OCCI4Java Platform and Application

User Guide

Using the COAPS API (v1.5.3) to provision and manage applications on Cloud Foundry V2

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Introduction

The COAPS API is a generic REST API that allows a seamless interaction with different and heterogeneous PaaS. In this aim, it exposes a generic interface that can be implemented according to the different actions exposed by a PaaS (e.g. Cloud Foundry, Openshift, etc.). In this user guide, we present a COAPS API implementation to interact with a Cloud Foundry V2 PaaS.

The interactions with COAPS are done using our Java implementation of the OCCI Platform [I] and Application [II] extensions.

Download and run the server

Note: in the current version, COAPS needs to be deployed on the same machine where the OCCI server is used.

Downloading and running COAPS

- First download and deploy the COAPS Web implementation (CF-api V2) on the Apache Tomcat server, version 7 using a java 1.6 runtime. Deploy the Web implementation by copying the CF-api.war, available at <u>http://www-inf.it-sudparis.eu/SIMBAD/tools/occi/CF-api.war</u>, to the tomcat's webapps folder.
- 2. You can test the deployment of the application by typing http://localhost:8080/CF-api/ in your Web browser. You should get a message indicating that your CloudFoundry implementation is correctly running.
- 3. By default, the CloudFoundry-COAPS API will interact with the online VMware's Cloud Application Platform (i.e. <u>http://api.cloudfoundry.com/</u>) using a test account. The connection parameters can be updated by changing the default parameters in the credentials.properties file:
 - a. To modify this file, first stop the running tomcat instance and open the CF-api.war file with your favorite compression tool.
 - b. Go to WEB-INF/classes/telecom/sudparis/eu/copaas/core/server/ resources/credentials.properties.
 - c. Edit the file to specify your credentials. For example:
 - vcap.target=https://api.run.pivotal.io vcap.email=login vcap.passwd=password vcap.space=development host=cfapps.io api.public.url=http://{hostname}:{portNumber}/CF-api/rest/
 - d. Save the file and restart tomcat. **Note**: *if the old credentials persist after a change, try to delete the extracted CF-api folder and any related temporally folders.*

Downloading and running OCCI4Java Platform and Application

1. First download the JOCCI Platform and Application distribution from:

http://www-inf.it-sudparis.eu/SIMBAD/tools/occi/occi-Platform-Applicatuion.distribution-0.1.zip

2. Extract the archive and lunch the server (i.e. the occi4java.http-0.2.1.jar jar file)

Java –jar occi4java.http-0.2.1.jar



Interacting with the OCCI Platform and Application

To invoke the API actions, one can use any REST client (eg. CURL). In this user guide, we use the Advanced REST client for Google Chrome. In the following, we describe a Web application provisioning use case on Cloud Foundry. The application requires as Container (Tomcat) and as Database (MySQL).

Environment Creation

The environment we will create is composed of Tomcat Container and a MySQL Database. We will first create two instances of the *occi.platform.Container* and *occi.platform.Database* resources. Then we create an instance of *occi.platform.DatabaseLink* linking both instances. Finally, we will create an instance of *occi.application.environment* offering the created container and database instances.

1. Launch the REST client using a Web browser

	0
Advanced Rest	OCCI create compute instance
Cilent	VRL URL
Request	
Socket	Raw Form Headers
Projects	
Saved	
History	
Settings	
About	

2. Create the Container instance

Request:

http://localhost:8182/container				
© GET	T PATCH DELETE HEAD OPTIONS Other			
Raw Form	Headers			
Category: container; scheme="http://schemas.ogf.org/occi/platform#"; class="kind"; X- <u>OCCI-Attribute: occi.container.name=tomcat</u> X- <u>OCCI-Attribute: occi.container.version=</u> 7 X- <u>OCCI-Attribute: occi.container.architecture=x64</u>				

