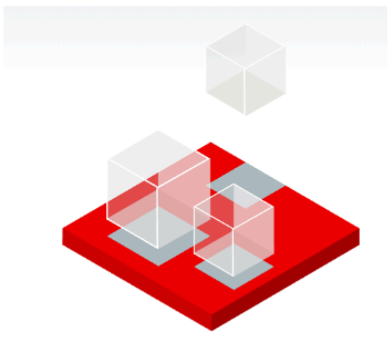
OpenShift Lab

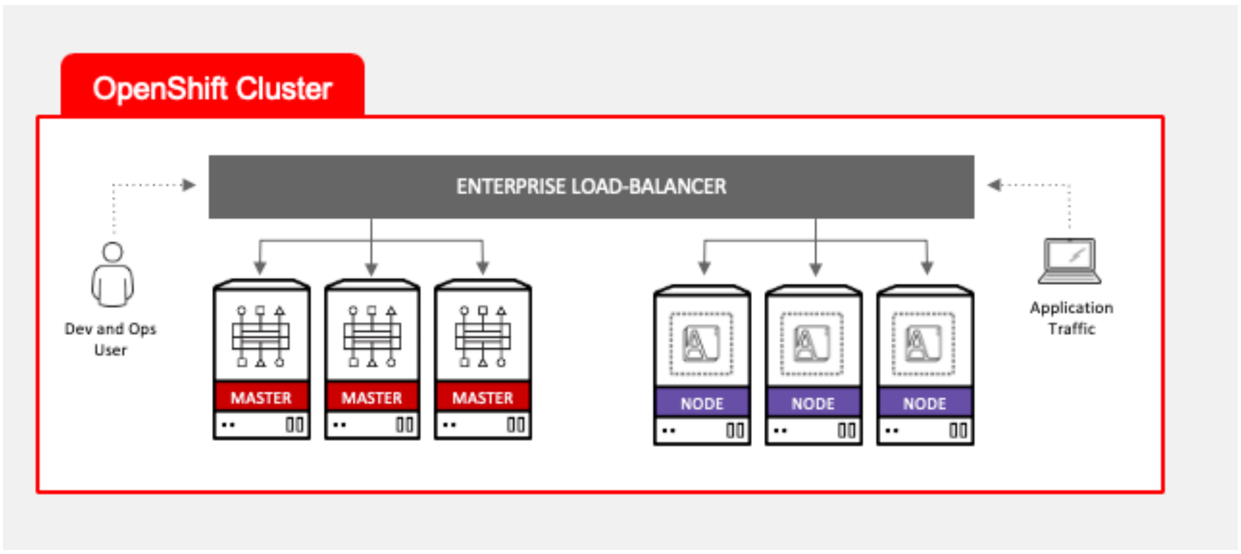


Duration: 30 minutes

Introduction

During this lab, we are going to set up your laptop to be prepared to all labs during this workshop. You should be able to connect to an **OpenShift** Cluster thru the Web Console and navigate thru the different kubernetes resources.

The instructor has already built an OpenShift Cluster version 4.x for you.



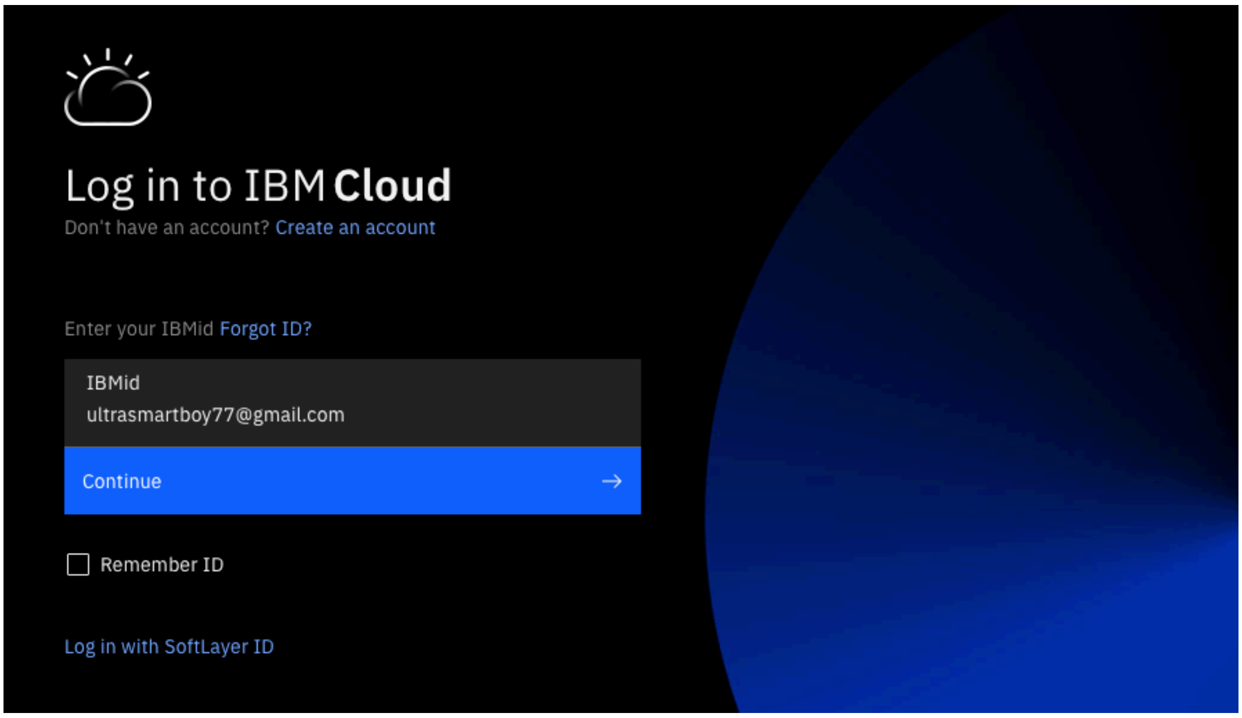
As you can see on the picture, you will connect to the OpenShift Cluster Web UI to the Master VMs for management and development purposes. The end-users will connect to the applications thru the Nodes.

Task #1 - IBM Cloud account

The OpenShift platform that we are going to use has been built on IBM Cloud.

```
https://cloud.ibm.com
```

Type your **User ID** / **password** given by the **instructor**:



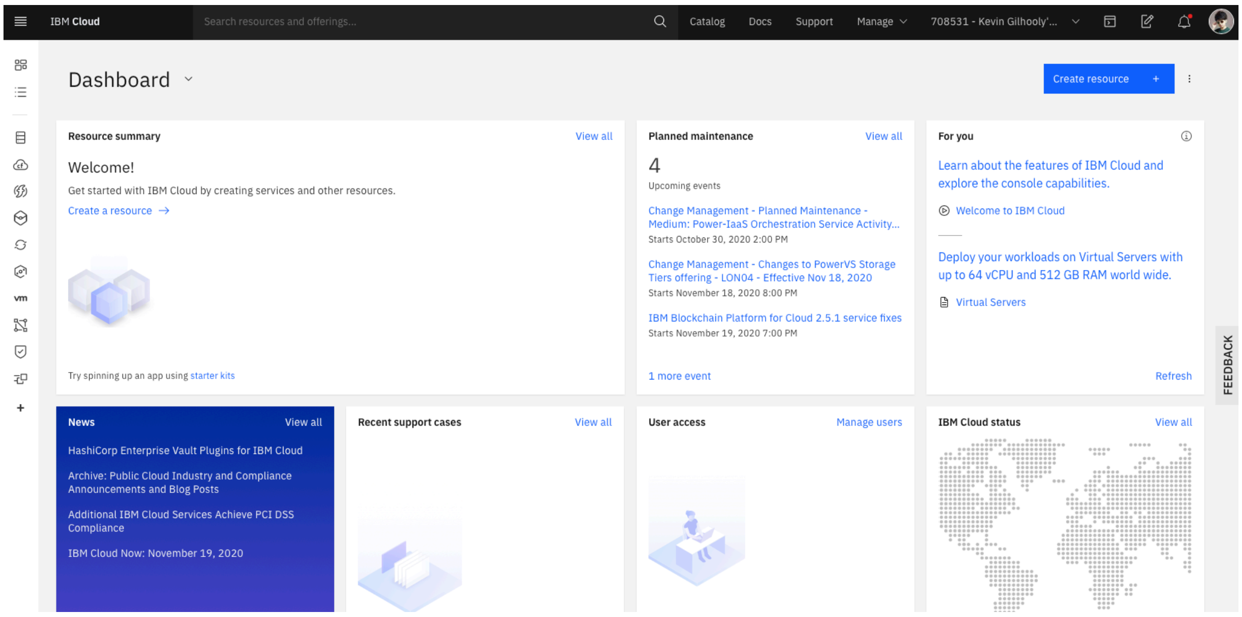
Log in to IBM Cloud

Don't have an account? Create an account

Enter your IBMid Forgot ID?

IBMid
ultrasmartboy77@gmail.com

You should see the following **Dashboard**:



Resource summary — View all

Welcome!

Get started with IBM Cloud by creating services and other resources.

Create a resource →

Try spinning up an app using starter kits

Planned maintenance — View all

4
Upcoming events

Change Management - Planned Maintenance - Medium: Power-IaaS Orchestration Service Activity...
Starts October 30, 2020 2:00 PM

Change Management - Changes to PowerVS Storage Tiers offering - LON04 - Effective Nov 18, 2020
Starts November 18, 2020 8:00 PM

IBM Blockchain Platform for Cloud 2.5.1 service fixes
Starts November 19, 2020 7:00 PM

1 more event

For you

Learn about the features of IBM Cloud and explore the console capabilities.

Welcome to IBM Cloud

Deploy your workloads on Virtual Servers with up to 64 vCPU and 512 GB RAM world wide.

Virtual Servers

Refresh

News — View all

HashiCorp Enterprise Vault Plugins for IBM Cloud

Archive: Public Cloud Industry and Compliance Announcements and Blog Posts

Additional IBM Cloud Services Achieve PCI DSS Compliance

IBM Cloud Now: November 19, 2020

Recent support cases — View all

User access — Manage users

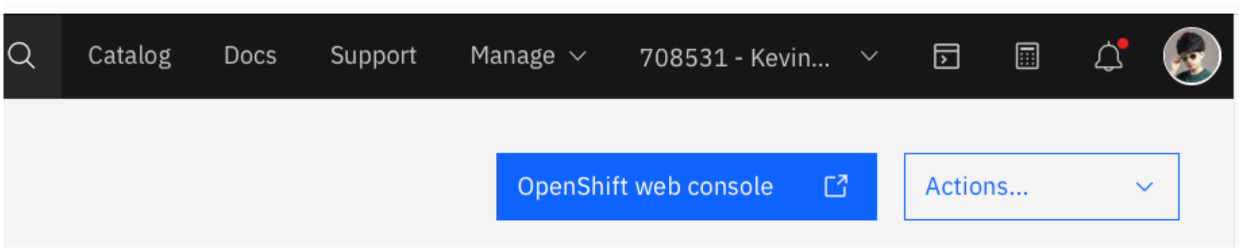
IBM Cloud status — View all

The instructor will also give you a project name like **labproj**. Each person has its own project with a specific number .

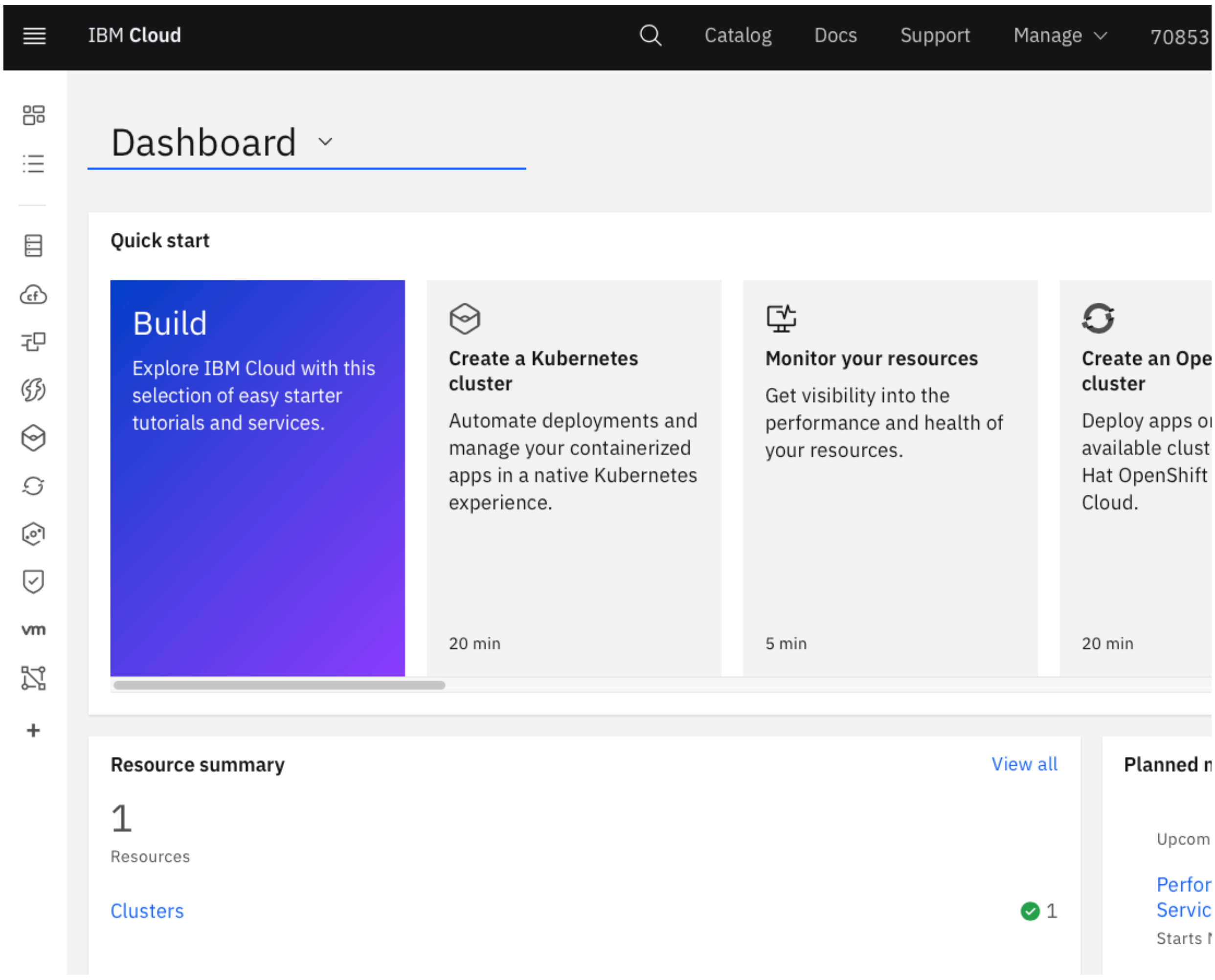
> Please use that project that has been assigned to you during all labs.

