

Oracle Cloud - Big Data Service (BDS)

Cluster setup and monitoring

Storyline

[Aim of this document is to let you have a novice way to follow configuration and monitor Big Data Service\(BDS\) with Oracle Cloud Infrastructure \(OCI\).](#)

Journey

Oracle Cloud Account Sign up

[Know your region: India West \(Mumbai\) - Home Region \(Region Identifier: ap-mumbai-1\)](#)

[Know your tenant/tenancy: jigarpandya](#)

Quick Hands on with Cloud Shell

Getting ready for Big Data Service

[It's a perfect time to let you know about the destination of this journey, final goal, a multi nodes cluster with Big Data Components automatically installed and provided for out of the box use and be able to connect to it remotely via ssh as well as monitor via HTTP.](#)

Wiseful to create compartment

[Know your compartment: BDSSpecialCmprt](#)

[Wiseful to create BDS Administrator Group and add Administrator User to be able to apply policies](#)

[Know your User: BDSSpecialAdUsr](#)

[Know your Group: BDSSpecialAdGrp](#)

[Know your Policy: BDSSpecialAdPlcy](#)

[Know your Policy: BDSSpecialRootPlcy](#)

Design network and access

[A Virtual Cloud Network\(VCN\) is the one who takes care of networking inside out.](#)

[As tentatively we are not aiming very secure and high available cluster to start with, the approach we have chosen to access it via mapping OCI generated public ips to nodes' private ips.](#)

[Know your VCN: BDSSpecialVCN](#)

Subnets

[Know your Subnet: BDSSpecialSbntPrvt](#)

[Know your Subnet: BDSSpecialSbntPubc](#)

Security Lists for traffic restrictions

[Technical terms about controlling traffic / ports access](#)

[Ingress rule](#)

[For any traffic entering into or going into. Inward traffic.](#)

[Egress rule](#)

[For any traffic to exit from cloud devices. May remember E of Egress for Exit out/outward traffic.](#)

[SSH key generation for connecting from workstation](#)

[Big Step Create a BDS cluster](#)

[Monitoring the progress while cluster creation](#)

[List of cluster nodes](#)

[Map private ip to public ip](#)

[Know your subnet_ocid:](#)

[ocid1.subnet.oc1.ap-mumbai-1.aaaaaaa26ttt3mlc3alz26734ab6ngrmnxjbcwdm7y2rizdrgdatg5pmfa](#)

[Know your private ip of main node:10.0.0.3](#)

[Know your Reserved Public IP of main node: 152.67.17.180](#)

[Know your Reserved Public IP of utility node: 152.67.17.123](#)

[Verify Cluster's presence CLI and GUI](#)

[NameNode Information](#)

[All applications](#)

[Job History](#)

[Cloudera Manager](#)

[Accessing main node using ssh from workstation \(remote\)](#)

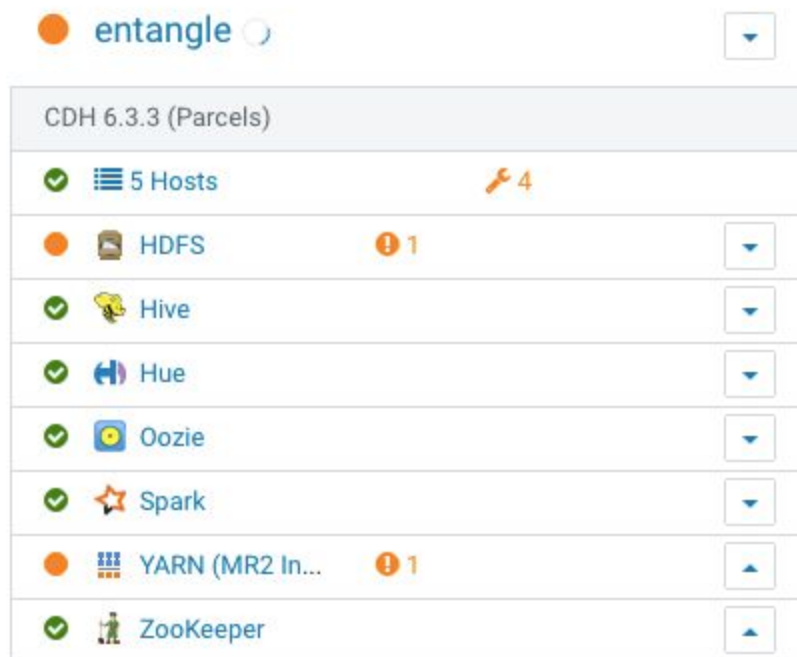
[ssh opc@152.67.17.180](#)

Aim of this document is to let you have a novice way to follow configuration and monitor Big Data Service(BDS) with Oracle Cloud Infrastructure (OCI).

The screenshot below shows Cloudera Manager depicting various services made available in one go when the OCI BDS cluster is created.

CDH (not certain if it's an acronym) is Cloudera's open source platform distribution, including Apache Hadoop and built specifically to meet enterprise demands.

Number of hosts can be varied depending on requirements. 'entangle' is the given name of cluster under demonstration in this document.



Know that account credits are being consumed while keeping the cluster live on OCI.

It's been observed at first attempt that there is no straightforward way to pause the cluster service or putting on hold to save on credits charged. It means once BDS cluster is configured

and started, the known way to save on credit is 'terminate cluster'. Meaning a complete redo everything if needed.