text/occi		Set "Content-Type" header to overwrite this value.
Status	200 OK 🕑	Loading time: 3487 ms
Request headers	Origin: chrom X-OCCI-Attrib User-Agent h Category: cor Content-Type Accept: */* Accept-Encod Accept-Lange	e-extension://hgmloofddffdnphfgcellkdfbfbjeloo ute: occi.container.name=tomcat, occi.container.version=7, occi.container.architecture=x64 ilozilla/5.0 (Windows NT 6.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/28.0.1500.72 Safari/537.36 itainer; scheme="http://schemas.ogf.org/occi/platform#"; class="kind"; : text/occi ¶ ding: gzip,deflate,sdch uage: fr-FR,fr;q=0.8,en-US;q=0.6,en;q=0.4
Response headers	Content-Type Connection: k X-OCCI-Attrib Category: Co Location: http Content-Leng Link: Server: OCCI X-OCCI-Local Date: Thu, 18 Vary: Accept-1	: text/plain reep-alive rute: occl.container.name=tomcat occl.container.version=7 occl.container.architecture=x64 occl.container.state=unavailable ntainer; scheme="http://schemas.ogf.org/occl/platform#"; class="mixin"; ://localhosts1812/container/96834179-3a9a-431c-956b-30768bd2e2ac rth: 116 //l.1 //l.1 //l.1 Charset, Accept-Encoding, Accept-Language, Accept
Raw	Parsed	Response
Word unwra	p Copy to clipb	oard Save as file
occi.conta	ainer.name=to	mcat occi.container.version=7 occi.container.architecture=x64 occi.container.state=unavailable

3. Create the Database instance

Request:

▶ ht	tp://local/	nost:8182/datab	ase	
© GI	ET 🖲 P	OST © PUT	© PATCH © DELETE ◎ HEAD ◎ OPTIONS ◎ Other	
	Raw	Form	Headers	
Cate X-00 X-00 X-00 X-00	gory: c CI-Att: CI-Att: CI-Att: CI-Att:	database; so ribute: occi ribute: occi ribute: occi ribute: occi	<pre>cheme="http://schemas.ogf.org/occi/platform#"; class="kind"; i.database.name=mysql i.database.version=2.3 i.database.architecture=x64 i.database.type=relational</pre>	

Status	200 OK 🕜	Loading time:	1752 ms
Request headers	Origin: chrom X-OCCI-Attrib User-Agent: N Category: dat Content-Type Accept: */* Accept-Encod Accept-Langu	e-extension://hg ute: occi.databa /lozilla/5.0 (Wind abase; scheme: : text/occi ding: gzip,deflate uage: fr-FR,fr;q=l	mloofddffdnphfgcellkdfbfbjeloo se.name=mysql, occi.database.version=2.3, occi.database.architecture=x64, occi.database.type=relational ows NT 6.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/28.0.1500.72 Safari/537.36 ="http://schemas.ogf.org/occi/platform#"; class="kind"; ;sdch 0.8,en-US;q=0.6,en;q=0.4
Response headers	Content-Type Connection: k X-OCCI-Attrib occi.database Category: Con class="mixin" Location: http Content-Leng Link: Server: OCCI X-OCCI-Locat Date: Thu, 18 Vary: Accept-0	: text/plain text/plain textp-alive ute: occi.databa .state=unavailai ntainer; scheme : ://localhost.8182 th: 143 asse/e80d35e8-1 30d35e8-1e9d-4 30d35e8-1e9d-4 30d35e8-1e9d-4 30d35e8-1e9d-4 .1.1 ion: Jul 2013 10:39: Charset, Accept-	se.name=mysql occi.database.type=relational occi.database.architecture=x64 occi.database.version=2.3 ole ="http://schemas.ogf.org/occi/platform#"; class="mixin";Database; scheme="http://schemas.ogf.org/occi/paas#"; 2/database/e80d35e8-1e9d-440d-918f-15198f46aa76 " e9d-440d-918f-15198f46aa76/?action=restart>;rel="http://schemas.ogf.org/occi/paas/database/action#restart" 40d-918f-15198f46aa76/?action=start>;rel="http://schemas.ogf.org/occi/paas/database/action#start" 40d-918f-15198f46aa76/?action=start>;rel="http://schemas.ogf.org/occi/paas/database/action#start" 40d-918f-15198f46aa76/?action=stop>;rel="http://schemas.ogf.org/occi/paas/database/action#stop" 40d-918f-15198f46aa76/?action=backup>;rel="http://schemas.ogf.org/occi/paas/database/action#backup" ¶ 47 GMT ¶ Encoding, Accept-Language, Accept ¶
Raw	Parsed	JSON	Response
Open output	t in new window	Copy to clipbo	ard Save as file
occi.databa Code highligh	ase.name=mysql ting thanks to Co	occi.databas ode Mirror	e.type=relational occi.database.architecture=x64 occi.database.version=2.3 occ
4. C	reate the D	atabaseL	ink instance
Request:			

http://localhost:8182/databaselink O GET POST PUT PATCH DELETE HEAD OPTIONS Other Raw Form Headers Category: databaselink; scheme="http://schemas.ogf.org/occi/platform#"; class="kind"; X-OCCI-Attribute: occi.database.name=MyDatabaseLink X-OCCI-Attribute: occi.core.source=http://localhost:8182/database/e80d35e8-le9d-440d-918f-15198f46aa76 X-OCCI-Attribute: occi.core.target=http://localhost:8182/container/96834179-3a9a-431c-956b-30768bd2e2ac

Note: to retrieve the URI of the created Container and Database instances, you can use a GET respectively on <u>http://localhost:8182/container/</u> and http://localhost:8182/database/.

Status	200 OK 🥝 Loading time: 94 ms
Request headers	Origin: chrome-extension://hgmloofddffdnphfgcellkdfbfbjeloo X-OCCI-Attribute: occi.database.name=MyDatabaseLink, occi.core.source=http://localhost8182/database/e80d35e8-1e9d-440d-918f- 15198f46aa76, occi.core.target=http://localhost8182/container/96834179-3a9a-431c-956b-30768bd2e2ac User-Agent: Mozilla/5.0 (Windows NT 6.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/28.0.1500.72 Safari/537.36 Category: databaselink; scheme="http://schemas.ogf.org/occi/platform#"; class="kind"; Content-Type: text/occi V Accept: */* Accept: */* Accept: fr/*
Response headers	Content-Type: text/plain ¶ Connection: keep-alive X-OCCI-Attribute: Category: databaselink; scheme="http://schemas.ogf.org/occi/infrastructure#"; class="kind"; Location: http://localhost8182/databaselink/567f26af-9271-4961-a630-0223beed1c09 ¶ Content-Length: 202 ¶ Server: OCCI/1.1 ¶ X-OCCI-Location: databaselink/567f26af-9271-4961-a630-0223beed1c09 Date: Thu, 18 Jul 2013 10:46:47 GMT ¶ Vary: Accept-Charset, Accept-Encoding, Accept-Language, Accept ¶
Raw	Parsed Response

		1		
	Open output in new window	Convite aliphoard	Save as file	Open in ISON teh
	Open output in new window	Copy to clipboard	Save as me	Open in JSON tab
Ľ				
	occi.core.source=http://	localhost:8182/da	atabase/e80	d35e8-1e9d-440d-918f-15198f46aa76occi.core.target=http://lc

• • • • • • • •

5. Create the Environment instance

Request:

Þ	http://localhost:8182/environment			
C	© POST ◎ PUT ◎ PATCH ◎ DELETE ◎ HEAD ◎ OPTIONS ◎ Other			
	W Form Headers			
Ca X- X- X- X- X-	pry: environment; scheme="http://schemas.ogf.org/paas‡"; class="kind"; rel="http://schemas.ogf.org/occi/core‡resource" I-Attribute: occi.environment.name=testEnv I-Attribute: occi.environment.memory=128 I-Attribute: occi.environment.containersList=http://localhost:8182/container/96834179-3a9a-431c-956b-30768bd2e2ac I-Attribute: occi.environment.databasesList=http://localhost:8182/database/e80d35e8-1e9d-440d-918f-15198f46aa76 I-Attribute: occi.environment.databasesList=http://localhost:8182/database/e80d35e8-1e9d-440d-918f-15198f46aa76 I-Attribute: occi.environment.databasesList=http://localhost:8182/databaselink/2ba29bad-cd86-4abb-96db-b6aaf3134b72			

Status	200 OK 🥹 Loading time: 4705 ms
Request headers	Origin: chrome-extension://hgmloofddffdnphfgcellkdfbfbjeloo X-OCCI-Attribute: occi.environment.name=testEnv, occi.environment.memory=128, occi.environment.containersList=http://localhost8182/container/96834179-3a9a-431c-956b-30768bd2e2ac, occi.environment.databasesList=http://localhost8182/database/e80d35e8-1e9d-440d-918f-15198f46aa76, occi.environment.databasesLink=http://localhost8182/database/e80d35e8-1e9d-440d-918f-15198f46aa76, occi.environment.databasesLink=http://localhost8182/databaselink/2ba29bad-cd86-4abb-96db-b6aaf3134b72, occi.environment.variables=khlijlijgfu User-Agent: Mozilla/5.0 (Windows NT 6.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/28.0.1500.72 Safari/537.36 Category: environment, scheme="http://schemas.ogf.org/paas#"; class="kind"; rel="http://schemas.ogf.org/occi/core#resource"; Content-Type: text/occi Accept: */* Accept-Encoding: gzip,deflate,sdch Accept-Language: fr-FR,fr;q=0.8,en-US;q=0.6,en;q=0.4
Response headers	Content-Type: text/plain Connection: keep-alive X-OCCI-Attribute: occi.environment.name=testEnv occi.environment.description=null occi.environment.memory=128 occi.environment.variables=khlijjiygfu occi.environment.containersList=http://localhost.8182/container/96834179-3a9a-431c-956b- 30768bd2e2ac occi.environment.databasesList=http://localhost.8182/database/e80d35e8-1e9d-440d-918f-15198f46aa76 occi.environment.databasesLink=http://localhost.8182/database/e80d35e8-1e9d-440d-918f-15198f46aa76 occi.environment.databasesLink=http://localhost.8182/database/e80d35e8-1e9d-440d-918f-15198f46aa76 occi.environment.state=unavailable Category: Container; scheme="http://schemas.ogf.org/occi/platform#"; class="mixin";Database; rel="http://schemas.ogf.org/occi/platform#"; class="mixin";Database; rel="http://schemas.ogf.org/occi/platform#"; class="mixin";Database; rel="http://schemas.ogf.org/occi/platform#"; class="mixin";Database; rel="http://schemas.ogf.org/occi/platform#"; class="database] Link: Content-Length: 468
Raw	Parsed Response
Open output	in new window Copy to clipboard Save as file Open in JSON tab
occi.enviror	ment.name=testEnv occi.environment.description=null occi.environment.memory=128 occi.environment.

Note: We can check the corresponding CloudFoundry environment through a GET on COAPS

Request:

http://localhost:8080/CF-api/rest/environment

● GET ◎ POST ◎ PUT ◎ PATCH ◎ DELETE

Xu1120000,//12/.0.0.1.0000/0F-a01/1650/6091000000000000/0X/0112
<pre>v<environment></environment></pre>
<id>10</id>
<name>testEnv</name>
<pre><uri>http://127.0.0.1:8080/CF-api/rest/environment/10</uri></pre>



Application Creation

1. Create the Deployable instance

Request:

http://localh	ost:8182/deplo	yable	
© GET 🔍 P	OST © PUT	© PATCH © DELETE ◎ HEAD © OPTIONS © Other	
Raw	Form	Headers	
Category: deployable; scheme="http://schemas.ogf.org/occi/application#"; class="kind"; X-OCCI-Attribute: occi.deployables.name=SampleServlet.war X-OCCI-Attribute: occi.deployables.content_type=artifact X-OCCI-Attribute: occi.deployables.location=C:\Users\sellami\Desktop\Workshop\Workshop\SampleServlet\deployable			

Status	200 OK 🥝 Loading time: 1836 ms
Request headers	Origin: chrome-extension://hgmloofddffdnphfgcellkdfbfbjeloo X-OCCI-Attribute: occi.deployables.name=SampleServlet.war, occi.deployables.content_type=artifact, occi.deployables.location=C:\Users\sellami\Desktop\Workshop\Workshop\SampleServlet.deployable User-Agent: Mozilla/S1.0 (Windows NT 6.1) AppleWebKit/S37.36 (KHTML, like Gecko) Chrome/28.0.1500.72 Safari/537.36 Category: deployable; scheme="http://schemas.ogf.org/occi/application#"; class="kind"; Content-Type: text/occi V Accept: */* Accept-Encoding: gzip,deflate,sdch Accept-Language: fr-FR,fr,q=0.8,en-US;q=0.6,en;q=0.4
Response headers	Content-Type: text/plain Connection: keep-alive X-OCCLAttribute: occi.deployables.name=SampleServlet.war occi.deployables.content_type=artifact occi.deployables.location=C:\Users\sellami\Desktop\Workshop\Workshop\SampleServlet.deployable occi.environment.state=unavailable Category: Environment, scheme="http://schemas.ogf.org/occi/deployables#"; class="mixin";Container, scheme="http://schemas.ogf.org/occi/platform#"; class="mixin";Database; scheme="http://schemas.ogf.org/occi/class="mixin";Environment; scheme="http://schemas.ogf.org/occi/platform#"; class="mixin";Database; scheme="http://schemas.ogf.org/occi/class="mixin"; Location: http://ocathost3182/deployables/3f3dce36-b1e1-460c-ac56-5073f405ce79 % Content_Length: 207 % Link: ;rel="http://schemas.ogf.org/occi/deployables/deployables/action#tpetate" ;rel="http://schemas.ogf.org/occi/deployables/deployables/action#tpetate" ;rel="http://schemas.ogf.org/occi/deployables/deployables/action#testat" ;rel="http://schemas.ogf.org/occi/deployables/deployables/action#testat" ;rel="http://schemas.ogf.org/occi/deployables/deployables/action#testat" ;rel="http://schemas.ogf.org/occi/deployables/deployables/action#testat" ;rel="http://schemas.ogf.org/occi/deployables/deployables/action#testat" ;rel="http://schemas.ogf.org/occi/deployables/deployables/action#testat" ;rel="http://schemas.ogf.org/occi/deployables/deployables/action#testat" ;rel
Raw	Parsed Response

Open output in new window Copy to clipboard Save as file Open in JSON tab occi.deployables.name=SampleServlet.war occi.deployables.content type=artifact occi.deployables.location=C:\Users\sel

2. Create the Application instance

Request:

http://localhost:8182/application	
© GET ● POST ◎ PUT ◎ PATCH ◎ DELETE ◎ HEAD ◎ OPTIONS ◎ Other	
Raw Form Headers	
<pre>Category: application; scheme="http://schemas.ogf.org/occi/application#"; class="kind"; X-OCCI-Attribute: occi.application.name=MyApplication X-OCCI-Attribute: occi.application.description=a_sample_application X-OCCI-Attribute: occi.application.instances=2 X-OCCI-Attribute: occi.deployables.uuids=http://localhost:8182/deployables/3f3dce36-b1e1-460c-ac56-5073f405ce</pre>	79

Status	200 OK 😮	Loading time: 9329 ms
Request headers	Origin: chrom X-OCCI-Attrib occi.deployab User-Agent: I Category: apj Content-Type Accept: */* Accept-Enco Accept-Lang	ie-extension://hgmloofddffdnphfgcellkdfbfbjeloo ute: occi.application.name=MyApplication, occi.application.description=a_sample_application, occi.application.instances=2, les.uuids=http://localhost8182/deployables/3f3dce36-bte1-460c-ac56-5073t405ce79 Jocilla/5.0 (Windows NT 6.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/28.0.1500.72 Safari/537.36 Dication; scheme="http://schemas.ogf.org/occi/application#"; class="kind"; : text/occi V ding: gzip,deflate,sdch uage: fr-FR,fr,q=0.8,en-US;q=0.6,en;q=0.4
Response headers	Content-Type Connection: H X-OCCI-Attrib occi.applicatii 460c-ac56-50 Category: App class="mixin" class="mixin" Location: http Content-Leng Link: Server: OCCI X-OCCI-Loca Date: Thu, 18 Vary: Accept-	: text/plain tex
Raw	Parsed	Response
Open output	in new window	Copy to clipboard Save as file Open in JSON tab
occi.applic	ation.name=My	Application occi.application.description=a sample application occi.application.instances=2 occi.ag

3. Create the EnvironmentLink instance

An *occi.application.EnvironmentLink* instance creation will bind an environment instance to an application instance and trigger the application deployment.

Request:

http://localhost:8182/envir	onmentlink
© GET	© PATCH ◎ DELETE ◎ HEAD ◎ OPTIONS ◎ Other
Raw Form	Headers
Category: environment X-OCCI-Attribute: occ X-OCCI-Attribute: occ	<pre>link; scheme="http://schemas.ogf.org/occi/platform#"; class="kind"; i.core.source=http://localhost:8182/environment/ae90f034-7387-4c17-a6a2-dacdcb1b77a2 i.core.target=http://localhost:8182/application/e13ee166-dad4-425c-ab6e-354038ae6035</pre>

Status	200 OK 🔮 Loading time: 7296 ms
Request headers	Origin: chrome-extension://hgmloofddffdnphfgcellkdfbfbjeloo X-OCCI-Attribute: occi.core.source=http://localhost8182/environment/ae90f034-7387-4c17-a6a2-dacdcb1b77a2, occi.core.target=http://localhost8182/application/e13ee166-dad4-425c-ab6e-354038ae6035 User-Agent: Mozilla/5.0 (Windows NT 6.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/28.0.1500.72 Safari/537.3 Category: environmentlink; scheme="http://schemas.ogf.org/occi/platform#"; class="kind"; Content-Type: text/occi Accept: */* Accept: */* Accept-Encoding: gzip,deflate,sdch Accept-Language: fr-FR,fr;q=0.8,en-US;q=0.6,en;q=0.4
Response headers	Content-Type: text/plain Connection: keep-alive X-OCCI-Attribute: Category: environmentlink; scheme="http://schemas.ogf.org/occi/infrastructure#"; class="kind"; Location: http://localhost.8182/environmentlink/cb680011-5f3d-46fb-8ed9-f00fb438d276 Content-Length: 210 Server: OCCI/1.1 X-OCCI-Location: environmentlink/cb680011-5f3d-46fb-8ed9-f00fb438d276 Date: Thu, 18 Jul 2013 11:14:15 GMT Vary: Accept-Charset, Accept-Encoding, Accept-Language, Accept Vary: Accept-Charset, Accept-Encoding, Accept-Language, Accept
Raw	Parsed Response
Open output	n new window Copy to clipboard Save as file Open in JSON tab
occi.core.so	urce=http://localhost:8182/environment/ae90f034-7387-4c17-a6a2-dacdcb1b77a2occi.core

Note: We can check the application creation on CloudFoundry using the CloudFoundry graphical console at <u>https://console.run.pivotal.io</u>

APP SPACES: DEVELOPMENT			ADD +
		EDIT 🖍	USERS EDIT INVITE
HEALTH	INSTANCES	MEMORY	mohamed.mohamed@it-sudpari
STOPPED	2	128мв	
DEPLOYMENT URLS MyApplication	n.cfapps.io		
MAP URL +			
BOUND SERVICES		BIND +	
mysql cleardb n/a MANAGE		UNBIND	
INSTANCES			
Instances are not available whi	le this application is stopped.		

4. Start the Application instance

Request:



Response:

Status	200 OK 😢 Loading time: 9472 ms
Request headers	Origin: chrome-extension://hgmloofddffdnphfgcellkdfbfbjeloo X-OCCI-Attribute: occi.core.source=http://localhost:8182/application/870cbde9-faa1-454d-b36f-8caaa2968963 occi.core.target=http://localhost:8182/environment/dee82b09-3f38-4e42-89f0-9127df1cc1b1 User-Agent: Mozilla/5.0 (Windows NT 6.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/28.0.1500.72 Safari/537.36 Category: environmentlink; scheme="http://schemas.ogf.org/occi/platform#"; class="kind"; Content-Type: text/occi Accept: */* Accept: */* AcceptEncoding: gzip,deflate,sdch AcceptLanguage: fr-FR,fr;q=0.8,en-US;q=0.6,en;q=0.4
Response headers	Content-Type: text/plain; charset=UTF-8 Connection: keep-alive Content-Length: 34 Server: OCCI/1.1 Date: Thu, 18 Jul 2013 11:20:16 GMT Vary: Accept-Charset, Accept-Encoding, Accept-Language, Accept

Raw	Parsed	Response		
Open output i	in new window	Copy to clipboard	Save as file	Open in JSON tab
occi.applica	tion.state =	available		

On the console:

		~			EDIT
HE	ALTH		INSTANCES		MEMORY
G	00%		2	1	128 мв
DEPLOYME	NT	tion cfapps in	2		
MAP URL	+				
BOUND SERVICE	s 🚺				BIND -
BOUND SERVICE mysql cleardb n/a	MANAGE				BIND -
BOUND SERVICE mysql cleardb n/a INSTANCES 2	MANAGE				BIND -
BOUND SERVICE mysql cleardb n/a INSTANCES (2) Instance \$	MANAGE CPU	¢ Memory	¢ Disk	♦ Uptime	BIND - UNBIN \$ State
BOUND SERVICE mysql cleardb n/a INSTANCES 2 Instance \$ 1	MANAGE	♦ Memory 74.9MB	♦ Disk 96MB	♦ Uptime	 BIND - UNBIN State Running

The application is now accessible via a browser on the returned URL.

Note: The provided scenario is a basic example that shows how to deploy a java Web application on a specific environment (java_web) and start it on two instances. However, for particular needs, more constraints can be described (i.e. jredis environment, mysql database, more instances, etc.).

Note': Additional environment and application operations are also offered by the CloudFoundry-COAPS implementation. For example: stop application, describe/destroy application/environment, etc.

References

- I. S. Yangui, M. Mohamed, M. Sellami, and S. Tata. Open Cloud Computing Interface Platform, May 2013.
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