Task #2 - Connecting to the OpenShift Console

The instructor should have authorized you to get access to the **Kevin** Account. On the top right of the screen, click your name and then you should see the Kevin's account (click on the Kevin's account):

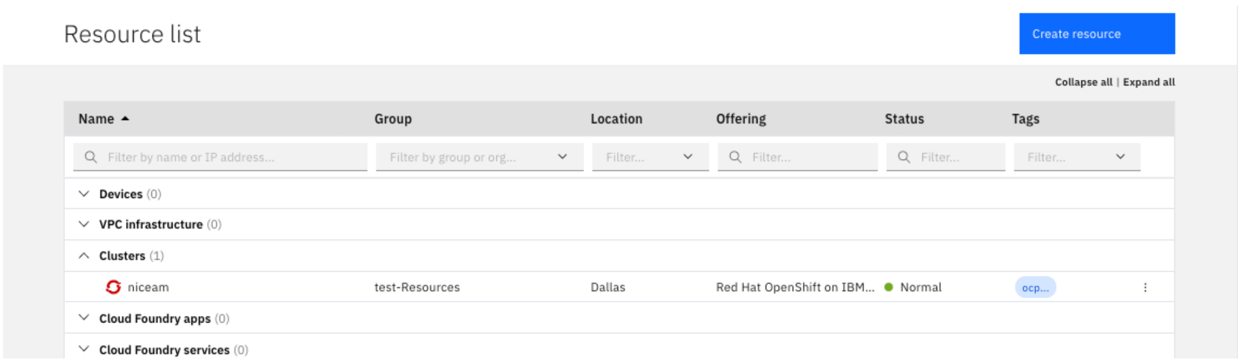


Then, the following page should appear (with **one cluster**)



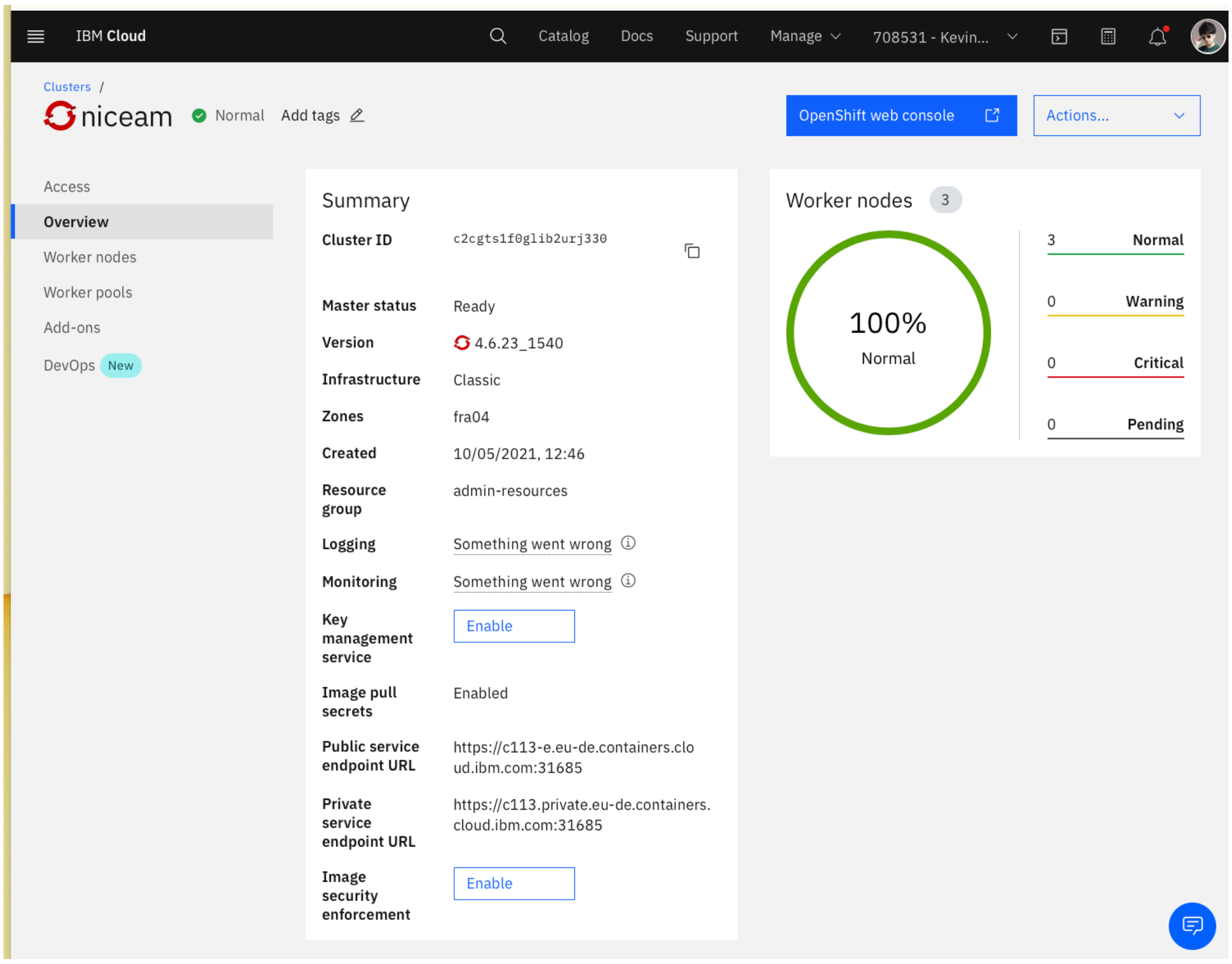
IBM Cloud
Catalog
Docs
Support
Manage
70853
Dashboard
Quick start
Build
Explore IBM Cloud with this selection of easy starter tutorials and services.
Create a Kubernetes cluster
Automate deployments and manage your containerized apps in a native Kubernetes experience.
20 min
Monitor your resources
Get visibility into the performance and health of your resources.
5 min
Create an Ope cluster
Deploy apps o available clust Hat OpenShift Cloud.
20 min
Resource summary
View all
1
Resources
Clusters
1
Planned r
Upcom
Perfor Servic
Starts

Click on **Clusters** to show the list:



Name	Group	Location	Offering	Status	Tags
Devices (0)					
VPC infrastructure (0)					
Clusters (1)					
niceam	test-Resources	Dallas	Red Hat OpenShift on IBM...	● Normal	ocp...
Cloud Foundry apps (0)					
Cloud Foundry services (0)					

And then click on the cluster to see details about that cluster:

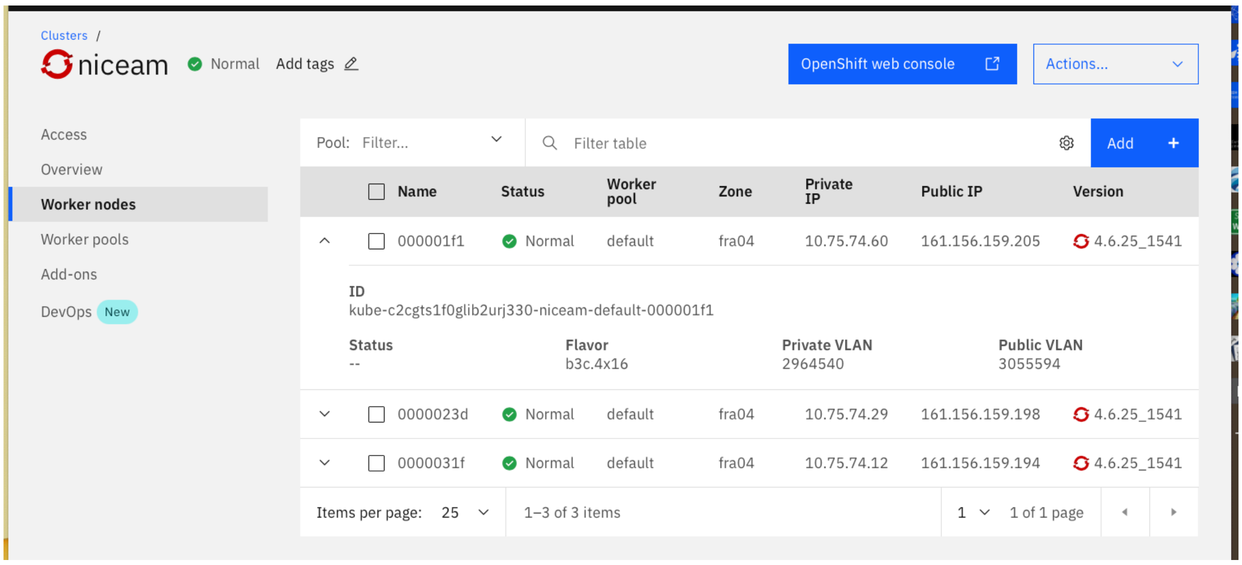


Summary

Cluster ID	c2cgts1f0glib2urj330
Master status	Ready
Version	4.6.23_1540
Infrastructure	Classic
Zones	fra04
Created	10/05/2021, 12:46
Resource group	admin-resources
Logging	Something went wrong
Monitoring	Something went wrong
Key management service	Enable
Image pull secrets	Enabled
Public service endpoint URL	https://c113-e.eu-de.containers.cloud.ibm.com:31685
Private service endpoint URL	https://c113.private.eu-de.containers.cloud.ibm.com:31685
Image security enforcement	Enable

From this point, you can navigate on that cluster and look about some details like the version, the cluster ID, the zones, and the ingress subdomains.