Save all of your steps into a separate document when practicing for easy rerun. That's when automated tools play a vital role in CICD.

Of Course step1 will be to create an account with OCI and add credits. Participating oracle movement i.e. #OracleDevLive, etc can earn you trial/free credits.

Journey

Oracle Cloud Account Sign up

Oracle Identity Cloud Service authenticates you using primary oracle cloud account username (mostly email address) and password. So always your startup web page will be

<https://www.oracle.com/in/cloud/sign-in.html>

Later when creating Big Data Service you may have the choice to create one or more special /seperate accounts to login and administrate the cluster over HTTP.

There are many terms OCI has architected to meet the design requirements. Follow along in ***italic and bold with 'Know your ...'*** phrase. The word is given/chosen name as the value to the same for cluster under demonstration in this document.

During sign up to OCI you will need to select infrastructure region based on location preference,

Know your **region**: **India West (Mumbai) - Home Region** (Region Identifier: ap-mumbai-1)

Once signed up to OCI,

Know your *tenant/tenancy*: jigarpandya

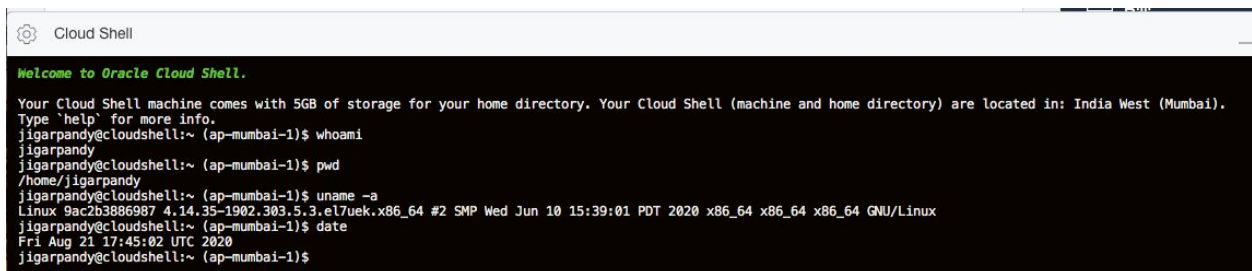
Sometimes also referred to as Cloud Account Name

Quick Hands on with Cloud Shell

The Command Line Interface provided by OCI is called Cloud Shell. Once logged in to your

account credentials into your tenancy from right top corner click  to get connected.

Attached Cloud Shell machine is being provided with certain file storage capacity to perform basic operations in the cloud. Below screenshot depicts a few basics command outcomes to get started with.



```
Cloud Shell

Welcome to Oracle Cloud Shell.

Your Cloud Shell machine comes with 5GB of storage for your home directory. Your Cloud Shell (machine and home directory) are located in: India West (Mumbai).
Type 'help' for more info.
jigarpandya@cloudshell:~ (ap-mumbai-1)$ whoami
jigarpandya
jigarpandya@cloudshell:~ (ap-mumbai-1)$ pwd
/home/jigarpandya
jigarpandya@cloudshell:~ (ap-mumbai-1)$ uname -a
Linux 9ac2b3886987 4.14.35-1902.303.5.3.el7uek.x86_64 #2 SMP Wed Jun 10 15:39:01 PDT 2020 x86_64 x86_64 x86_64 GNU/Linux
jigarpandya@cloudshell:~ (ap-mumbai-1)$ date
Fri Aug 21 17:45:02 UTC 2020
jigarpandya@cloudshell:~ (ap-mumbai-1)$
```

P.s. the user name of the cloud shell looks like a fixed length substring from your tenancy.

Getting ready for Big Data Service

A very well documented step by step self learning tour is available to be [“Preparing for ...”](#) by OCI; Current document mostly describes a practical approach about the same.

It's a perfect time to let you know about the destination of this journey, final goal, a multi nodes cluster with Big Data Components automatically installed and provided for out of the box use and be able to connect to it remotely via ssh as well as monitor via HTTP.

To reach our destination, which is as we know going to be in the cloud and set of commodity/virtual nodes within a network, we will need ways to communicate. And there will be authentication and authorization for sure.

So we will need to understand the internal network, accessing it via ssh from our workstation (in may case its macbook having macOS High Sierra 10.13.6 (17G14019)) over the internet, opening of ports for HTTP/s access via browser,etc.)

Wiseful to create compartment

Compartment helps us to organize resources better such as BDS or others within OCI. It's very much enables you to define a scope.



*Know your **compartment**: BDSSpecialCmprt*

For all remaining components, you have to make sure that chosen compartment while creating a certain component is your special compartment.

Wiseful to create BDS Administrator Group and add Administrator User to be able to apply policies

Having a planned user administrator group helps apply policies for authentication and authorization.

Hamburger Menu



-> Identity -> Users

Know your User: BDSSpecialAdUsr

Hamburger Menu



-> Identity -> Groups

Know your Group: BDSSpecialAdGrp

Hamburger Menu



-> Identity -> Policies

Create policy and add below two statements. Know that bds-instance and virtual-network-family are predefined OCI resource type.

