IBM CP4D INSTALLATION & CONFIGURATION IN ROSA/ROKS

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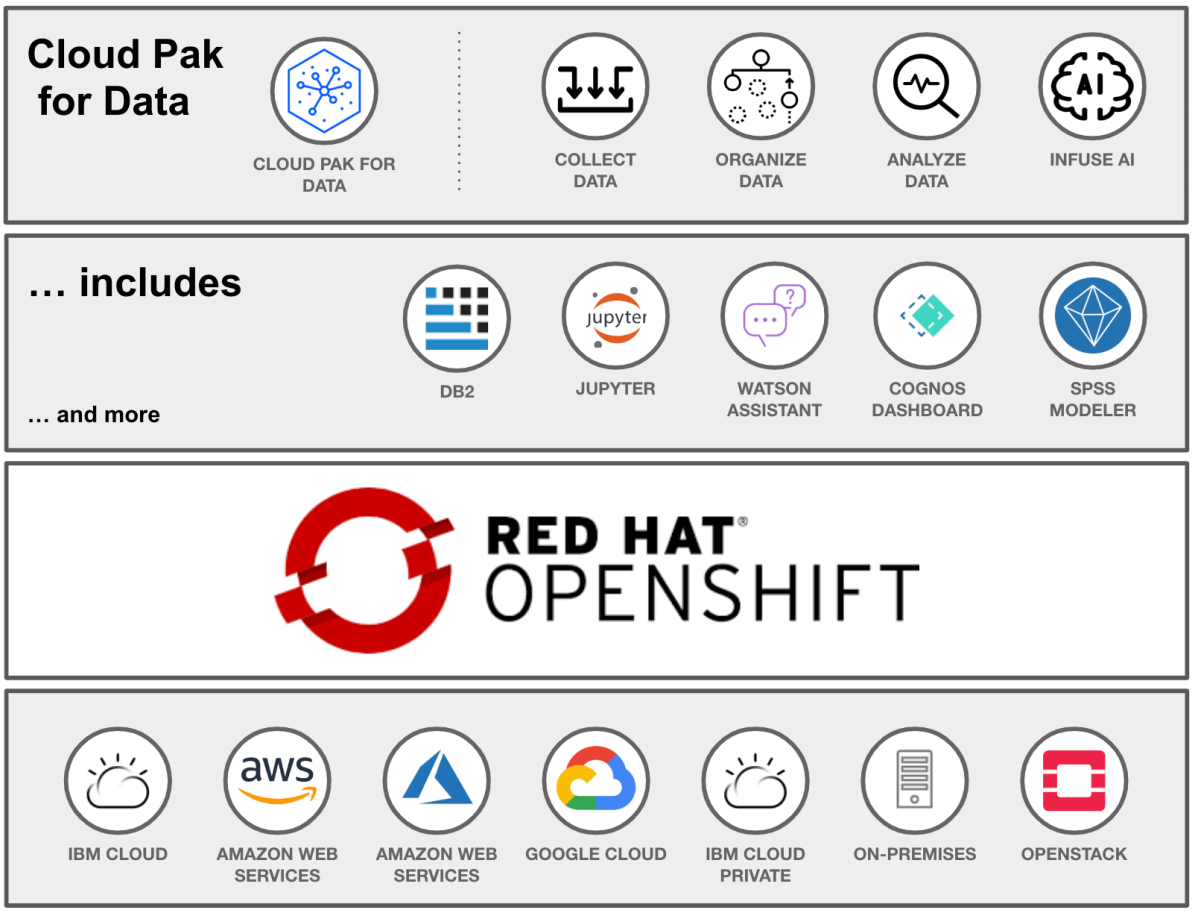
Overview

IBM Cloud Pak for Data is a unified data and AI platform that connects the right data, at the right time, to the right people anywhere. Running on the Red Hat OpenShift platform simplifies data access, automates data discovery and curation, and safeguards sensitive information by automating policy enforcement for all users in your organization. Make better data-driven decisions and lay the foundation for AI with a data fabric that connects siloed data on-premises or across multiple clouds without data movement. Discover actionable insights and apply trusted data to build, run, automate and manage AI models.



This document provides step-by-step instructions to install IBM Cloud Pak for Data on the Red Hat OpenShift cluster. However, before we begin the installation, let's ensure the following assumptions and pre-requisite are met.

Note: IBM® Cloud Pak for Data images are accessible from the IBM Entitled Registry. In most situations, it is strongly recommended that you mirror the necessary software images from the IBM Entitled Registry to a private container registry. Because we are deploying for demo purposes in this example, I have skipped mirroring IBM Cloud Pak for Data images in the private container registry.

Assumptions

- With this guide one can install CP4D in AWS Cluster or ROKS Cluster. Do install only the required clusters. For example: install either AWS Openshift cluster or ROKS Cluster.
- Installing fresh Cloud pak for data Control Plane, Foundational Services and Operators
- Red Hat OpenShift cluster has access to a high-speed internet connection and can pull images directly from IBM Entitled Registry.
- Installing for demo purposes and so, the latest version of the software will automatically install on the Red Hat OpenShift cluster.
- User has knowledge and experience managing Red Hat OpenShift cluster
- Installation of Cloud Pak for Data 4.5.2

Pre-Requisite

- Red Hat OpenShift cluster version 4.6 or later with min 48 vCPU and 192 GB RAM
- Bastion host with 2 vCPU and 4GB RAM with Linux OS
- Internet access for Bastion host and Red Hat OpenShift cluster
- OpenShift Container Storage (OCS) attached to Red Hat OpenShift cluster. This link will help you determine supported storage. In this demo, I have used OCS Storage.
- A User with OpenShift Cluster and Project Administrator access
- IBM Cloud Pak for Data Entitlement Key — Here is the link to download the entitlement key

After reviewing the system requirements and other planning information, install IBM Cloud Pak for Data by completing the provisioning clusters, setup environment variables, completing the installation task itself, and then completing the validation of installation tasks. When complete, the Cloud Pak for Data control plane would be installed. Services are installed separately.

You use the Cloud Pak for Data command-line interface to install the Cloud Pak for Data control plane and any services that you want to run.

This guide is based on Red Hat OpenShift (ROKS) v4.6 on IBM Cloud for Cloud Pak for Data Custom. A fully managed Red Hat OpenShift 4.6 cluster installed on IBM Cloud ready for Cloud Pak for Data installation.

Provisioning of AWS OpenShift Cluster

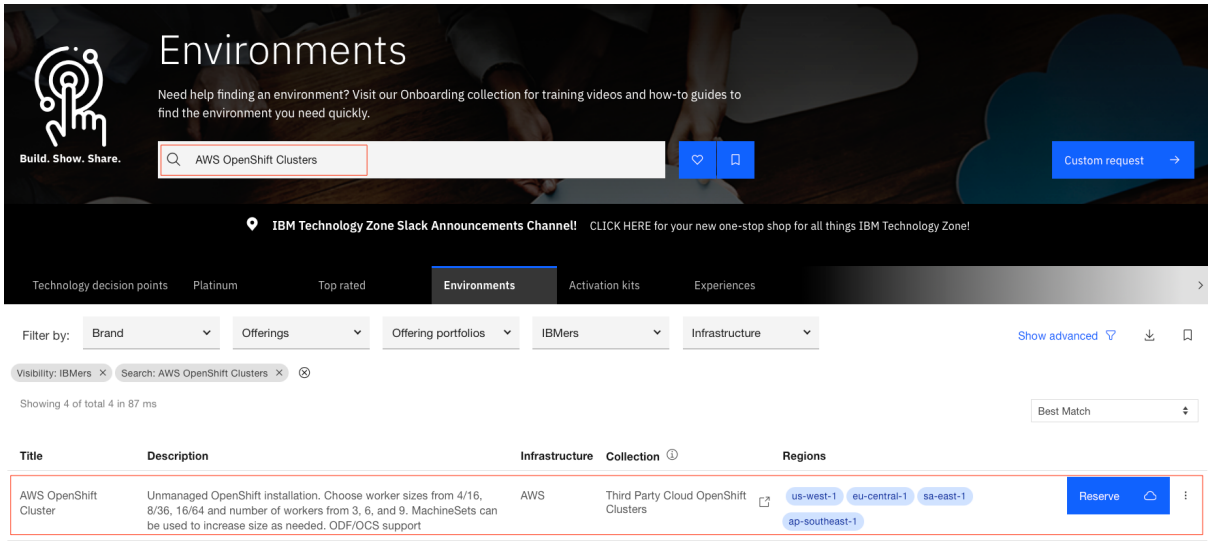
This section covers steps to provision AWS OpenShift Cluster for Cloud Pak for data in IBM Techzone and accessing the cluster. Note: This is an optional section. Please ignore this step If you are installing ROKS.

Provisioning Cluster

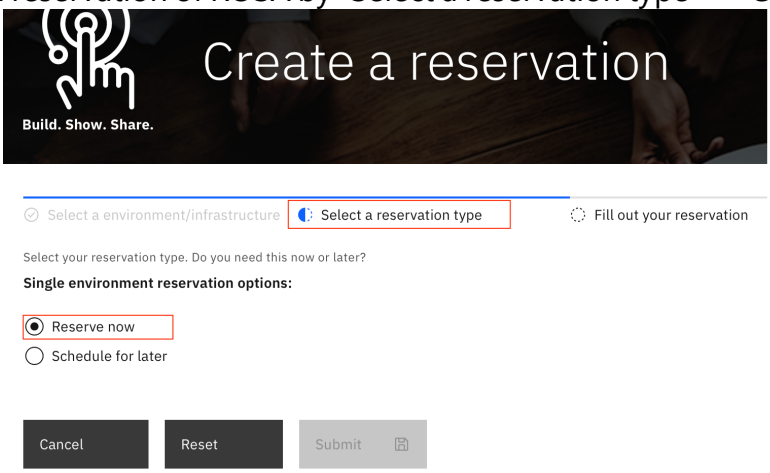
The steps outlined below will assist you to prepare cluster for the installation of Cloud Pak for Data.

1. Login to TechZone (https://techzone.ibm.com). Login with your IBMID credentials.

2. Identify the right ROSA through : Go to Environments Tab -> Search for "AWS OpenShift Clusters" Indicating "Unmanaged OpenShift installation. Choose worker sizes from 4/16, 8/36, 16/64 and number of workers from 3, 6, and 9. MachineSets can be used to increase size as needed. ODF/OCS support". Click "Reserve".

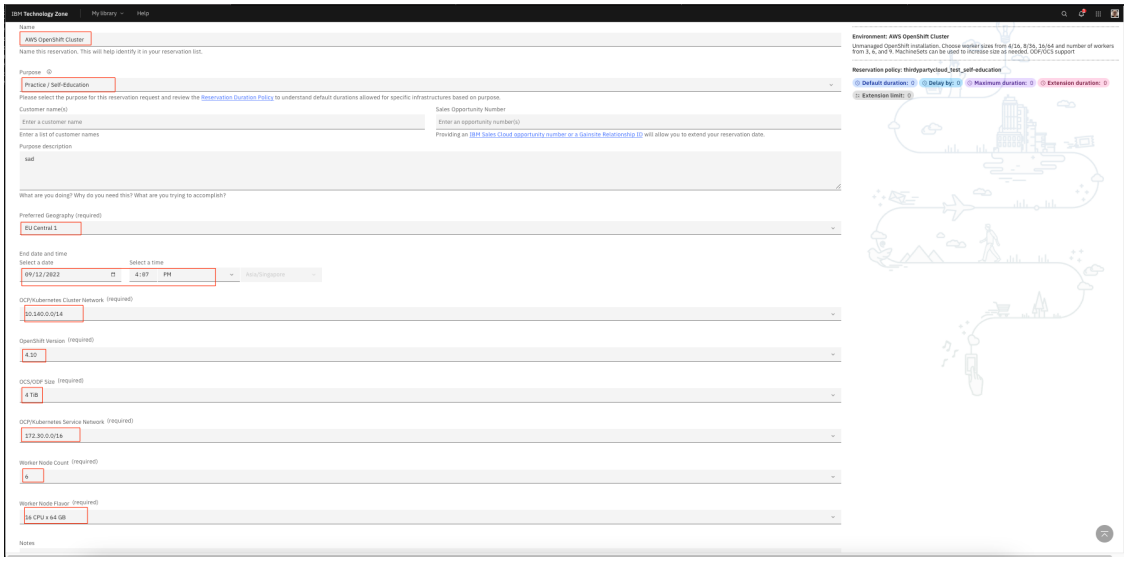


3. Create a reservation of ROSA by "Select a reservation type" -> Click reserve now.

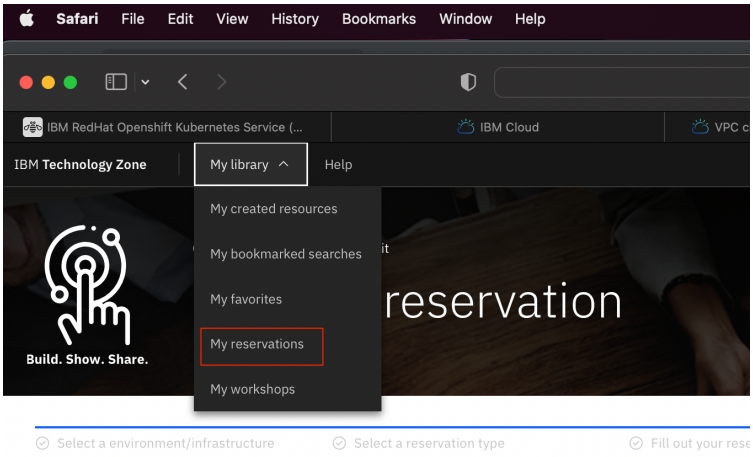


4. Specify the requirements of ROSA by “Fill out your reservation” -> Fill in the following mandatory fields -> Click submit.