Then click on the worker nodes on the left pane to see the workers:


Clusters /

niceam ✓ Normal Add tags

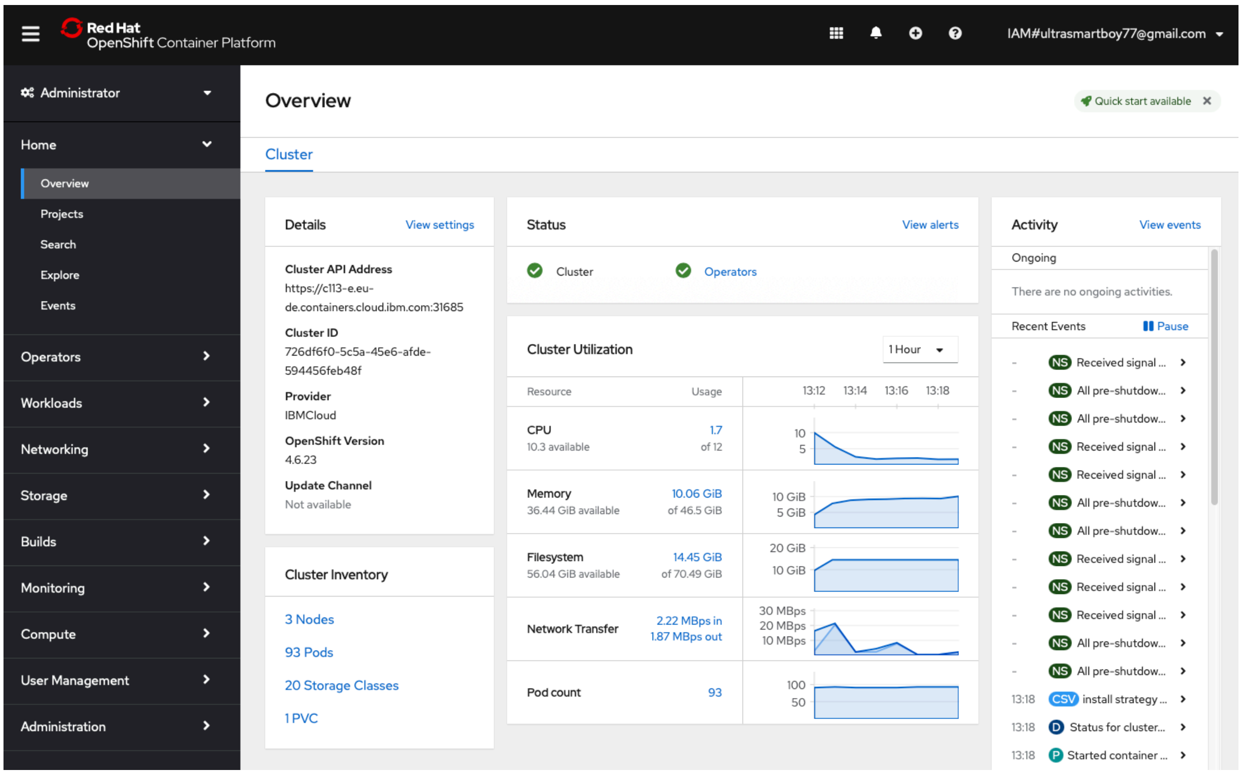
	Name	Status	Worker pool	Zone	Private IP	Public IP	Version
^	000001f1	✓ Normal	default	fra04	10.75.74.60	161.156.159.205	4.6.25_1541
∨	0000023d	✓ Normal	default	fra04	10.75.74.29	161.156.159.198	4.6.25_1541
∨	0000031f	✓ Normal	default	fra04	10.75.74.12	161.156.159.194	4.6.25_1541

ID
kube-c2cgts1f0glib2urj330-niceam-default-000001f1

Status	Flavor	Private VLAN	Public VLAN
--	b3c.4x16	2964540	3055594

Items per page: 25 1–3 of 3 items 1 1 of 1 page

To get access to the OpenShift console click on the **blue button** (OpenShift web console) and a new tab should open:


Red Hat OpenShift Container Platform IAM#ultrasmartboy77@gmail.com

Overview

Details

Cluster API Address
https://c113-e.eu-de.containers.cloud.ibm.com:31685

Cluster ID
726df6f0-5c5a-45e6-afde-594456feb48f

Provider
IBMCloud

OpenShift Version
4.6.23

Update Channel
Not available

Cluster Inventory
3 Nodes
93 Pods
20 Storage Classes
1 PVC

Status
✓ Cluster ✓ Operators

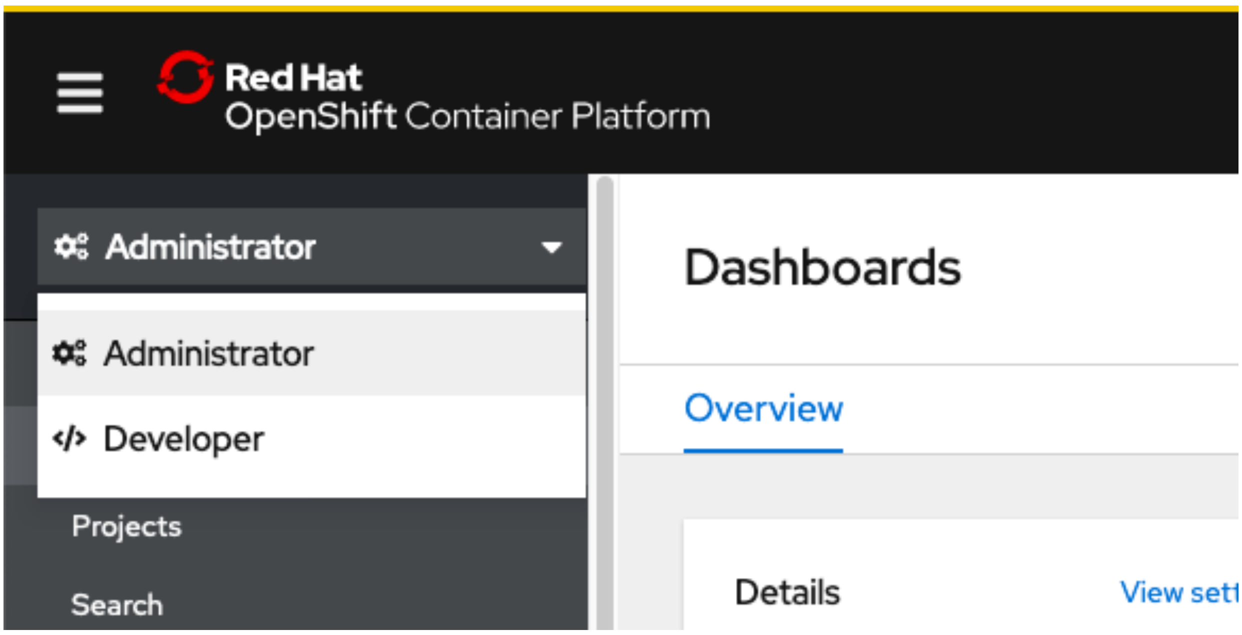
Cluster Utilization 1 Hour

Resource	Usage
CPU 10.3 available	1.7 of 12
Memory 36.44 GiB available	10.06 GiB of 46.5 GiB
Filesystem 56.04 GiB available	14.45 GiB of 70.49 GiB
Network Transfer	2.22 MBps in 1.87 MBps out
Pod count	93

Activity
Ongoing
There are no ongoing activities.
Recent Events
- NS Received signal ...
- NS All pre-shutdow...
- NS All pre-shutdow...
- NS Received signal ...
- NS Received signal ...
- NS All pre-shutdow...
- NS All pre-shutdow...
- NS Received signal ...
- NS Received signal ...
- NS Received signal ...
- NS All pre-shutdow...
- NS All pre-shutdow...
13:18 CSV install strategy ...
13:18 D Status for cluster...
13:18 P Started container ...

> Please take a note of the link because we will use it very often.

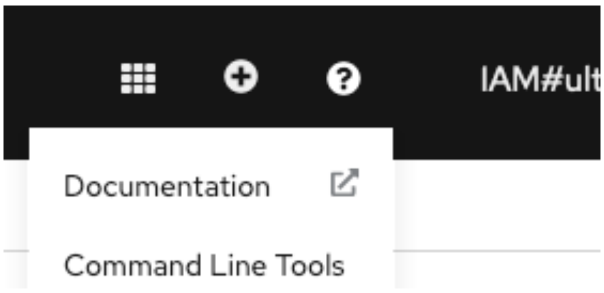
Of course you can navigate in the console and switch between the 2 profiles : Administrator and Developer



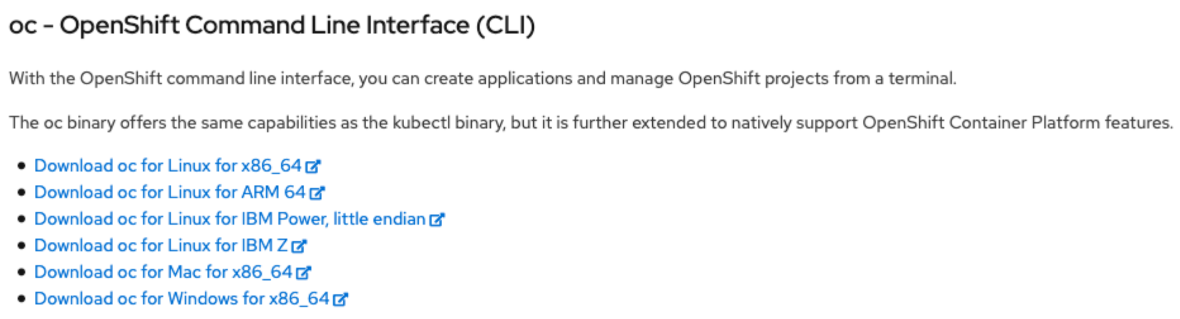
Task #3 - Installing the OpenShift CLI

In fact, you will need to use the **oc** command during the labs.

From the top of the page, locate and click the **interrogation mark** and the **Command line tools**:



Locate the section concerning the OpenShift CLI:



oc - OpenShift Command Line Interface (CLI)

With the OpenShift command line interface, you can create applications and manage OpenShift projects from a terminal.

The oc binary offers the same capabilities as the kubectl binary, but it is further extended to natively support OpenShift Container Platform features.

- Download oc for Linux for x86_64
- Download oc for Linux for ARM 64
- Download oc for Linux for IBM Power, little endian
- Download oc for Linux for IBM Z
- Download oc for Mac for x86_64
- Download oc for Windows for x86_64

Choose the link concerning your OS running on your lap top. This will download the **right oc** version corresponding to right version of OpenShift.

If you use **Windows**, install the `oc` CLI in any directory that is listed in your `PATH` system variables. This setup saves you some file path changes when you run commands later.

If you use **MacOS** or **Linux**, complete the following steps to add the binaries to your `PATH` system variable.

1. Extract and move the `oc` executable files to the `/usr/local/bin` directory.

   ```
   mv /<filepath>/oc /usr/local/bin/oc
   ```

2. Make sure that `/usr/local/bin` is listed in your `PATH` system variable. The `PATH` variable contains all directories where your operating system can find executable files. The directories that are listed in the `PATH` variable serve different purposes. `/usr/local/bin` is used to store executable files for software that is not part of the operating system and that was manually installed by the system administrator.

   ```
   echo $PATH
   ```

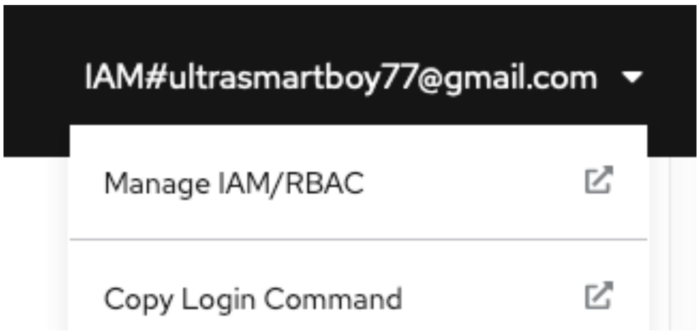
   Example CLI output:

   ```
   /usr/local/bin:/usr/bin:/bin:/usr/sbin:/sbin
   ```

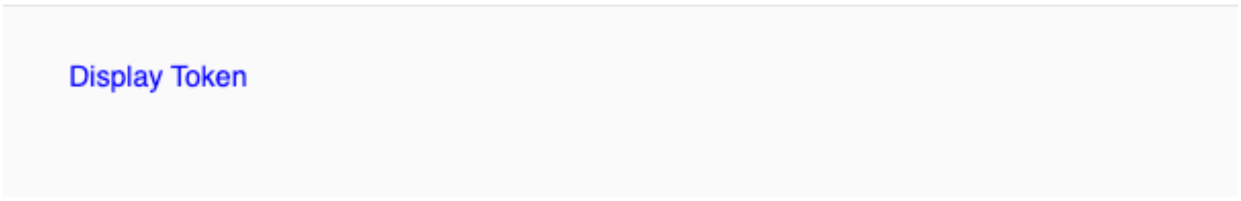
Task #4 - Check the OC command

To use the oc command, you normally need to use a login with user and password or a token.

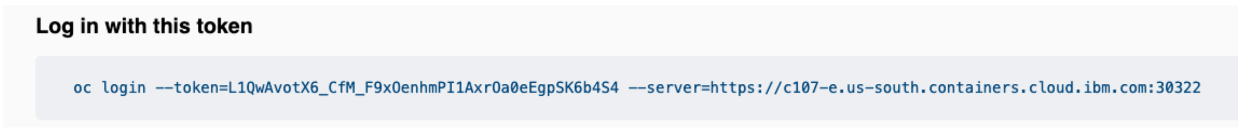
From the web console, click on the user ID on the top right part of the console and pick **Copy Login Command**:



A new tab will open shortly:



Click on **Display Token** and you can see an example of the login command (this command will be available for the next 24 hours):



Log in with this token

```
oc login --token=L1QwAvotX6_CfM_F9xOenhmPI1AxrOa0eEgpSK6b4S4 --server=https://c107-e.us-south.containers.cloud.ibm.com:30322
```

Open a **terminal** or a command line console and paste the previous command:

```
oc login --token=L1QwAvotX6_CfM_F9xOenhmPI1AxrOa0eEgpSK6b4S4 --
server=https://c107-e.us-south.containers.cloud.ibm.com:30322
```

Result as an example:

```
oc login --token=L1QwAvotX6_CfM_F9xOenhmPI1AxrOa0eEgpSK6b4S4 --
server=https://c107-e.us-south.containers.cloud.ibm.com:30322
Logged into "https://c107-e.us-south.containers.cloud.ibm.com:30322" as
"IAM#ultrasmartboy77@gmail.com" using the token provided.

You have access to 68 projects, the list has been suppressed. You can list
all projects with 'oc projects'

Using project "labproj99".
```

> **You don't need to create a new project because a new secure project space has already been created for you.**

To switch to **your project** replave XX with your number:

```
oc project labproj<XX>
```

Results as an example:

```
oc project labproj99
Already on project "labproj99" on server "https://c107-e.us-
south.containers.cloud.ibm.com:30322".
```

To understand what project you are using:

```
oc projects
```

Results:

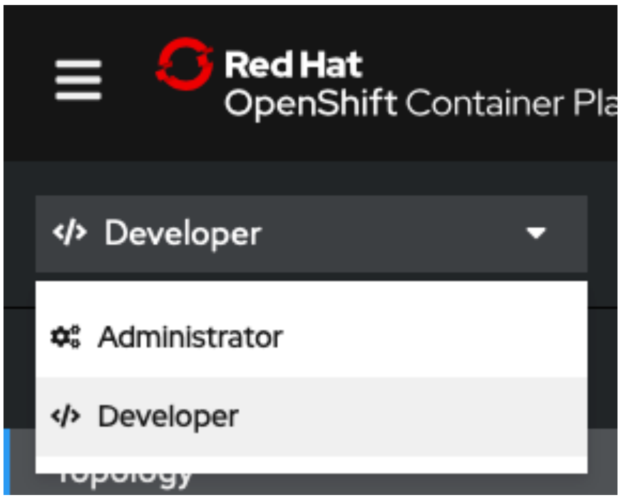
```
oc projects
You have access to the following projects and can switch between them with
'oc project <projectname>':

    calico-system
    default
    ibm-cert-store
    ibm-system
    kabanero
    kappnav
    knative-serving
    knative-serving-ingress
    kube-node-lease
    kube-public
    kube-system
  * labproj99
    multicluster-endpoint
    niceam-cluster
    ...
    tekton-pipelines
    tigera-operator

Using project "labproj99" on server "https://c107-e.us-
south.containers.cloud.ibm.com:30322".
```

Now you are ready to go thru the exercises.