Know your Policy: BDSSpecialAdPlcy

1. allow group BDSSpecialAdGrp to manage bds-instance in compartment BDSSpecialCmprt
2. allow group BDSSpecialAdGrp to manage virtual-network-family in compartment BDSSpecialCmprt

Optionally, while creating user you may also attach email address and as administrator may reset/create password for newly created user. Email account holder needs to verify email before using it and reset password at first login.

Now what can you do being a user BDSSpecialAdUsr is to be explored as per your interest.

One more step w.r.to policies but at **root** compartment level.

Know your Policy: BDSSpecialRootPlcy

allow service bdsprod to {VNIC_READ, VNIC_ATTACH, VNIC_DETACH, VNIC_CREATE, VNIC_DELETE, VNIC_ATTACHMENT_READ, SUBNET_READ, VCN_READ, SUBNET_ATTACH, SUBNET_DETACH, INSTANCE_ATTACH_SECONDARY_VNIC, INSTANCE_DETACH_SECONDARY_VNIC} in compartment BDSSpecialCmprt

Policies *in* jigarpandya (root) *Compartment*

<div>Create Policy Delete</div>		
<input type="checkbox"/>	Name	Description
<input type="checkbox"/>	BDSSpecialRootPlcy	Big Data Services Root Compartment Policy



BDSSpecialRootPlcy

[Edit Policy](#)
[Add Tags](#)
[Delete](#)

Policy Information

[Tags](#)

OCID: ...j7royzva [Show](#) [Copy](#)

Version Date: Keep version current

Compartment: jigarpandya (root)

Description: Big Data Services Root Compartment Policy

Created: Wed, Aug 19, 2020, 15:14:52 UTC

Resources

[Statements](#)

Statements

[Edit Policy Statements](#)

allow service bdsprod to (VNIC_READ, VNIC_ATTACH, VNIC_DETACH, VNIC_CREATE, VNIC_DELETE, VNIC_ATTACHMENT_READ, SUBNET_READ, VCN_READ, SUBNET_ATTACH, SUBNET_DETACH, INSTANCE_ATTACH_SECONDARY_VNIC, INSTANCE_DETACH_SECONDARY_VNIC) in compartment BDSSpecialCmpt

Design network and access

A Virtual Cloud Network(VCN) is the one who takes care of networking inside out.

Using the current tenancy (BDS Special), create a VCN using below

Hamburger Menu
Networks



-> Networking -> Virtual Cloud

VCN Information	Tags
CIDR Block: 10.0.0.0/16	
Compartment: BDSSpecialCmprt	

As tentatively we are not aiming very secure and high available cluster to start with, the approach we have chosen to access it via mapping OCI generated public ips to nodes' private ips.

Another approaches like FastConnect, bastion-hosts, etc are possible too with a better robust network design.

Know your VCN: BDSSpecialVCN

Subnets

But we are going to have at least Public and Private VCN subnets as the Start VCN Wizard does it for us automatically.

Public VCN Subnet will be having Ingress rules defined to open up ports for HTTP GUI accesses. I.e. Cloudera Manager, Namenode Information, YARN All Applications, Job History, etc.

Know your Subnet: BDSSpecialSbntPrvt

Know your Subnet: BDSSpecialSbntPubc

Create Subnet			
Name	State	CIDR Block	Subnet Access
BDSSpecialSbntPrvt	● Available	10.0.1.0/24	Private (Regional)
BDSSpecialSbntPubc	● Available	10.0.0.0/24	Public (Regional)

Now time for creation of Security Lists and adding rules for traffic.

Security Lists for traffic restrictions

Technical terms about controlling traffic / ports access

1. Ingress rule

For any traffic entering into or going into. Inward traffic.

2. Egress rule

For any traffic to exit from cloud devices. May remember E of Egress for Exit out/outword traffic.

Add Ingress Rules TCP and UDP


ORACLE Cloud Search for resources, services, and documentation India West (Mumbai) ▾

Networking » Virtual Cloud Networks » BDSSpecialVCN » Security List Details

Default Security List for BDSSpecialVCN

Instance traffic is controlled by firewall rules on each Instance in addition to this Security List

Move Resource Add Tags Terminate



AVAILABLE

Security List Information Tags

OCID: ...4xyyhq [Show](#) [Copy](#) **Compartment:** BDSSpecialCmpt

Created: Wed, Aug 19, 2020, 20:26:12 UTC

Resources

Ingress Rules (7)
Egress Rules (1)

Ingress Rules

Add Ingress Rules Edit Remove

<input type="checkbox"/>	Stateless ▾	Source	IP Protocol	Source Port Range	Destination Port Range	Type and Code	Allows
<input type="checkbox"/>	No	0.0.0.0/0	TCP	All	22		TCP traffic for ports: 22 SSH Remote Login Protocol
<input type="checkbox"/>	No	0.0.0.0/0	TCP	All	7183	TCP traffic for ports: 7183	To be able to access cloud era manager on utility node, port 7183
<input type="checkbox"/>	No	0.0.0.0/0	TCP	All	8088	TCP traffic for ports: 8088	ResourceManager GUI
<input type="checkbox"/>	No	0.0.0.0/0	TCP	All	9870	TCP traffic for ports: 9870	Namenode Web UI - dfs namenode.http-address hdfs-site.xml
<input type="checkbox"/>	No	0.0.0.0/0	TCP	All	19888	TCP traffic for ports: 19888	MapReduce JobHistory Server GUI

Once public IPs attached to cluster nodes after creation of cluster, this topic will be revisited further in detail.