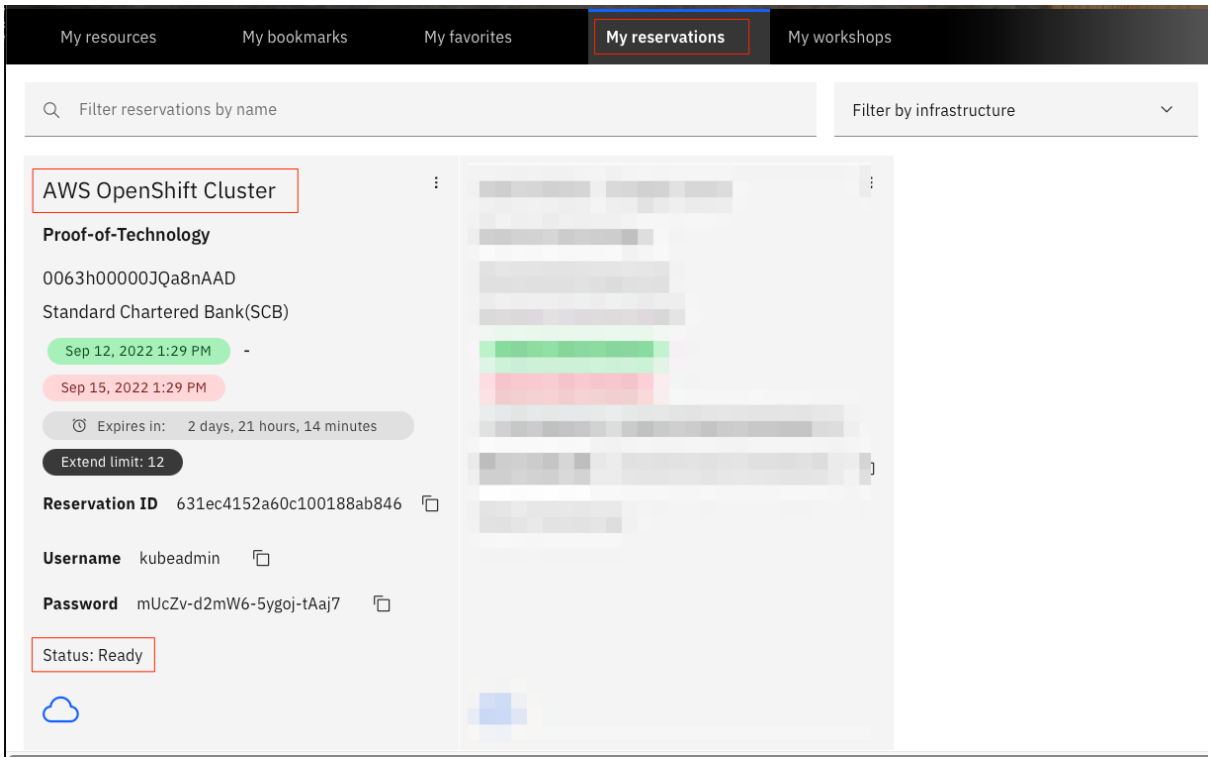
Field Name	Field Value
Name	AWS OpenShift Cluster
Purpose	Practice/self-education
Purpose description	CP4D Installation
Preferred Geography (required)	<<Your nearest location>>
End date and time	Up to 72 hours allowed. You may choose the maximum date time allowed.
OCP/Kubernetes Cluster Network	Choose one of the given options
OpenShift Version (required)	4.10
OCS/ODF Size (required)	4TiB
OCP/Kubernetes Service Network (required)	Choose one of the given options
Worker Node Count (required)	6
Worker Node Flavor (required)	16 CPU x 64 GB



5. Check out the reserved environment: Go to “My library” -> “My reservation”



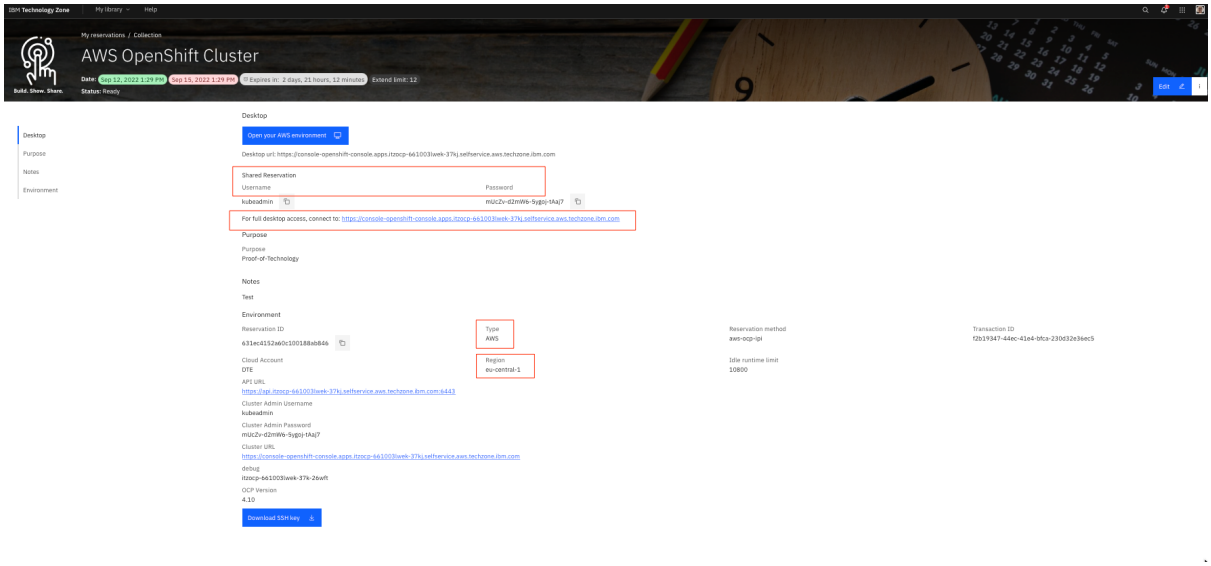
6. Check on the status of the reservation. Status should be “Ready” to continue. Note:



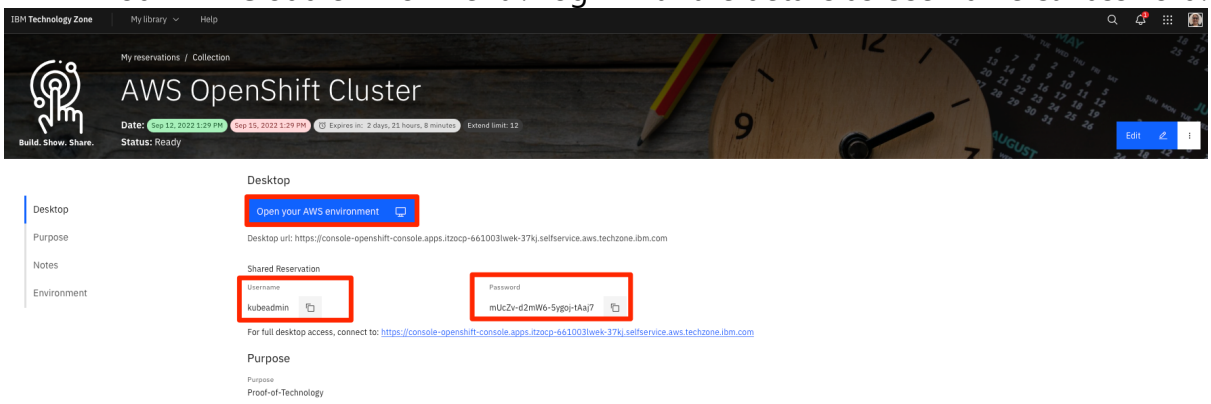
Access to the cluster

1. Environment details is accessible through Click “Environment” to get the details of provisioned environment and confirm on the choice.

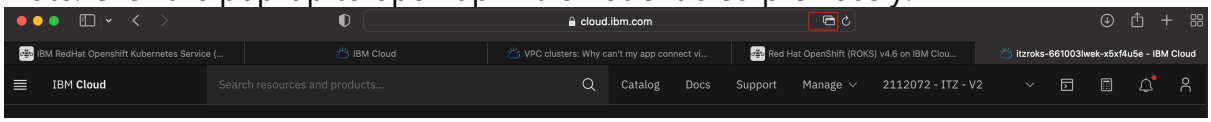
Field	Remarks
Type	Cloud Provider
Region	Region that this environment is provisioned
Cluster URL	URL for the Openshift cluster
Username & Password	Cluster Login & Password



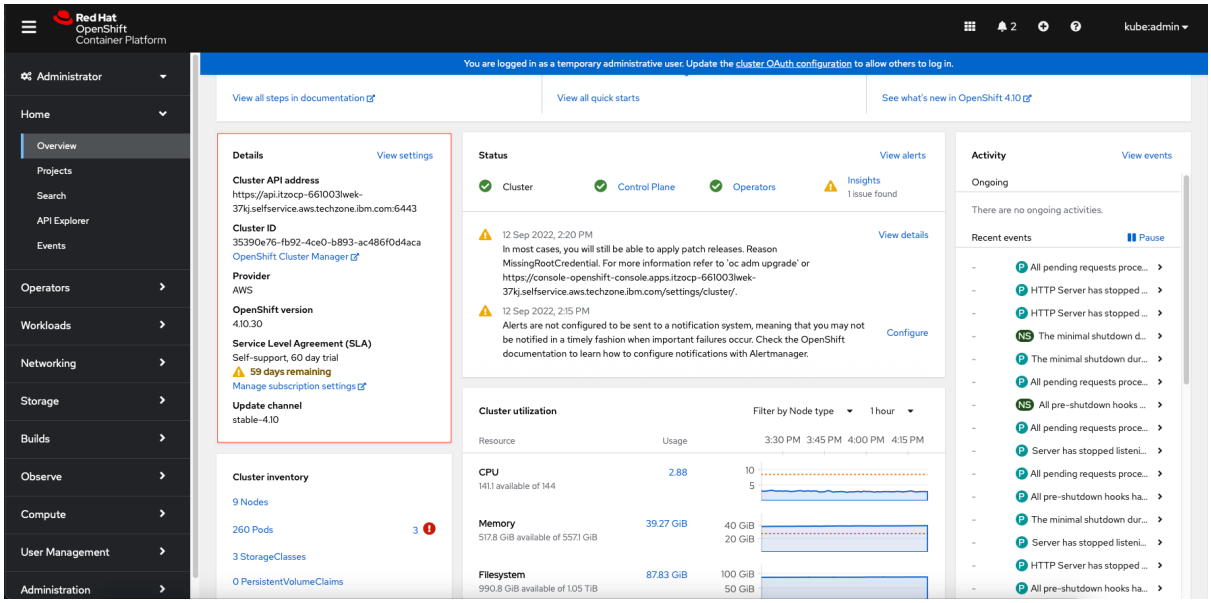
2. IBM cloud environment can be accessed from the “Desktop” -> Click “Open Your IBM Cloud environment”. Login with the details as Username & Password.



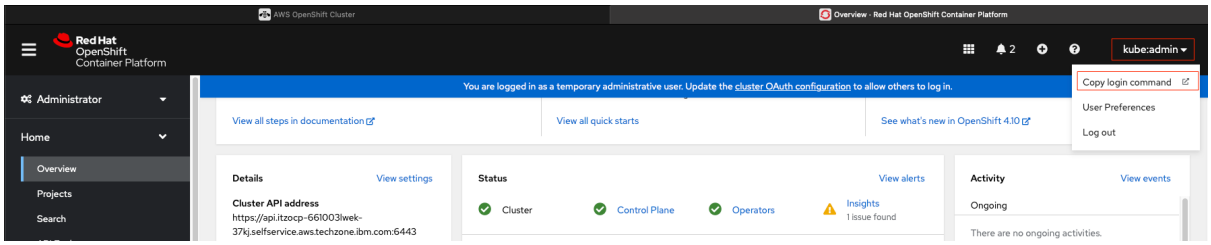
Note: Click the pop-up to open up if it is not enabled previously.



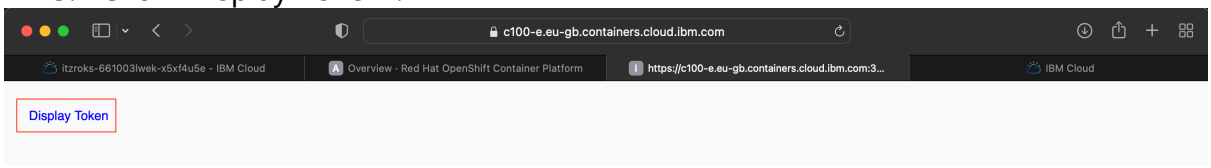
3. Find the cluster details in the overview pane.



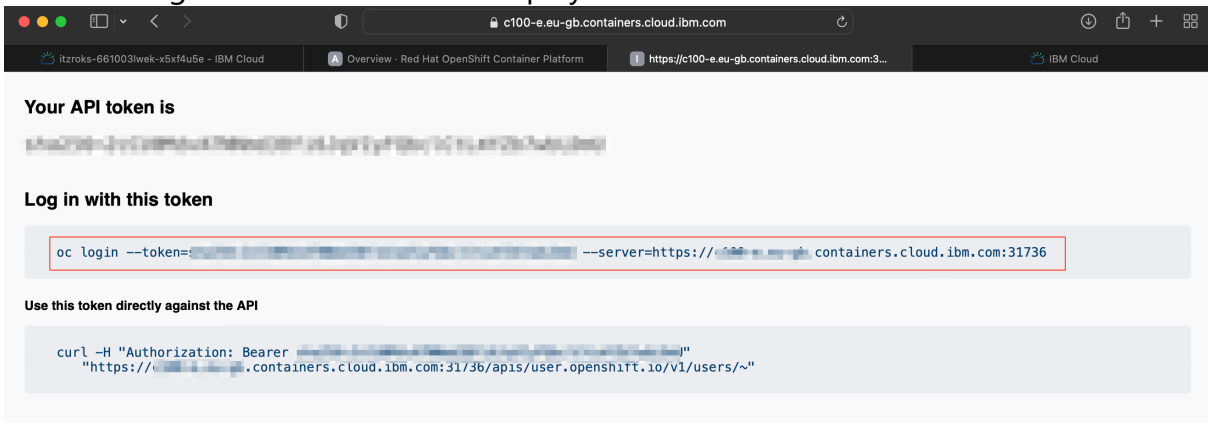
4. OpenShift CLI login details can be retrieved by click “IAM#<<userid>>” -> Click “Copy login command”.