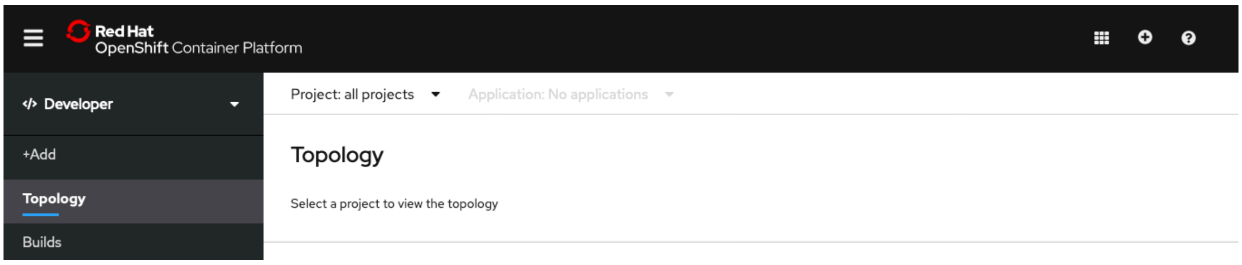
Task #5 - Deploy some code

Now go back to the Web UI and deploy your first application.

Switch to the **Developer** profile



And then click on **Topology**:


Red Hat OpenShift Container Platform

Developer

+Add

Topology

Builds

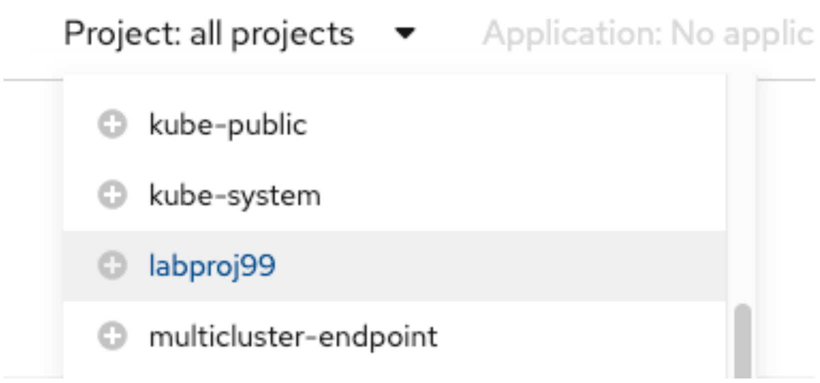
Project: all projects

Application: No applications

Topology

Select a project to view the topology

Select on your **project** name (labprojxx):


Project: all projects

Application: No applic

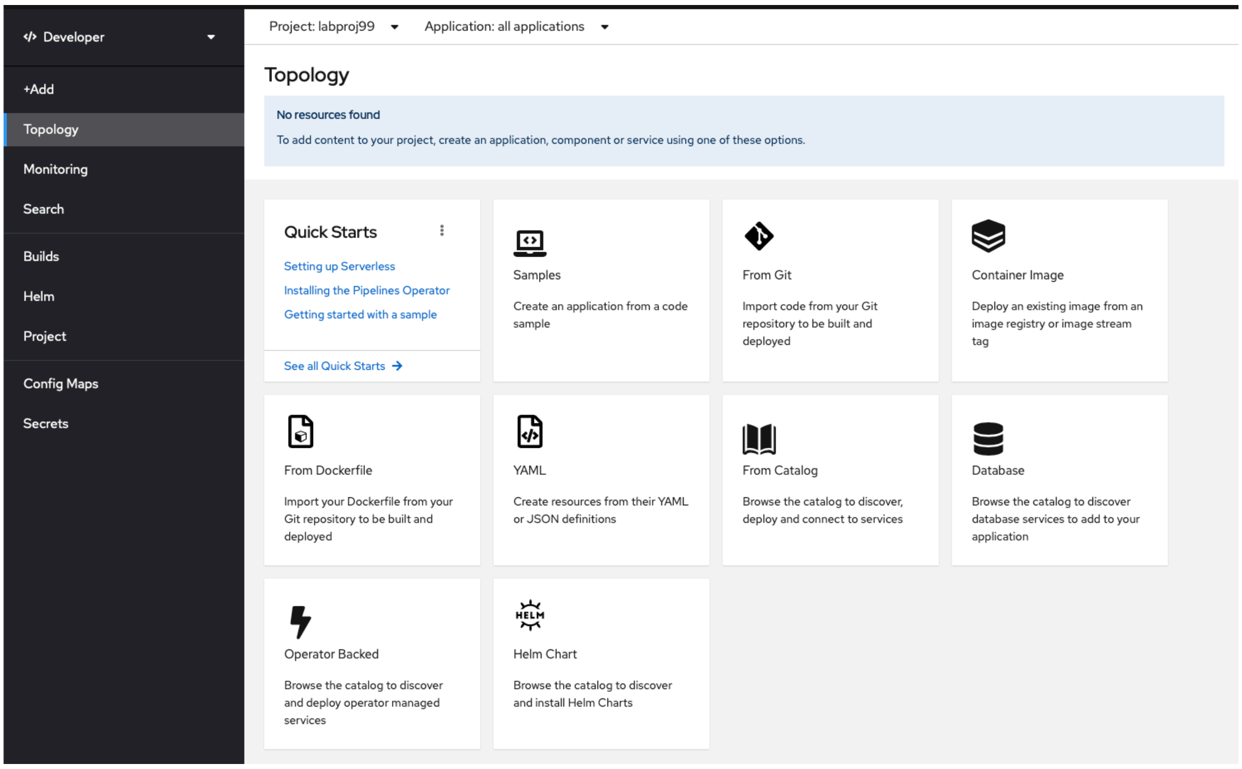
kube-public

kube-system

labproj99

multicluster-endpoint

The following sceen should appear (no resources found):


Developer

+Add

Topology

Monitoring

Search

Builds

Helm

Project

Config Maps

Secrets

Project: labproj99

Application: all applications

Topology

No resources found

To add content to your project, create an application, component or service using one of these options.

Quick Starts

Setting up Serverless

Installing the Pipelines Operator

Getting started with a sample

See all Quick Starts

Samples

Create an application from a code sample

From Git

Import code from your Git repository to be built and deployed

Container Image

Deploy an existing image from an image registry or image stream tag

From Dockerfile

Import your Dockerfile from your Git repository to be built and deployed

YAML

Create resources from their YAML or JSON definitions

From Catalog

Browse the catalog to discover, deploy and connect to services

Database

Browse the catalog to discover database services to add to your application

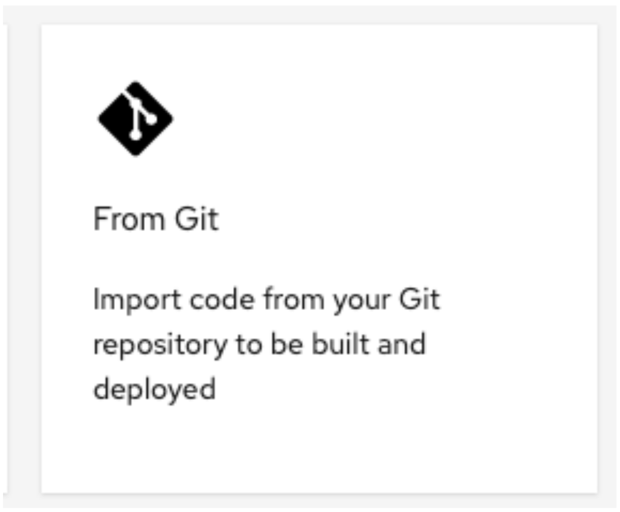
Operator Backed

Browse the catalog to discover and deploy operator managed services

Helm Chart

Browse the catalog to discover and install Helm Charts

Click on the **From Git** tile:



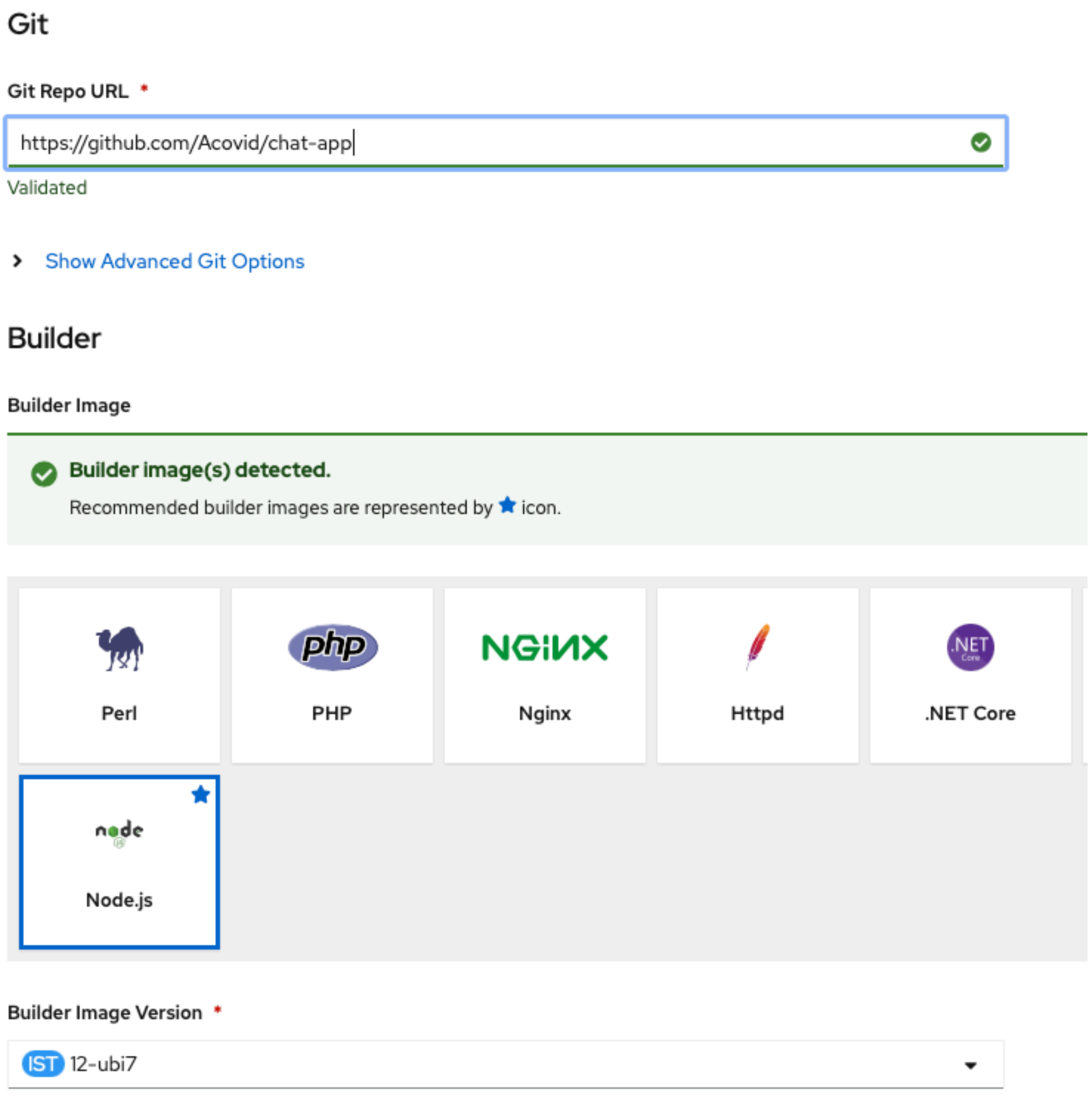
From Git

Import code from your Git repository to be built and deployed

In the **Git Repo URL,** type the following GIT and wait a few seconds

```
https://github.com/Acovid/chat-app
```

After a few seconds, the git will be validated to run **Node.js version 12**:



Git

Git Repo URL *

https://github.com/Acovid/chat-app

Validated

Show Advanced Git Options

Builder

Builder Image

Builder image(s) detected.
Recommended builder images are represented by ★ icon.

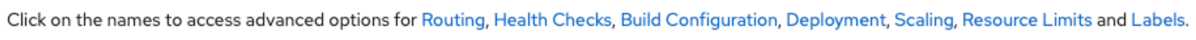
Builder Image Version *

IST 12-ubi7

Verify that :

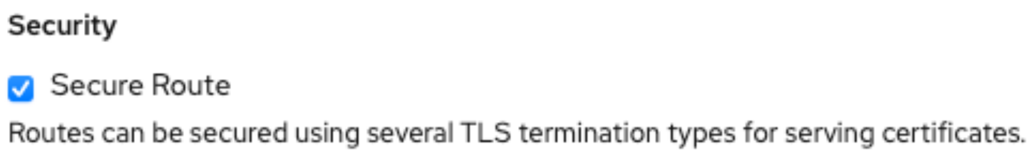
- **Deployment** has been checked
- Create a **route** to the application has been checked

At the bottom of this page, click on **Routing**:



Click on the names to access advanced options for Routing, Health Checks, Build Configuration, Deployment, Scaling, Resource Limits and Labels.

In the Routing section that opens, check the **Secure Route**

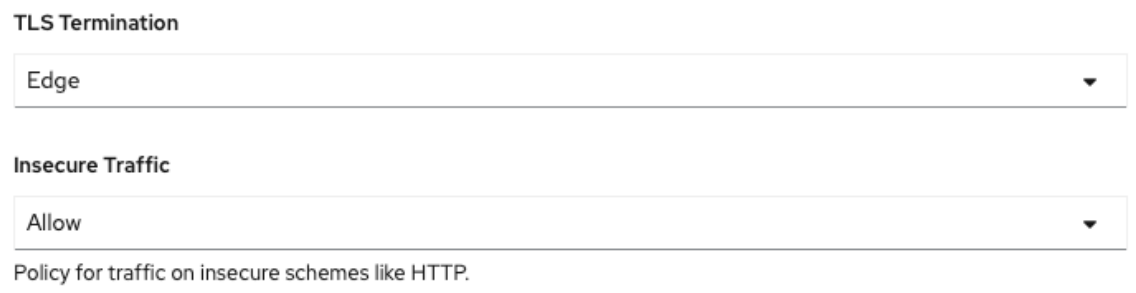


Security

✓ Secure Route

Routes can be secured using several TLS termination types for serving certificates.

For TLS Termination, choose **Edge** and for Insecure Traffic pick **allow**:


TLS Termination

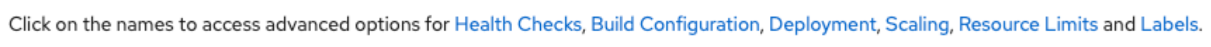
Edge

Insecure Traffic

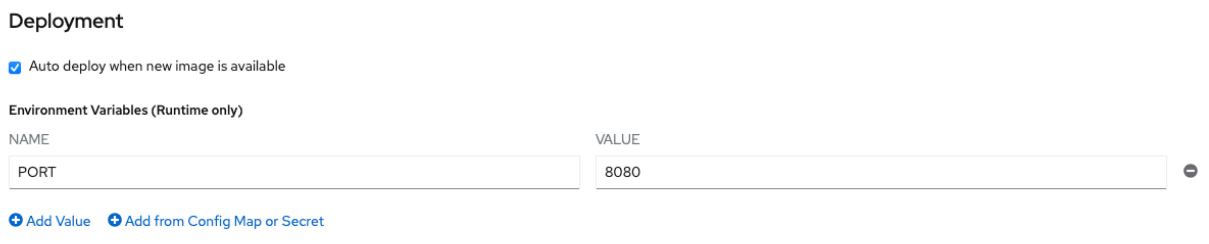
Allow

Policy for traffic on insecure schemes like HTTP.

Go to the bottom of the page, click **Deployment**:


Click on the names to access advanced options for Health Checks, Build Configuration, Deployment, Scaling, Resource Limits and Labels.

In the Deployment section, enter PORT in the NAME, and 8080 in the VALUE


Deployment

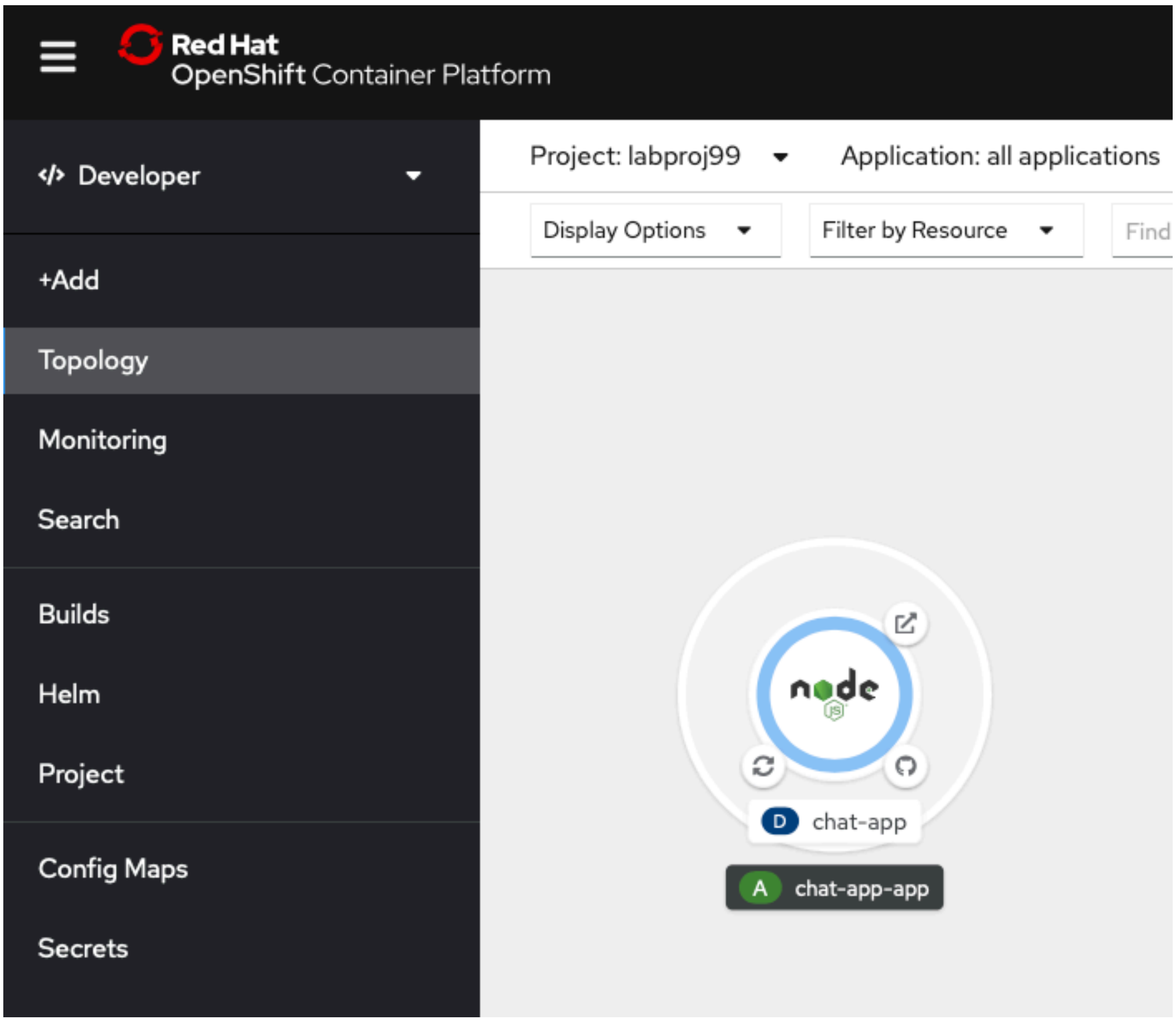
Auto deploy when new image is available

Environment Variables (Runtime only)

NAME	VALUE
PORT	8080

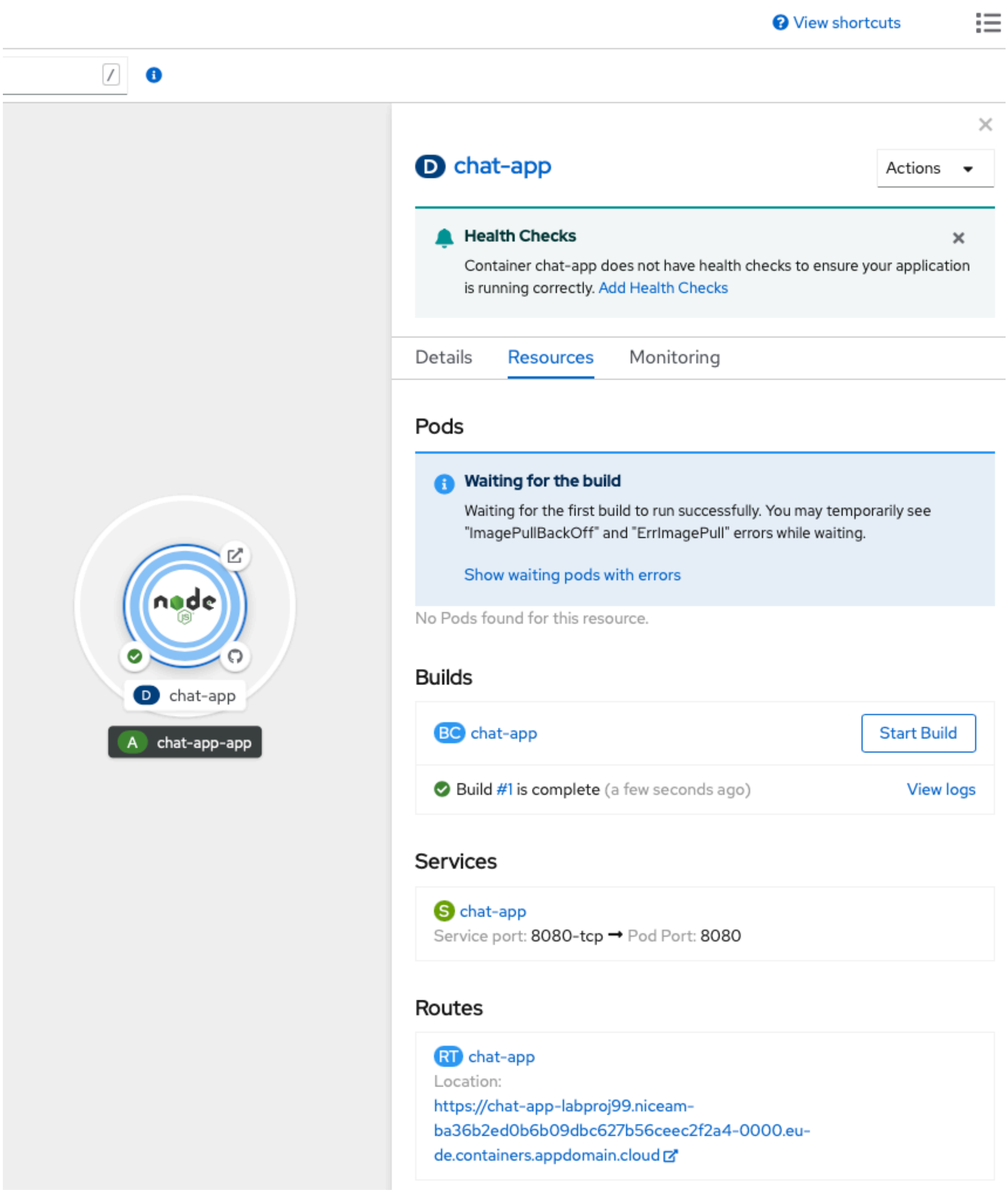
Then click **Create**

After a few seconds, the new application has been created:



On this view, you can see the name of the application **nodejs-app**, the deployment **nodejs** and the **runtime** Node.js.

Click in the middle of the **circle**:



chat-app

Health Checks

Container chat-app does not have health checks to ensure your application is running correctly. Add Health Checks

Pods

Waiting for the build

Waiting for the first build to run successfully. You may temporarily see "ImagePullBackOff" and "ErrImagePull" errors while waiting.

Show waiting pods with errors

No Pods found for this resource.