Going further API access can also be configured which allows programmatically deal with OCI BDS. It's not considered for scope of this document.

SSH key generation for connecting from workstation

```
ssh-keygen -b 2048 -t rsa -f entangle.key
```

Name of key file can be anything of your choice. Above will generate two files, one given name and another .pub

entangle.key.pub file will be used to upload to cluster for ssh

Entangle.key will be used to connect using ssh.

Mac OS X users can configure the ~/.ssh/config file to enable loading keys into the agent:

The private key has to be read only file. Issue below on your workstation terminal for local file.

```
chmod 400 /Users/JigarPandya/OC/safe/entangle.key
```

Copy below two lines into ~/.ssh/config will help ssh connect.

```
AddKeysToAgent yes
```

```
Host 152.67.17.180 IdentityFile /Users/JigarPandya/OC/safe/entangle.key
```

Know that there are system user name **opc** (initially was read as oracle public cloud) with sudo access to nodes automatically created when cluster nodes' os infrastructure is established.

Now get ready to connect:

```
ssh -A opc@public_host
```

Optionally you may also connect

```
ssh -i /Users/JigarPandya/OC/safe/entangle.key opc@host
```

Host can be public ip or bastion too. This document going to map public to private IPs of cluster nodes.

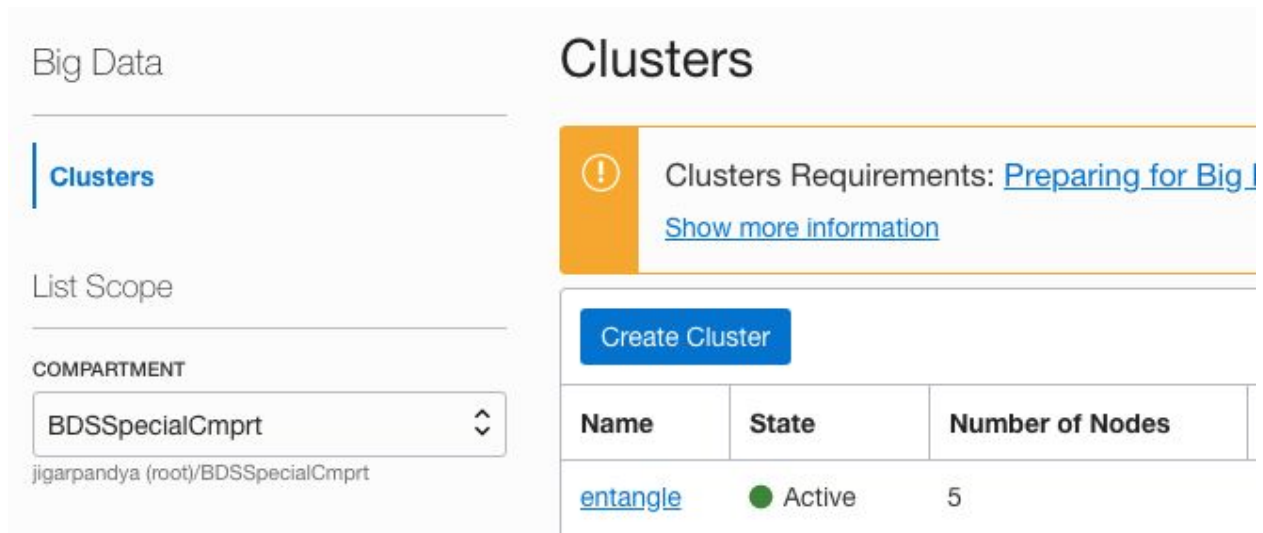
Big Step Create a BDS cluster

Now that basic cloud and network terminology and setup is ready, creating a BDS cluster from

Hamburger Menu  ->Data and AI -> Big Data

Shall help land onto the cluster creation page.

Things to make sure that our scope for Big Data Services is within the known compartment. Screenshot below shows the presence of our cluster entangle as while I type the demo cluster has already been active.



Big Data

Clusters

List Scope

COMPARTMENT

BDSSpecialCmprt

jigarpandya (root)/BDSSpecialCmprt

Create Cluster

Name	State	Number of Nodes
entangle	● Active	5

Clusters Requirements: [Preparing for Big...](#)
[Show more information](#)

So choosing “Create Cluster” within the BDS special compartment will help us get started onto creation of the cluster.

Cluster details shown with below screenshot.

The screenshot displays the Oracle Cloud console interface for a Big Data Service (BDS) cluster. At the top, the Oracle Cloud logo and a search bar are visible. The cluster is named 'entangle' and is in an 'ACTIVE' state, indicated by a green circle with 'BDS' and 'ACTIVE' text. Below the cluster name, there are buttons for 'Add Nodes', 'Add Block Storage', 'Add Cloud SQL', 'Change Shape', and 'More Actions'. The main content area is divided into two tabs: 'Cluster Information' and 'Tags'. The 'Cluster Information' tab is active, showing the following details:

- Cluster OCID:** ...qzxfq [Show](#) [Copy](#)
- Compartment:** jigarapandya (root)/BDSSpecialCmpmt
- Total Number of Nodes:** 5
- Secure and Highly Available:** False
- Cloud SQL Installed:** False
- Created:** Wed, Aug 19, 2020, 20:43:44 UTC
- CDH Version:** CDH6
- Big Data Service Version:** 2.1.0
- Big Data Manager Version:** -
- Cloudera Manager URL:** <https://10.0.0.5:7183>
- Last Updated:** Sat, Aug 22, 2020, 05:47:40 UTC

The 'Network Information' section is also visible, showing:

- Subnet:** [BDSSpecialSbntPubc](#)
- Subnet OCID:** ...gdatg5pmfa [Show](#) [Copy](#)
- NAT Gateway Configured:** True
- CIDR IP Address Block:** 11.0.0.0/16

Create cluster

Cluster name
entangle

Password of cluster is used to login into Cloudera Manager with username to be 'admin' by default.