5. Click “Display Token”.



6. oc login commands will be displayed.

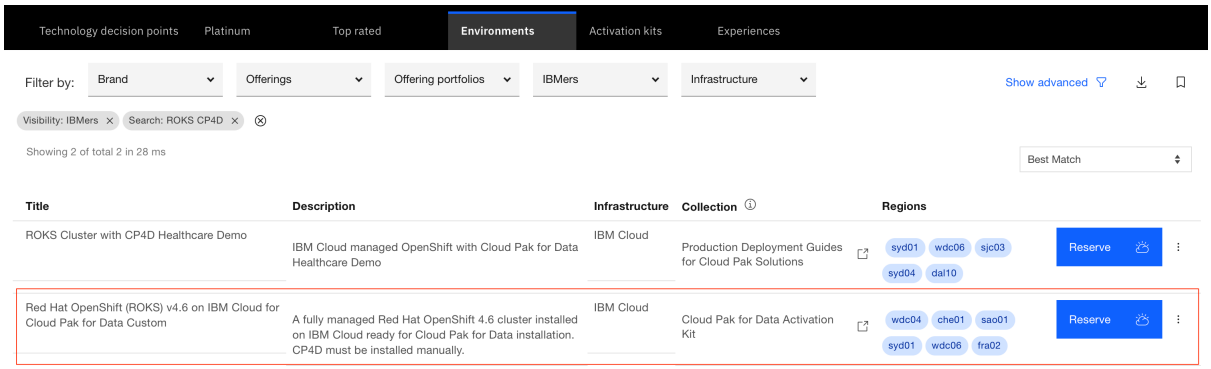


Provisioning ROKS Cluster

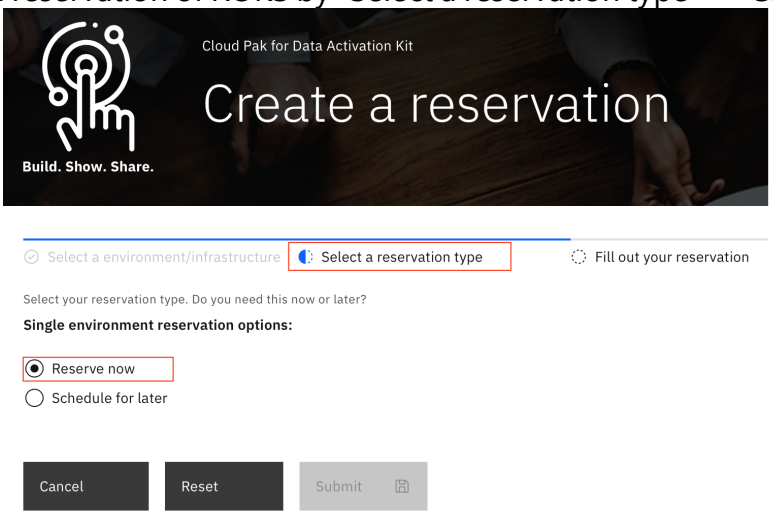
The steps outlined below will assist you to prepare cluster for the installation of Cloud Pak for Data. Note: This is an optional section. Please ignore this step If you are installing AWS Openshift Cluster.

1. Login to TechZone (https://techzone.ibm.com). Login with your IBMID credentials.

2. Identify the right ROKS through : Go to Environments Tab -> Search for “ROKS CP4D”. You will find a cluster “ Red Hat OpenShift (ROKS) v4.6 on IBM Cloud for Cloud Pak for Data Custom” Indicating “CP4D must be installed manually”. Click “Reserve”.



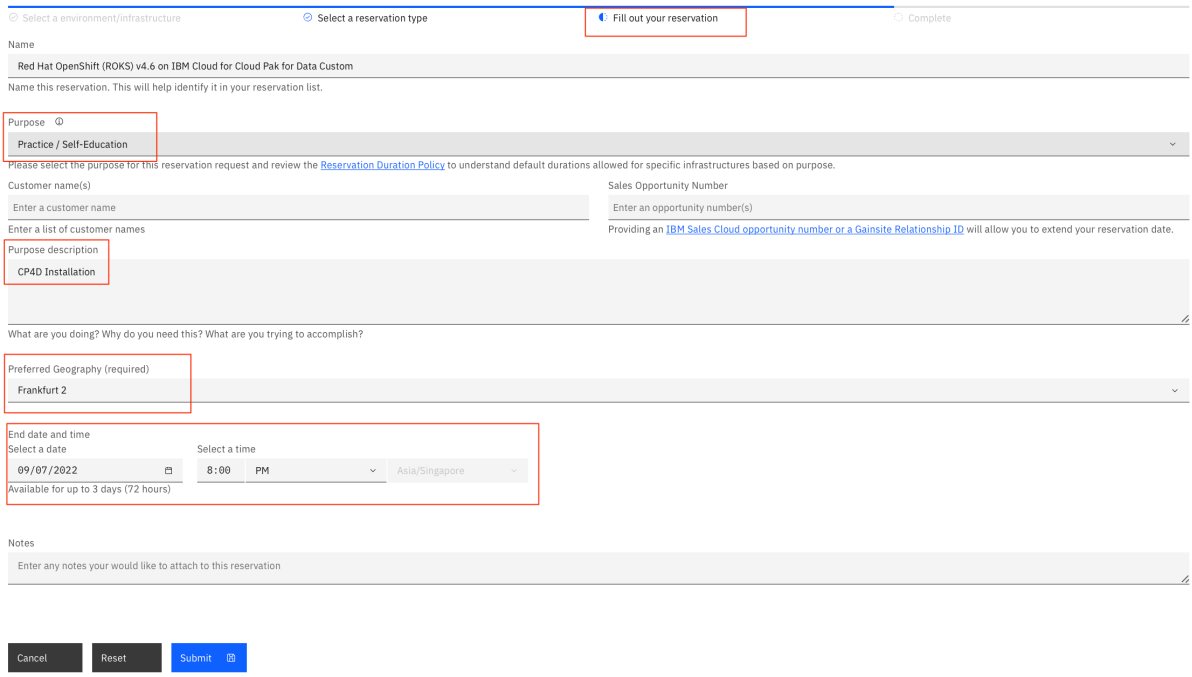
3. Create a reservation of ROKS by “Select a reservation type” -> Click reserve now.



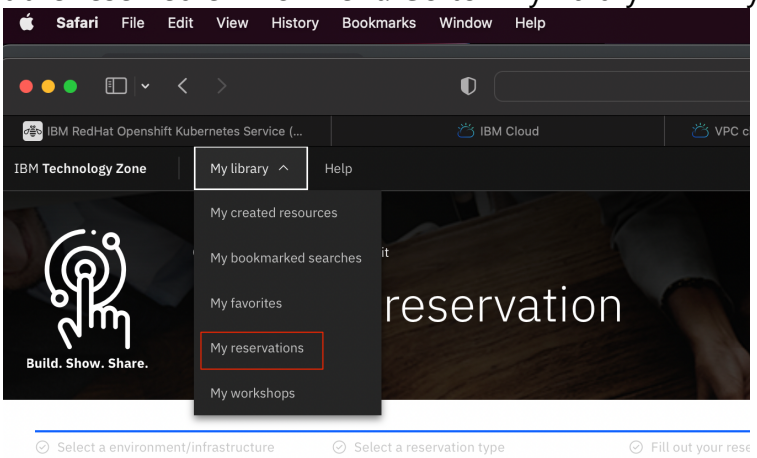
4. Specify the requirements of ROKS by “Fill out your reservation” -> Fill in the following mandatory fields -> Click submit.

Field Name	Field Value

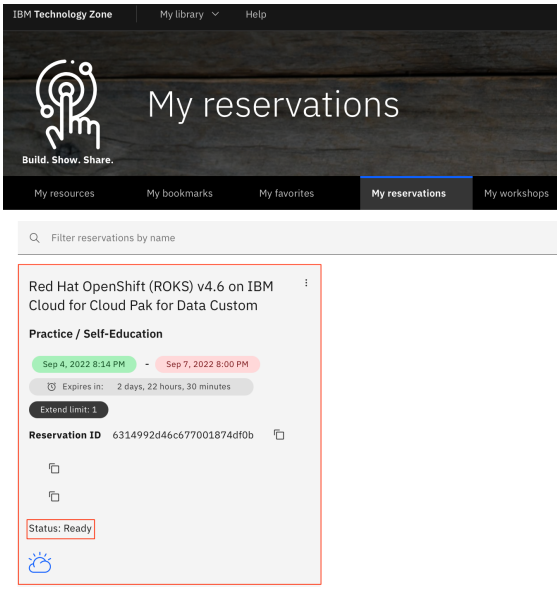
Name	Red Hat OpenShift (ROKS) v4.6 on IBM Cloud for Cloud Pak for Data Custom
Purpose	Practice/self-education
Purpose description	CP4D Installation
Preferred Geography (required)	<<Your nearest location>>
End date and time	Up to 72 hours allowed. You may choose the maximum date time allowed.



5. Check out the reserved environment: Go to “My library” -> “My reservation”



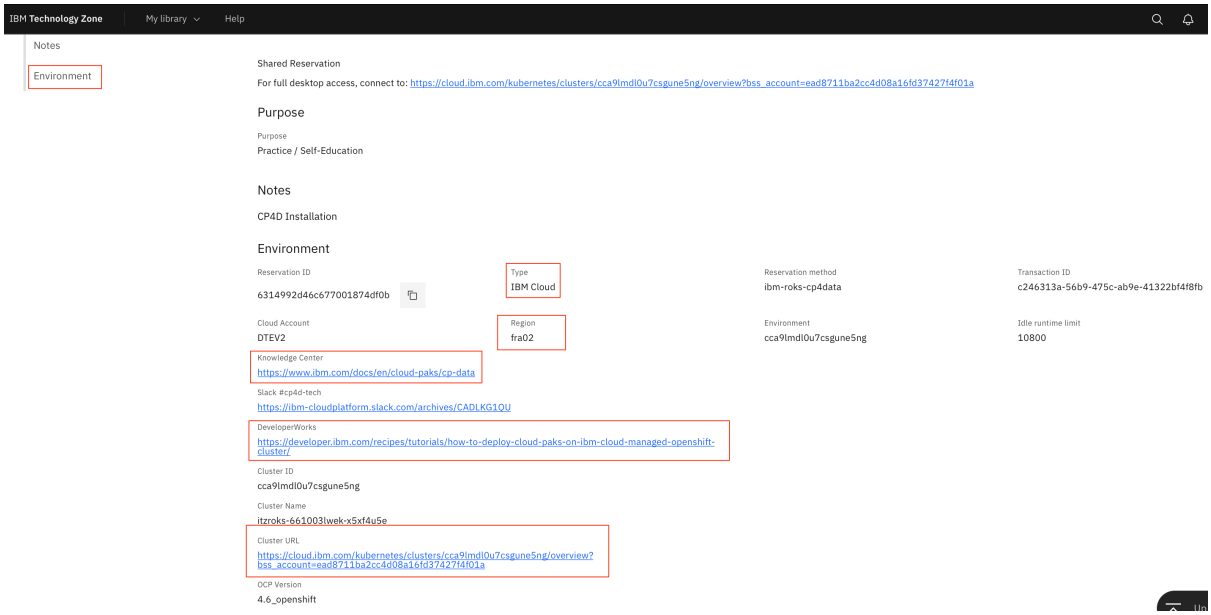
6. Check on the status of the reservation. Status should be “Ready” to continue. Note:



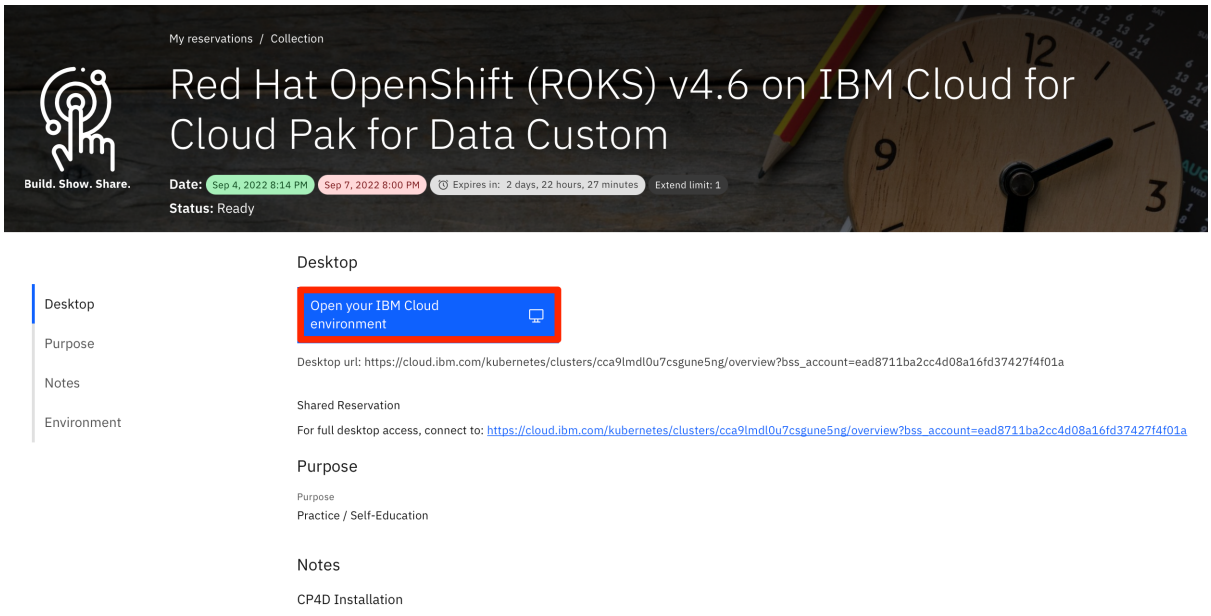
Access to the cluster

1. Environment details is accessible through Click “Environment” to get the details of provisioned environment and confirm on the choice.

