spring-cloud-radical-nonapproachabness.local.pcfdev.io"
  ],
  "application_version": "a73d36c5-61e1-44d3-b51d-df8f5ead7ea7",
  "cf_api": "http://api.local.pcfdev.io",
  "limits": {
   "disk": 512,
   "fds": 16384,
   "mem": 256
  },
  "name": "hello-spring-cloud",
  "space_id": "cba855d5-9728-42af-a77a-6189742f7140",
  "space_name": "development",
  "uris": [
   "hello-spring-cloud-overground-bongo.local.pcfdev.io",
   "hello-spring-cloud-radical-nonapproachabness.local.pcfdev.io"
  ],
  "users": null,
  "version": "a73d36c5-61e1-44d3-b51d-df8f5ead7ea7"
 }
}

No user-defined env variables have been set

No running env variables have been set

No staging env variables have been set

~/W/B/C/hello-spring-cloud ›››
```


User
CF CLI
CF
SERVICE BROKER
RESOURCE SERVER
cf marketplace
GET v2/spaces/[spaceguid]/ services
GET v2/catalog
Service Offerings
Service Offerings
Show Service Offerings
cf create-service
POST /v2/service_instances? accepts_incomplete=true
POST /v2/service_instances/abcd_1234 ?accepts_incomplete=true
Provision resource with instance abcd_1234
202 accepted
202 accepted
OK
cf service/cf services
GET v2/spaces/[space]/ service_instances? q=name:servicename&…
GET v2/service_instances/abcd_1234/ last_operation
In Progress
ServiceInfo + In Progress
Provision complete for instance abcd_1234
Show Service Info + Last Operation Progress
cf service/cf services
GET v2/spaces/[space]/ service_instances? q=name:servicename&…
GET v2/service_instances/abcd_1234/ last_operation
succeeded
ServiceInfo + succeeded
Show Service Info + Last Operation Progress
AWAIT PROVISION COMPLETION
cf bind-service
POST v2/service_bindings
POST v2/service_instances/abcd_1234/ service_bindings/efgh_5678
Create Credentials for binding efgh_5678 for instance abcd 1234
Credentials for binding efgh_5678
201 created + credentials
201 created
OK
cf unbind-service
DELETE v2/service_bindings/ efgh_5678
DELETE v2/service_instances/abcd_1234/ service_bindings/efgh_5678
Remove Credentials for binding efgh_5678 for instance abcd 1234
Credentials Removed
200 OK
200 OK
OK
cf delete-service
DELETE /v2/service_instances/ abcd_1234? accepts_incomplete=true
DELETE /v2/service_instances/abcd_1234? accepts_incomplete=true &plan_id=…&service_id=…
Remove provisioned resource with instance abcd_1234
Resource Removed
202 accepted
202 accepted
OK


CF
Service Broker
PROVISION - HTTP REQUEST
GET /v2/service_instances/:instance_id
BODY
service_id, plan_id, context, organization_guid, space_guid, parameters
HEADER
X-Broker-API-Version: 2.13
X-Broker-API-Originating-Identity: {platform} {value}
PROVISION - HTTP RESPONSE
[SUCCESS ASYNCHRONOUS SCENARIO]
RESPONSE CODE
202 ACCEPTED
BODY
dashboard_url, operation

```java
public ResponseEntity<String> catalog(
        @RequestHeader(value="X-Broker-API-Version") String osbVersion
        )
{
    log.info("Performing Catalog:");
    log.info("OsbVersion is " + osbVersion);

    // Create a dummy service
    Services services = new Services(
        new Service[]{
            new Service(/* service id = */"acb56d7c-XXXX-XXXX-XXXX-feb140a59a66",
                        /* name = */"My-Service",
                        /* description = */"MyService Plan",
                        /* tags= */new String[]{"cloudfoundryfordevelopers","dummy"},
                        /* requires = */new String[]{},
                        /* bindable = */true,
                        /* metadata = */new Metadata("My-Service", "www.image.com", "some dummy service", "www.docs.com", "www.support.com"),
                        /* plans = */new Plan[] {
                                            new Plan("plan1234", "servicePlan", "ServicePlan Description")
                                        },
                        /* dashboard_client = */null,
                        /* updateable = */true
                        ),
            new Service(/* service id = */"acb56d7c-XXXX-XXXX-XXXX-feb140a59a67",
                        /* name = */"My-Service2",
                        /* description = */"MyService2 Plan",
                        /* tags= */new String[]{"cloudfoundryfordevelopers","dummy"},
                        /* requires = */new String[]{},
                        /* bindable = */true,
                        /* metadata = */new Metadata("My-Service2", "www.image.com", "some dummy service", "www.docs.com", "www.support.com"),
                        /* plans = */new Plan[] {
                                            new Plan("plan5678", "servicePlanA", "ServicePlan Description"),
                                            new Plan("plan1012", "servicePlanB", "ServicePlan Description")
                                        },
                        /* dashboard_client = */null,
                        /* updateable = */true
                        ),
        }
        );

    return new ResponseEntity<String>(gson.toJson(services), HttpStatus.OK);
}
```

```
~/W/B/C/c/ServiceBrokerTemplateApplication ❯❯❯ cf create-service-broker my-broker none none http://service-broker-template.local.pcfdev.io
Creating service broker my-broker as admin...
OK
~/W/B/C/c/ServiceBrokerTemplateApplication ❯❯❯ cf service-brokers
Getting service brokers as admin...

name           url
local-volume   http://localbroker.local.pcfdev.io
my-broker      http://service-broker-template.local.pcfdev.io
p-mysql        http://mysql-broker.local.pcfdev.io
p-rabbitmq     http://rabbitmq-broker.local.pcfdev.io
p-redis        http://redis-broker.local.pcfdev.io
~/W/B/C/c/ServiceBrokerTemplateApplication ❯❯❯
```

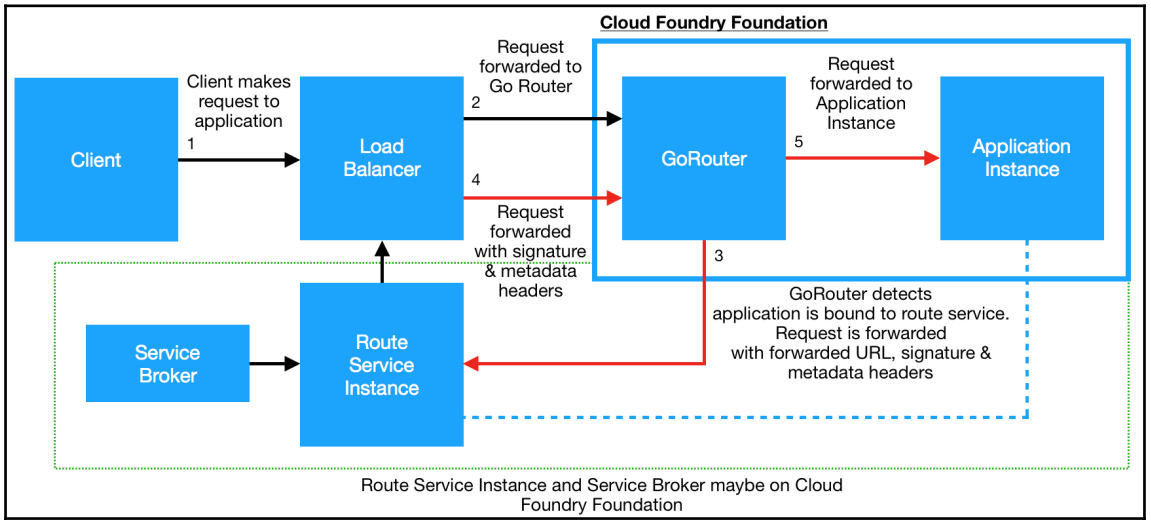
```
~/W/B/C/c/ServiceBrokerTemplateApplication ››› cf marketplace
Getting services from marketplace in org pcfdev-org / space development as admin...
OK

service        plans             description
local-volume   free-local-disk   Local service docs: https://github.com/cloudfoundry-incubator/local-volume-release/
p-mysql        512mb, 1gb        MySQL databases on demand
p-rabbitmq     standard          RabbitMQ is a robust and scalable high-performance multi-protocol messaging broker.
p-redis        shared-vm         Redis service to provide a key-value store

TIP:  Use 'cf marketplace -s SERVICE' to view descriptions of individual plans of a given service.
~/W/B/C/c/ServiceBrokerTemplateApplication ›››
```

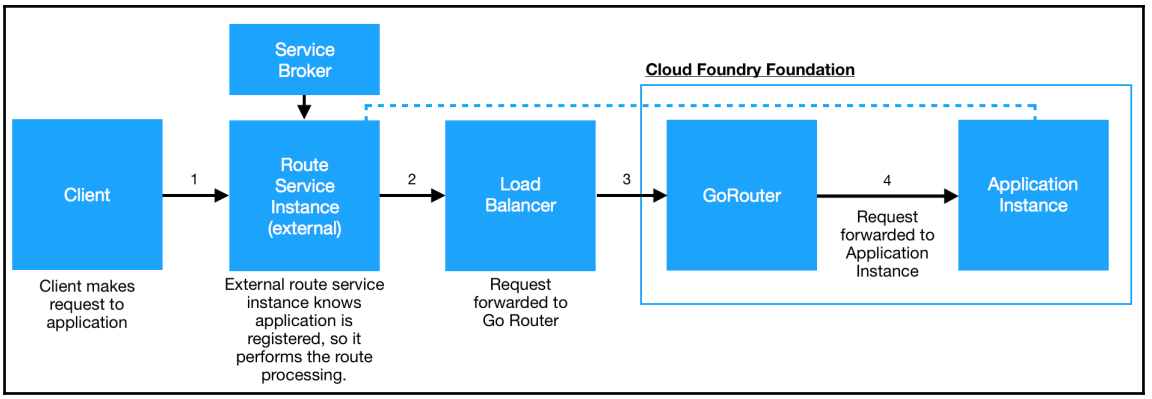
```
~/W/B/C/c/ServiceBrokerTemplateApplication ››› cf service-access
Getting service access as admin...
broker: p-mysql
   service   plan    access   orgs
   p-mysql   512mb   all
   p-mysql   1gb     all

broker: local-volume
   service         plan               access   orgs
   local-volume    free-local-disk    all

broker: p-rabbitmq
   service      plan       access   orgs
   p-rabbitmq   standard   all

broker: p-redis
   service   plan        access   orgs
   p-redis   shared-vm   all

broker: my-broker
   service       plan           access   orgs
   My-Service    servicePlan    none
   My-Service2   servicePlanA   none
   My-Service2   servicePlanB   none

~/W/B/C/c/ServiceBrokerTemplateApplication ›››
```

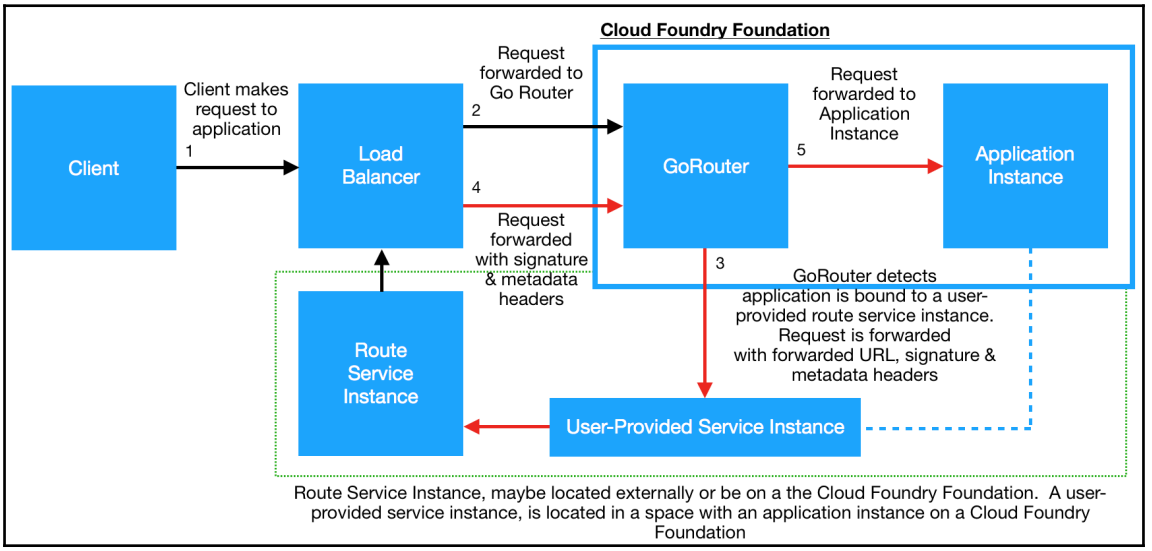
```
~/W/B/C/c/ServiceBrokerTemplateApplication ››› cf enable-service-access My-Service
Enabling access to all plans of service My-Service for all orgs as admin...
OK
~/W/B/C/c/ServiceBrokerTemplateApplication ››› cf enable-service-access My-Service2 -p servicePlanB
Enabling access of plan servicePlanB for service My-Service2 as admin...
OK
~/W/B/C/c/ServiceBrokerTemplateApplication ››› cf m
Getting services from marketplace in org pcfdev-org / space development as admin...
OK

service        plans                       description
My-Service     servicePlan                 MyService Plan
My-Service2    servicePlanA, servicePlanB  MyService2 Plan
local-volume   free-local-disk             Local service docs: https://github.com/cloudfoundry-incubator/local-volume-release/
p-mysql        512mb, 1gb                  MySQL databases on demand
p-rabbitmq     standard                    RabbitMQ is a robust and scalable high-performance multi-protocol messaging broker.
p-redis        shared-vm                   Redis service to provide a key-value store

TIP:  Use 'cf marketplace -s SERVICE' to view descriptions of individual plans of a given service.
```

```java
@RequestMapping(value = "/v2/service_instances/{instance_id}/service_bindings/{binding_id}", method = RequestMethod.PUT)
public ResponseEntity<Object> binding(
        @RequestHeader(value="X-Broker-API-Version")    String  osbVersion,
        @RequestHeader(value="X-Broker-API-Originating-Identity", required=false)    String originatingIdentity,
        @PathVariable("instance_id")    String instanceId,
        @PathVariable("binding_id")     String bindingId,
        @RequestBody                    String requestBody)

{
    log.info("Performing Binding:");
    log.info("OsbVersion is " + osbVersion);
    log.info("OriginatingIdentity is " + originatingIdentity);
    log.info("Instance id is " + instanceId);
    log.info("Binding id  is " + bindingId);
    log.info("Request Body is " + requestBody);

    BindingRequestBody bindingRequestBody = gson.fromJson(requestBody, BindingRequestBody.class);

    log.info(bindingRequestBody);

    // Let's assume we're binding only with credentials
    JsonObject credentialsTest = new JsonObject();
    credentialsTest.addProperty("UserName", "abcd1234567899");
    credentialsTest.addProperty("Password", "oerh.oiwGH3pibhVF");
    credentialsTest.addProperty("Host", "http://my.own.resource");

    Binding binding = new Binding(credentialsTest, null, null, null);
    return new ResponseEntity<>(gson.toJson(binding), HttpStatus.OK);
}
```

```
~/W/B/C/c/ServiceBrokerTemplateApplication ❯❯❯ cf env hello-spring-cloud-home
Getting env variables for app hello-spring-cloud-home in org pcfdev-org / space development as admin...
OK

System-Provided:
{
 "VCAP_SERVICES": {
  "My-Service": [
   {
    "credentials": {
     "Host": "http://my.own.resource",
     "Password": "oerh.oiwGH3pibhVF",
     "UserName": "abcd1234567899"
    },
    "label": "My-Service",
    "name": "mydummyservice",
    "plan": "servicePlan",
    "provider": null,
    "syslog_drain_url": null,
    "tags": [
     "cloudfoundryfordevelopers",
     "dummy"
    ],
    "volume_mounts": []
   }
  ],
```




Service Broker
Cloud Foundry Foundation
Client
1
Route Service Instance (external)
2
Load Balancer
3
GoRouter
4
Application Instance
Request forwarded to Application Instance
Client makes request to application
External route service instance knows application is registered, so it performs the route processing.
Request forwarded to Go Router


Cloud Foundry Foundation
Client
Client makes request to application
1
Load Balancer
Request forwarded to Go Router
2
4
Request forwarded with signature & metadata headers
GoRouter
Request forwarded to Application Instance
5
Application Instance
3
GoRouter detects application is bound to a user-provided route service instance. Request is forwarded with forwarded URL, signature & metadata headers
Route Service Instance
User-Provided Service Instance
Route Service Instance, maybe located externally or be on a the Cloud Foundry Foundation. A user-provided service instance, is located in a space with an application instance on a Cloud Foundry Foundation

```
~/W/B/C/logging-route-service ❯❯❯ cf logs log-route-service-application
Retrieving logs for app log-route-service-application in org pcfdev-org / space development as admin...

   2017-10-13T08:22:26.48-0500 [APP/PROC/WEB/0] OUT 2017/10/13 13:22:26 X-Cf-Proxy-Signature: bPLBC73qUEpdHS0-fViUYup1HDObEOtzRmGkcQ4nfZZLZh6tImUudXREkSu33ePNsY1exgy6U6cfywdhq41CI3zNoGet9nhece2XWZghxF8ceIGUGHIEr0HfQpRVxfy0N76vKQ4XIGKJV2IGnT4uSsbeF3vDB12sgsdCK3CbRiSk
   2017-10-13T08:22:26.48-0500 [APP/PROC/WEB/0] OUT 2017/10/13 13:22:26
   2017-10-13T08:22:26.48-0500 [APP/PROC/WEB/0] OUT 2017/10/13 13:22:26
   2017-10-13T08:22:26.48-0500 [APP/PROC/WEB/0] OUT 2017/10/13 13:22:26 Skip ssl validation set to true
   2017-10-13T08:22:26.48-0500 [APP/PROC/WEB/0] OUT 2017/10/13 13:22:26 Headers: http.Header{"User-Agent":□string{"curl/7.54.0"}, "X-Cf-Proxy-Metadata":□string{"eyJub25jZSI6InBtRng2SVZNWU1DS2UxS0kifQ=="}, "X-Forwarded-Proto":□string{"http"}, "Accept":□string{"*/*"}, "X-Cf-Applicationid":□string{"7b6cef9d-2365-42e2-910e-5dacc189f4bc"}, "X-Cf-Instanceid":□string{"ca758d88-26ba-4514-58b7-b2d3"}, "X-Forwarded-For":□string{"192.168.11.1, ::1"}, "X-Request-Start":□string{"1507900946477"}, "X-Vcap-Request-Id":□string{"ea169e82-93f7-4691-5707-b9de2a12dbfd"}, "X-Cf-Proxy-Signature":□string{"bPLBC73qUEpdHS0-fViUYup1HDObEOtzRmGkcQ4nfZZLZh6tImUudXREkSu33ePNsY1exgy6U6cfywdhq41CI3zNoGet9nhece2XWZghxF8ceIGUGHIEr0HfQpRVxfy0N76vKQ4XIGKJVZIGnT4uSsbeF3vDB12sgsdCK3CbRiSk"}, "X-Cf-Forwarded-Url":□string{"https://hello-spring-cloud.local.pcfdev.io/"}, "Connection":□string{"close"}}
   2017-10-13T08:22:26.48-0500 [APP/PROC/WEB/0] OUT 2017/10/13 13:22:26 Request Body:
   2017-10-13T08:22:26.48-0500 [APP/PROC/WEB/0] OUT 2017/10/13 13:22:26 Forwarding to: https://hello-spring-cloud.local.pcfdev.io/
   2017-10-13T08:22:26.48-0500 [APP/PROC/WEB/0] OUT 2017/10/13 13:22:26 X-Cf-Forwarded-Url: https://hello-spring-cloud.local.pcfdev.io/
   2017-10-13T08:22:26.48-0500 [APP/PROC/WEB/0] OUT 2017/10/13 13:22:26 Received request:
   2017-10-13T08:22:57.13-0500 [APP/PROC/WEB/0] OUT 2017/10/13 13:22:57
   2017-10-13T08:22:57.13-0500 [APP/PROC/WEB/0] OUT 2017/10/13 13:22:57 Response Headers: http.Header{"Content-Language":□string{"en-US"}, "Content-Type":□string{"text/html;charset=UTF-8"}, "Date":□string{"Fri, 13 Oct 2017 13:22:57 GMT"}, "X-Vcap-Request-Id":□string{"ea169e82-93f7-4691-5707-b9de2a12dbfd"}}
   2017-10-13T08:22:57.13-0500 [APP/PROC/WEB/0] OUT 2017/10/13 13:22:57
   2017-10-13T08:22:57.13-0500 [APP/PROC/WEB/0] OUT 2017/10/13 13:22:57 Response Body: <!DOCTYPE HTML>
   2017-10-13T08:22:57.13-0500 [APP/PROC/WEB/0] OUT <html>
   2017-10-13T08:22:57.13-0500 [APP/PROC/WEB/0] OUT <head>
   2017-10-13T08:22:57.13-0500 [APP/PROC/WEB/0] OUT     <title>Getting Started: Serving Web Content</title>
   2017-10-13T08:22:57.13-0500 [APP/PROC/WEB/0] OUT     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
```

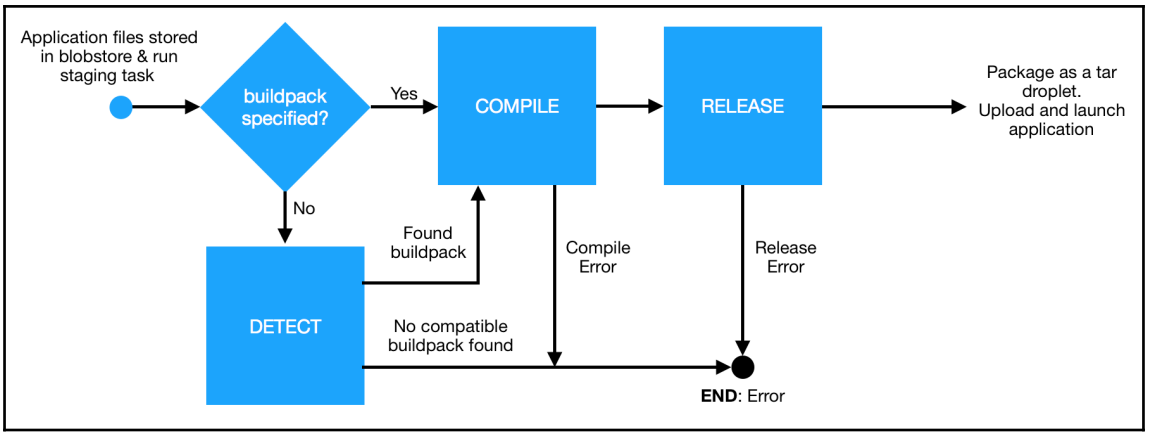
Chapter 9: Buildpacks

```
~ ››› cf buildpacks
Getting buildpacks...

buildpack                position   enabled   locked   filename
java_buildpack           1          true      false    java-buildpack-offline-v3.13.zip
ruby_buildpack           2          true      false    ruby_buildpack-cached-v1.6.37.zip
nodejs_buildpack         3          true      false    nodejs_buildpack-cached-v1.5.32.zip
go_buildpack             4          true      false    go_buildpack-cached-v1.8.1.zip
python_buildpack         5          true      false    python_buildpack-cached-v1.5.18.zip
php_buildpack            6          true      false    php_buildpack-cached-v4.3.31.zip
staticfile_buildpack     7          true      false    staticfile_buildpack-cached-v1.4.5.zip
binary_buildpack         8          true      false    binary_buildpack-cached-v1.0.11.zip
dotnet-core_buildpack    9          true      false    dotnet-core_buildpack-cached-v1.0.15.zip
~ ›››
```

```
~ ››› cf create-buildpack java_buildpack_v4_6 https://github.com/cloudfoundry/java-buildpack/releases/download/v4.6/java-buildpack-offline-v4.6.zip 2
Creating buildpack java_buildpack_v4_6...
OK

Uploading buildpack java_buildpack_v4_6...
Done uploading
OK
~ ››› cf buildpacks
Getting buildpacks...

buildpack              position   enabled   locked   filename
java_buildpack         1          true      false    java-buildpack-offline-v3.13.zip
java_buildpack_v4_6    2          true      false    java-buildpack-offline-v4.6.zip
ruby_buildpack         3          true      false    ruby_buildpack-cached-v1.6.37.zip
nodejs_buildpack       4          true      false    nodejs_buildpack-cached-v1.5.32.zip
go_buildpack           5          true      false    go_buildpack-cached-v1.8.1.zip
python_buildpack       6          true      false    python_buildpack-cached-v1.5.18.zip
php_buildpack          7          true      false    php_buildpack-cached-v4.3.31.zip
staticfile_buildpack   8          true      false    staticfile_buildpack-cached-v1.4.5.zip
binary_buildpack       9          true      false    binary_buildpack-cached-v1.0.11.zip
dotnet-core_buildpack  10         true      false    dotnet-core_buildpack-cached-v1.0.15.zip
~ ›››
```

```
~ ››› cf update-buildpack go_buildpack -p https://github.com/cloudfoundry/go-buildpack/releases/download/v1.8.11/go-buildpack-v1.8.11.zip
Updating buildpack go_buildpack...
Done uploading
OK
~ ››› cf rename-buildpack go_buildpack gogo_buildpack
Renaming buildpack go_buildpack to gogo_buildpack...
OK
~ ››› cf buildpacks
Getting buildpacks...

buildpack              position   enabled   locked   filename
java_buildpack         1          true      false    java-buildpack-offline-v3.13.zip
java_buildpack_v4_6    2          true      false    java-buildpack-offline-v4.6.zip
ruby_buildpack         3          true      false    ruby_buildpack-cached-v1.6.37.zip
nodejs_buildpack       4          true      false    nodejs_buildpack-cached-v1.5.32.zip
gogo_buildpack         5          true      false    go-buildpack-v1.8.11.zip
python_buildpack       6          true      false    python_buildpack-cached-v1.5.18.zip
php_buildpack          7          true      false    php_buildpack-cached-v4.3.31.zip
staticfile_buildpack   8          true      false    staticfile_buildpack-cached-v1.4.5.zip
binary_buildpack       9          true      false    binary_buildpack-cached-v1.0.11.zip
dotnet-core_buildpack  10         true      false    dotnet-core_buildpack-cached-v1.0.15.zip
~ ›››
```

```
~ ››› cf delete-buildpack java_buildpack_v4_6

Really delete the buildpack java_buildpack_v4_6?> y
Deleting buildpack java_buildpack_v4_6...
OK
~ ››› cf buildpacks
Getting buildpacks...

buildpack              position   enabled   locked   filename
java_buildpack         1          true      false    java-buildpack-offline-v3.13.zip
ruby_buildpack         2          true      false    ruby_buildpack-cached-v1.6.37.zip
nodejs_buildpack       3          true      false    nodejs_buildpack-cached-v1.5.32.zip
gogo_buildpack         4          true      false    go-buildpack-v1.8.11.zip
python_buildpack       5          true      false    python_buildpack-cached-v1.5.18.zip
php_buildpack          6          true      false    php_buildpack-cached-v4.3.31.zip
staticfile_buildpack   7          true      false    staticfile_buildpack-cached-v1.4.5.zip
binary_buildpack       8          true      false    binary_buildpack-cached-v1.0.11.zip
dotnet-core_buildpack  9          true      false    dotnet-core_buildpack-cached-v1.0.15.zip
~ ›››
```




```
~/W/B/C/c/simple-http-buildpack ››› cf create-buildpack simple-http_buildpack simple-http_buildpack-v1.0.0.zip 5
Creating buildpack simple-http_buildpack...
OK

Uploading buildpack simple-http_buildpack...
Done uploading
OK
~/W/B/C/c/simple-http-buildpack ››› cf buildpacks
Getting buildpacks...

buildpack              position   enabled   locked   filename
java_buildpack         1          true      false    java-buildpack-offline-v3.13.zip
ruby_buildpack         2          true      false    ruby_buildpack-cached-v1.6.37.zip
nodejs_buildpack       3          true      false    nodejs_buildpack-cached-v1.5.32.zip
gogo_buildpack         4          true      false    go-buildpack-v1.8.11.zip
simple-http_buildpack  5          true      false    simple-http_buildpack-v1.0.0.zip
shell_buildpack        6          true      false    shell_buildpack-cached-v1.0.0.zip
md_buildpack           7          true      false    md_buildpack-cached-v1.0.0.zip
python_buildpack       8          true      false    python_buildpack-cached-v1.5.18.zip
php_buildpack          9          true      false    php_buildpack-cached-v4.3.31.zip
staticfile_buildpack   10         true      false    staticfile_buildpack-cached-v1.4.5.zip
binary_buildpack       11         true      false    binary_buildpack-cached-v1.0.11.zip
dotnet-core_buildpack  12         true      false    dotnet-core_buildpack-cached-v1.0.15.zip
~/W/B/C/c/simple-http-buildpack ›››
```

```
Downloaded simple-http_buildpack (1.9K)
Creating container
Successfully created container
Downloading app package...
Downloaded app package (243B)
Staging...
Cloning into '/tmp/cache/simplehttpbp'...
Exit status 0
Staging complete
Uploading droplet, build artifacts cache...
Uploading build artifacts cache...
Uploading droplet...
Uploaded build artifacts cache (4.5M)
Uploaded droplet (614B)
Uploading complete
Destroying container
Successfully destroyed container

1 of 1 instances running

App started


OK

App simple-http was started using this command `./run.sh`

Showing health and status for app simple-http in org pcfdev-org / space development as admin...
OK

requested state: started
instances: 1/1
usage: 256M x 1 instances
urls: simple-http.local.pcfdev.io
last uploaded: Thu Oct 19 00:42:10 UTC 2017
stack: cflinuxfs2
buildpack: Simple Http Buildpack

     state     since                  cpu    memory      disk        details
#0   running   2017-10-18 07:42:27 PM   0.0%   0 of 256M   0 of 512M
~/W/B/C/c/simple-http-app ❯❯❯
```

Cloud Foundry For Developers

Buildpack Creation Sample

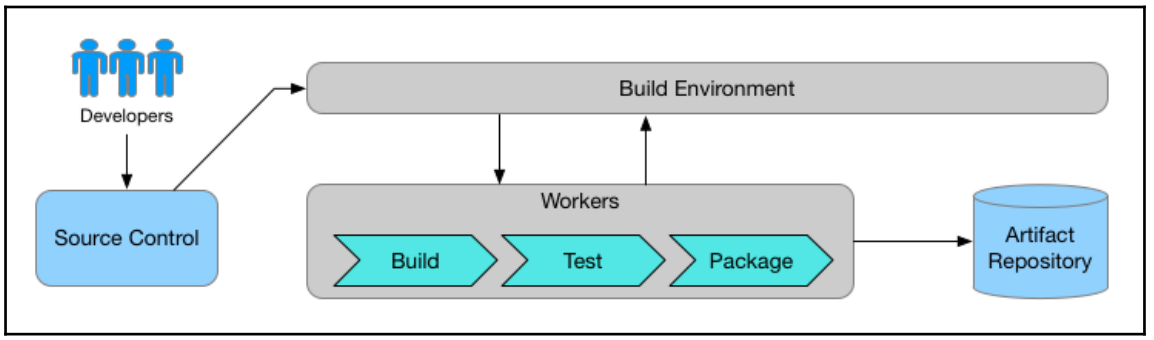
Chapter 10: Troubleshooting Applications in Cloud Foundry

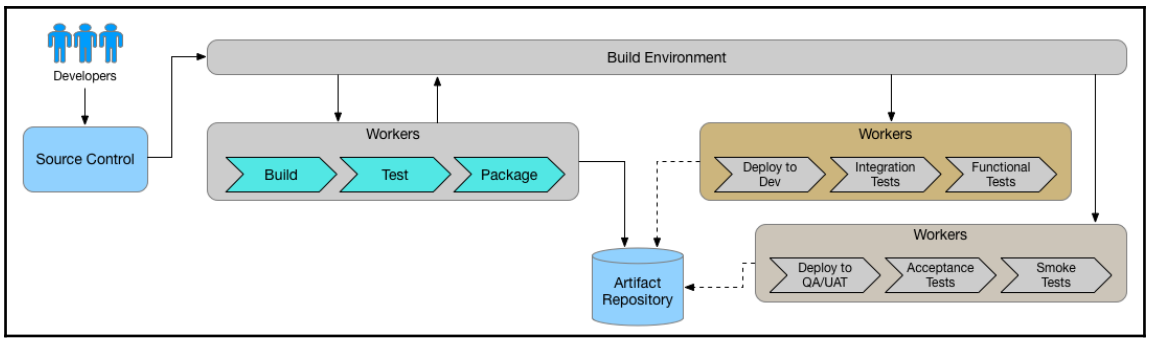
```
~/D/w/sample-webapp ❯❯❯ cf space-quotas
Getting space quotas as admin...
OK

name          total memory   instance memory   routes   service instances   paid plans   app instances   route ports
test-quota    5G             5G                5        unlimited           disallowed   5               unlimited
~/D/w/sample-webapp ❯❯❯
```

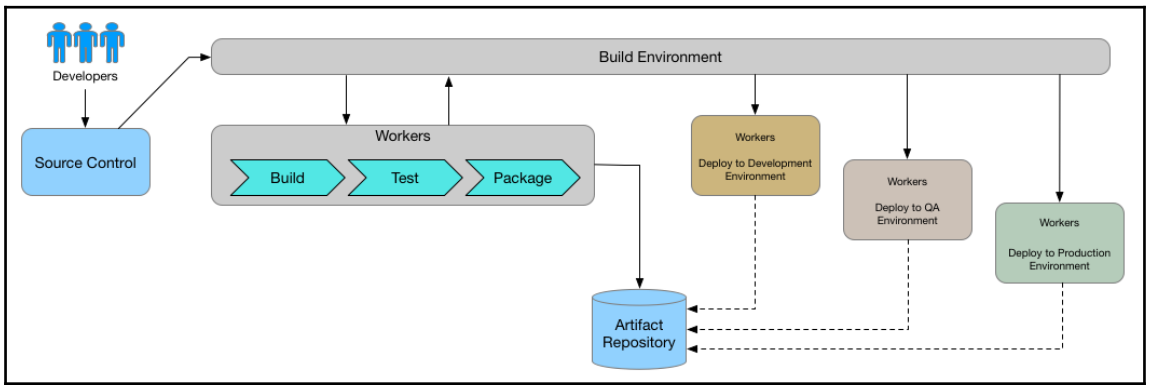
```
~/D/w/sample-webapp ❯❯❯ cf a
Getting apps in org cloudfoundry-for-developers / space development as admin...
OK

name              requested state   instances   memory   disk   urls
sample-app-new    started           5/5         256M     512M   sample-app-new.local.pcfdev.io
~/D/w/sample-webapp ❯❯❯
```

```
~/D/w/sample-webapp ❯❯❯ cf push sample-app -p target/sample-webapp-0.0.1-SNAPSHOT.jar -b java_buildpack
Creating app sample-app in org cloudfoundry-for-developers / space development as admin...
OK

Creating route sample-app.local.pcfdev.io...
OK

Binding sample-app.local.pcfdev.io to sample-app...
OK

Uploading sample-app...
Uploading app files from: /var/folders/8s/wn8_npdn52gch24n6mqdg20m0000gn/T/unzipped-app090705328
Uploading 314.2K, 87 files
Done uploading
OK

Starting app sample-app in org cloudfoundry-for-developers / space development as admin...
FAILED
Error restarting application: Server error, status code: 400, error code: 310008, message: You have exceeded the
 instance limit for your space's quota.
```

Chapter 11: Continuous Integration and Continuous Deployment







```
Showing health and status for app my-app-v1 in org cloudfoundry-for-developers / space development as
 admin...
OK

requested state: started
instances: 1/1
usage: 256M x 1 instances
urls: my-app-v1.local.pcfdev.io
last uploaded: Sun Oct 29 16:07:00 UTC 2017
stack: cflinuxfs2
buildpack: container-certificate-trust-store=2.0.0_RELEASE java-buildpack=v3.13-offline-https://githu
b.com/cloudfoundry/java-buildpack.git#03b493f java-main open-jdk-like-jre=1.8.0_121 open-jdk-like-mem
ory-calculator=2.0.2_RELEASE spring-auto-reconfiguration=1.10...

     state     since                  cpu    memory       disk         details
#0   running   2017-10-29 11:07:25 AM   0.0%   0 of 256M   0 of 512M
```

```
[~/D/w/sample-webapp ❯❯❯ cf map-route my-app-v1 local.pcfdev.io -n my-app                              ]
Creating route my-app.local.pcfdev.io for org cloudfoundry-for-developers / space development as admi
n...
OK
Adding route my-app.local.pcfdev.io to app my-app-v1 in org cloudfoundry-for-developers / space devel
opment as admin...
OK
```

```
[~/D/w/sample-webapp ❯❯❯ cf routes                                                                     ]
Getting routes for org cloudfoundry-for-developers / space development as admin ...

space         host        domain            port   path   type   apps        service
development   my-app-v1   local.pcfdev.io                      my-app-v1
development   my-app      local.pcfdev.io                      my-app-v1
```

```
[~/D/w/sample-webapp ❯❯❯ cf a                                                                          ]
Getting apps in org cloudfoundry-for-developers / space development as admin...
OK

name       requested state   instances   memory   disk   urls
my-app-v1  started           1/1         256M     512M   my-app-v1.local.pcfdev.io, my-app.local.pcf
dev.io
my-app-v2  started           1/1         256M     512M   my-app.local.pcfdev.io, my-app-v2.local.pcf
dev.io
```

```
[~/D/w/sample-webapp ❯❯❯ cf a                                                                  ✘ 1     ]
Getting apps in org cloudfoundry-for-developers / space development as admin...
OK

name       requested state   instances   memory   disk   urls
my-app-v1  started           1/1         256M     512M   my-app-v1.local.pcfdev.io
my-app-v2  started           1/1         256M     512M   my-app.local.pcfdev.io, my-app-v2.local.pcf
dev.io
```

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