Choose CDH version image
CDH 6.3-o17

Standard2.4

Primary 1000GB

3 worker nodes 150GB each chosen to meet reasonable cluster size with reasonable credit expenditures.

Network settings for cluster

Steps followed as part of getting ready for BDS cluster shall help us select Compartment, VCN, Public Subnet, etc.

Cluster Private Network/CIDR IP address block
11.0.0.0/16


Customer

Public Subnet cidr block
10.0.0.0/24

Private Subnet cidr block
10.0.1.0/24

Choose auto managed Gateways.

Monitoring the progress while cluster creation

Hamburger Menu  ->Data and AI -> Big Data -> Select cluster -> Work Requests

It shall show the progress. For common man on earth it took ~50 minutes too.

Work Requests

Operation	Status	% Complete	Accepted	Started	Finished	
CREATE_BDS	● Succeeded	100	Wed, Aug 19, 2020, 20:43:44 UTC	Wed, Aug 19, 2020, 20:43:53 UTC	Wed, Aug 19, 2020, 21:32:27 UTC	⋮
Showing 1 Item						

List of cluster nodes

Notice that naming convention is cluster name followed by mn(main node), un(utility node), wn(worker node) with numbers appropriately.

Name	Status	Node Type
entanglmn0	● Active	Master
entanglun0	● Active	Utility
entanglwn0	● Active	Worker
entanglwn1	● Active	Worker
entanglwn2	● Active	Worker

Node Type	Shape	IP Address
Master	VM.Standard2.4	10.0.0.3
Utility	VM.Standard2.4	10.0.0.5
Worker	VM.Standard2.1	10.0.0.2
Worker	VM.Standard2.1	10.0.0.6
Worker	VM.Standard2.1	10.0.0.4

Collect the required identifiers (user, tenancy, subnet) and Big Data Service region User, etc to generate and map public ips to nodes.

Oracle assigned unique ID referred as Oracle Cloud Identifier (OCID). From the oracle cloud infrastructure first need to locate the resource and then copy corresponding OCID for further usage.



Map private ip to public ip

Below commands to be run on OCI Cloud Shell, remember whoami, pwd, uname, date command and likewise execution described previously.

Know your subnet_ocid:

ocid1.subnet.oc1.ap-mumbai-1.aaaaaaa26ttt3mlc3alzc26734ab6ngrmnxjbcwdm7y2rizdrgdatg5pmfa

Know your private ip of main node:10.0.0.3

Choose name of public ip for main node

```
export DISPLAY_NAME="entanglemn0_pblcip"
```

```
export
SUBNET_OCID="ocid1.subnet.oc1.ap-mumbai-1.aaaaaaa26ttt3mlc3alz26734ab6ngrmnxjbc
wdm7y2rizdrgdatg5pmfa"
```

```
export PRIVATE_IP="10.0.0.3"
```

```
oci network public-ip create --display-name $DISPLAY_NAME --compartment-id `oci network
private-ip list --subnet-id $SUBNET_OCID --ip-address $PRIVATE_IP | jq -r '.data[] |
."compartment-id"' --lifetime "RESERVED" --private-ip-id `oci network private-ip list --subnet-id
$SUBNET_OCID --ip-address $PRIVATE_IP | jq -r '.data[] | ."id"'`
```

May repeat the same for all nodes. Below is command for utility node.

```
export DISPLAY_NAME="entanglun0_pblcip"
export
SUBNET_OCID="ocid1.subnet.oc1.ap-mumbai-1.aaaaaaa26ttt3mlc3alz26734ab6ngrmnxjbc
wdm7y2rizdrgdatg5pmfa"
export PRIVATE_IP="10.0.0.5"
oci network public-ip create --display-name $DISPLAY_NAME --compartment-id `oci network
private-ip list --subnet-id $SUBNET_OCID --ip-address $PRIVATE_IP | jq -r '.data[] |
."compartment-id"' --lifetime "RESERVED" --private-ip-id `oci network private-ip list --subnet-id
$SUBNET_OCID --ip-address $PRIVATE_IP | jq -r '.data[] | ."id"'`
```

Hamburger Menu  -> Networking -> Public IPs

Know your Reserved Public IP of main node: 152.67.17.180

Know your Reserved Public IP of utility node: 152.67.17.123

Reserved Public IPs *in* BDSSpecialCmprt *Compartment*

The list of reserved public IP addresses available for your resources. If a resource in your tenancy needs to be directly reachable from the Internet, you must reserve a public IP address for it.