Builds

BC chat-app

Build #1 is complete (a few seconds ago)

Services

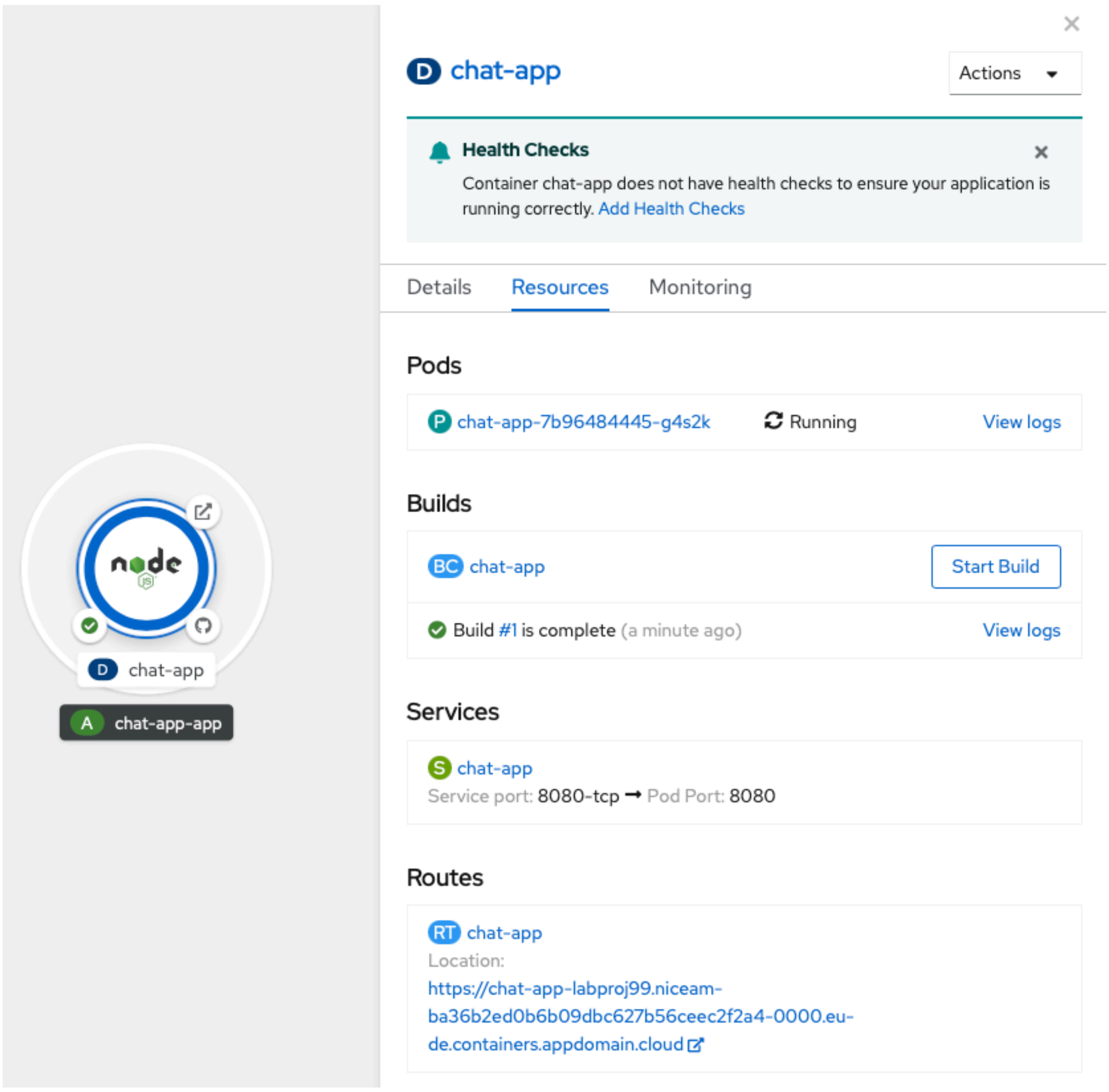
S chat-app
Service port: 8080-tcp → Pod Port: 8080

Routes

RT chat-app
Location:
https://chat-app-labproj99.niceam-ba36b2ed0b6b09dbc627b56ceec2f2a4-0000.eu-de.containers.appdomain.cloud

You can now see some details of your application: Pods, Builds, Service and Route.

When the center of the application change to dark blue, the application is ready to be used:



chat-app

Actions

Health Checks

Container chat-app does not have health checks to ensure your application is running correctly. Add Health Checks

Details | Resources | Monitoring

Pods

chat-app-7b96484445-g4s2k Running View logs

Builds

chat-app Start Build

Build #1 is complete (a minute ago) View logs

Services

chat-app

Service port: 8080-tcp → Pod Port: 8080

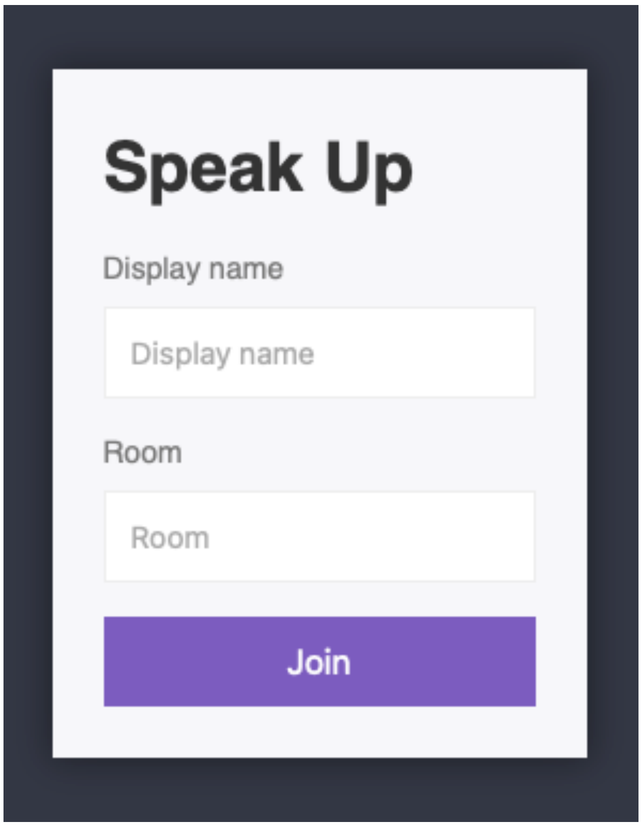
Routes

chat-app

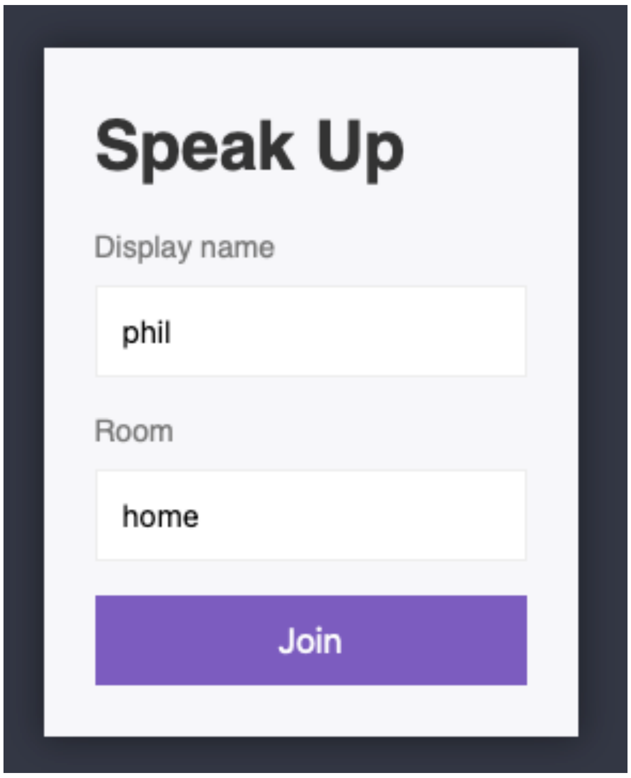
Location:

https://chat-app-labproj99.niceam-ba36b2ed0b6b09dbc627b56ceec2f2a4-0000.eu-de.containers.appdomain.cloud

To get access to your application, you have to find the route: click on the blue **Route Link** and voilà ! You get access to your application (a chat application from Aco Vidovic - Thanks)



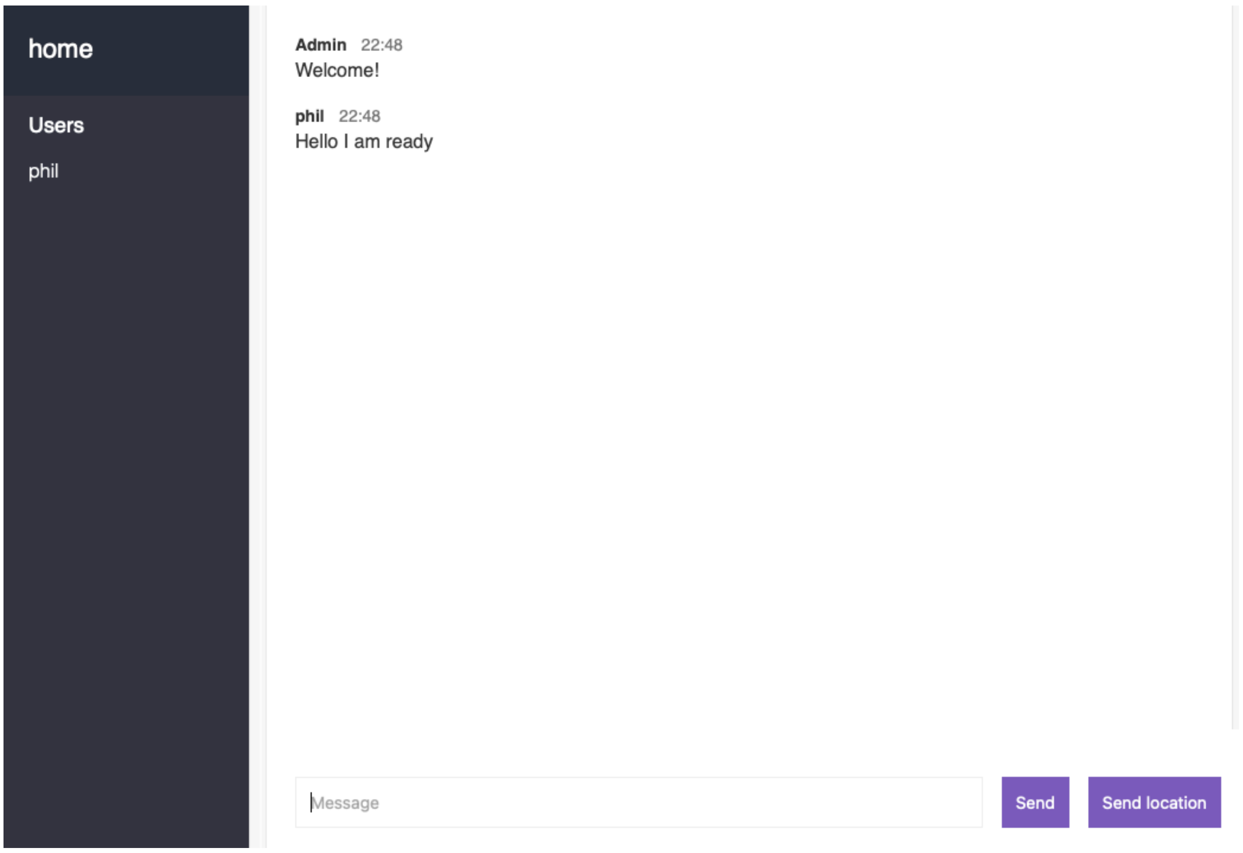
Check that the application is running : enter a name and a room of you choice.



phil

home

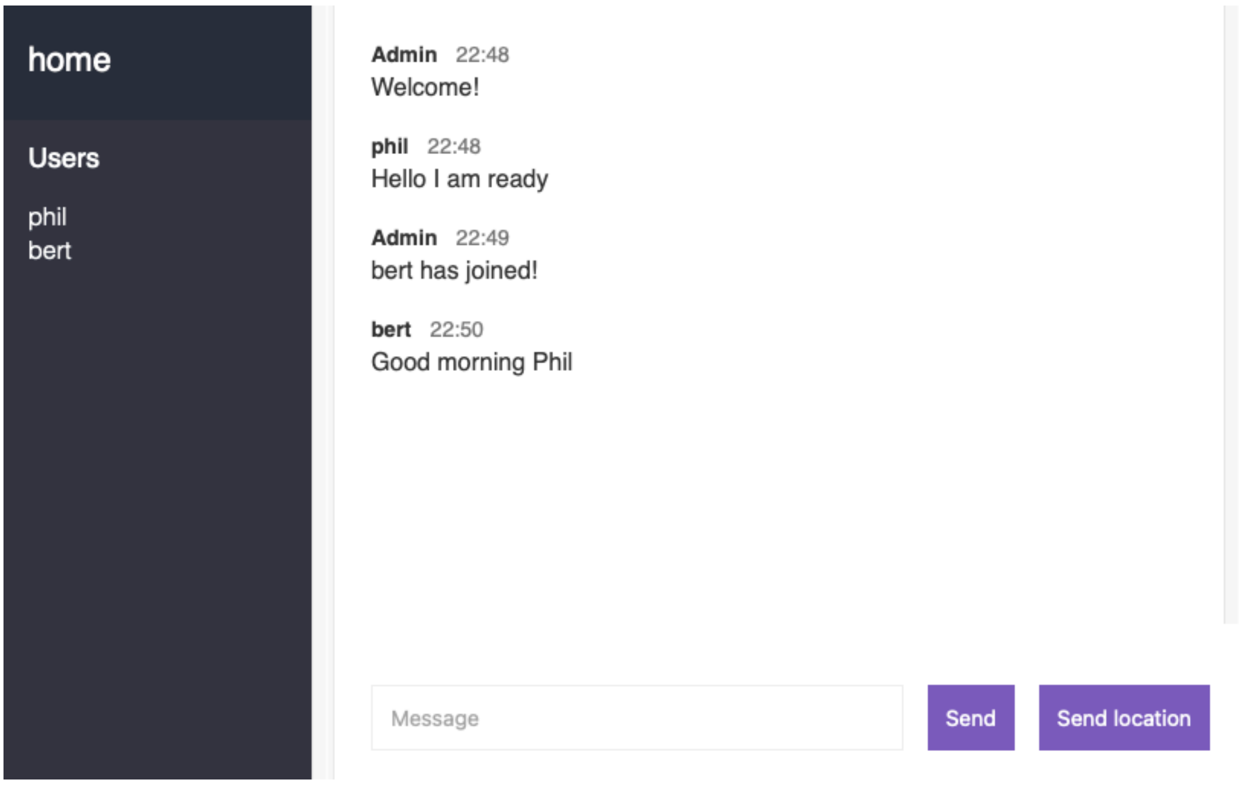
Click **Join** and start typing a few messages:



Admin 22:48
Welcome!

phil 22:48
Hello I am ready

You can also open **multiple tabs** in your browser with different name and the same chat room :



Admin 22:48
Welcome!

phil 22:48
Hello I am ready

Admin 22:49
bert has joined!

bert 22:50
Good morning Phil

Task #6 - Delete the application

Be sure you are still working on your **project** by typing the following command in your terminal:

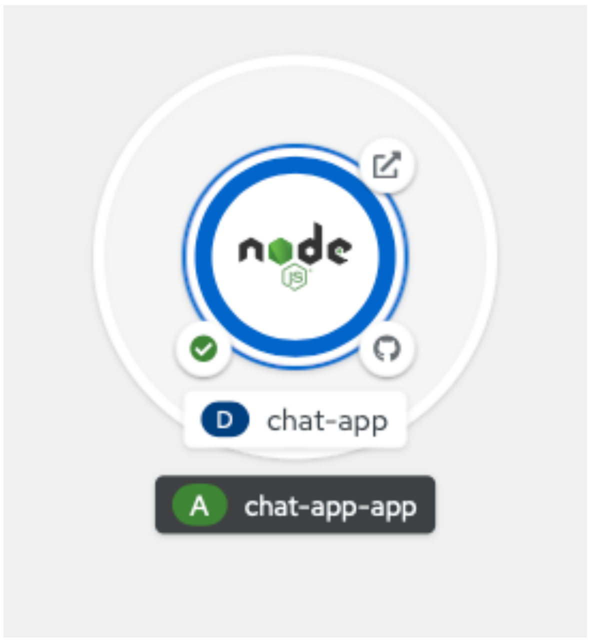
```
oc status
```

Results:

```
oc status
In project Testing project for education (labproj99) on server
https://c107-e.us-south.containers.cloud.ibm.com:30322

http://nodejs-labproj99.niceam-ba36b2ed0b6b09dbc627b56ceec2f2a4-0000.us-
south.containers.appdomain.cloud to pod port 8080-tcp (svc/nodejs)
  deployment/nodejs deploys istag/nodejs:latest <-
    bc/nodejs source builds https://github.com/sclorg/nodejs-ex.git on
openshift/nodejs:10-SCL
    deployment #2 running for 17 minutes - 1 pod
    deployment #1 deployed 18 minutes ago
```

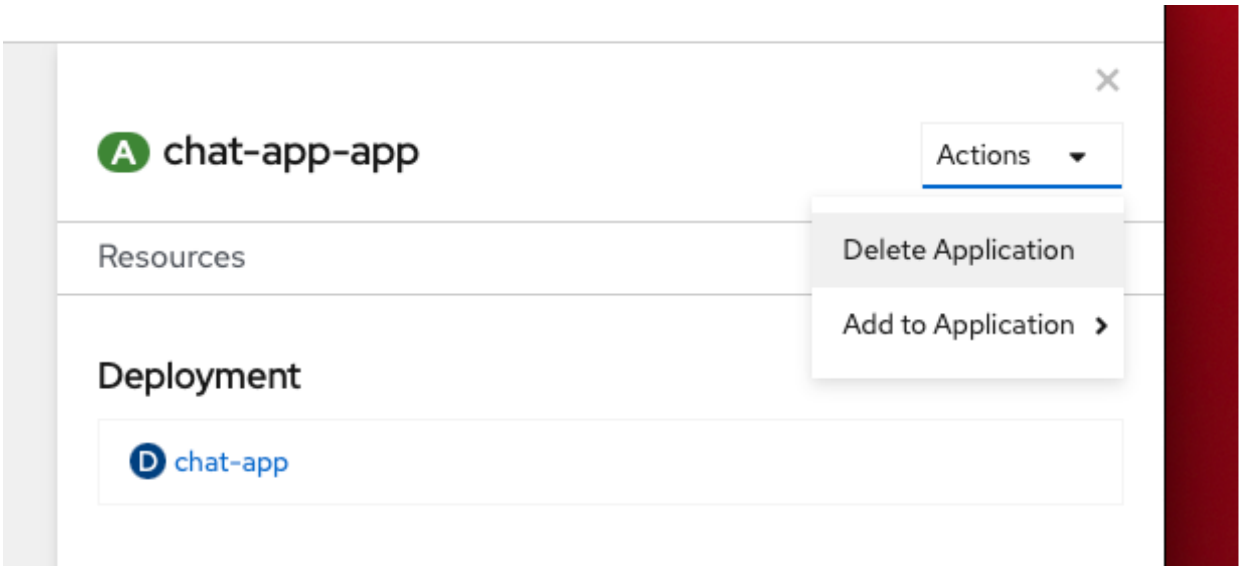
From the web console, you go to your project

Click on the black button "**A chat-app-app**" to show the right pane:

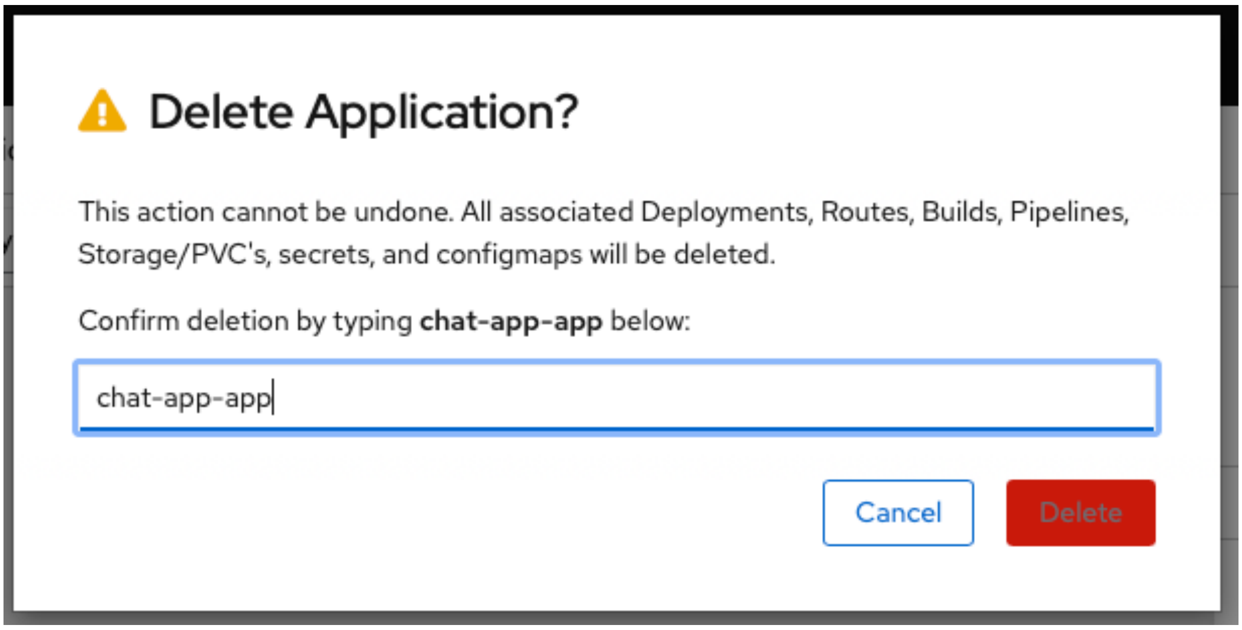


Then click on action and then delete the application:

!



Then type the name of your application and click delete:



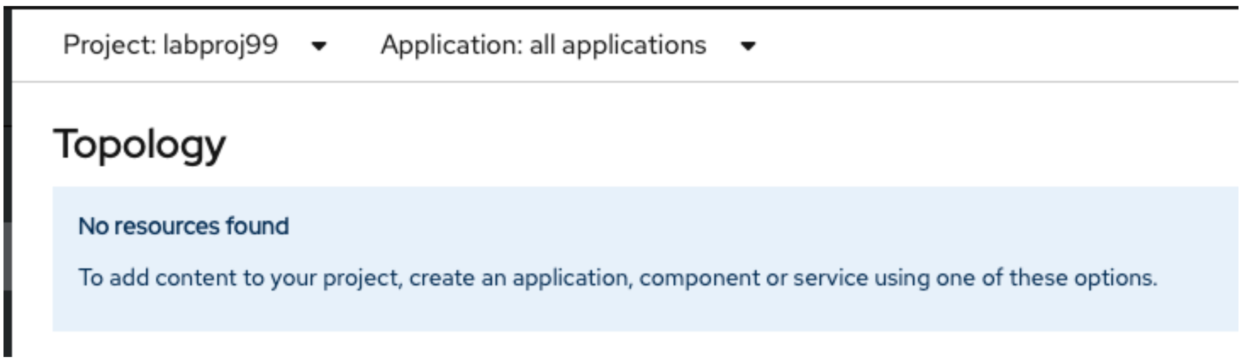
Delete Application?

This action cannot be undone. All associated Deployments, Routes, Builds, Pipelines, Storage/PVC's, secrets, and configmaps will be deleted.

Confirm deletion by typing **chat-app-app** below:

chat-app-app

The project should be empty. You are back to the "No resources found" message.



Topology

No resources found

To add content to your project, create an application, component or service using one of these options.

Task #7 - Starting a new basic application

For this exercise, we will use the CLI and then switch to the OpenShift web console.

We built a basic node.js application using the following GitHub repo that you can see here (thanks to sclorg):

https://github.com/sclorg/nodejs-ex

Create a new instance Node.js application based on this GitHub example **(change xx with your number)**

```
oc new-app https://github.com/sclorg/nodejs-ex -l name=myapp<xx>
```

After a few seconds:

```
oc new-app https://github.com/sclorg/nodejs-ex -l name=myapp99
--> Found image 92fa44e (6 days old) in image stream "openshift/nodejs"
under tag "12" for "nodejs"

    Node.js 12
    ----------
    Node.js 12 available as container is a base platform for building and
running various Node.js 12 applications and frameworks. Node.js is a
platform built on Chrome's JavaScript runtime for easily building fast,
scalable network applications. Node.js uses an event-driven, non-blocking
I/O model that makes it lightweight and efficient, perfect for data-
intensive real-time applications that run across distributed devices.

    Tags: builder, nodejs, nodejs12

    * The source repository appears to match: nodejs
    * A source build using source code from
https://github.com/sclorg/nodejs-ex will be created
      * The resulting image will be pushed to image stream tag "nodejs-
ex:latest"
      * Use 'oc start-build' to trigger a new build

--> Creating resources with label name=myapp99 ...
    imagestream.image.openshift.io "nodejs-ex" created
    buildconfig.build.openshift.io "nodejs-ex" created
    deployment.apps "nodejs-ex" created
    service "nodejs-ex" created
--> Success
    Build scheduled, use 'oc logs -f bc/nodejs-ex' to track its progress.
    Application is not exposed. You can expose services to the outside
world by executing one or more of the commands below:
     'oc expose svc/nodejs-ex'
    Run 'oc status' to view your app.
#
```

For that exercise, we provided the code (the server.js file in the GitHub and some config files).

> You can note that OpenShift if going to find itself that the provided code is Node.JS and then find a version 10 that can match this code. Then an image stream is built with the name **nodejs-ex** and stored in the registry. Then after the build, a deployment is done and the application is running with success.

Track the build log until the app is built and deployed:

```
oc logs -f bc/nodejs-ex
```

Results:

```
oc logs -f bc/nodejs-ex
Cloning "https://github.com/sclorg/nodejs-ex" ...
    Commit: a096bd299d65517cef8079f4559e9b0b9f97ff57 (Merge pull request
#237 from bparees/nodejs12)
    Author: Honza Horak <hhorak@redhat.com>
    Date:   Tue Mar 3 16:35:01 2020 +0100
Caching blobs under "/var/cache/blobs".
Getting image source signatures
Copying blob
sha256:81aa2695e9554e4aa95038da2bfa0ed5c5c5bc89894b4b6b4835494ebfbad26a
Copying blob
sha256:84e620d0abe585d05a7bed55144af0bc5efe083aed05eac1e88922034ddf1ed2
Copying blob
sha256:46fc24a071a44b29a3ba49c94f75a47514a56470d539c9204f3e7688973fc93a
Copying blob
sha256:455ea8ab06218495bbbcb14b750a0d644897b24f8c5dcf9e8698e27882583412
Copying blob
sha256:bb13d92caffa705f32b8a7f9f661e07ddede310c6ccfa78fb53a49539740e29b
Copying config
sha256:3e32112e4287d3f7253b2c1c177de3270e5aed79704a1c6dd0106a7ef35bf5f0
Writing manifest to image destination
Storing signatures
Generating dockerfile with builder image image-registry.openshift-image-
registry.svc:5000/openshift/nodejs@sha256:3969e466985c863267bfa75c5c8bcdc9f
3560cf5413c16530307013e486ba71c
STEP 1: FROM image-registry.openshift-image-
registry.svc:5000/openshift/nodejs@sha256:3969e466985c863267bfa75c5c8bcdc9f
3560cf5413c16530307013e486ba71c
```

```
STEP 2: LABEL "io.openshift.build.commit.date"="Tue Mar 3 16:35:01 2020
+0100"
"io.openshift.build.commit.id"="a096bd299d65517cef8079f4559e9b0b9f97ff57"
"io.openshift.build.commit.ref"="master"
"io.openshift.build.commit.message"="Merge pull request #237 from
bparees/nodejs12" "io.openshift.build.source-
location"="https://github.com/sclorg/nodejs-ex"
"io.openshift.build.image"="image-registry.openshift-image-
registry.svc:5000/openshift/nodejs@sha256:3969e466985c863267bfa75c5c8bcdc9f
3560cf5413c16530307013e486ba71c" "io.openshift.build.commit.author"="Honza
Horak <hhorak@redhat.com>"
STEP 3: ENV OPENSHIFT_BUILD_NAME="nodejs-ex-1"
OPENSHIFT_BUILD_NAMESPACE="labproj99"
OPENSHIFT_BUILD_SOURCE="https://github.com/sclorg/nodejs-ex"
OPENSHIFT_BUILD_COMMIT="a096bd299d65517cef8079f4559e9b0b9f97ff57"
STEP 4: USER root
STEP 5: COPY upload/src /tmp/src
STEP 6: RUN chown -R 1001:0 /tmp/src
STEP 7: USER 1001
STEP 8: RUN /usr/libexec/s2i/assemble
---> Installing application source ...
---> Installing all dependencies
npm WARN deprecated jade@0.26.3: Jade has been renamed to pug, please
install the latest version of pug instead of jade
npm WARN deprecated mkdirp@0.5.1: Legacy versions of mkdirp are no longer
supported. Please update to mkdirp 1.x. (Note that the API surface has
changed to use Promises in 1.x.)
npm WARN deprecated to-iso-string@0.0.2: to-iso-string has been deprecated,
use @segment/to-iso-string instead.
npm WARN deprecated mkdirp@0.3.0: Legacy versions of mkdirp are no longer
supported. Please update to mkdirp 1.x. (Note that the API surface has
changed to use Promises in 1.x.)
npm WARN deprecated minimatch@0.3.0: Please update to minimatch 3.0.2 or
higher to avoid a RegExp DoS issue

> ejs@2.7.4 postinstall /opt/app-root/src/node_modules/ejs
> node ./postinstall.js

Thank you for installing EJS: built with the Jake JavaScript build tool
(https://jakejs.com/)

npm notice created a lockfile as package-lock.json. You should commit this
file.
added 121 packages from 342 contributors and audited 205 packages in 6.346s
found 10 vulnerabilities (3 low, 2 moderate, 4 high, 1 critical)
  run `npm audit fix` to fix them, or `npm audit` for details
---> Building in production mode
---> Pruning the development dependencies
audited 205 packages in 1.139s
```

```
found 10 vulnerabilities (3 low, 2 moderate, 4 high, 1 critical)
  run `npm audit fix` to fix them, or `npm audit` for details
/opt/app-root/src/.npm is not a mountpoint
---> Cleaning the npm cache /opt/app-root/src/.npm
/tmp is not a mountpoint
---> Cleaning the /tmp/npm-*
STEP 9: CMD /usr/libexec/s2i/run
STEP 10: COMMIT temp.builder.openshift.io/labproj99/nodejs-ex-1:cf141784
Getting image source signatures
Copying blob
sha256:35817540a17b5b90cb4426078d53813b16e70c75e1cce3db116d2fbbca7fbf10
Copying blob
sha256:c7fbe90ae90e9c6452e5d809f069907907e6f32532565104921f600fb956306c
Copying blob
sha256:74d760a83a4b8bcb3d01e7726e06c11469f0bb2ce4645474cb91a607c27bf482
Copying blob
sha256:84ecc5257b90d8d8b51cf749f244f3b7b5d949e4d2761f7522bebd81f07d2ecb
Copying blob
sha256:2a72856523ed3830ed849bc9ce8cccc7da245495fabea7b26d2b838f4ed02ce3
Copying blob
sha256:1a2f0fb94c4b01cdbdc80cdbc9d1ab8a6260e9f7181a25f533df663ab5cada76
Copying config
sha256:752c0f078cb800ae28e113a82c476517cdd1f5aa55f59356a1a99c03296fbb1b
Writing manifest to image destination
Storing signatures
752c0f078cb800ae28e113a82c476517cdd1f5aa55f59356a1a99c03296fbb1b
752c0f078cb800ae28e113a82c476517cdd1f5aa55f59356a1a99c03296fbb1b

Pushing image image-registry.openshift-image-
registry.svc:5000/labproj99/nodejs-ex:latest ...
Getting image source signatures
Copying blob
sha256:84e620d0abe585d05a7bed55144af0bc5efe083aed05eac1e88922034ddf1ed2
Copying blob
sha256:455ea8ab06218495bbbcb14b750a0d644897b24f8c5dcf9e8698e27882583412
Copying blob
sha256:bb13d92caffa705f32b8a7f9f661e07ddede310c6ccfa78fb53a49539740e29b
Copying blob
sha256:46fc24a071a44b29a3ba49c94f75a47514a56470d539c9204f3e7688973fc93a
Copying blob
sha256:81aa2695e9554e4aa95038da2bfa0ed5c5c5bc89894b4b6b4835494ebfbad26a
Copying blob
sha256:1a2f0fb94c4b01cdbdc80cdbc9d1ab8a6260e9f7181a25f533df663ab5cada76
Copying config
sha256:752c0f078cb800ae28e113a82c476517cdd1f5aa55f59356a1a99c03296fbb1b
Writing manifest to image destination
Storing signatures
```

```
Successfully pushed image-registry.openshift-image-
registry.svc:5000/labproj99/nodejs-
ex@sha256:081f42b26e27d2308ea444f4cc4e50fd9bb953977d58245bfecc13d61d9a97a2
Push successful
```

If you are familiar with Git, Docker and Kubernetes, you will notice several activities:

- a clone of the github repo
- npm (because it is a Node.js source) is used to solve the library dependencies.
- Finally a docker container image is built and stored in the OpenShift registry (push)

To check that your application is running:

```
oc get pods
```

Results:

```
# oc get pods
NAME                           READY    STATUS       RESTARTS    AGE
nodejs-ex-1-build              0/1      Completed    0           101s
nodejs-ex-6df7ccf8bc-p5m8b     1/1      Running      0           35s
```

You will notice that one pod (job) has been completed for the **build** stage.

The other pod is running (1/1) and this is our Node.JS application.

To make this application visible to the world, you should create a **route**. If you are familiar with Kubernetes, a route is very close concept of an ingress with the association of a DNS.

Expose a route to the service:

```
oc expose svc/nodejs-ex
```

Results:

```
# oc expose svc/nodejs-ex
route.route.openshift.io/nodejs-ex exposed
```

But you don't know the route url yet.

```
oc get route
```

Results

```
# oc get route
NAME         HOST/PORT                                                PATH
SERVICES     PORT        TERMINATION    WILDCARD
nodejs99     nodejs99-labproj99.niceam-ba36b2ed0b6b09dbc627b56ceec2f2a4-
0000.us-south.containers.appdomain.cloud           nodejs99     8080-tcp
             None
```

Now you get the url. Sample results:

```
http://nodejs99-labproj99.niceam-ba36b2ed0b6b09dbc627b56ceec2f2a4-0000.us-
south.containers.appdomain.cloud
```

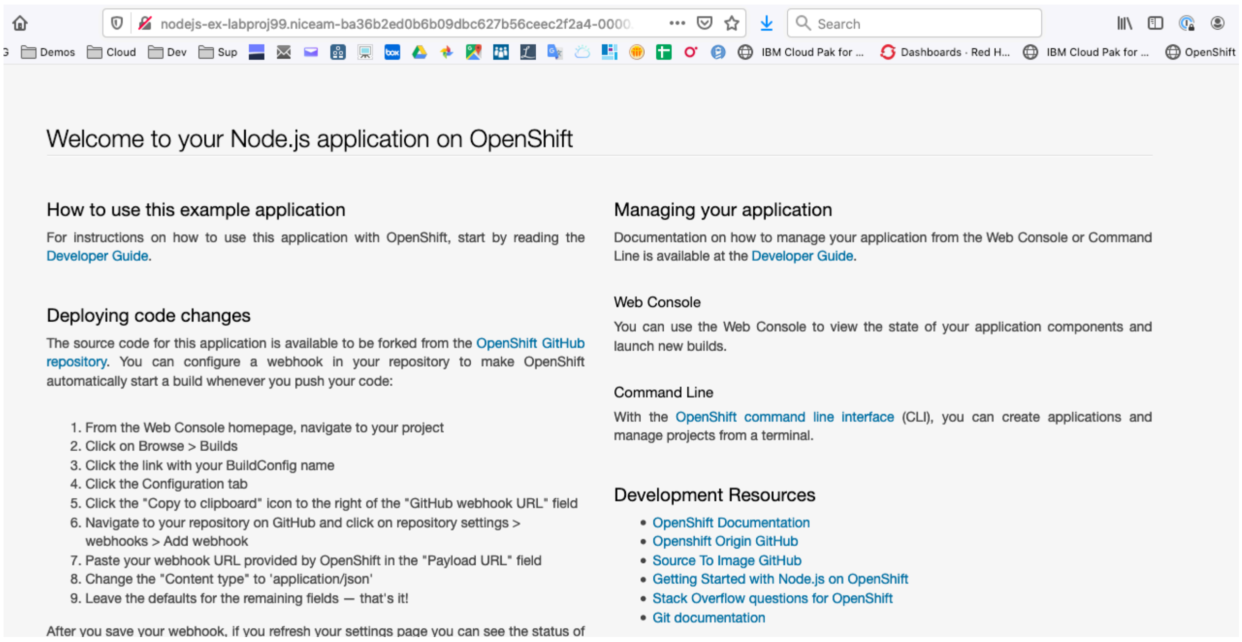
You can notice the following :

- the url contains the project name **labproj** and the name of your application **nodejs**
- and also the OpenShift hostname (in that case **niceam-ba36b2ed0b6b09dbc627b56ceec2f2a4-0000**)
- using IBM Cloud domain name **us-south.containers.appdomain.cloud**

Get access to this new application using this URL:

Example:

!


nodejs-ex-labproj99.niceam-ba36b2ed0b6b09dbc627b56ceec2f2a4-0000

Welcome to your Node.js application on OpenShift

How to use this example application

For instructions on how to use this application with OpenShift, start by reading the Developer Guide.

Deploying code changes

The source code for this application is available to be forked from the OpenShift GitHub repository. You can configure a webhook in your repository to make OpenShift automatically start a build whenever you push your code:

1. From the Web Console homepage, navigate to your project
2. Click on Browse > Builds
3. Click the link with your BuildConfig name
4. Click the Configuration tab
5. Click the "Copy to clipboard" icon to the right of the "GitHub webhook URL" field
6. Navigate to your repository on GitHub and click on repository settings > webhooks > Add webhook
7. Paste your webhook URL provided by OpenShift in the "Payload URL" field
8. Change the "Content type" to 'application/json'
9. Leave the defaults for the remaining fields — that's it!

After you save your webhook, if you refresh your settings page you can see the status of

Managing your application

Documentation on how to manage your application from the Web Console or Command Line is available at the Developer Guide.

Web Console

You can use the Web Console to view the state of your application components and launch new builds.

Command Line

With the OpenShift command line interface (CLI), you can create applications and manage projects from a terminal.

Development Resources

- OpenShift Documentation
- Openshift Origin GitHub
- Source To Image GitHub
- Getting Started with Node.js on OpenShift
- Stack Overflow questions for OpenShift
- Git documentation

Conclusion

Congrats !!! You successfully installed and used the oc CLI and the OpenShift web console thru the installation of a typical Node.JS application (from Github).

You noticed the following details:

- easy to access the OpenShift web console
- easy to build and deploy the application, the container, the pod.
- the route concept and how easy to define
- the Deployment and some parameters
- the wildcard DNS utilization in routes
- the S2I concepts to build the docker image

End of Lab