Field	Remarks
Type	Cloud Provider
Region	Region that this environment is provisioned
Knowledge Center	Documentations links for your reference.
Slack #cp4d-tech	To discuss on technical matters for WD for ICP4D
DeveloperWorks	Documentations links for your reference.
Cluster URL	URL for the Openshift cluster

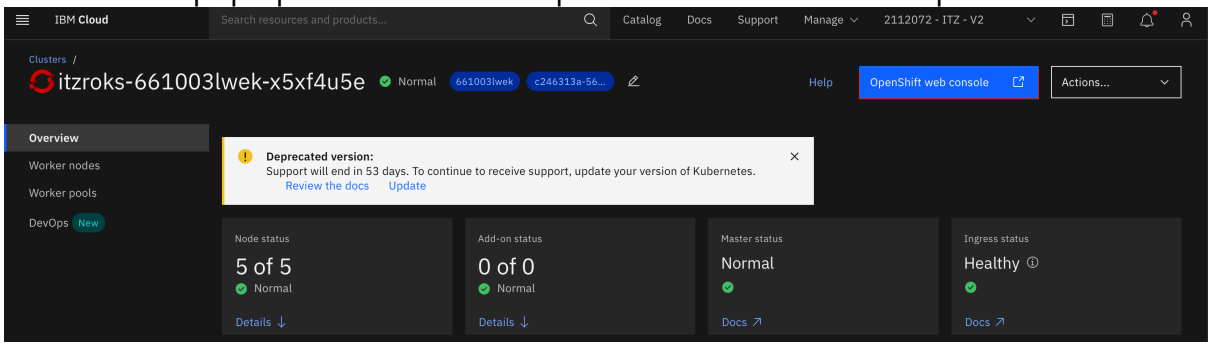


2. IBM cloud environment can be accessed from the “Desktop” -> Click “Open Your IBM Cloud environment”

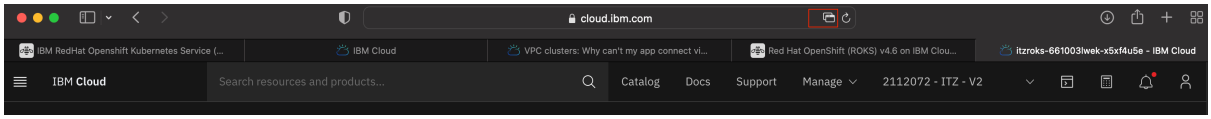


3. OpenShift Web Console can be accessed by click “OpenShift web console”

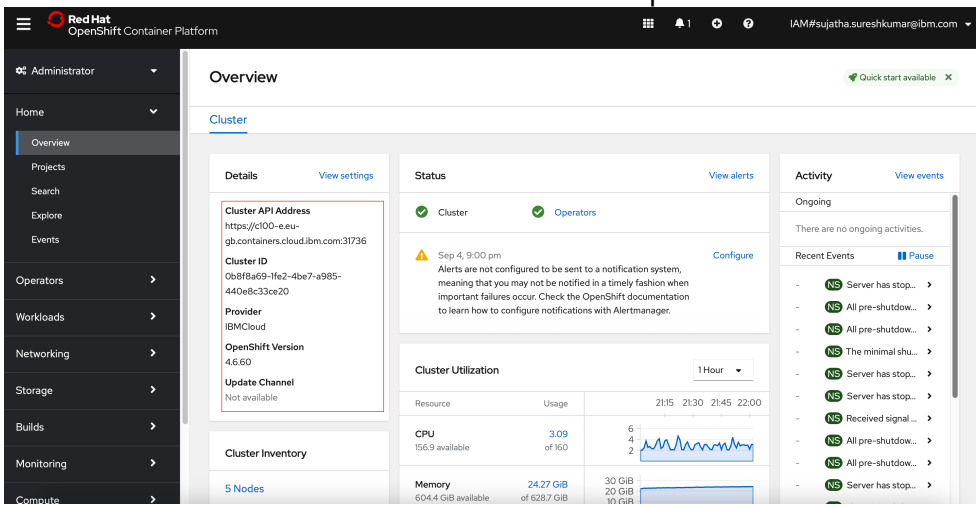
Note: Enable pop up blocker for the “OpenShift web console” to open.



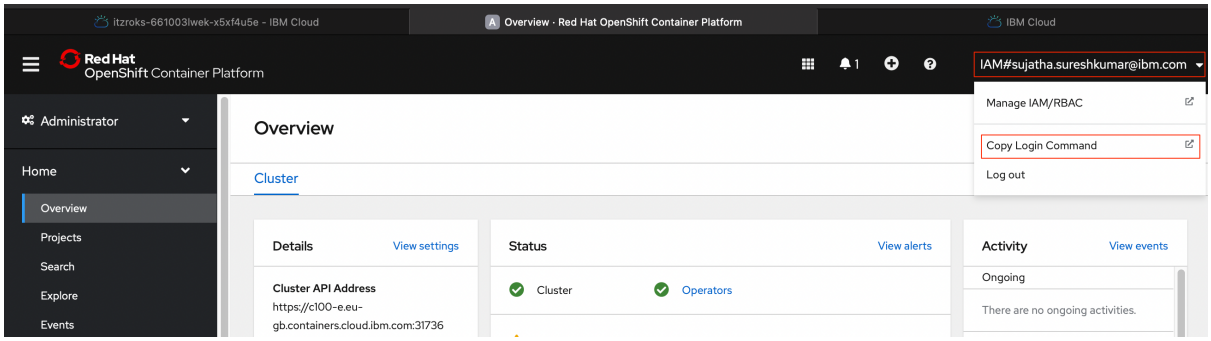
Note: Click the pop-up to open up if it is not enabled previously.



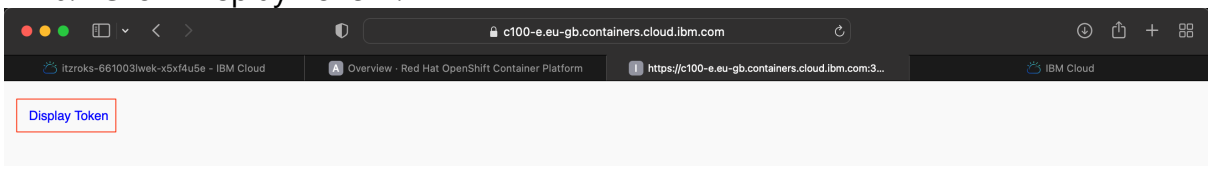
4. Find the cluster details in the overview pane.



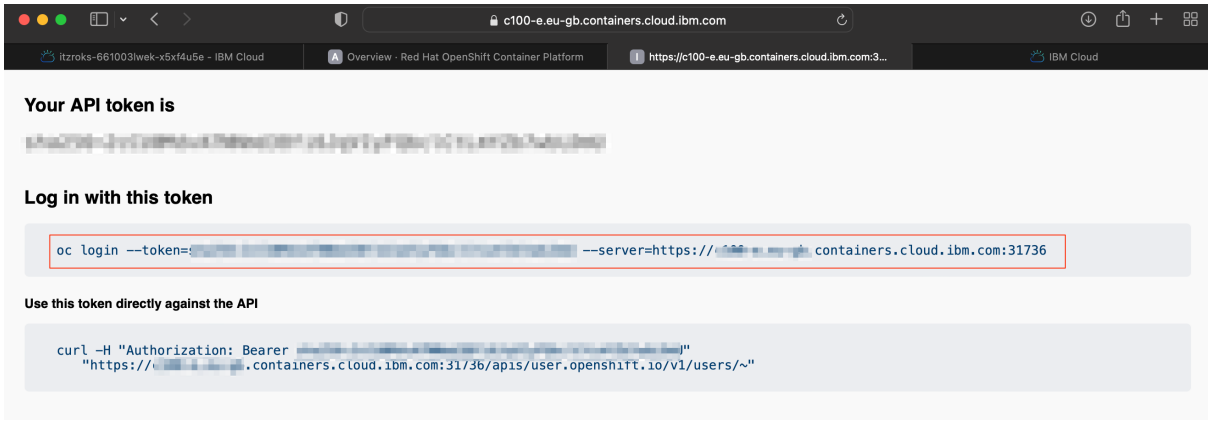
5. OpenShift CLI login details can be retrieved by click “IAM#<<userid>>” -> Click “Copy login command”.



6. Click “Display Token”.



7. oc login commands will be displayed.

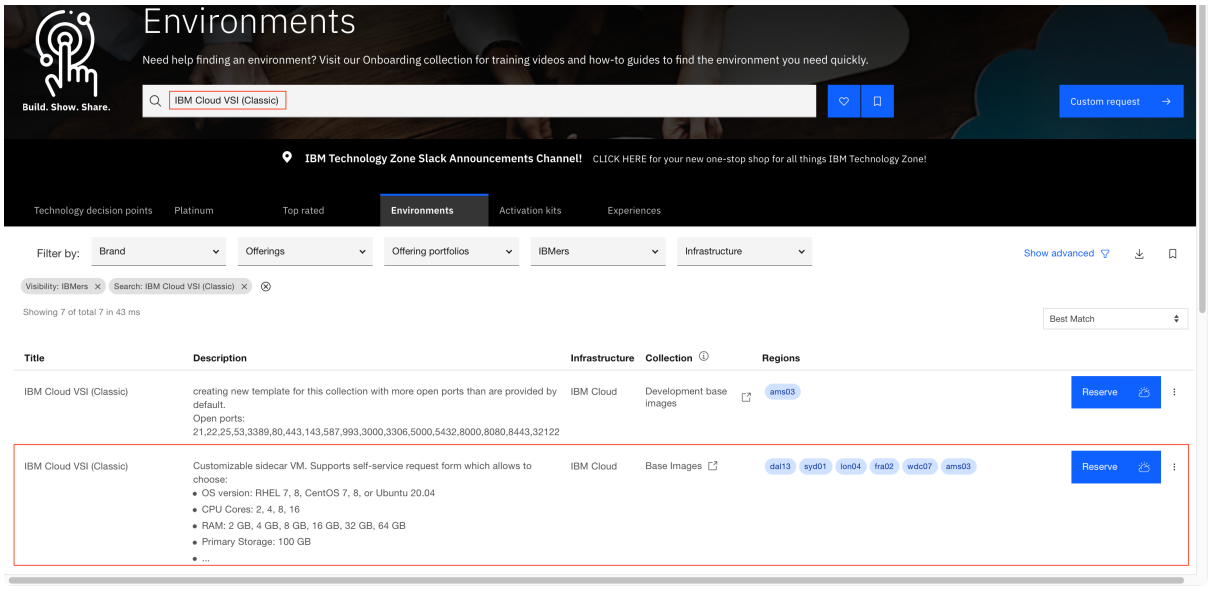


Provisioning of IBM Cloud VSI (Classic)

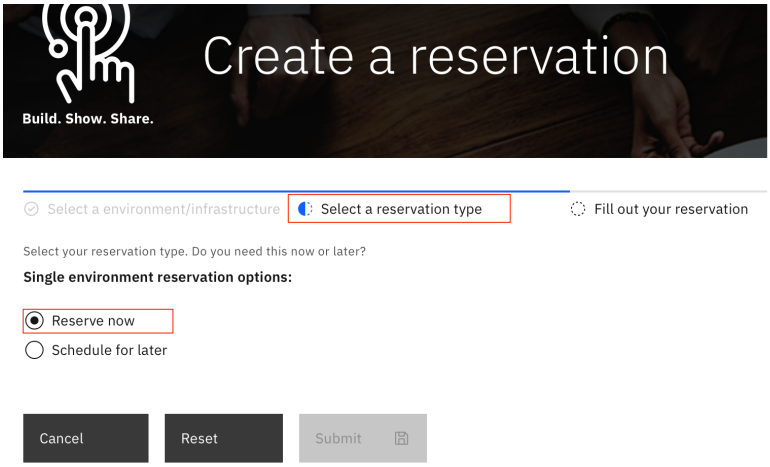
This section covers steps to provision IBM Cloud VSI (Classic). IBM Cloud will be used as bastion server in this scenario. Note: This installation is mandatory either you are installing AWS Openshift Cluster or ROKS.

1. Login to TechZone (https://techzone.ibm.com). Login with your IBMID credentials.

2. Identify the right ROKS through : Go to Environments Tab -> Search for “IBM Cloud VSI (Classic)” Indicating “Customizable sidecar VM. Supports self-service request form which allows to choose:”. Click “Reserve”.

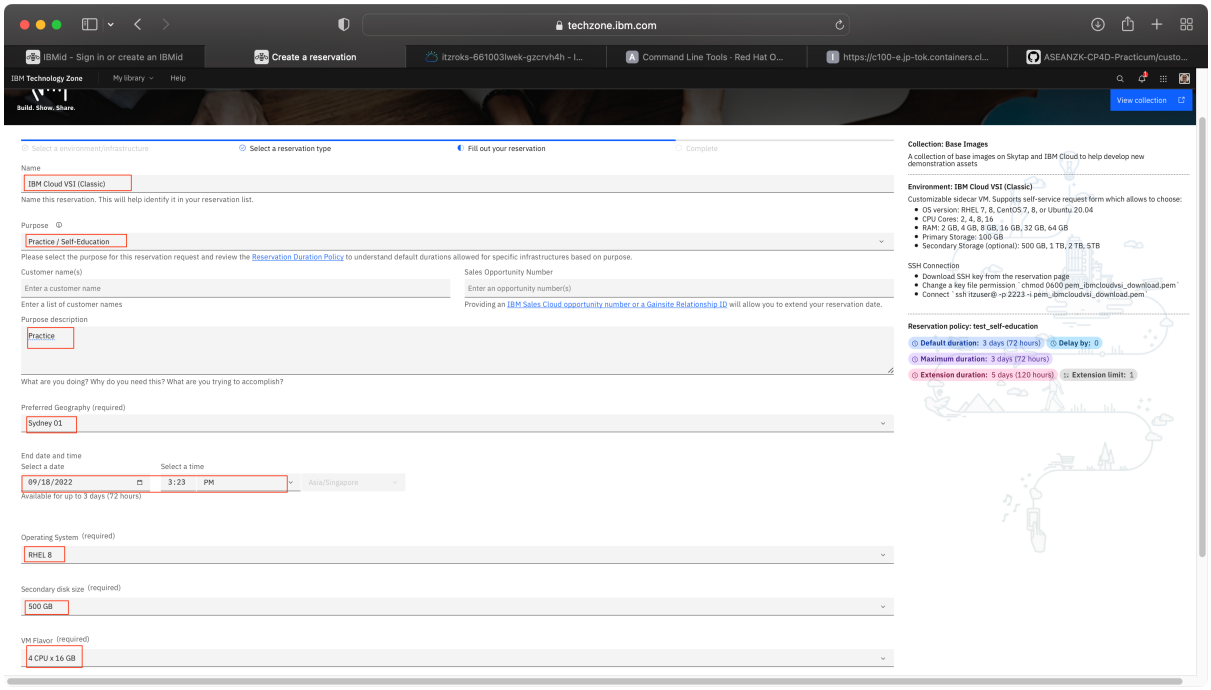


3. Create a reservation by “Select a reservation type” -> Click “reserve now”.

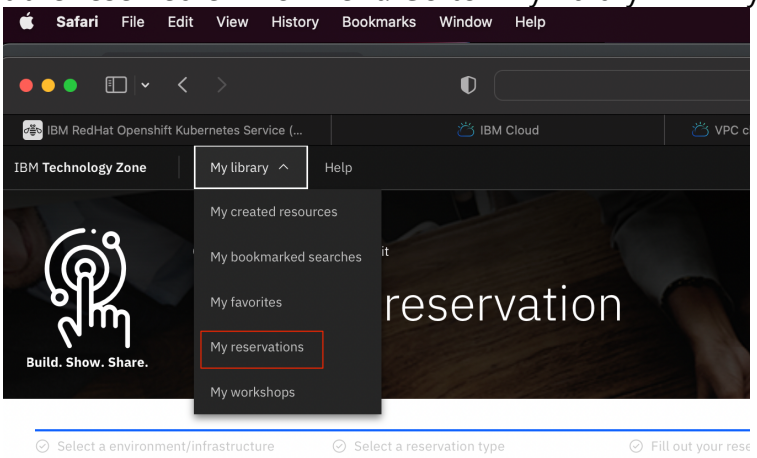


4. Specify the requirements by “Fill out your reservation” -> Fill in the following mandatory fields -> Click submit.

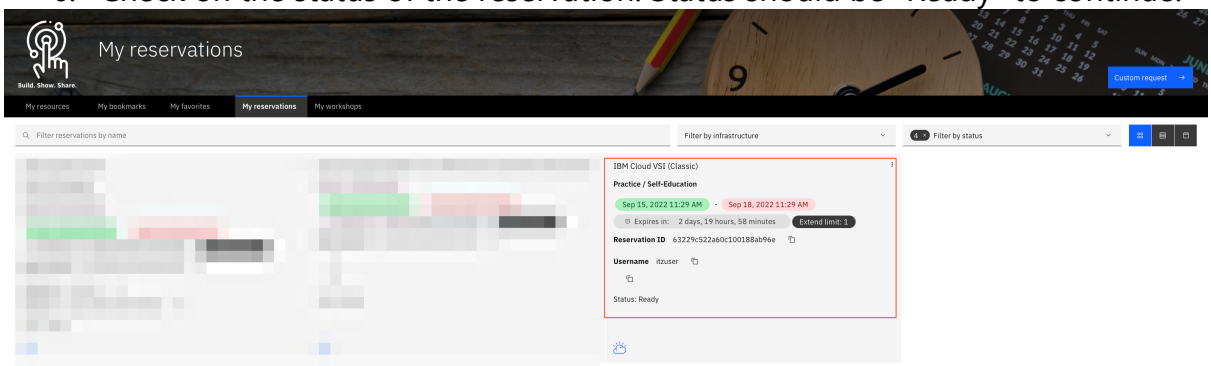
Field Name	Field Value
Name	IBM Cloud VSI (Classic)
Purpose	Practice/self-education
Purpose description	CP4D Installation
Preferred Geography (required)	<<Your nearest location>>
End date and time	Up to 72 hours allowed. You may choose the maximum date time allowed.
Operating System (required)	RHEL 8
Secondary disk size (required)	4.10
OCS/ODF Size (required)	4TiB
VM Flavor (required)	4 CPU x 16 GB



5. Check out the reserved environment: Go to “My library” -> “My reservation”



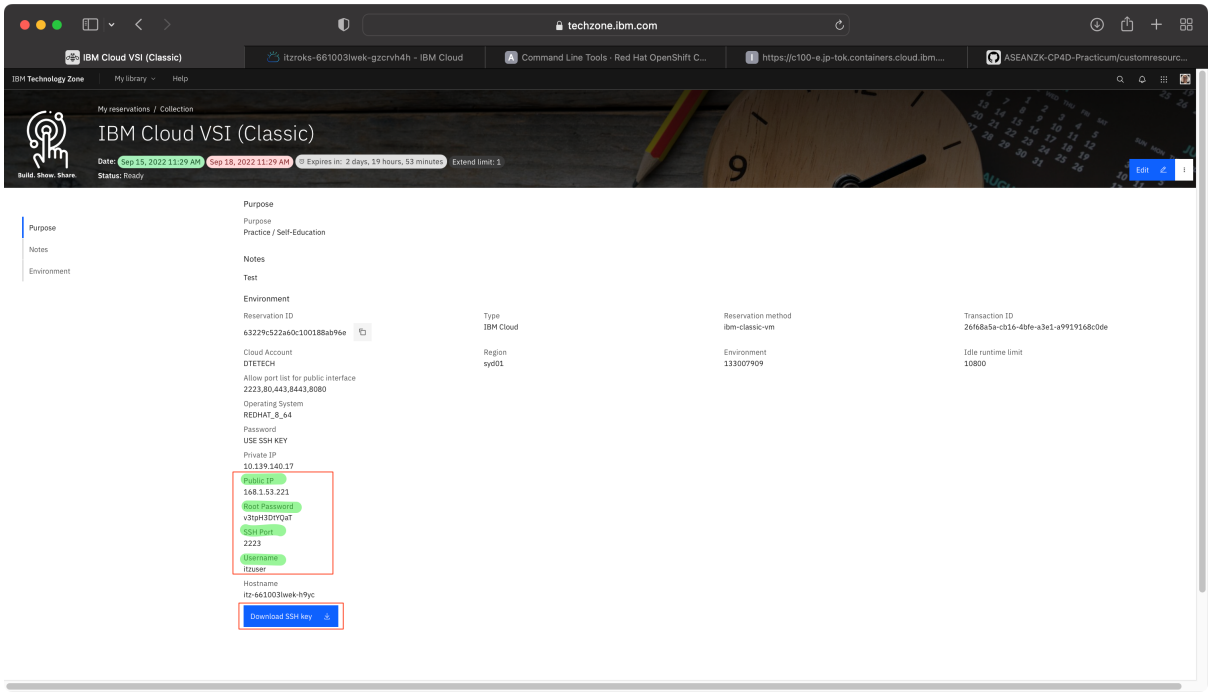
6. Check on the status of the reservation. Status should be “Ready” to continue.



Access to the VSI

1. Environment details is accessible through Click “Environment” to get the details of provisioned environment and confirm on the choice.

Field Name	Remarks
Public IP	Information used to login to the server
Root Password	Information used to login to the server
Ssh Port	Information used to login to the server
Username	Information used to login to the server
SSH Key	Download the key



2. Add the ssh keys in the known-hosts. Note: Apply these commands from where the pem file is downloaded.

```
eval $(ssh-agent)
chown 0400 <<private_key_file>>
ssh-add <<private_key_file>>
```

```
~ % eval $(ssh-agent)
Agent pid 6461
~ % chmod 0400 pem_ibmcloudvsi_download.pem
~ % ssh-add pem_ibmcloudvsi_download.pem
Identity added: pem_ibmcloudvsi_download.pem (pem_ibmcloudvsi_download.pem)
```

3. Login to the VSI using the following commands: Note: Refer to Access to the VSI Section: Step 1 for the necessary details

```
ssh -i <<private_key_file>> <<username>> @ <<Public IP>> -p <<Port Number>>
```

```
~ % ssh -i pem_ibmcloudvsi_download.pem itzuser@168.1.53.221 -p 2223
[itzuser@itz-661003lwek-h9yc ~]$
[itzuser@itz-661003lwek-h9yc ~]$ exit
```

4. Exit from the VSI Machine to logout from the VSI Machine.

```
exit
```

```
~ % ssh -i pem_ibmcloudvsi_download.pem itzuser@168.1.53.221 -p 2223
[itzuser@itz-661003lwek-h9yc ~]$
[itzuser@itz-661003lwek-h9yc ~]$ exit
```

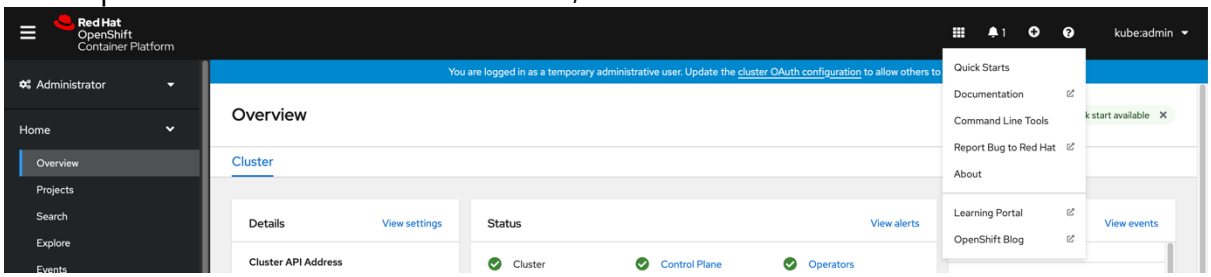
Download & Install the Command-Line Tools

Download OpenShift CLI on Linux

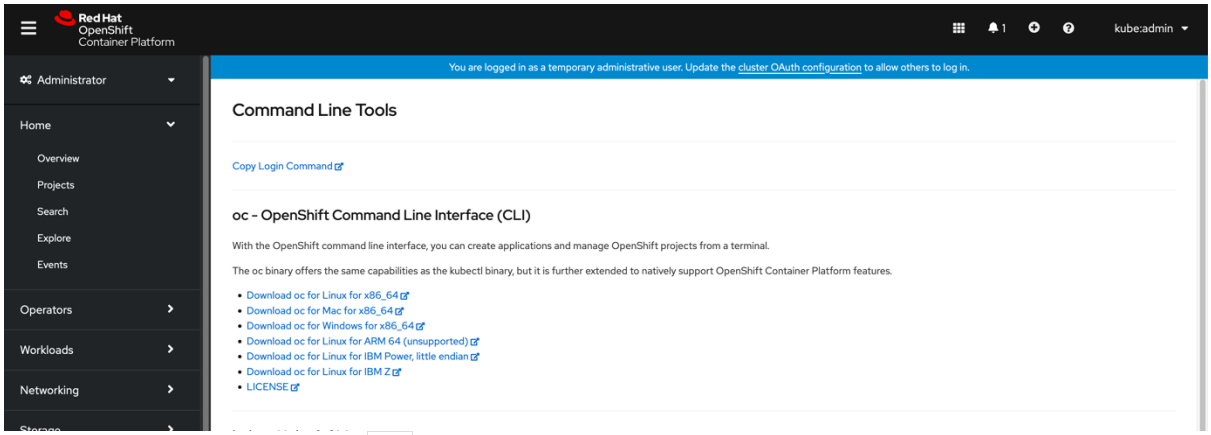
You can install the OpenShift CLI (`oc`) to interact with OpenShift Container Platform from a web console. You can install `oc` on Linux, Windows, or macOS.

Note: If you installed an earlier version of `oc`, you cannot use it to complete all of the commands in OpenShift Container Platform 4.7. Download and install the new version of `oc`.

1. You can install the OpenShift CLI (`oc`) binary on Linux by using the following procedure. From the web console, click **?**.



2. Click **Command Line Tools**.

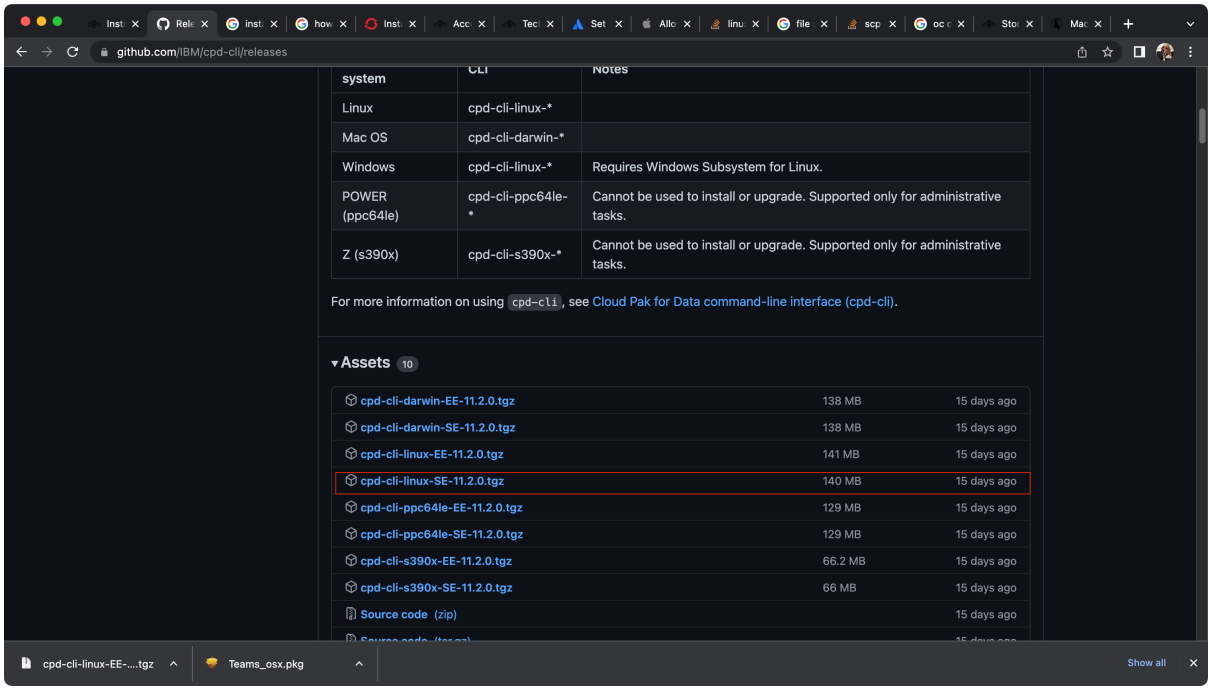


3. Select appropriate `oc` binary for your Linux platform, and then click **Download oc for Linux**.
4. Save the file.
5. Go to the command terminal -> Copy the files to the VSI using command given below. Note: Access to the VSI Section: Step 1 for the necessary details

```
scp  -P <<Port number>> -i <<Key file>> oc.tar
<<username>>@<<PublicIP>>:/home/itzuser/oc.tar
```

Download cmd-cli on Linux

1. Go to >> https://github.com/IBM/cpd-cli/releases >> Download the "cpd-cli-linux-SE-11.2.0.tgz" file from Assets section.



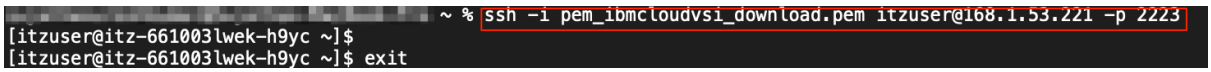
2. Go to the command terminal -> Copy the files to the VSI using command given below. Note: Access to the VSI Section: Step 1 for the necessary details

```
scp  -P <<Port number>> -i <<Key file>> cpd-cli-darwin-EE-11.2.0.tgz
<<username>>@<<PublicIP>>:/home/itzuser/cpd-cli-darwin-EE-11.2.0.tgz
```

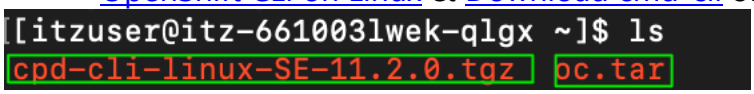
Installation of command-line tools

1. Login to the VSI using the following commands: Note: Refer to Access to the VSI Section: Step 1 for the necessary details

```
ssh -i <<private_key_file>> <<username>> @ <<Public IP>> -p <<Port Number>>
```



2. Ensure the command line tools are copied. Please go to section Download OpenShift CLI on Linux & Download cmd-cli on Linux if the files are not found.



3. Unzip the files cpd-cli-linux-SE-11.2.0.tgz and oc.tar

```
tar xvf cpd-cli-linux-SE-11.2.0.tgz
tar xvf oc.tar
```

```
[itzuser@itz-661003lwek-qlgx ~]$ tar xvf cpd-cli-linux-SE-11.2.0.tgz
cpd-cli-linux-SE-11.2.0-40/
cpd-cli-linux-SE-11.2.0-40/LICENSES/
cpd-cli-linux-SE-11.2.0-40/LICENSES/LA_sl
cpd-cli-linux-SE-11.2.0-40/LICENSES/LI_pl
cpd-cli-linux-SE-11.2.0-40/LICENSES/LA_it
cpd-cli-linux-SE-11.2.0-40/LICENSES/LI_es
cpd-cli-linux-SE-11.2.0-40/LICENSES/LA_zh_TW
cpd-cli-linux-SE-11.2.0-40/LICENSES/LA_tr
cpd-cli-linux-SE-11.2.0-40/LICENSES/LA_zh
cpd-cli-linux-SE-11.2.0-40/LICENSES/LA_el
cpd-cli-linux-SE-11.2.0-40/LICENSES/LI_en
cpd-cli-linux-SE-11.2.0-40/LICENSES/LA_ja
cpd-cli-linux-SE-11.2.0-40/LICENSES/LA_de
cpd-cli-linux-SE-11.2.0-40/LICENSES/notices
cpd-cli-linux-SE-11.2.0-40/LICENSES/LI_fr
cpd-cli-linux-SE-11.2.0-40/LICENSES/LI_lt
```

```
[itzuser@itz-661003lwek-qlgx ~]$ tar xvf oc.tar
oc
```

```
[root@itz-661003lwek-h9yc itzuser]# tar xvf oc.tar
oc
```

4. Copy the files to the /usr/bin directory.

```
sudo cp oc /usr/bin
cd cpd-cli-linux-SE-11.2.0-40
```

```
sudo cp -R LICENSES /usr/bin
sudo cp -R plugins /usr/bin
sudo cp cpd-cli /usr/bin
```

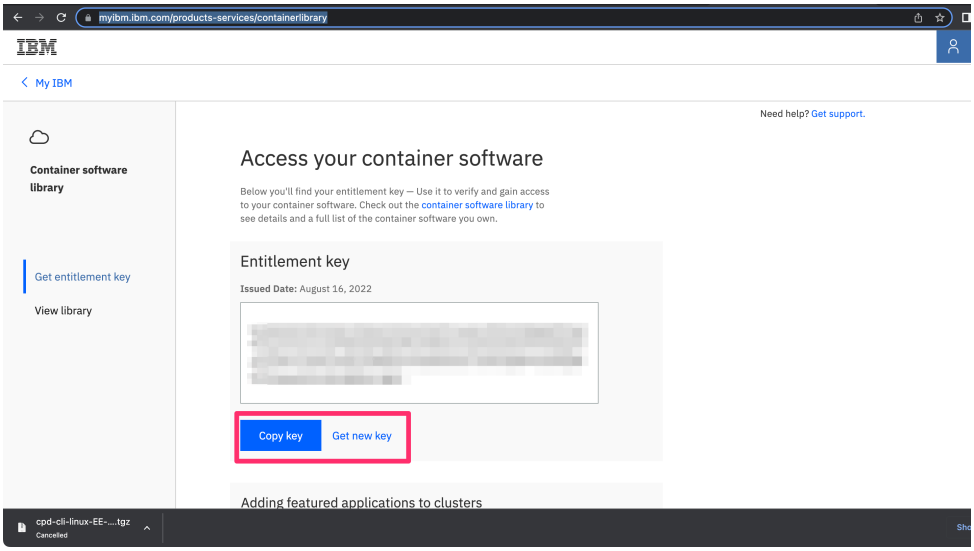
```
[itzuser@itz-661003lwek-qlgx ~]$ sudo cp oc /usr/bin
[itzuser@itz-661003lwek-qlgx ~]$ cd cpd-cli-linux-SE-11.2.0-40
[itzuser@itz-661003lwek-qlgx cpd-cli-linux-SE-11.2.0-40]$ sudo cp -R LICENSES /usr/bin
[itzuser@itz-661003lwek-qlgx cpd-cli-linux-SE-11.2.0-40]$ sudo cp -R plugins /usr/bin
[itzuser@itz-661003lwek-qlgx cpd-cli-linux-SE-11.2.0-40]$ sudo cp cpd-cli /usr/bin
```

Pre-Installation Steps

The steps outlined below will assist you to prepare the ROKS with various pre-installation steps.

IBM Entitlement Key

1. Go to https://myibm.ibm.com/products-services/containerlibrary
2. Click “Copy key” (PS: If empty click “Get new key”)



Setup Environment Variables

1. Create a shell script to store the environment variables.

```
vi cp4d_vars.sh
```

2. Following environment variables are declared in "cp4d_vars.sh". Replace the values based on the guide given below.
   - IBM Entitlement Key => Refer to section: IBM Entitlement Key.
   - OCP Token => Refer to section: Access to the cluster: Step 7 for the login command
   - OCP URL => Refer to section: Access to the cluster: Step 7 for the login command

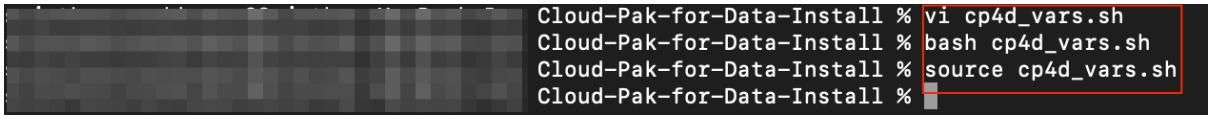
```
export OCP_URL= # enter your Red Hat OpenShift Container Platform URL
export OPENSHIFT_TYPE=rosa    # enter your deployment type
#export OCP_USERNAME= # enter your username
#export OCP_PASSWORD= # enter your password>
export OCP_TOKEN= # enter your token
export PROJECT_CPFS_OPS=ibm-common-services
export PROJECT_CPD_OPS=cpd-operators     # enter your Cloud Pak for Data operator installation project
export PROJECT_CATSRC=openshift-marketplace
export PROJECT_CPD_INSTANCE=cpd-instance      # enter your Cloud Pak for Data installation project
export STG_CLASS_BLOCK=ocs-storagecluster-ceph-rbd # RWO-storage-class-name
export STG_CLASS_FILE=ocs-storagecluster-cephfs    # RWX-storage-class-name
export IBM_ENTITLEMENT_KEY= # enter your IBM entitlement API key
export VERSION=4.5.2
export COMPONENTS=cpfs,cpd_platform  # cpfs,scheduler,cpd_platform,component-ID
```

3. Validation of "cp4d_vars.sh" shell script. Note: This step has to be executed every time there is a change in the "cp4d_vars.sh" shell script.

```
bash cp4d_vars.sh
```

4. Declaration of the environment variables. Note: This step has to be executed every time there is a change in the "cp4d_vars.sh" shell script.

```
source cp4d_vars.sh
```

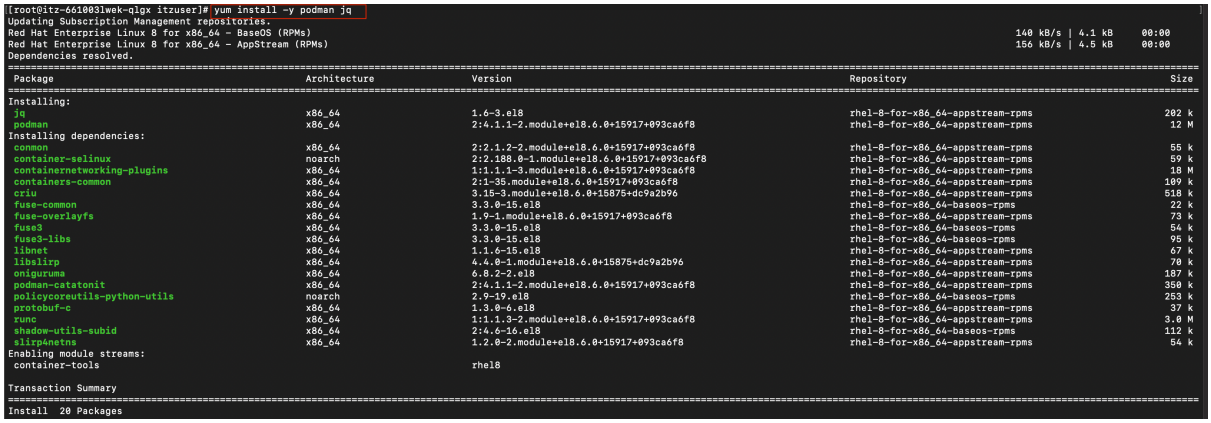


Installation of Cloud Pak for Data

Setting up projects (namespaces) on Red Hat OpenShift Container Platform

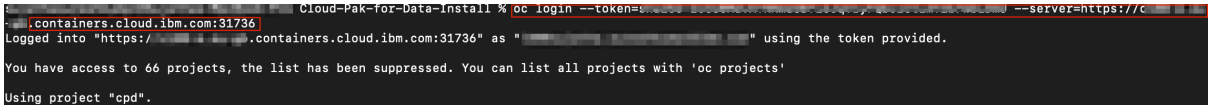
1. Install podman jq

```
yum install -y podman jq
```



2. Login to your OpenShift cluster by executing the following command. Make sure the user you use has cluster and project admin access.

```
Refer to section: Access to the cluster: Step 7 for the login command
oc login --token=${OCP_TOKEN} --server=${OCP_URL}
```



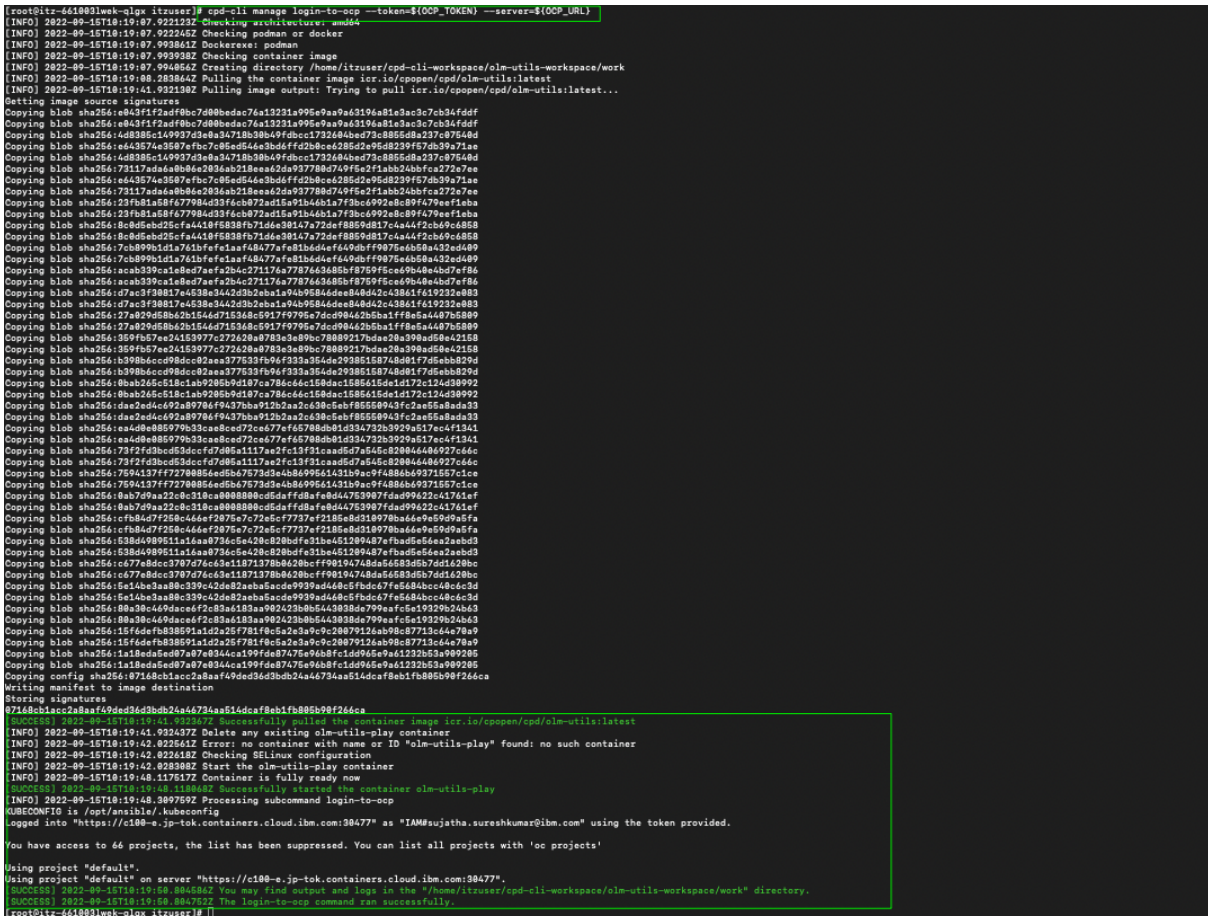
3. Create the projects by running the following commands

```
oc new-project ${PROJECT_CPFS_OPS}
oc new-project ${PROJECT_CPD_OPS}
oc new-project ${PROJECT_CPD_INSTANCE}
```

```
[root@itz-661003lwek-qlgx itzuser]# oc new-project ${PROJECT_CPFS_OPS}
Now using project "ibm-common-services" on server "https://c100-e.jp-tok.containers.cloud.ibm.com:30477".

You can add applications to this project with the 'new-app' command. For example, try:

    oc new-app rails-postgresql-example

to build a new example application in Ruby. Or use kubectl to deploy a simple Kubernetes application:

    kubectl create deployment hello-node --image=k8s.gcr.io/serve_hostname

[root@itz-661003lwek-qlgx itzuser]# oc new-project ${PROJECT_CPD_OPS}
Now using project "cpd-operators" on server "https://c100-e.jp-tok.containers.cloud.ibm.com:30477".

You can add applications to this project with the 'new-app' command. For example, try:

    oc new-app rails-postgresql-example

to build a new example application in Ruby. Or use kubectl to deploy a simple Kubernetes application:

    kubectl create deployment hello-node --image=k8s.gcr.io/serve_hostname

[root@itz-661003lwek-qlgx itzuser]# oc new-project ${PROJECT_CPD_INSTANCE}
Now using project "cpd-instance" on server "https://c100-e.jp-tok.containers.cloud.ibm.com:30477".

You can add applications to this project with the 'new-app' command. For example, try:

    oc new-app rails-postgresql-example

to build a new example application in Ruby. Or use kubectl to deploy a simple Kubernetes application:

    kubectl create deployment hello-node --image=k8s.gcr.io/serve_hostname
```

4. Login to cloud pak for data command line tools

```
cpd-cli manage login-to-ocp --token=${OCP_TOKEN} --server=${OCP_URL}
```



5. Apply the new configuration by running the following command. It will restart master and worker nodes.

```
cpd-cli manage add-icr-cred-to-global-pull-secret ${IBM_ENTITLEMENT_KEY}
cpd-cli manage oc get nodes
```

```
[root@itz-661003lwek-qlgx itzuser]# cpd-cli manage add-icr-cred-to-global-pull-secret ${IBM_ENTITLEMENT_KEY}
[INFO] 2022-09-15T10:25:43.494127Z Checking architecture: amd64
[INFO] 2022-09-15T10:25:43.494217Z Checking podman or docker
[INFO] 2022-09-15T10:25:43.563640Z Dockerexe: podman
[INFO] 2022-09-15T10:25:43.563797Z Checking container image
[INFO] 2022-09-15T10:25:43.740163Z Container olm-utils-play is running already. Image: icr.io/cpopen/cpd/olm-utils:latest
[INFO] 2022-09-15T10:25:43.740227Z Container olm-utils-play is running already. Image: icr.io/cpopen/cpd/olm-utils:latest
[INFO] 2022-09-15T10:25:43.917292Z Processing subcommand add-icr-cred-to-global-pull-secret
Saved credentials for cp.icr.io
secret/pull-secret data updated
[SUCCESS] 2022-09-15T10:25:47.016293Z You may find output and logs in the "/home/itzuser/cpd-cli-workspace/olm-utils-workspace/work" directory.
[SUCCESS] 2022-09-15T10:25:47.016358Z The add-icr-cred-to-global-pull-secret command ran successfully.
[root@itz-661003lwek-qlgx itzuser]#
```

```
[root@itz-661003lwek-qlgx itzuser]# cpd-cli manage oc get nodes
[INFO] 2022-09-15T10:27:27.631982Z Checking architecture: amd64
[INFO] 2022-09-15T10:27:27.632019Z Checking podman or docker
[INFO] 2022-09-15T10:27:27.699709Z Dockerexe: podman
[INFO] 2022-09-15T10:27:27.699826Z Checking container image
[INFO] 2022-09-15T10:27:27.882159Z Container olm-utils-play is running already. Image: icr.io/cpopen/cpd/olm-utils:latest
[INFO] 2022-09-15T10:27:27.882230Z Container olm-utils-play is running already. Image: icr.io/cpopen/cpd/olm-utils:latest
[INFO] 2022-09-15T10:27:28.059341Z Processing subcommand oc
NAME            STATUS   ROLES           AGE    VERSION
10.212.218.109  Ready    master,worker   115m   v1.19.16+8203b20
10.212.218.111  Ready    master,worker   116m   v1.19.16+8203b20
10.212.218.119  Ready    master,worker   115m   v1.19.16+8203b20
10.212.218.121  Ready    master,worker   116m   v1.19.16+8203b20
10.212.218.90   Ready    master,worker   116m   v1.19.16+8203b20
[SUCCESS] 2022-09-15T10:27:29.046624Z You may find output and logs in the "/home/itzuser/cpd-cli-workspace/olm-utils-workspace/work" directory.
[SUCCESS] 2022-09-15T10:27:29.046820Z The oc command ran successfully.
[root@itz-661003lwek-qlgx itzuser]#
```

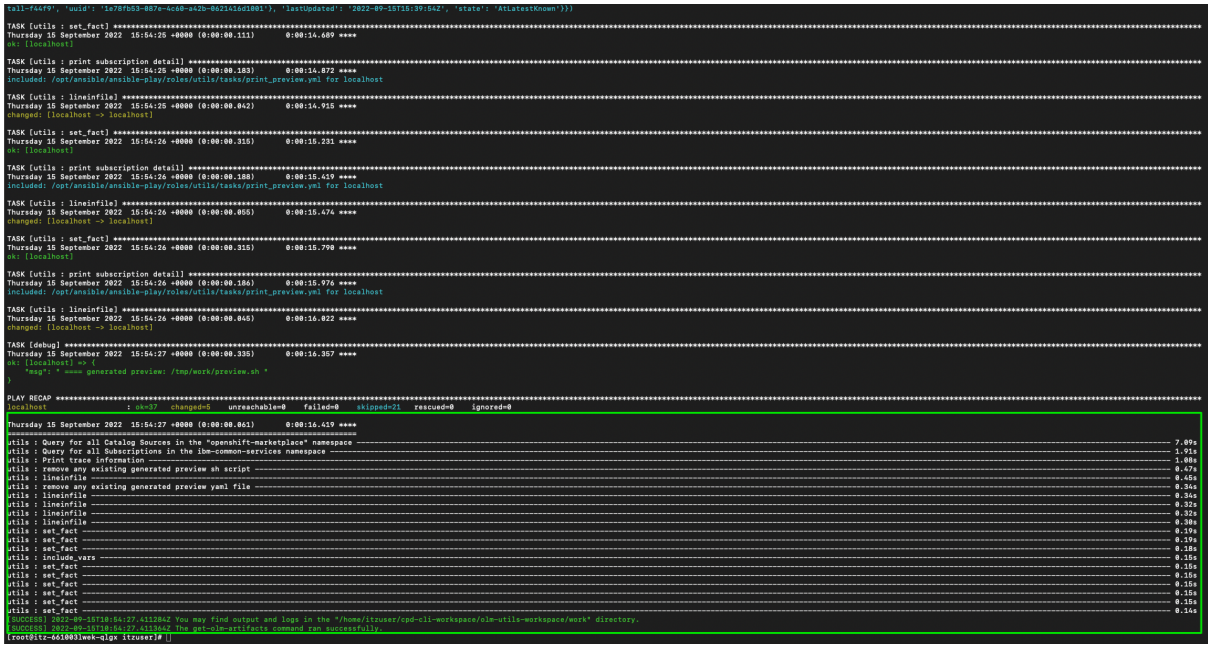
6. Create the IBM Cloud Pak foundational services operators and the Cloud Pak for Data operators in the ibm-common-services project.

```
cpd-cli manage apply-olm \
--release=${VERSION} \
--components=${COMPONENTS} \
--cpd_operator_ns=${PROJECT_CPD_OPS}
```

```
Thursday 15 September 2022  15:52:02 +0000 (0:00:00.048)       0:01:58.968 ****

TASK [utils : waiting for multiple CSVs to be ready] ***************************************************************************************************************************************************
Thursday 15 September 2022  15:52:02 +0000 (0:00:00.046)       0:01:59.015 ****
skipping: [localhost] => (item=ibm-cpd-scheduling-operator.v1.6.2)
skipping: [localhost] => (item=cpfs)
included: /opt/ansible/ansible-play/roles/utils/tasks/wait_for_csv.yml for localhost => (item=cpd_platform)

TASK [utils : set_fact] ********************************************************************************************************************************************************************************
Thursday 15 September 2022  15:52:03 +0000 (0:00:00.099)       0:01:59.115 ****
ok: [localhost]

TASK [utils : set_fact] ********************************************************************************************************************************************************************************
Thursday 15 September 2022  15:52:03 +0000 (0:00:00.035)       0:01:59.150 ****
ok: [localhost]

TASK [utils : set_fact] ********************************************************************************************************************************************************************************
Thursday 15 September 2022  15:52:03 +0000 (0:00:00.062)       0:01:59.213 ****
ok: [localhost]

TASK [utils : try to find exisiting subscription names by package cpd-platform-operator] ***************************************************************************************************************
Thursday 15 September 2022  15:52:03 +0000 (0:00:00.067)       0:01:59.281 ****
changed: [localhost]

TASK [utils : set_fact] ********************************************************************************************************************************************************************************
Thursday 15 September 2022  15:52:04 +0000 (0:00:01.023)       0:02:00.304 ****
ok: [localhost]

TASK [utils : get installedCSV for Subscription: cpd-operator .v3.1.0] *********************************************************************************************************************************
Thursday 15 September 2022  15:52:04 +0000 (0:00:00.070)       0:02:00.375 ****
ok: [localhost]

TASK [utils : check if installedCSV: cpd-platform-operator.v3.1.0 'Succeeded' for Subscription: cpd-operator] ******************************************************************************************************
Thursday 15 September 2022  15:52:11 +0000 (0:00:06.943)       0:02:07.319 ****
ok: [localhost]

TASK [utils : confirm the Operator Deployment is ready for csv cpd-platform-operator.v3.1.0] **********************************************************************************************************
Thursday 15 September 2022  15:52:13 +0000 (0:00:02.093)       0:02:09.412 ****
ok: [localhost]

TASK [debug] *******************************************************************************************************************************************************************************************
Thursday 15 September 2022  15:52:21 +0000 (0:00:07.893)       0:02:17.305 ****
skipping: [localhost]

PLAY RECAP *********************************************************************************************************************************************************************************************
localhost                  : ok=129  changed=9    unreachable=0    failed=0    skipped=117  rescued=0    ignored=0

Thursday 15 September 2022  15:52:21 +0000 (0:00:00.058)       0:02:17.364 ****
===============================================================================
utils : waiting for ODLM and Namespace Scope operators to come online ---------------------------------------------------------------------------------------------------------------------------- 15.63s
utils : Check if namespacescope configmap is already present in cpd-operators ------------------------------------------------------------------------------------------------------------------- 12.92s
utils : Create CPFS namespace if not present ibm-common-services --------------------------------------------------------------------------------------------------------------------------- 8.66s
utils : check if ibm-common-services-operator deployment is present in: ibm-common-services ------------------------------------------------------------------------------------------------ 8.45s
utils : check existing operator group in ibm-common-services namespace --------------------------------------------------------------------------------------------------------------------- 8.26s
utils : confirm the Operator Deployment is ready for csv cpd-platform-operator.v3.1.0 ------------------------------------------------------------------------------------------------------ 7.89s
utils : Create cpd operator namespace if not present cpd-operators ------------------------------------------------------------------------------------------------------------------------- 7.87s
utils : check existing operator group in cpd-operators namespace --------------------------------------------------------------------------------------------------------------------------- 7.82s
utils : get installedCSV for Subscription: cpd-operator .v3.1.0 ---------------------------------------------------------------------------------------------------------------------------- 6.94s
utils : install catalog source 'opencloud-operators' using /tmp/work/offline/4.5.2/cpfs/ibm-cp-common-services-1.16.0.tgz ------------------------------------------------------------------- 5.58s
utils : install catalog source 'cpd-platform' using /tmp/work/offline/4.5.2/cpd_platform/ibm-cp-datacore-2.2.0.tgz ---------------------------------------------------------------------- 3.34s
utils : applying operator subscription cpd-operator with cpd-platform ---------------------------------------------------------------------------------------------------------------------- 2.52s
utils : workaround file permissions in case package: /tmp/work/offline/4.5.2/cpd_platform/ibm-cp-datacore-2.2.0.tgz ------------------------------------------------------------------------- 2.15s
utils : check if installedCSV: cpd-platform-operator.v3.1.0 'Succeeded' for Subscription: cpd-operator ------------------------------------------------------------------------------------- 2.09s
utils : Check Readiness of Catalog Source "cpd-platform" before creating the subscription -------------------------------------------------------------------------------------------------- 1.96s
utils : fetch NamespaceScope CR in cpd-operators ------------------------------------------------------------------------------------------------------------------------------------------- 1.93s
utils : check if namespacescope is present in cpd-operators -------------------------------------------------------------------------------------------------------------------------------- 1.93s
utils : Confirm existence of Catalog Source object "opencloud-operators" ------------------------------------------------------------------------------------------------------------------- 1.91s
utils : Confirm existence of Catalog Source object "cpd-platform" -------------------------------------------------------------------------------------------------------------------------- 1.91s
utils : check if ODLM subscription is present in: ibm-common-services --------------------------------------------------------------------------------------------------------------------- 1.90s
[SUCCESS] 2022-09-15T10:52:21.436979Z You may find output and logs in the "/home/itzuser/cpd-cli-workspace/olm-utils-workspace/work" directory.
[SUCCESS] 2022-09-15T10:52:21.436982Z The apply-olm command ran successfully.
root@itz-661003lwek-qlgx itzuser#
```

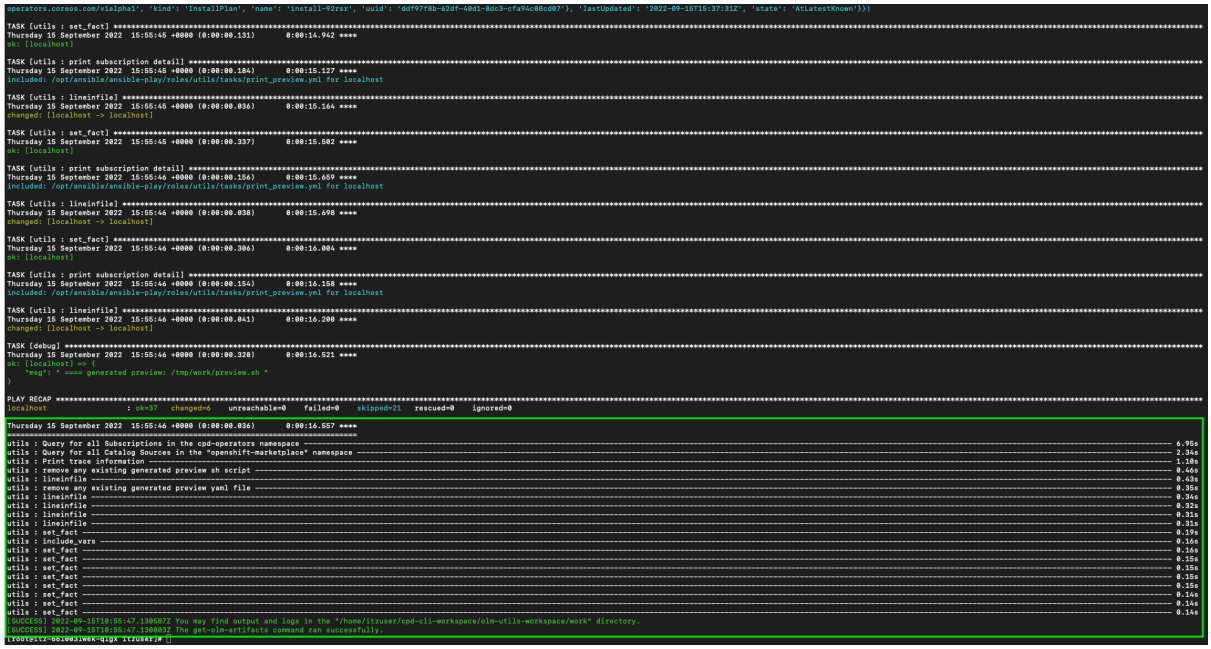
7. Get the list of catalog sources and operator subscriptions that are on the cluster and apply to common services.

```
cpd-cli manage get-olm-artifacts \
--subscription_ns=${PROJECT_CPFS_OPS}
```



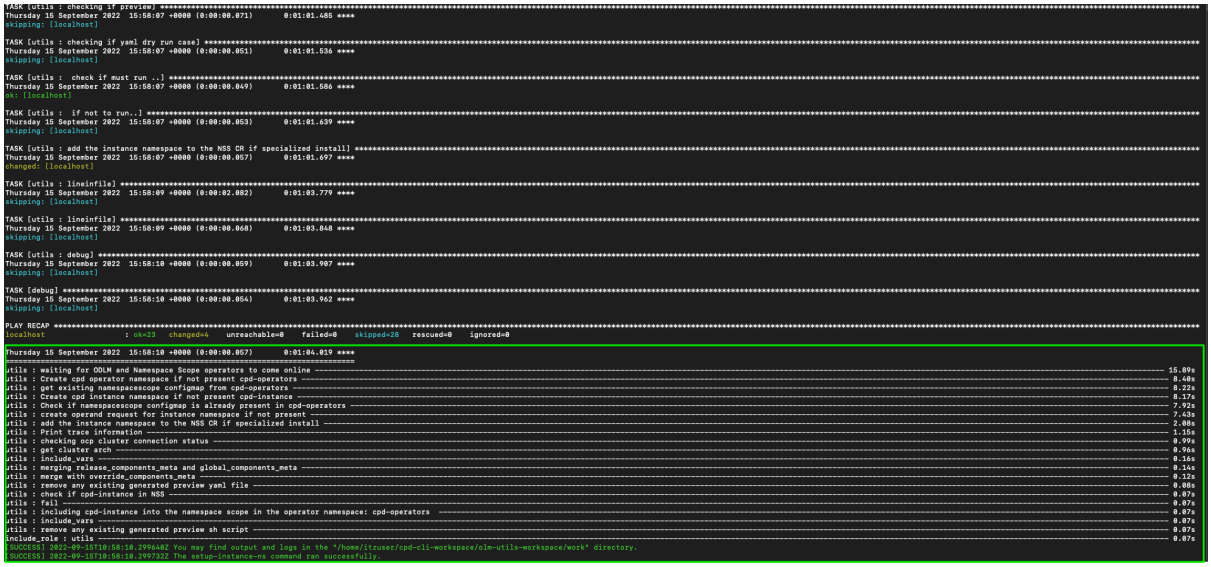
8. Get the list of catalog sources and operator subscriptions that are on the cluster and apply to cpd folder.

```
cpd-cli manage get-olm-artifacts \
--subscription_ns=${PROJECT_CPD_OPS}
```



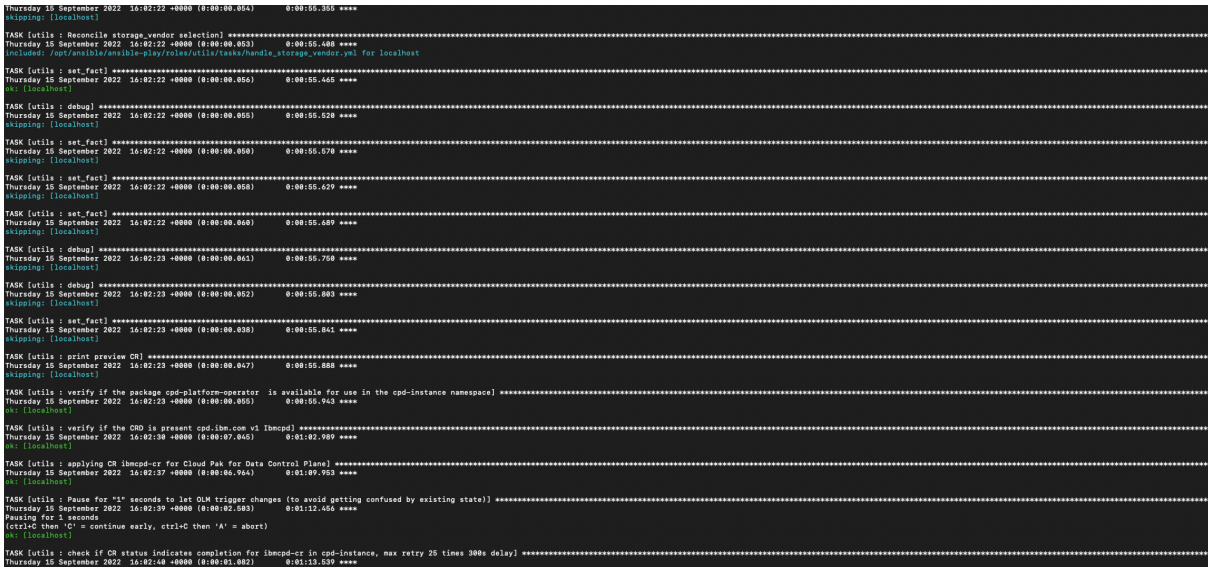
9. Data operators are installed to the project where the control plane and services are being installed

```
cpd-cli manage setup-instance-ns \
--cpd_instance_ns=${PROJECT_CPD_INSTANCE} \
--cpd_operator_ns=${PROJECT_CPD_OPS}
```



10. Install or upgrade the specified components. The command creates or updates the custom resource objects with the appropriate settings.

```
cpd-cli manage apply-cr \
--components=${COMPONENTS} \
--release=${VERSION} \
--cpd_instance_ns=${PROJECT_CPD_INSTANCE} \
--block_storage_class=${STG_CLASS_BLOCK} \
--file_storage_class=${STG_CLASS_FILE} \
--license_acceptance=true
```



11. Get status for all installed components

```
cpd-cli manage get-cr-status
```

Validation of Cloud Pak for Data Installation

Access the Cloud Pak for Data

1. Get the URL for the Cloud Pak for Data web client and the credentials of the default administrator (admin).

```
cpd-cli manage get-cpd-instance-details \
--cpd_instance_ns=${PROJECT_CPD_INSTANCE} \
--get_admin_initial_credentials=true
```

1. Get the URL of the Cloud Pak for the Data web client.

```
oc get ZenService lite-cr -o jsonpath="{.status.url}{'\n'}"
```

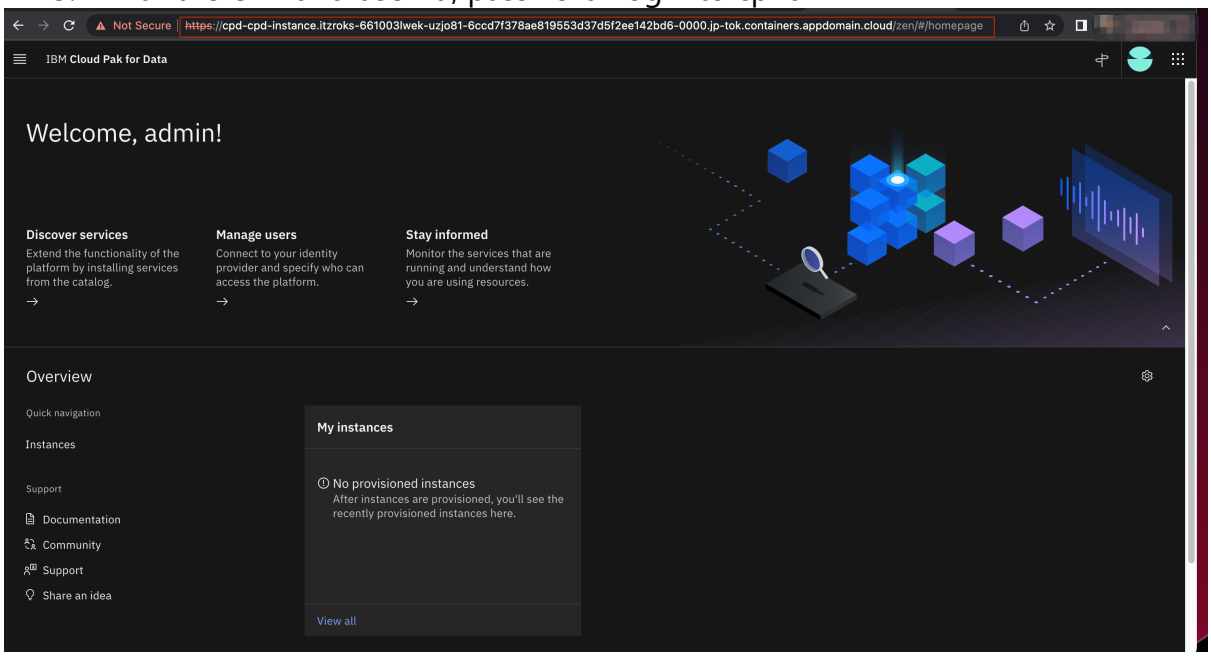
```
CP4D % oc get ZenService lite-cr -o jsonpath="{.status.url}{'\n'}"
cpd-cpd-instance.itzroks-6610031wek-uzjo81-6ccd7f378ae819553d37d5f2ee142bd6-0000.jp-tok.containers.appdomain.cloud
CP4D % oc extract secret/admin-user-details --keys=initial_admin_password --to=-
# initial_admin_password
7aPSV8LbWKTg
```

2. Get the initial password for the admin user.

```
oc extract secret/admin-user-details --keys=initial_admin_password --to=-
```

```
CP4D % oc get ZenService lite-cr -o jsonpath="{.status.url}{'\n'}"
cpd-cpd-instance.itzroks-6610031wek-uzjo81-6ccd7f378ae819553d37d5f2ee142bd6-0000.jp-tok.containers.appdomain.cloud
CP4D % oc extract secret/admin-user-details --keys=initial_admin_password --to=-
# initial_admin_password
7aPSV8LbWKTg
```

3. With the URL and user id, password Login to cp4d



4. You are now logged into Cloud Pak for Data(CP4D). Now you can move to Scenario 1 or 2 or 3 and start doing your Practicum Lab exercise.