Create Reserved Public IP			
Name	State	Reserved Public IP	Private IP
entanglun0_pblcip	 Assigned	152.67.17.123	10.0.0.5
entanglmn0_pblcip	 Assigned	152.67.17.180	10.0.0.3

Verify Cluster's presence CLI and GUI

NameNode Information

<http://152.67.17.180:9870/dfshealth.html#tab-overview>

Namenode information x +

← → ↻ ⓘ Not Secure | 152.67.17.180:9870/dfshealth.html#tab-overview 🔍 ☆ 👤 ⋮

Apps ☆ Bookmarks G Sign in - Google a... GoogleApps OracleCloud

Hadoop Overview Datanodes Datanode Volume Failures Snapshot Startup Progress Utilities -

Overview 'entanglmn0.sub08192025500.bdsspecialvcn.oraclevcn.com:8020' (active)

Started:	Thu Aug 20 02:49:08 +0530 2020
Version:	3.0.0-cdh6.3.3, r462057b1830c46de727ad7bb41f8bd5454796732
Compiled:	Mon Jan 20 18:12:00 +0530 2020 by jenkins from Unknown
Cluster ID:	cluster7
Block Pool ID:	BP-783726182-11.0.0.2-1597871536216

Summary

Security is off.
Safemode is off.

5,701 files and directories, 3,706 blocks (3,706 replicated blocks, 0 erasure coded block groups) = 9,407 total filesystem object(s).

Heap Memory used 261.51 MB of 15.42 GB Heap Memory. Max Heap Memory is 15.42 GB.

Non Heap Memory used 112.5 MB of 115.65 MB Committed Non Heap Memory. Max Non Heap Memory is <unbounded>.

Configured Capacity:	418.64 GB
DFS Used:	9.31 GB (2.22%)
Non DFS Used:	0 B
DFS Remaining:	408.58 GB (97.55%)
Block Pool Used:	9.31 GB (2.22%)
DataNodes usages% (Min/Median/Max/stdDev):	2.22% / 2.22% / 2.22% / 0.00%
Live Nodes	3 (Decommissioned: 0, In Maintenance: 0)
Dead Nodes	0 (Decommissioned: 0, In Maintenance: 0)

Namenode information x +

← → ↻ ⓘ Not Secure | 152.67.17.180:9870/dfshealth.html#tab-datanode 🔍 ☆ 👤 ⋮

Apps ☆ Bookmarks G Sign in - Google a... GoogleApps OracleCloud

Hadoop Overview Datanodes Datanode Volume Failures Snapshot Startup Progress Utilities -

Datanode Information

✓ In service
 ● Down
 ○ Decommissioning
 ○ Decommissioned
 ○ Decommissioned & dead

➤ Entering Maintenance
 ➤ In Maintenance
 ➤ In Maintenance & dead

Datanode usage histogram

In operation

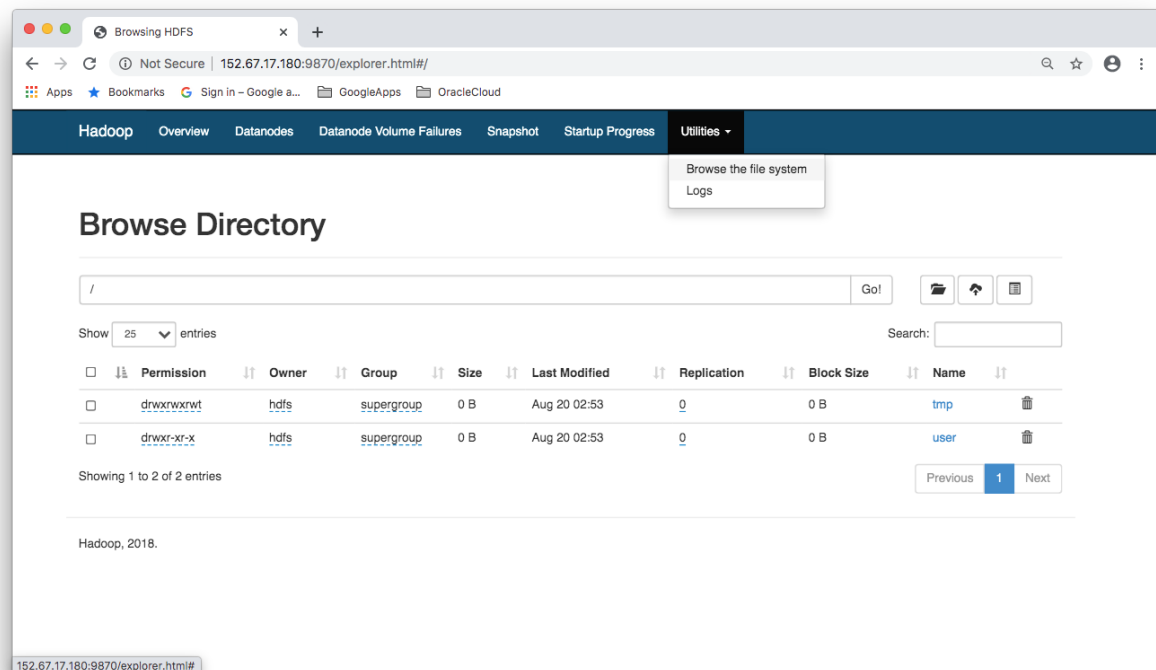
Show 25 ▼ entries Search:

Node	Http Address	Last contact	Last Block Report	Capacity	Blocks	Block pool used	Version
✓ entanglmn0.sub08192025500.bdsspecialvcn.oraclevcn.com:50010 (11.0.0.3-50010)	http://entanglmn0.sub08192025500.bdsspecialvcn.oraclevcn.com:50075	2s	290m	139.61 GB	3706	3.1 GB (2.22%)	3.0.0-cdh6.3.3
✓ entanglmn1.sub08192025500.bdsspecialvcn.oraclevcn.com:50010 (11.0.0.6-50010)	http://entanglmn1.sub08192025500.bdsspecialvcn.oraclevcn.com:50075	2s	257m	139.61 GB	3706	3.1 GB (2.22%)	3.0.0-cdh6.3.3
✓ entanglmn2.sub08192025500.bdsspecialvcn.oraclevcn.com:50010 (11.0.0.4-50010)	http://entanglmn2.sub08192025500.bdsspecialvcn.oraclevcn.com:50075	0s	322m	139.61 GB	3706	3.1 GB (2.22%)	3.0.0-cdh6.3.3

Showing 1 to 3 of 3 entries

Previous 1 Next

All



All applications

<http://152.67.17.180:8088/cluster>

hadoop

All Applications

Cluster

- About
- Nodes
- Node Labels
- Applications
- NEW
- NEW SAVING
- SUBMITTED
- ACCEPTED
- RUNNING
- FINISHED
- FAILED
- KILLED
- Scheduler

Cluster Metrics

Apps Submitted	Apps Pending	Apps Running	Apps Completed	Containers Running	Memory Used	Memory Total
43	0	0	43	0	0 B	24 GB

Cluster Nodes Metrics

Active Nodes	Decommissioning Nodes	Decommissioned Nodes	Lost Nodes
3	0	0	0

User Metrics for dr.who

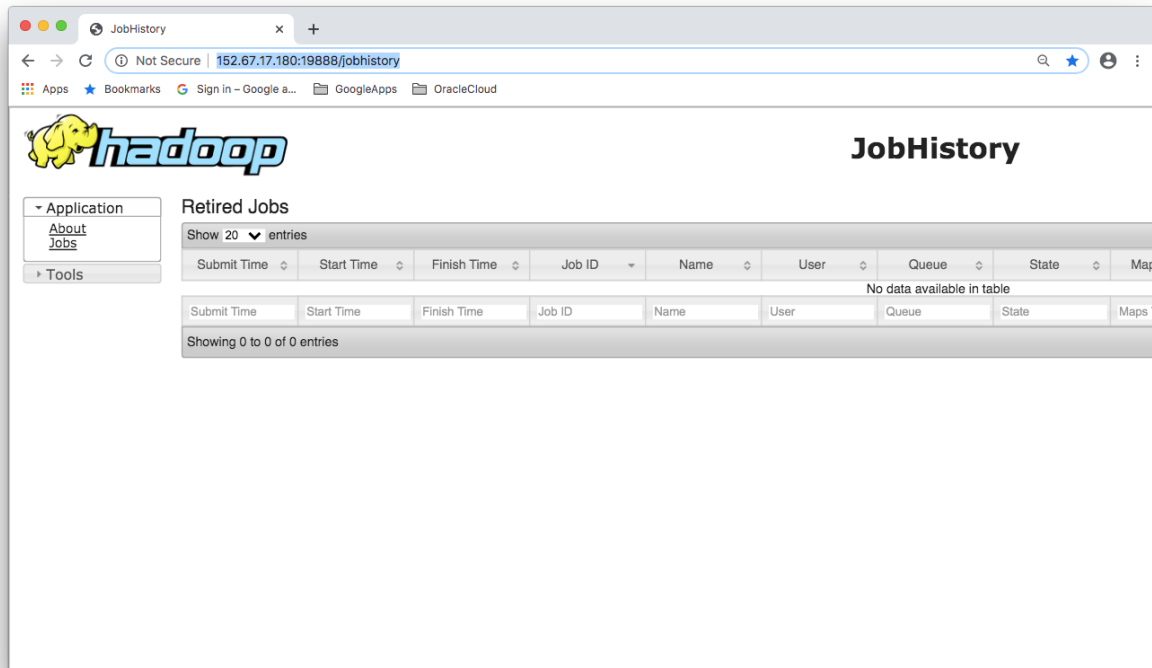
Apps Submitted	Apps Pending	Apps Running	Apps Completed	Containers Running	Containers Pending	Containers Reserved	Memory Used
43	0	0	43	0	0	0	0 B

Scheduler Metrics

Scheduler Type	Scheduling Resource Type	Minimum Allocation	Maximum Allocation
Fair Scheduler	[memory-mb (unit=Mi), vcores]	<memory:1024, vCores:1>	<memory:8192, vCores:1>

Job History

<http://152.67.17.180:19888/jobhistory>



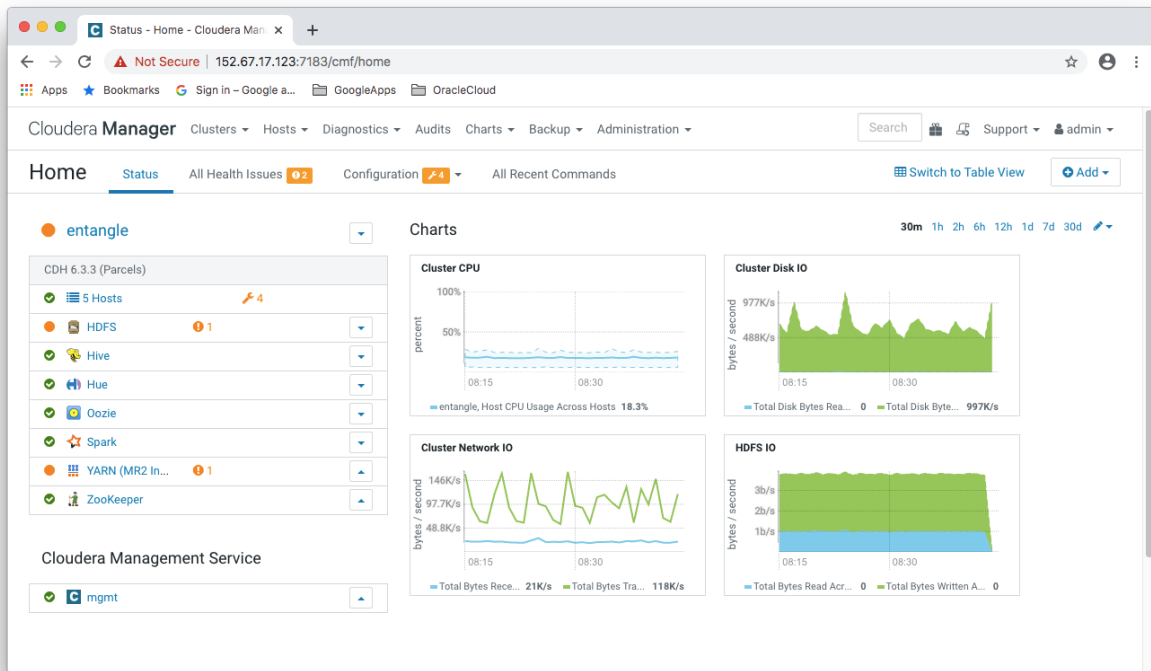
Oracle Cloudera Manager - Know that it runs on utility node. You must have mapped public ip to utility node private ip same way as done for main node above.

Cloudera Manager

<https://152.67.17.123:7183/cm/ home>

User name 'admin' and password is the one about what you provided when creating your cluster.

For accessing ports, Ingress rules have to be added to default public subnet for each port as described already.



Accessing main node using ssh from workstation (remote)

Know that trust has been established because the cluster has the public key and ~/.ssh/config location of private key file.

```
ssh opc@152.67.17.180
```

```
OC — opc@entanglmn0:~ — ssh opc@152.67.17.180 — 80x26
~/OC — opc@entanglmn0:~ — ssh opc@152.67.17.180
Jigar-Pandya-MacBook:OC JigarPandya$ cat ~/.ssh/config
AddKeysToAgent yes
Host 152.67.17.180 IdentityFile /Users/JigarPandya/OC/safe/entangle.key
Jigar-Pandya-MacBook:OC JigarPandya$ ls -l /Users/JigarPandya/OC/safe/entangle.
key*
-r----- 1 JigarPandya  staff  1896 Aug 20 00:26 /Users/JigarPandya/OC/safe/e
ntangle.key
-rw-r--r-- 1 JigarPandya  staff   421 Aug 20 00:26 /Users/JigarPandya/OC/safe/e
ntangle.key.pub
Jigar-Pandya-MacBook:OC JigarPandya$ ssh opc@152.67.17.180
Last login: Sat Aug 22 08:45:18 2020
-bash: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file
or directory
perl: warning: Setting locale failed.
perl: warning: Please check that your locale settings:
    LANGUAGE = (unset),
    LC_ALL = (unset),
    LC_CTYPE = "UTF-8",
    LANG = "en_US.UTF-8"
are supported and installed on your system.
perl: warning: Falling back to the standard locale ("C").
[opc@entanglmn0 ~]$ uname -a
Linux entanglmn0.sub08192025500.bdsspecialvcn.oraclevcn.com 4.14.35-1902.303.5.3
.el7uek.x86_64 #2 SMP Wed Jun 10 15:39:01 PDT 2020 x86_64 x86_64 x86_64 GNU/Linu
x
[opc@entanglmn0 ~]$
```

Important Links/References:

<https://www.oracle.com/in/cloud/sign-in.html>

<https://<utiltiynodepublicip>:7183/cmfd/login> (Cloudera Manager)

<https://www.cloudera.com/products/open-source/apache-hadoop/key-cdh-components.html>

<https://martygubar.github.io/bds-getting-started/?lab=preparing-for-big-data-service>

<https://docs.cloud.oracle.com/en-us/iaas/Content/Identity/Concepts/policysyntax.htm>

<https://docs.cloud.oracle.com/en-us/iaas/big-data/doc/bds-resources-and-permissions-use-iam-policies.html>

<https://docs.cloud.oracle.com/en-us/iaas/Content/Resources/Assets/whitepapers/bastion-hosts.pdf>

<https://martygubar.github.io/bds-getting-started/?lab=create-bds-hadoop-cluster>

<https://docs.cloud.oracle.com/en-us/iaas/big-data/doc/connect-cluster-ssh.html>

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Document Last updated: