CDP Private Cloud Data Services 1.5.2

ECS Day Two Operations Guide

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https://docs.cloudera.com/

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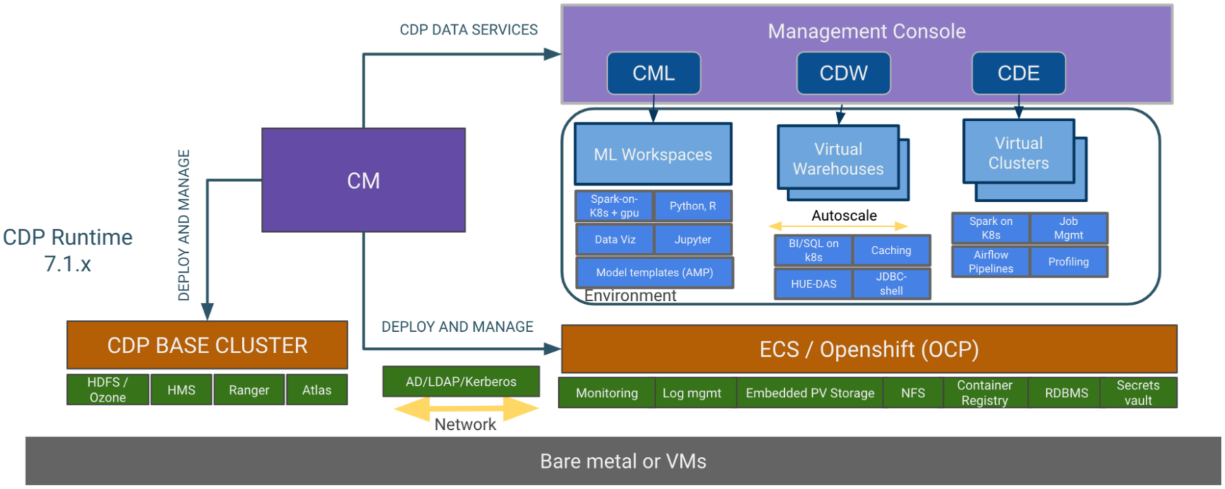
Overview

This guide provides information for administrators about useful maintenance tasks after a new installation of CDP Private Cloud Data Services on the Embedded Container Services (ECS).

CDP Private Cloud Data Services Architecture

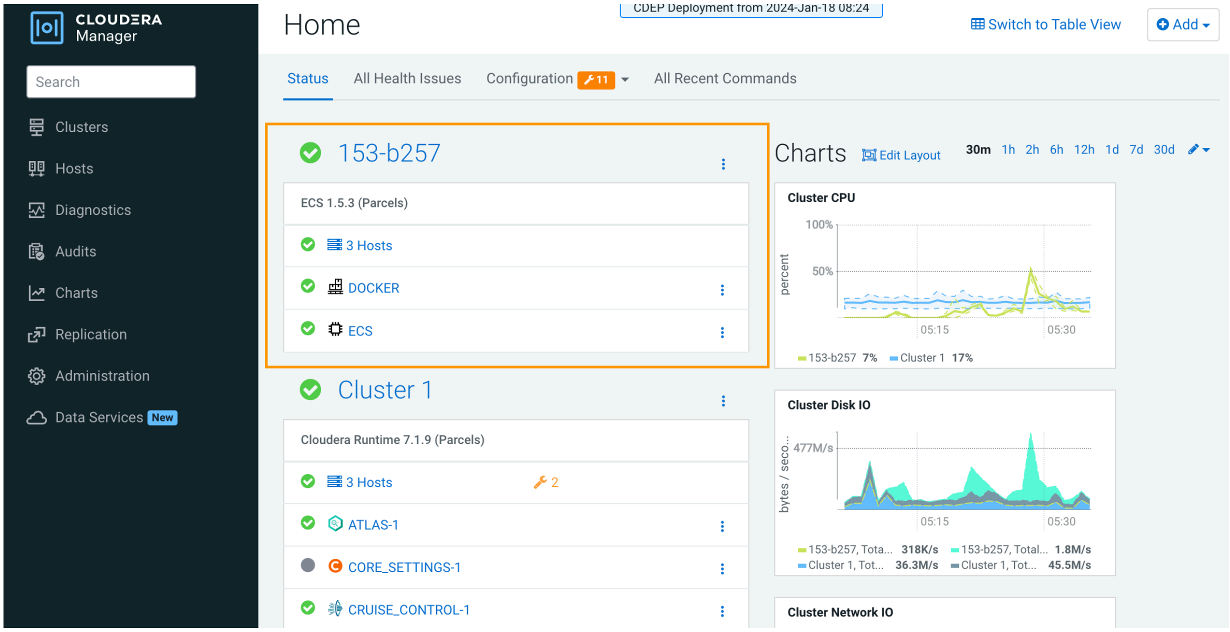


Prerequisites

Perform the following steps to get started with ECS and the kubectl command line tool.

Getting started

- In Cloudera Manager, confirm that the ECS Cluster is healthy:



CDEP Deployment from 2024-Jan-18 08:24

Home

153-b257

ECS 1.5.3 (Parcels)

3 Hosts

DOCKER

ECS

Cluster 1

Cloudera Runtime 7.1.9 (Parcels)

3 Hosts 2

ATLAS-1

CORE_SETTINGS-1

CRUISE_CONTROL-1

Charts

Cluster CPU

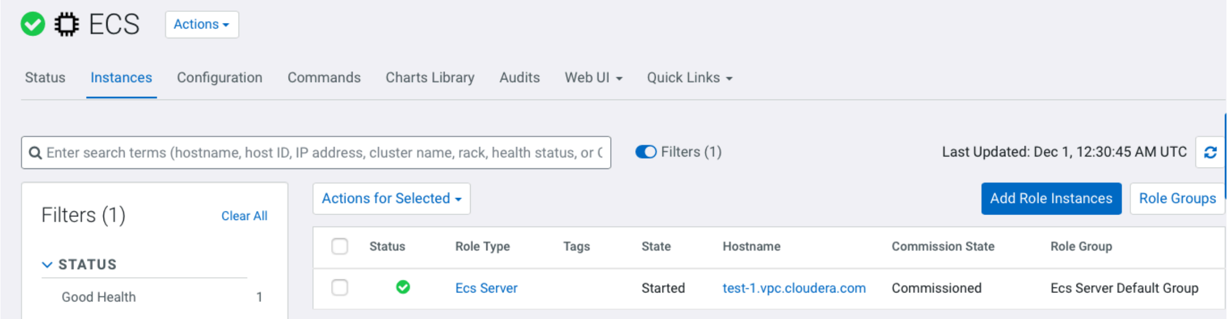
153-b257 7% Cluster 1 17%

Cluster Disk IO

153-b257, Tota... 318K/s 153-b257, Total... 1.8M/s
Cluster 1, Tot... 36.3M/s Cluster 1, Tot... 45.5M/s

Cluster Network IO

- Identify the ECS server host. Click ECS in the ECS cluster, then click Instances. The ECS server host is listed in the Hostname column for the Ecs Server role type.



□	Status	Role Type	Tags	State	Hostname	Commission State	Role Group
□	✓	Ecs Server		Started	test-1.vpc.cloudera.com	Commissioned	Ecs Server Default Group

- Open a connection to the ECS server host:

```
ssh test-1.vpc.cloudera.com
```

Ensure that you are using the root user:

```
root@test-1 ~]# whoami
root
```

Set up Kubernetes and kubectl

You can use the kubectl command line tool to interact with Kubernetes.

- Cluster management – kubectl allows you to manage various aspects of Kubernetes clusters, including deploying applications, inspecting and managing cluster resources, and viewing logs.
- Interacting with nodes and pods – kubectl provides commands to interact with and manage nodes, pods, and other resources within a Kubernetes cluster.
- Deployment and application management – You can use kubectl to create, update, and delete applications running on Kubernetes, as well as control scaling and rollout of updates.
- Debugging and diagnostics – kubectl includes various commands for checking the health of resources, diagnosing issues, and accessing logs.

To set up Kubernetes configuration and the kubectl alias, add the following lines to your bash profile. This eliminates the need to set this up for each session.

```
KUBECONFIG=/etc/rancher/rke2/rke2.yaml
alias kubectl=/var/lib/rancher/rke2/bin/kubectl
```

Basic operations

This topic describes a few basic kubectl command line tool operations.

View kubeconfig settings

```
[root@test-1 ~]# kubectl config view
apiVersion: v1
clusters:
- cluster:
    certificate-authority-data: DATA+OMITTED
    server: https://127.0.0.1:6443
  name: default
contexts:
```

```
- context:
    cluster: default
    user: default
  name: default
current-context: default
kind: Config
preferences: {}
users:
- name: default
  user:
    client-certificate-data: REDACTED
    client-key-data: REDACTED
```

Get all nodes in the Kubernetes environment

```
[root@test-1 ~]# kubectl get nodes
NAME                      STATUS   ROLES
 AGE    VERSION
test-1.vpc.cloudera.com   Ready    control-plane,etcd,master              2d
4h   v1.25.14+rke2r1
test-2.vpc.cloudera.com   Ready    <none>                                 2
d4h   v1.25.14+rke2r1
```

Get all namespaces

```
[root@test-1 ~]# kubectl get namespaces
NAME                                  STATUS   AGE
cdp                                   Active   2d4h
cdp-drs                               Active   2d4h
cdp-services                          Active   2d4h
default                               Active   2d4h
ecs-webhooks                          Active   2d4h
infra-prometheus                      Active   2d4h
k8tz                                  Active   2d4h
kube-node-lease                       Active   2d4h
kube-public                           Active   2d4h
kube-system                           Active   2d4h
kubernetes-dashboard                  Active   2d4h
liftie-wjtncjzm-ns                    Active   2d4h
local-path-storage                    Active   2d4h
longhorn-system                       Active   2d4h
observability                         Active   2d4h
pod-reaper                            Active   2d4h
test-1-5ea742bf-monitoring-platform   Active   2d4h
vault-system                          Active   2d4h
yunikorn                              Active   2d4h
```

Check all pods in a namespace

Use the following command format to check all pods in a namespace:

```
kubectl get pods -n <namespace_name>
```

For example, to get the pods and their status in the vault-system namespace:

```
[root@test-1 ~]# kubectl get pods -n vault-system
NAME                                       READY                STATUS
     RESTARTS            AGE
helm-install-vault-pd842                    0/1                Completed
         0               2d6h
```

```
vault-0                                     1/1                 Running
          0                2d6h
vault-exporter-84bd8f848d-s9grm             1/1                 Running
         0                2d6h
```

Get the containers in a pod

Use the following command format to get the containers in a pod:

```
root@test-1 ~]# kubectl get pods -n <namespace_name> <pod_name> -o=jsonpath=
'{.spec.containers[*].name}'
```

For example, to get the containers in the fluentd-aggregator-0 pod in the cdp namespace:

```
root@test-1 ~]# kubectl get pods -n cdp fluentd-aggregator-0  -o=jsonpath='{
.spec.containers[*].name}'
thunderhead-diagnostics-api
fluentd-aggregator[
```

Get logs from a specific pod

Use the following command format to get logs from a specific pod:

```
kubectl logs -n <namespace_name> <pod_name>
```

For example, to get the logs from the vault-0 pod in the vault-system namespace:

```
[root@test-1 ~]# kubectl logs -n vault-system vault-0
==> Vault server configuration:

             Api Address: https://10.42.0.15:8200
                     Cgo: disabled
         Cluster Address: https://vault-0.vault-internal:8201
   Environment Variables: GODEBUG, HOME, HOSTNAME, HOST_IP, KUBERNETES_POR
T,
KUBERNETES_PORT_443_TCP, KUBERNETES_PORT_443_TCP_ADDR,
KUBERNETES_PORT_443_TCP_PORT, KUBERNETES_PORT_443_TCP_PROTO,
KUBERNETES_SERVICE_HOST, KUBERNETES_SERVICE_PORT,
KUBERNETES_SERVICE_PORT_HTTPS, NAME, PATH, POD_IP, PWD, SHLVL, SKIP_CHOWN,
SKIP_SETCAP, VAULT_ADDR, VAULT_API_ADDR, VAULT_CACERT, VAULT_CLUSTER_ADDR,
VAULT_K8S_NAMESPACE, VAULT_K8S_POD_NAME, VAULT_PORT, VAULT_PORT_8200_TCP,
VAULT_PORT_8200_TCP_ADDR, VAULT_PORT_8200_TCP_PORT, VAULT_PORT_8200_TCP_PROT
O,
VAULT_PORT_8201_TCP, VAULT_PORT_8201_TCP_ADDR, VAULT_PORT_8201_TCP_PORT,
VAULT_PORT_8201_TCP_PROTO, VAULT_SERVICE_HOST, VAULT_SERVICE_PORT,
VAULT_SERVICE_PORT_HTTPS, VAULT_SERVICE_PORT_HTTPS_INTERNAL, VERSION
              Go Version: go1.20.1
              Listener 1: tcp (addr: "[::]:8200", cluster address: "[::]:8
201",
max_request_duration: "1m30s", max_request_size: "33554432", tls: "enabled")
               Log Level:
                   Mlock: supported: true, enabled: false
           Recovery Mode: false
                 Storage: file
                 Version: Vault v1.13.1, built 2023-03-23T12:51:35Z
             Version Sha: 4472e4a3fbcc984b7e3dc48f5a8283f3efe6f282

==> Vault server started! Log data will stream in below:
2023-11-28T20:34:33.998Z [INFO]  proxy environment: http_proxy="" https_pro
xy="" no_proxy=""
```

```
2023-11-28T20:34:33.998Z [INFO]  core: Initializing version history cache
for core
2023-11-28T20:34:36.013Z [INFO]  core: security barrier not initialized
2023-11-28T20:34:36.014Z [INFO]  core: seal configuration missing, not init
ialized
2023-11-28T20:34:36.014Z [INFO]  core: security barrier not initialized
2023-11-28T20:34:36.015Z [INFO]  core: security barrier initialized: stored=
1 shares=1 threshold=1
2023-11-28T20:34:36.016Z [INFO]  core: post-unseal setup starting
2023-11-28T20:34:36.029Z [INFO]  core: loaded wrapping token key
```

Get logs from a specific container

To get the logs from a specific container, use the following command format:

```
kubectl logs -n <namespace_name> <pod_name> -c container_name
```

For example, the following command lists all of the containers:

```
kubectl get pods cdp-release-thunderhead-environment-85bdfdb466-gprcb -n e2e
-djwl0v -o jsonpath='{.spec.containers[*].name}'
thunderhead-environment fluentbit
```

Then the kubectl logs command can be used with the -c option to return the logs from the thunderhead-environment container:

```
kubectl logs cdp-release-thunderhead-environment-85bdfdb466-gprcb -c thunder
head-environment -n e2e-djwl0v
```

Tunnel into a container

The following example demonstrates how to tunnel into one of the containers above, and then execute a list command:

```
[root@test-1 ~]# kubectl -n cdp exec -it pod/fluentd-aggregator-0 -c fluentd
-aggregator -- bash
[cloudera@fluentd-aggregator-0 /]$ ls -lrth
total 152K
drwxr-xr-x   2 root root    6 Dec 14  2017 srv
drwxr-xr-x   2 root root    6 Dec 14  2017 mnt
drwxr-xr-x   2 root root    6 Dec 14  2017 media
dr-xr-xr-x   2 root root    6 Dec 14  2017 boot
drwxr-xr-x   1 root root   19 Jan 17  2023 usr
lrwxrwxrwx   1 root root    8 Jan 17  2023 sbin -> usr/sbin
lrwxrwxrwx   1 root root    9 Jan 17  2023 lib64 -> usr/lib64
lrwxrwxrwx   1 root root    7 Jan 17  2023 lib -> usr/lib
lrwxrwxrwx   1 root root    7 Jan 17  2023 bin -> usr/bin
drwxr-xr-x   1 root root   17 Jan 17  2023 var
drwxr-xr-x   1 root root   22 Feb 27  2023 opt
drwxr-xr-x   1 root root   21 Feb 27  2023 run
dr-xr-x---   1 root root   30 Feb 27  2023 root
drwxr-xr-x   1 root root   22 Feb 27  2023 home
drwxr-xr-x   1 root root   64 Feb 27  2023 etc
dr-xr-xr-x 656 root root    0 Nov 28 20:39 proc
dr-xr-xr-x  13 root root    0 Nov 28 20:39 sys
drwxr-xr-x   3 root root   17 Nov 28 20:40 fluentd
drwxr-xr-x   5 root root  360 Nov 28 20:40 dev
drwxrwxrwt   1 root root  104 Nov 28 20:40 tmp
```

Collecting diagnostic data

You can collect diagnostic data using the kubectl command line tool, or by downloading diagnostic data bundles.

Using kubectl to collect logs

You can use the following kubectl commands to collect log files:

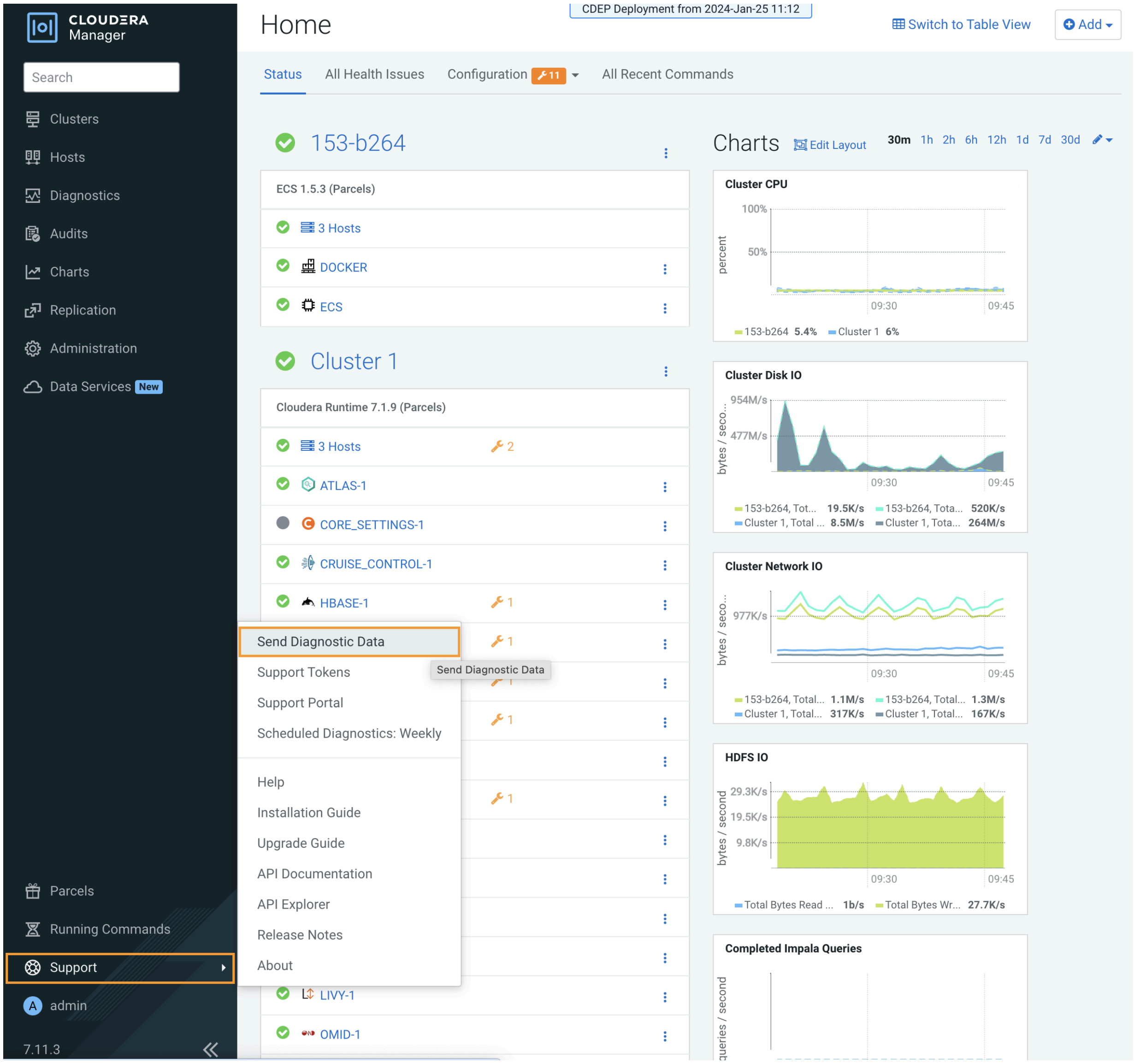
```
alias kubectl='/var/lib/rancher/rke2/bin/kubectl --kubeconfig /etc/rancher/rke2/rke2.yaml'

kubectl get pods -A -o wide --kubeconfig /etc/rancher/rke2/rke2.yaml > /tmp/pods_status_all.txt
echo "+++PODS cdp+++" >> /tmp/pods_status.txt
kubectl -n cdp get pods --kubeconfig /etc/rancher/rke2/rke2.yaml >> /tmp/pods_status.txt
echo "+++PODS kubernetes-dashboard+++" >> /tmp/pods_status.txt
kubectl -n kubernetes-dashboard get pods >> /tmp/pods.txt

echo "+++EVENTS +++" >> /tmp/pods_status_all.txt
kubectl get event -n kubernetes-dashboard >> /tmp/pods.txt

kubectl get pods -A | grep -vai 'running' | grep -vai 'completed'
```

If you see issues with a specific pod, collect the following:

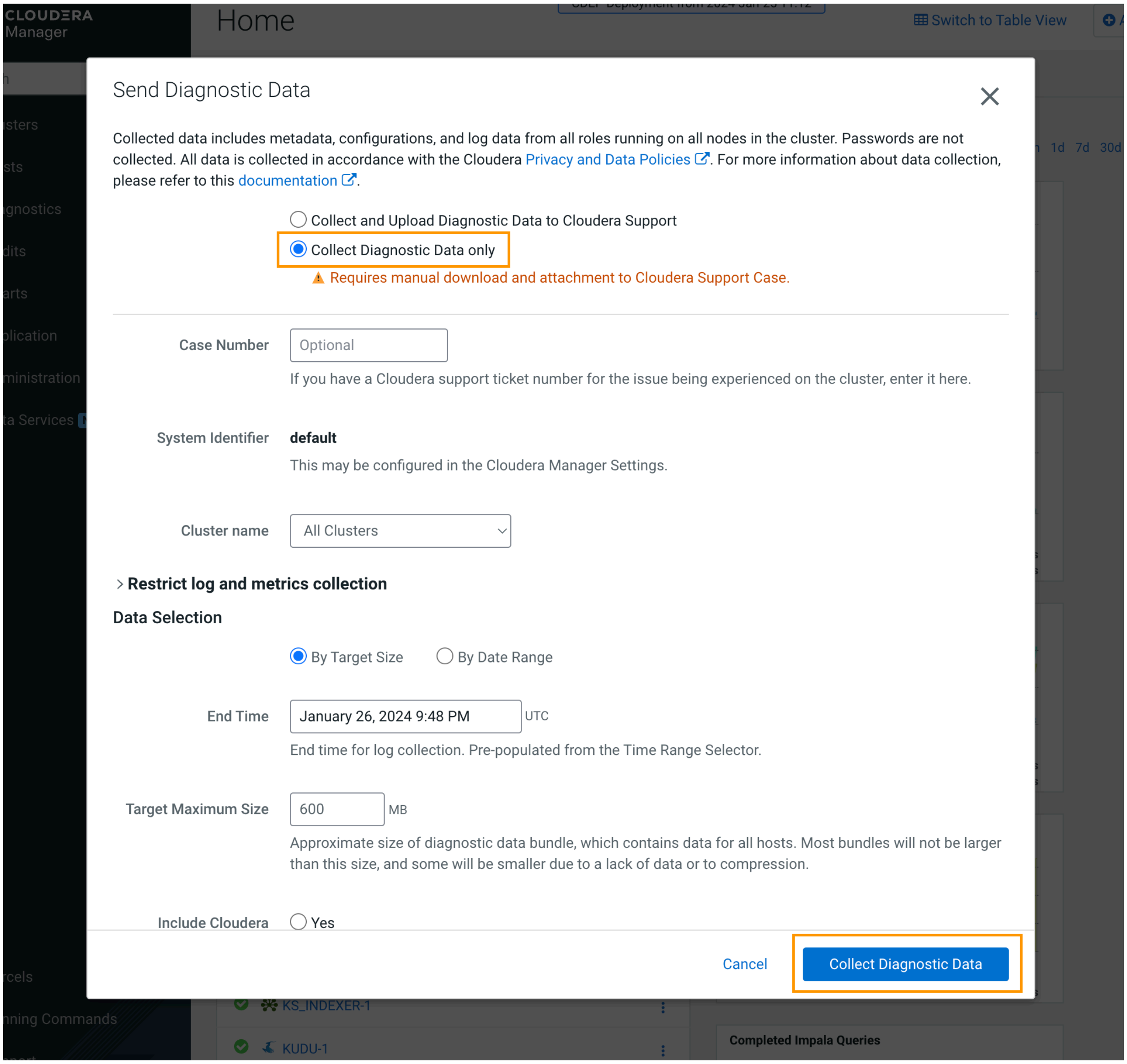
```
kubectl logs <POD_NAME> -n <Namespace> --all-containers=true
kubectl describe pod <POD_NAME> -n <Namespace>
kubectl get events -n <Namespace>
```

Downloading ECS cluster diagnostic data

1. In Cloudera Manager, click Support, then click Send Diagnostic Data.



2. On the Send Diagnostic Data pop-up, select Collect Diagnostic Data only, then click Collect Diagnostic Data.



Send Diagnostic Data

Collected data includes metadata, configurations, and log data from all roles running on all nodes in the cluster. Passwords are not collected. All data is collected in accordance with the Cloudera Privacy and Data Policies. For more information about data collection, please refer to this documentation.

○ Collect and Upload Diagnostic Data to Cloudera Support

● Collect Diagnostic Data only

⚠ Requires manual download and attachment to Cloudera Support Case.

Case Number: Optional

If you have a Cloudera support ticket number for the issue being experienced on the cluster, enter it here.

System Identifier: **default**

This may be configured in the Cloudera Manager Settings.

Cluster name: All Clusters

› Restrict log and metrics collection

Data Selection

● By Target Size ○ By Date Range

End Time: January 26, 2024 9:48 PM UTC

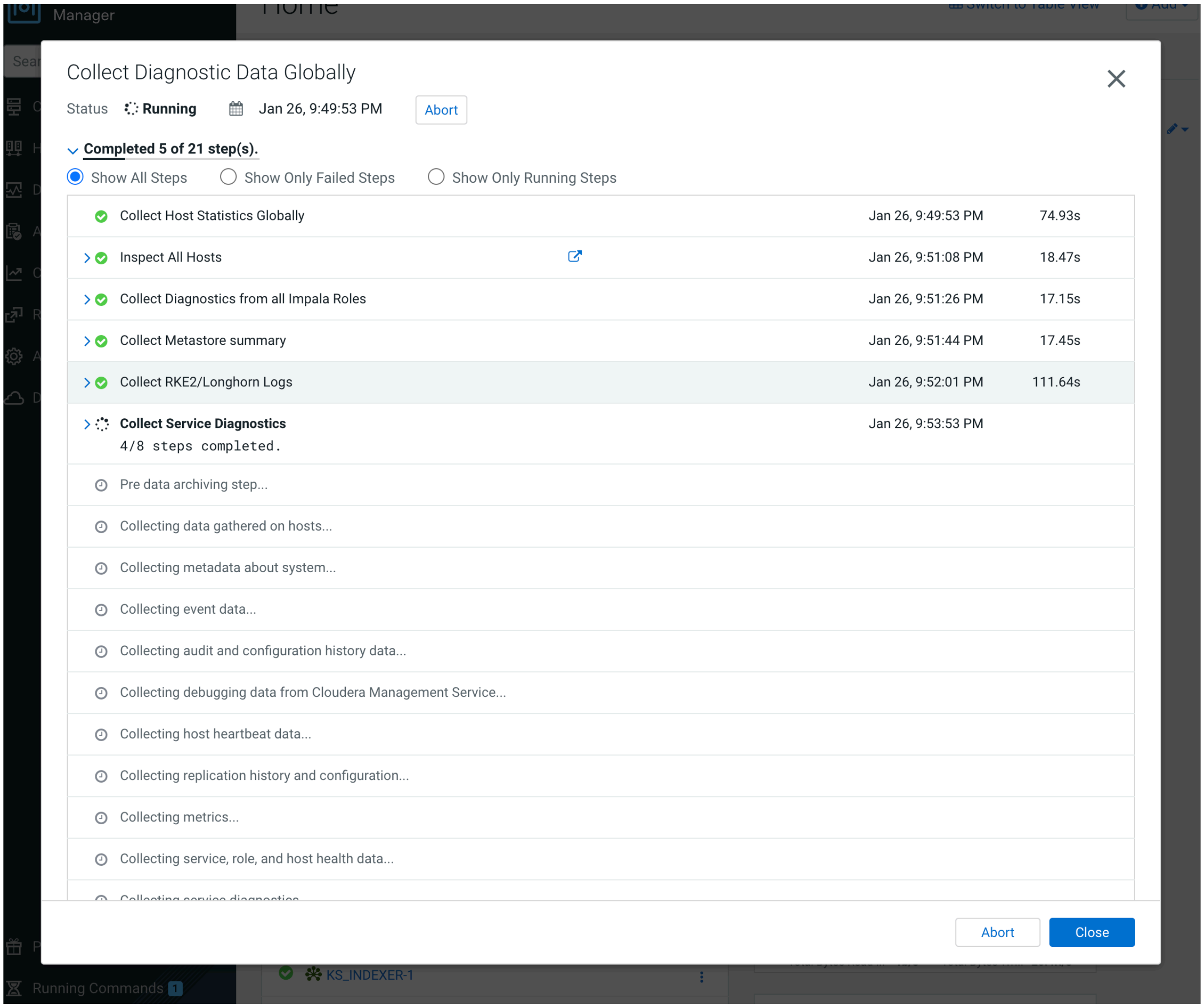
End time for log collection. Pre-populated from the Time Range Selector.

Target Maximum Size: 600 MB

Approximate size of diagnostic data bundle, which contains data for all hosts. Most bundles will not be larger than this size, and some will be smaller due to a lack of data or to compression.

Include Cloudera ○ Yes

3. The Collect Diagnostic Data Globally pop-up displays the data collection progress.



Collect Diagnostic Data Globally

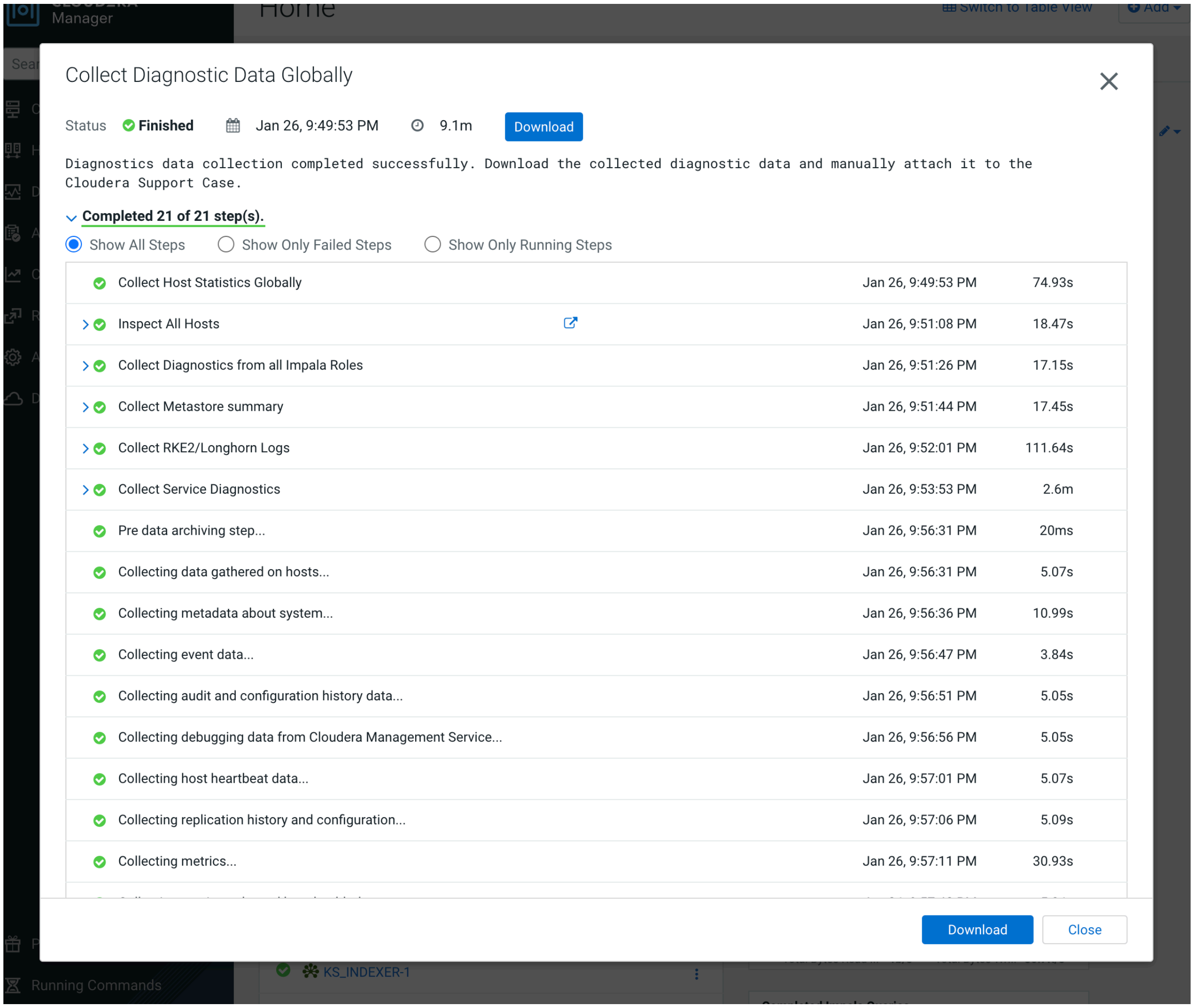
Status Running Jan 26, 9:49:53 PM

Completed 5 of 21 step(s).

● Show All Steps ○ Show Only Failed Steps ○ Show Only Running Steps

✓ Collect Host Statistics Globally	Jan 26, 9:49:53 PM	74.93s
✓ Inspect All Hosts	Jan 26, 9:51:08 PM	18.47s
✓ Collect Diagnostics from all Impala Roles	Jan 26, 9:51:26 PM	17.15s
✓ Collect Metastore summary	Jan 26, 9:51:44 PM	17.45s
✓ Collect RKE2/Longhorn Logs	Jan 26, 9:52:01 PM	111.64s
Collect Service Diagnostics `4/8 steps completed.`	Jan 26, 9:53:53 PM	
Pre data archiving step...		
Collecting data gathered on hosts...		
Collecting metadata about system...		
Collecting event data...		
Collecting audit and configuration history data...		
Collecting debugging data from Cloudera Management Service...		
Collecting host heartbeat data...		
Collecting replication history and configuration...		
Collecting metrics...		
Collecting service, role, and host health data...		
Collecting service diagnostics...		

4. When the data collection process is complete, click Download to download the ECS cluster diagnostic data.



Collect Diagnostic Data Globally

Status ✓ **Finished** Jan 26, 9:49:53 PM 9.1m Download

```
Diagnostics data collection completed successfully. Download the collected diagnostic data and manually attach it to the
Cloudera Support Case.
```

Completed 21 of 21 step(s).

● Show All Steps ○ Show Only Failed Steps ○ Show Only Running Steps

✓ Collect Host Statistics Globally	Jan 26, 9:49:53 PM	74.93s
✓ Inspect All Hosts	Jan 26, 9:51:08 PM	18.47s
✓ Collect Diagnostics from all Impala Roles	Jan 26, 9:51:26 PM	17.15s
✓ Collect Metastore summary	Jan 26, 9:51:44 PM	17.45s
✓ Collect RKE2/Longhorn Logs	Jan 26, 9:52:01 PM	111.64s
✓ Collect Service Diagnostics	Jan 26, 9:53:53 PM	2.6m
✓ Pre data archiving step...	Jan 26, 9:56:31 PM	20ms
✓ Collecting data gathered on hosts...	Jan 26, 9:56:31 PM	5.07s
✓ Collecting metadata about system...	Jan 26, 9:56:36 PM	10.99s
✓ Collecting event data...	Jan 26, 9:56:47 PM	3.84s
✓ Collecting audit and configuration history data...	Jan 26, 9:56:51 PM	5.05s
✓ Collecting debugging data from Cloudera Management Service...	Jan 26, 9:56:56 PM	5.05s
✓ Collecting host heartbeat data...	Jan 26, 9:57:01 PM	5.07s
✓ Collecting replication history and configuration...	Jan 26, 9:57:06 PM	5.09s
✓ Collecting metrics...	Jan 26, 9:57:11 PM	30.93s

Download Close

See also: Log support in Cloudera Manager for ECS cluster

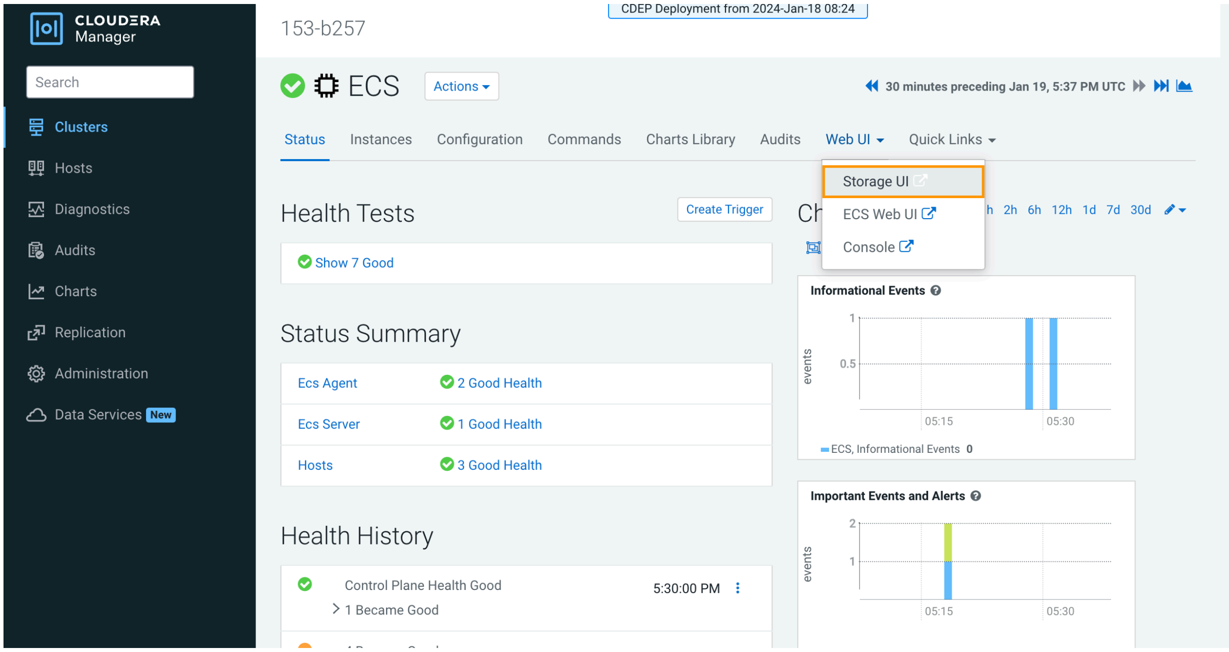
Downloading a Longhorn storage support bundle

For suspected storage issues, you can use the ECS Storage UI to download a Longhorn support bundle.

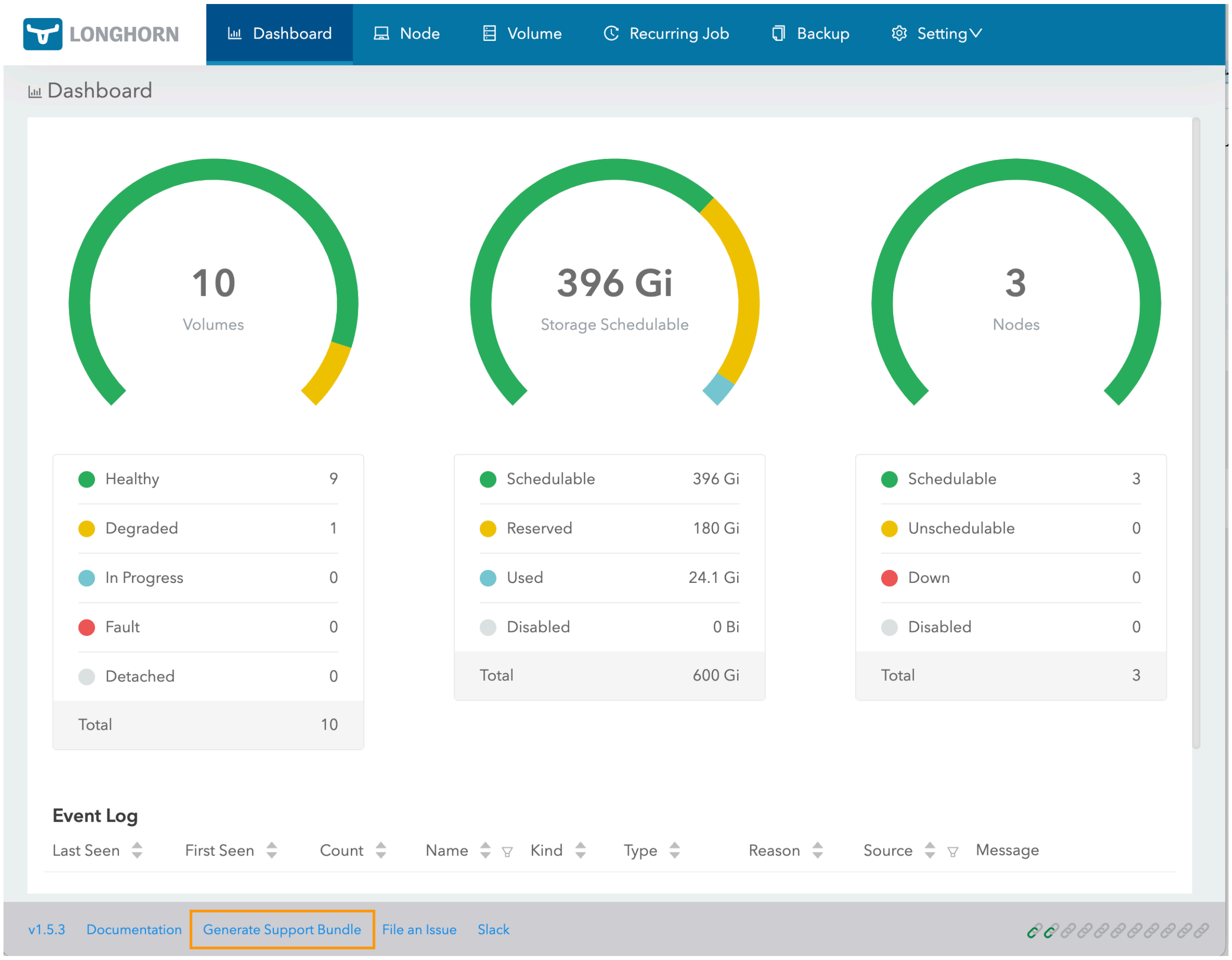
Note:

The Longhorn bundle is included in the Cloudera Manager bundle. If you have already collected the Cloudera Manager bundle, there is no need to download the Longhorn bundle. Also, if the Longhorn UI is down, you can collect the Cloudera Manager bundle as an alternative.

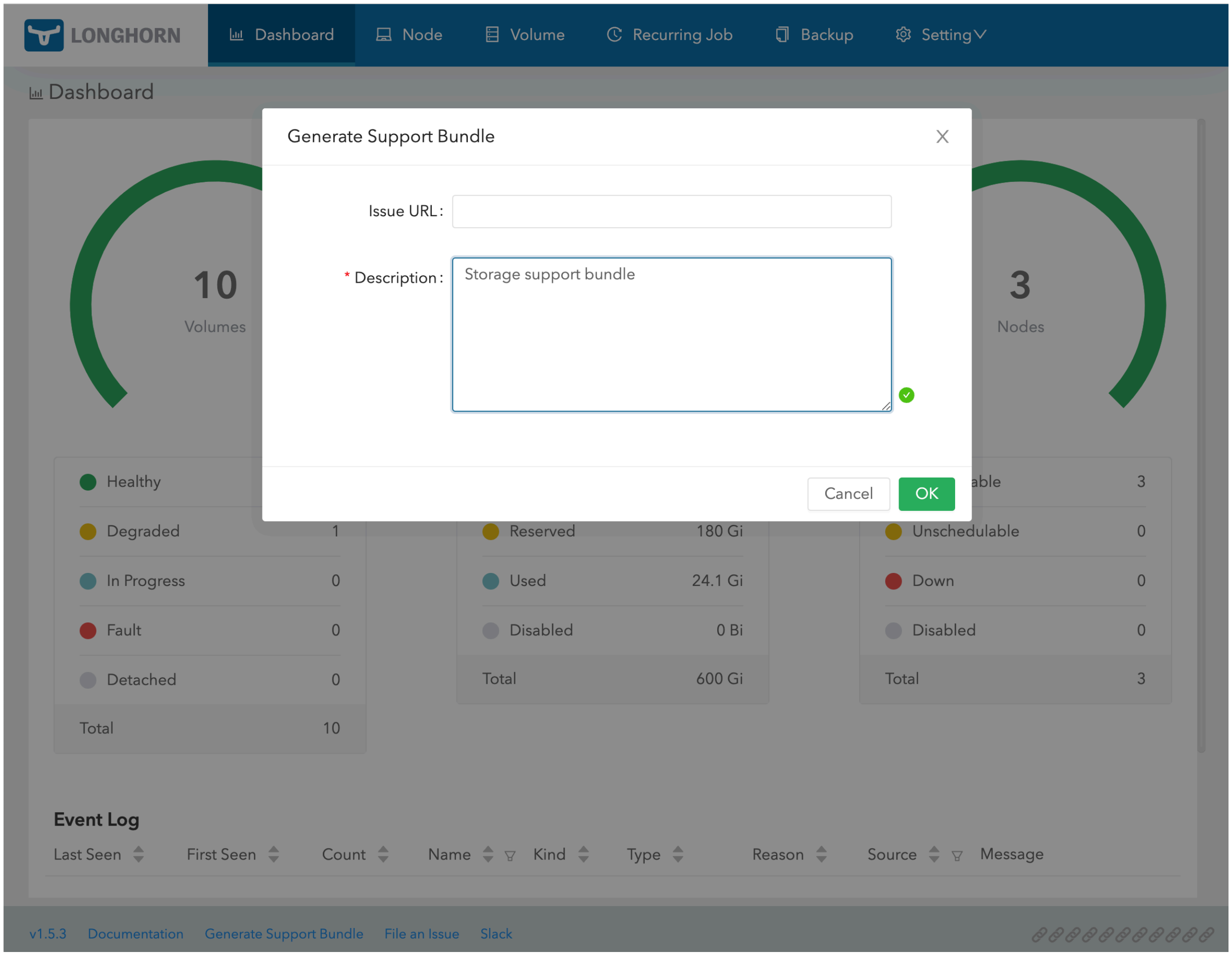
1. In Cloudera Manager, click ECS, then select Web UI > Storage UI.



2. Click Generate Support Bundle at the bottom of the Longhorn storage UI.



3. On the Generate Support Bundle pop-up, enter a description (Issue URL is optional), then click OK to download the Longhorn storage support bundle.



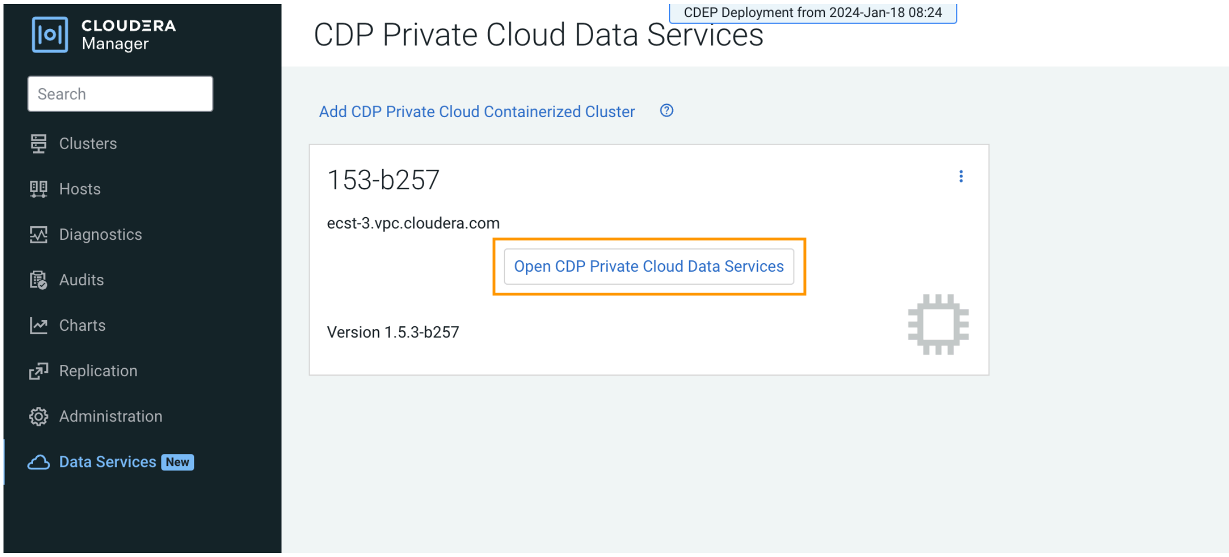
Generate Support Bundle

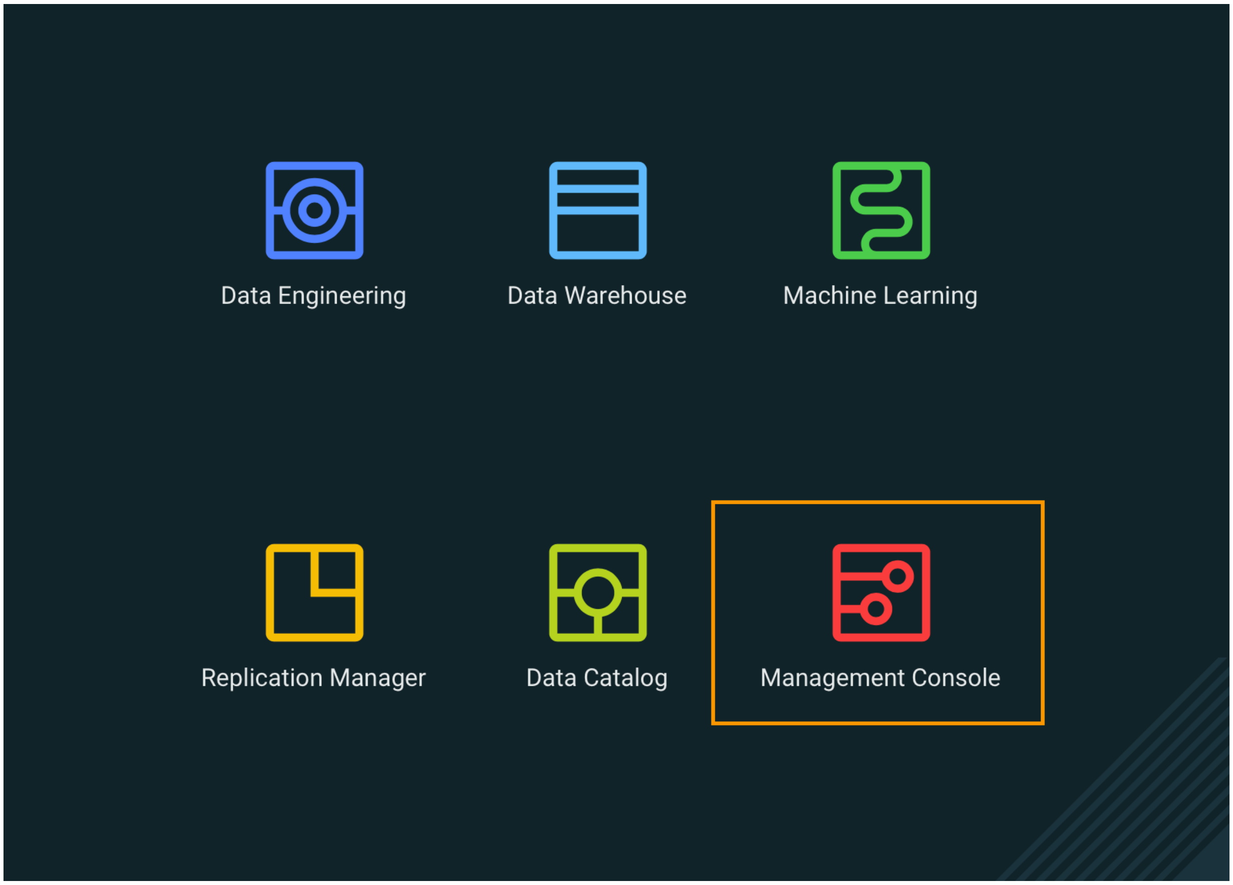
Issue URL :

* Description : Storage support bundle

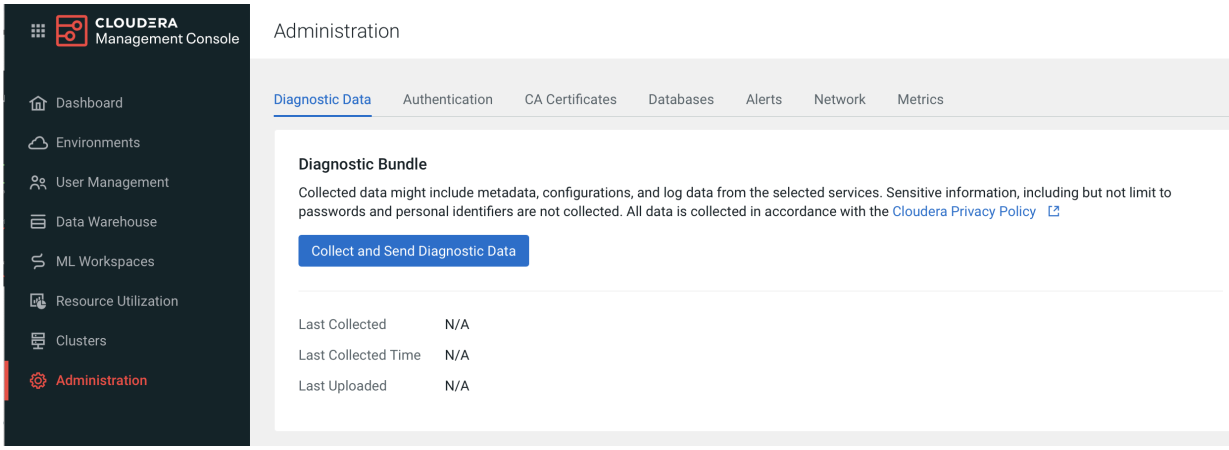
Downloading CDP Private Cloud diagnostic data

1. To access the Management Console, click Data Services in Cloudera Manager, then click Open CDP Private Cloud Data Services, and then select Management Console.





2. To download a diagnostic bundle, click Administration, then click Collect and Send Diagnostic Data.

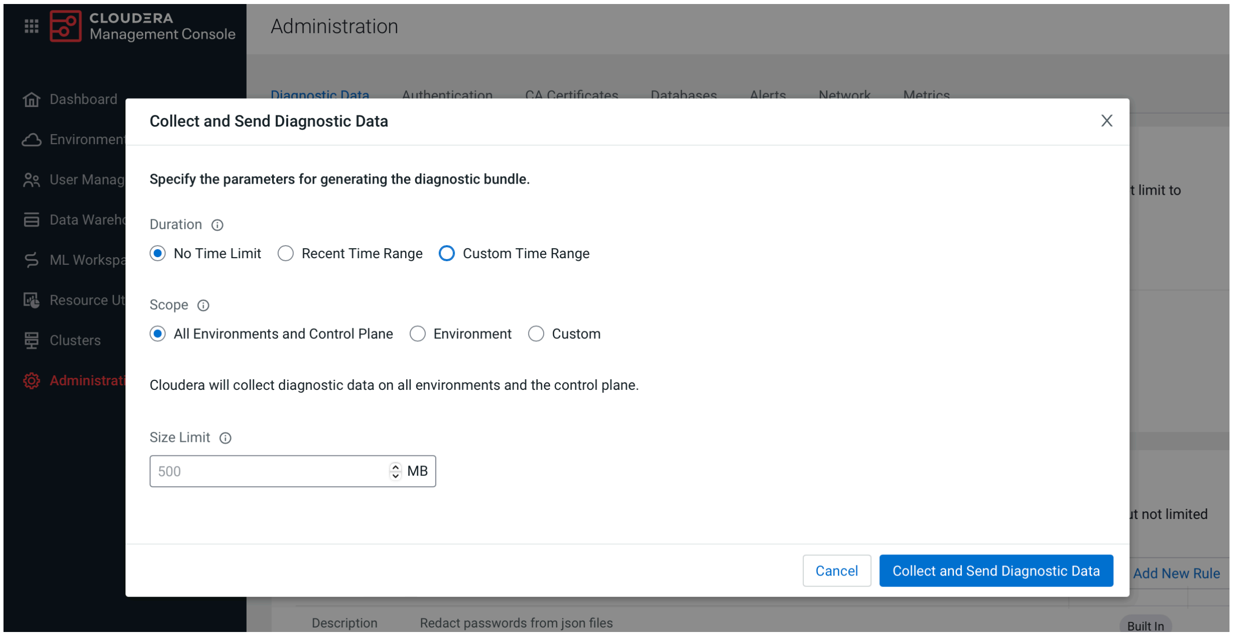


Diagnostic Bundle

Collected data might include metadata, configurations, and log data from the selected services. Sensitive information, including but not limit to passwords and personal identifiers are not collected. All data is collected in accordance with the Cloudera Privacy Policy

Last Collected N/A
Last Collected Time N/A
Last Uploaded N/A

3. On the Collect and Send Diagnostic Data pop-up, specify the duration, scope, and a size limit for the data, then click Collect and Send Diagnostic Data.



Collect and Send Diagnostic Data

Specify the parameters for generating the diagnostic bundle.

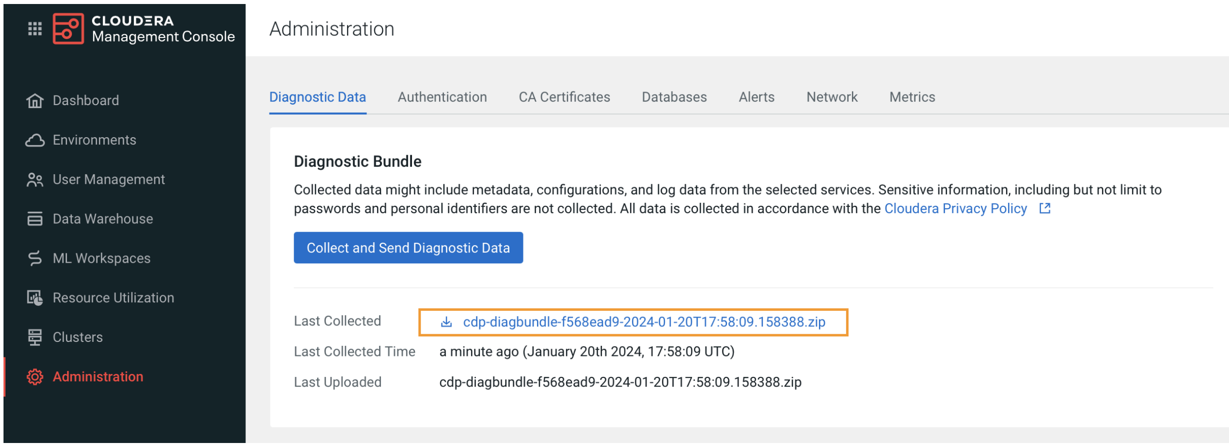
Duration
● No Time Limit ○ Recent Time Range ○ Custom Time Range

Scope
● All Environments and Control Plane ○ Environment ○ Custom

Cloudera will collect diagnostic data on all environments and the control plane.

Size Limit
500 MB

4. When the data collection process is complete, the .zip download file appears on the Diagnostic Data page.



Diagnostic Bundle

Collected data might include metadata, configurations, and log data from the selected services. Sensitive information, including but not limit to passwords and personal identifiers are not collected. All data is collected in accordance with the Cloudera Privacy Policy

Last Collected cdp-diagbundle-f568ead9-2024-01-20T17:58:09.158388.zip
Last Collected Time a minute ago (January 20th 2024, 17:58:09 UTC)
Last Uploaded cdp-diagbundle-f568ead9-2024-01-20T17:58:09.158388.zip

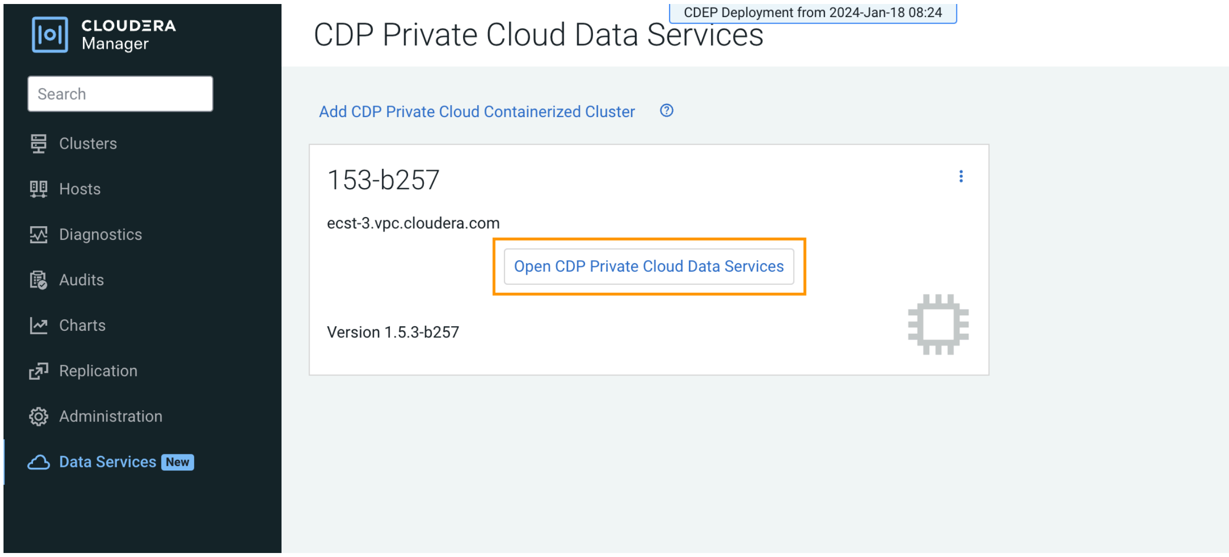
See also: Working with CDP Private Cloud diagnostic data

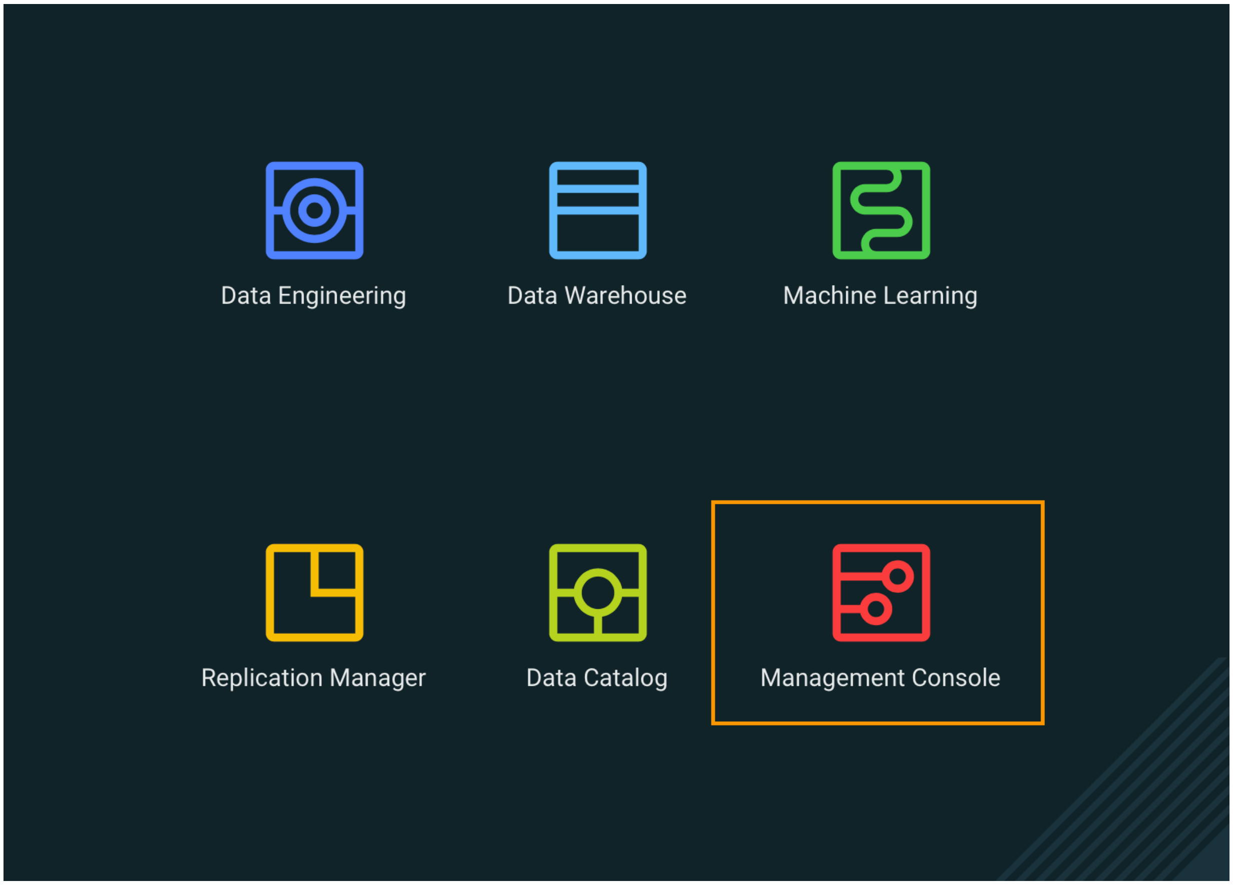
Proactive monitoring

You can define alert rules for your CDP Private Cloud Data Services deployment based on PromQL expressions. The alerts are automatically triggered when specific events occur in your deployment. You can view the triggered alerts on the Management Console dashboard. Any alert receivers that you have already configured start sending notifications to specified endpoints.

Configuring alert rules

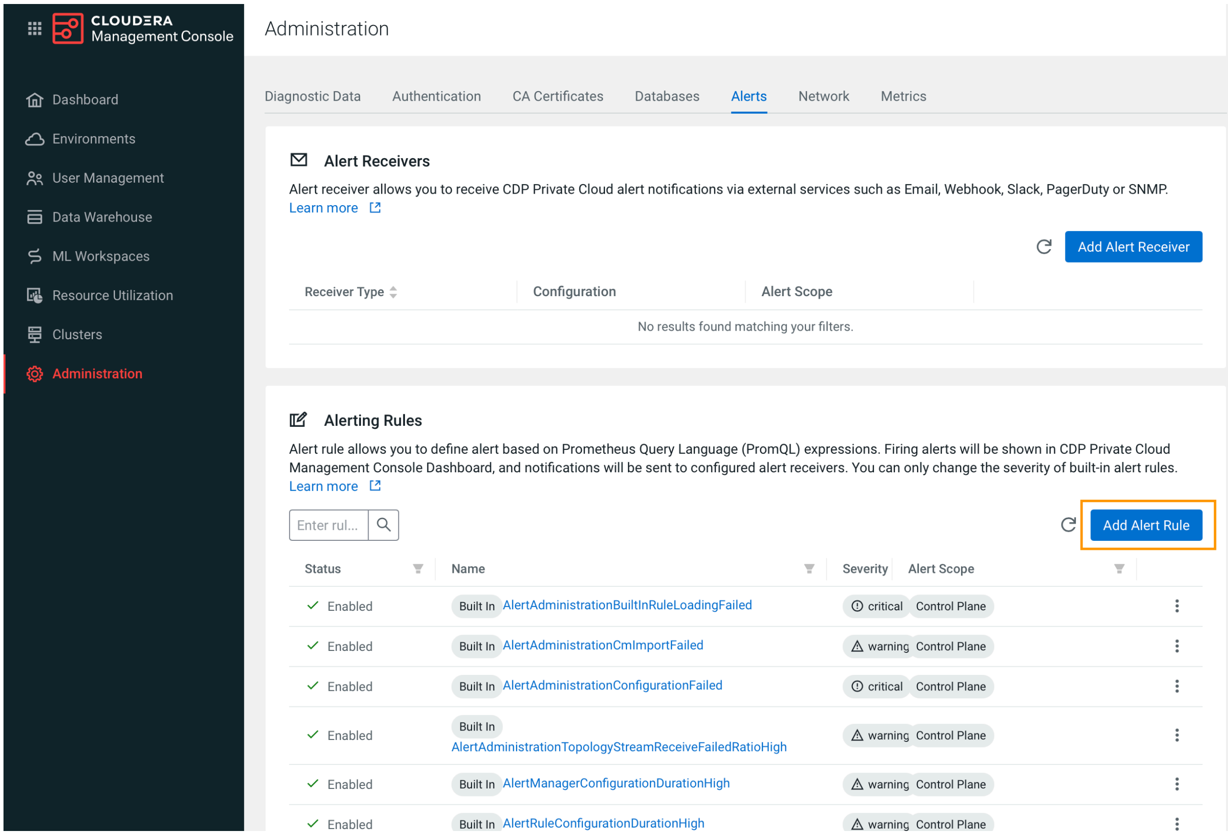
1. To access the Management Console, click Data Services in Cloudera Manager, then click Open CDP Private Cloud Data Services, and then select Management Console.


CLOUDERA
Manager
Search
Clusters
Hosts
Diagnostics
Audits
Charts
Replication
Administration
Data Services New
CDEP Deployment from 2024-Jan-18 08:24
CDP Private Cloud Data Services
Add CDP Private Cloud Containerized Cluster
153-b257
ecst-3.vpc.cloudera.com
Open CDP Private Cloud Data Services
Version 1.5.3-b257



2. On the Management Console home page, select Administration > Alerts.

3. On the Alerts page, click Add Alert Rule.



Alert Receivers

Alert receiver allows you to receive CDP Private Cloud alert notifications via external services such as Email, Webhook, Slack, PagerDuty or SNMP. Learn more

Receiver Type	Configuration	Alert Scope
No results found matching your filters.		

Alerting Rules

Alert rule allows you to define alert based on Prometheus Query Language (PromQL) expressions. Firing alerts will be shown in CDP Private Cloud Management Console Dashboard, and notifications will be sent to configured alert receivers. You can only change the severity of built-in alert rules. Learn more

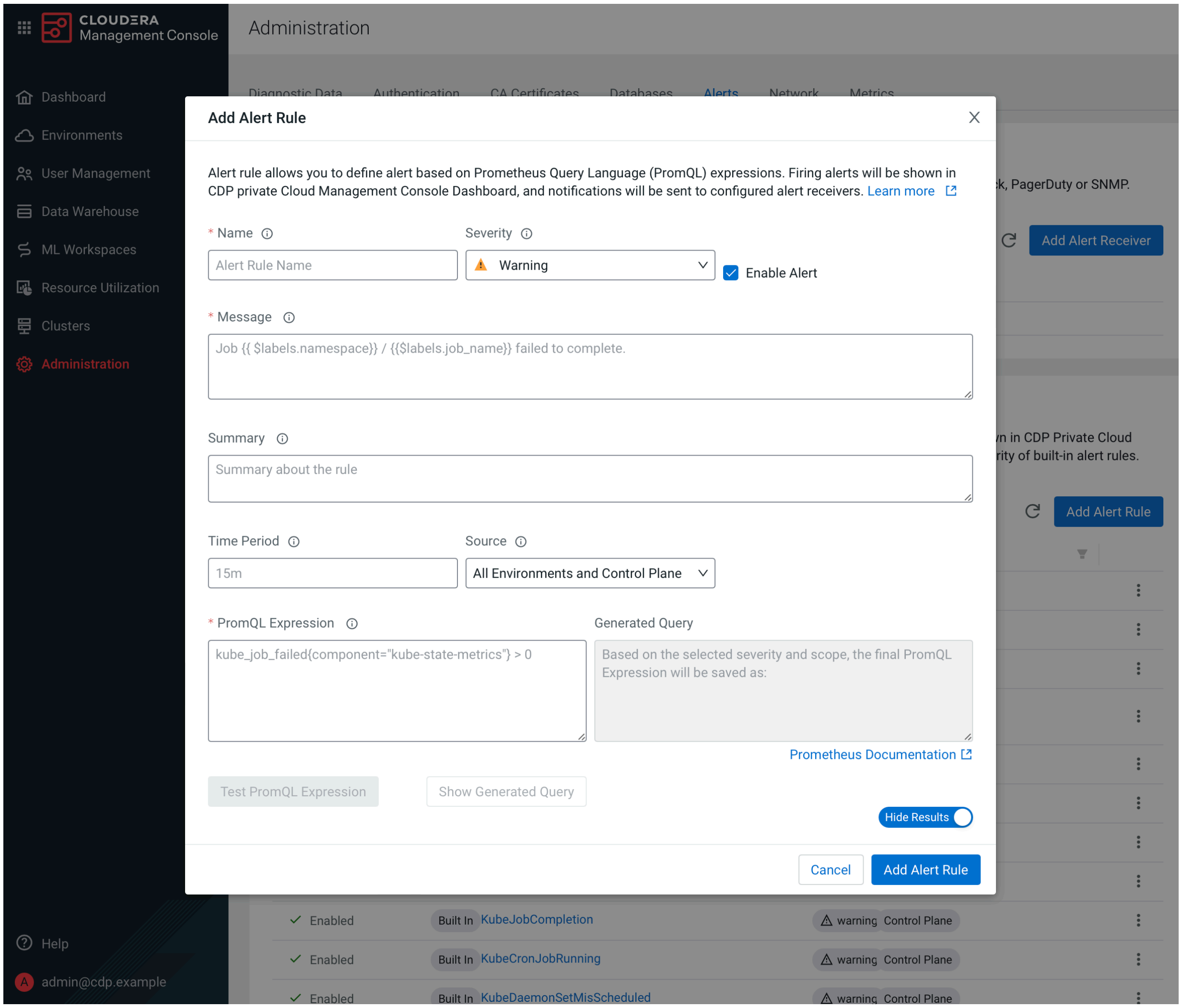
Status	Name	Severity	Alert Scope
✓ Enabled	Built In AlertAdministrationBuiltInRuleLoadingFailed	critical	Control Plane
✓ Enabled	Built In AlertAdministrationCmImportFailed	warning	Control Plane
✓ Enabled	Built In AlertAdministrationConfigurationFailed	critical	Control Plane
✓ Enabled	Built In AlertAdministrationTopologyStreamReceiveFailedRatioHigh	warning	Control Plane
✓ Enabled	Built In AlertManagerConfigurationDurationHigh	warning	Control Plane
✓ Enabled	Built In AlertRuleConfigurationDurationHigh	warning	Control Plane

4. On the Add Alert Rule pop-up, enter the following alert rule options (required fields are indicated in bold) then click Add Alert Rule.

Field	Description
Name	The name of the alert rule. You cannot use spaces or special characters in the name.
Severity	Specify the severity: Critical or Warning.
Enable Alert	Select this checkbox to enable the alert rule.
Message	The alert rule text. You can use PromQL labels to denote entities such as jobs in the text. For more information about using PromQL labels, see Alerting Rules.
Summary	A brief summary of the alert rule.
Time Period	The duration for which the PromQL expression must be true. If the expression continues to be true after the specified duration, the configured alert is automatically triggered.
Source	The CDP Private Cloud components for which the alert rule applies. You can select one of the following options as the source: • All Environments and Control Plane • Environments • Control Plane • A specific environment from the list of configured environments

Field	Description
PromQL Expression	The query expression in PromQL. The alert is issued when this expression is true for the time period specified in the For Clause. **Important:** Metrics reported by the environments always contain the following labels: appId and appName. Therefore, the result of the alert rule's query expression also must contain these labels. To ensure that the result contains the labels, include the by (appId, appName) clause when using aggregation operators in the query expression. For example, instead of the count(my_metric) > 0 expression, use the count(my_metric) by (appId, appName) > 0 expression.
Generated Query	The query that is generated for a selected workload type depending on the specified PromQL expression. You can view the query by clicking Show Generated Query.

Field	Description
Test PromQL Expression	You can click this option to test the query expression generated for the combination of a selected source and workload type. If you select one of All Environments and Control Plane, Environments, or Control Plane as the source for the PromQL query, it runs *only* on the control plane. To run the query on an environment, you must select a specific environment as the source. **Note:** If you click this option *before* saving the alert rule and if the PromQL expression is invalid, an unexpected error appears. In addition, you may lose all of the information entered for configuring the alert rule. Therefore, you should save the alert rule and then test the PromQL expression.



Add Alert Rule

Alert rule allows you to define alert based on Prometheus Query Language (PromQL) expressions. Firing alerts will be shown in CDP private Cloud Management Console Dashboard, and notifications will be sent to configured alert receivers. Learn more

* Name: Alert Rule Name

Severity: Warning

☑ Enable Alert

* Message: Job {{ $labels.namespace}} / {{$labels.job_name}} failed to complete.

Summary: Summary about the rule

Time Period: 15m

Source: All Environments and Control Plane

* PromQL Expression: kube_job_failed{component="kube-state-metrics"} > 0

Generated Query: Based on the selected severity and scope, the final PromQL Expression will be saved as:

Prometheus Documentation

Test PromQL Expression | Show Generated Query

Hide Results

Cancel | Add Alert Rule

✓ Enabled	Built In	KubeJobCompletion	warning	Control Plane
✓ Enabled	Built In	KubeCronJobRunning	warning	Control Plane
✓ Enabled	Built In	KubeDaemonSetMisScheduled	warning	Control Plane

The new alert rule is listed on the Alerts page under Alerting Rules.

Environment health checks

You can use environment health checks to verify the health of various ECS components. If you are experiencing issues, these tests can help you diagnose and solve the problem.

Host health checks

Check the status of all nodes in the Kubernetes environment

```
[root@test-1 ~]# kubectl get nodes
NAME                       STATUS   ROLES                       AGE    VER
SION
test-1.vpc.cloudera.com    Ready    control-plane,etcd,master   2d4h   v1.25
.14+rke2r1
test-2.vpc.cloudera.com    Ready    <none>                      2d4h   v1.
25.14+rke2r1
```

Ensure that the namespaces are all active

```
[root@test-1 ~]# kubectl get namespaces
NAME                                  STATUS   AGE
cdp                                   Active   2d4h
cdp-drs                               Active   2d4h
cdp-services                          Active   2d4h
default                               Active   2d4h
ecs-webhooks                          Active   2d4h
infra-prometheus                      Active   2d4h
k8tz                                  Active   2d4h
kube-node-lease                       Active   2d4h
kube-public                           Active   2d4h
kube-system                           Active   2d4h
kubernetes-dashboard                  Active   2d4h
liftie-wjtncjzm-ns                    Active   2d4h
local-path-storage                    Active   2d4h
longhorn-system                       Active   2d4h
observability                         Active   2d4h
pod-reaper                            Active   2d4h
test-1-5ea742bf-monitoring-platform   Active   2d4h
vault-system                          Active   2d4h
yunikorn                              Active   2d4h
```

Vault health checks

Vault states

There are three possible states the Vault can be in:

- Initialization:

  This involves preparing the Vault's storage back end to accept data. This cannot be executed on a Vault cluster that has already been initialized. The Vault operates with a self-signed certificate, and the ecs_util.sh script encompasses all of the necessary steps for this process.
- Unsealing:

  If the Vault is resealed, restarted, or stopped, a minimum of three keys are required to unseal it to resume request handling. The Vault does not retain the generated root key, as the root key must be reconstructed using at least three keys, or the vault remains permanently sealed. Cloudera stores the root key in Cloudera Manager, and this is the key that is used when the unseal option is selected from the Cloudera Manager user interface.

- Startup:

  After completing initialization and unsealing, the Vault is ready to be started. Once operational, it can begin processing requests.

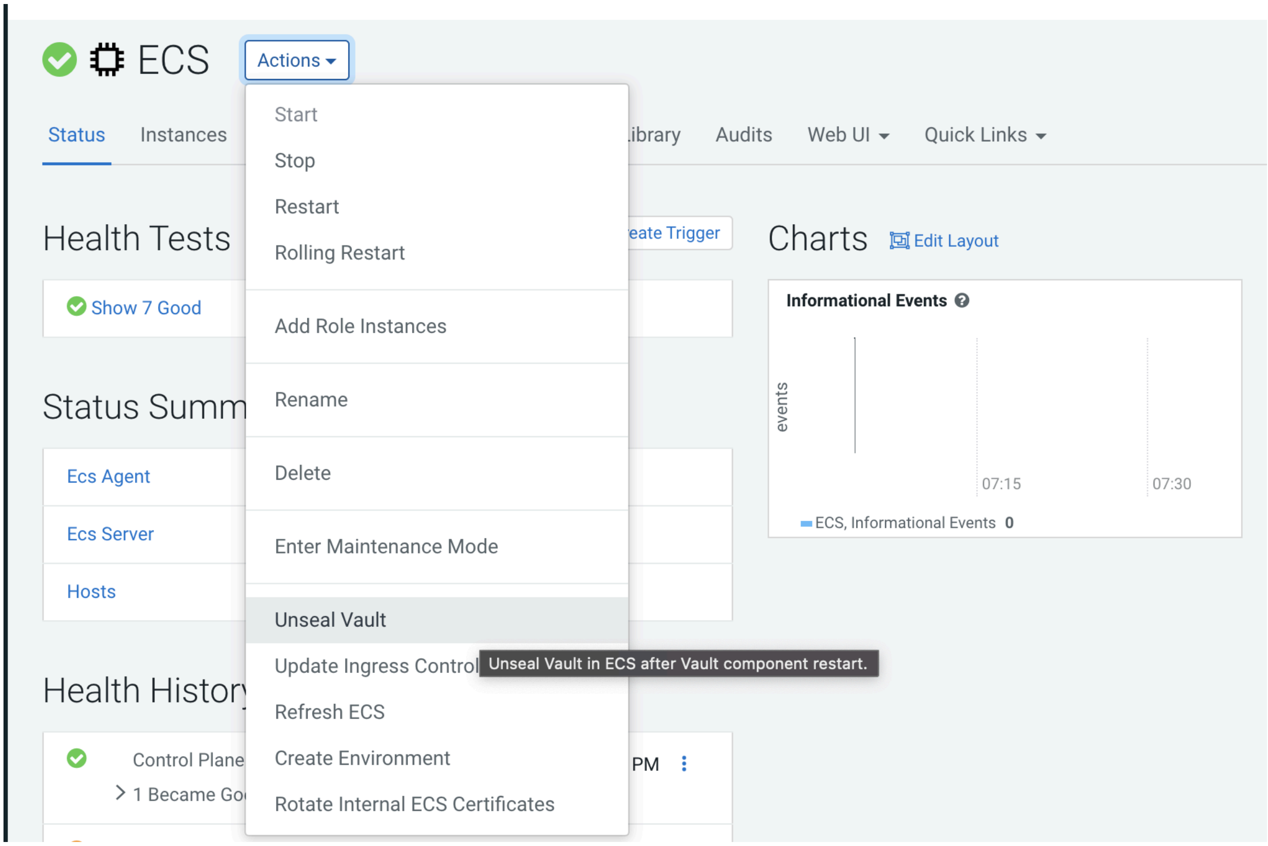
Check the Vault status

```
[root@test-1 ~]# kubectl get pods -n vault-system
NAME                                    READY       STATUS          RESTARTS
 AGE
helm-install-vault-pd842                0/1         Completed          0
  2d6h
vault-0                                 1/1         Running            0
 2d6h
vault-exporter-84bd8f848d-s9grm         1/1         Running            0
  2d6h
```

Unseal the Vault using Cloudera Manager

You should only unseal the Vault if there are issues reported in the logs about the Vault being sealed, or if pods in the Vault namespace are crash-looping.

To unseal the Vault, select the ECS cluster in Cloudera Manager, click ECS, then select Actions > Unseal Vault.



Unseal Vault in ECS after Vault component restart.

Storage health checks

Check storage mounts

```
[cloudera@fluentd-aggregator-0 /]$ mount | grep longhorn
```

```
/dev/longhorn/pvc-2f71ea50-744c-4eb9-875c-3f793d141961 on /var/log type ext4
 (rw,relatime,data=ordered)
```

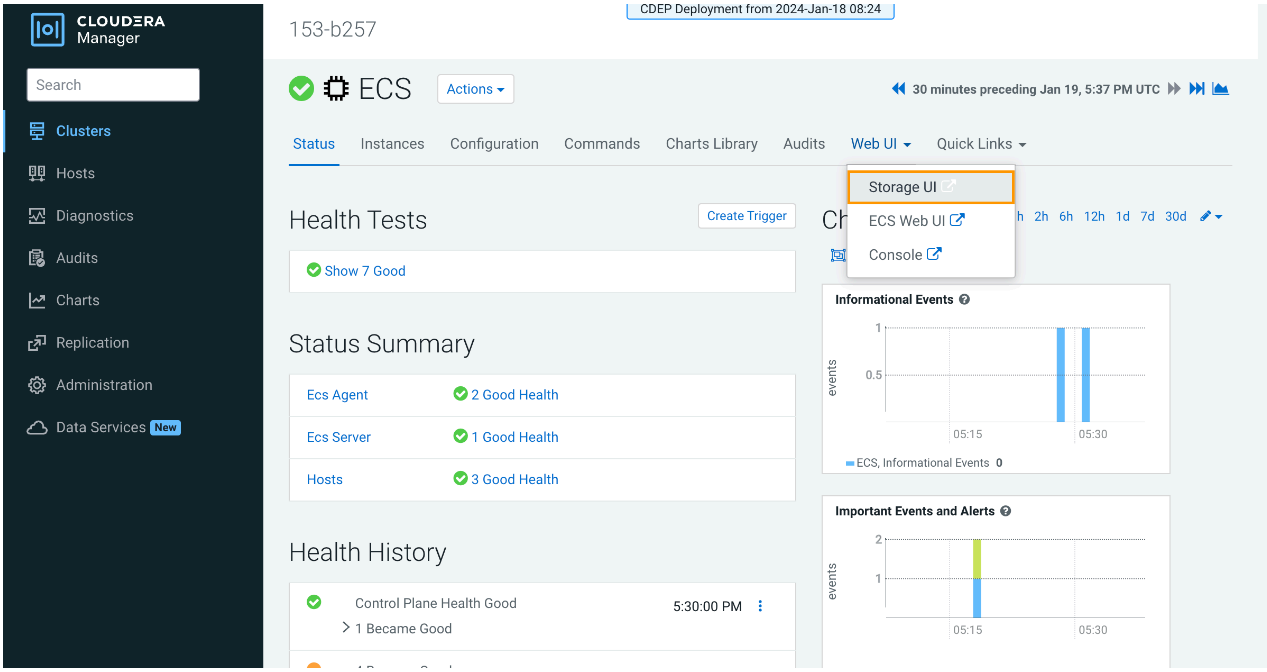
Check Longhorn status

```
[root@test-1 ~]# kubectl get pods -n longhorn-system
NAME                                                  READY   STATUS      R
ESTARTS   AGE
csi-attacher-7b556d5f87-2rttk                         1/1     Running     0
         2d10h
csi-attacher-7b556d5f87-ldst4                         1/1     Running     0
         2d10h
csi-attacher-7b556d5f87-nsrnn                         1/1     Running     0
         2d10h
csi-provisioner-76f6697668-567c5                      1/1     Running     0
          2d10h
csi-provisioner-76f6697668-6smx5                      1/1     Running     0
         2d10h
csi-provisioner-76f6697668-w82z5                      1/1     Running     0
         2d10h
csi-resizer-5d8b75df89-gn7jk                          1/1     Running     0
         2d10h
csi-resizer-5d8b75df89-m2r87                          1/1     Running     0
          2d10h
csi-resizer-5d8b75df89-zthrl                          1/1     Running     0
         2d10h
csi-snapshotter-c54d8cbd8-2vmxs                       1/1     Running     0
         2d10h
csi-snapshotter-c54d8cbd8-52sjc                       1/1     Running     0
         2d10h
csi-snapshotter-c54d8cbd8-f49gj                       1/1     Running     0
          2d10h
engine-image-ei-791d1d81-7bv7b                        1/1     Running     0
         2d10h
engine-image-ei-791d1d81-zb2kv                        1/1     Running     0
         2d10h
helm-install-longhorn-zchvx                           0/1     Completed   0
         2d10h
instance-manager-e-050ae22aa5b0f98c28dc7da17d4e6ba2   1/1     Running     0
          2d10h
instance-manager-e-5830ecda079889e4a49271591835ceb2   1/1     Running     0
         2d10h
instance-manager-r-050ae22aa5b0f98c28dc7da17d4e6ba2   1/1     Running     0
         2d10h
instance-manager-r-5830ecda079889e4a49271591835ceb2   1/1     Running     0
         2d10h
longhorn-admission-webhook-6cb4bb94f-2252d            1/1     Running     0
          2d10h
longhorn-admission-webhook-6cb4bb94f-hfqvz            1/1     Running     0
         2d10h
longhorn-conversion-webhook-76fd55b9-rklhz            1/1     Running     0
         2d10h
longhorn-conversion-webhook-76fd55b9-sxkkb            1/1     Running     0
         2d10h
longhorn-csi-plugin-czjtm                             3/3     Running     0
          2d10h
longhorn-csi-plugin-f26j7                             3/3     Running     0
         2d10h
longhorn-driver-deployer-7b64685666-7nx6v             1/1     Running     0
         2d10h
longhorn-manager-tjz5h                                1/1     Running     0
         2d10h
```

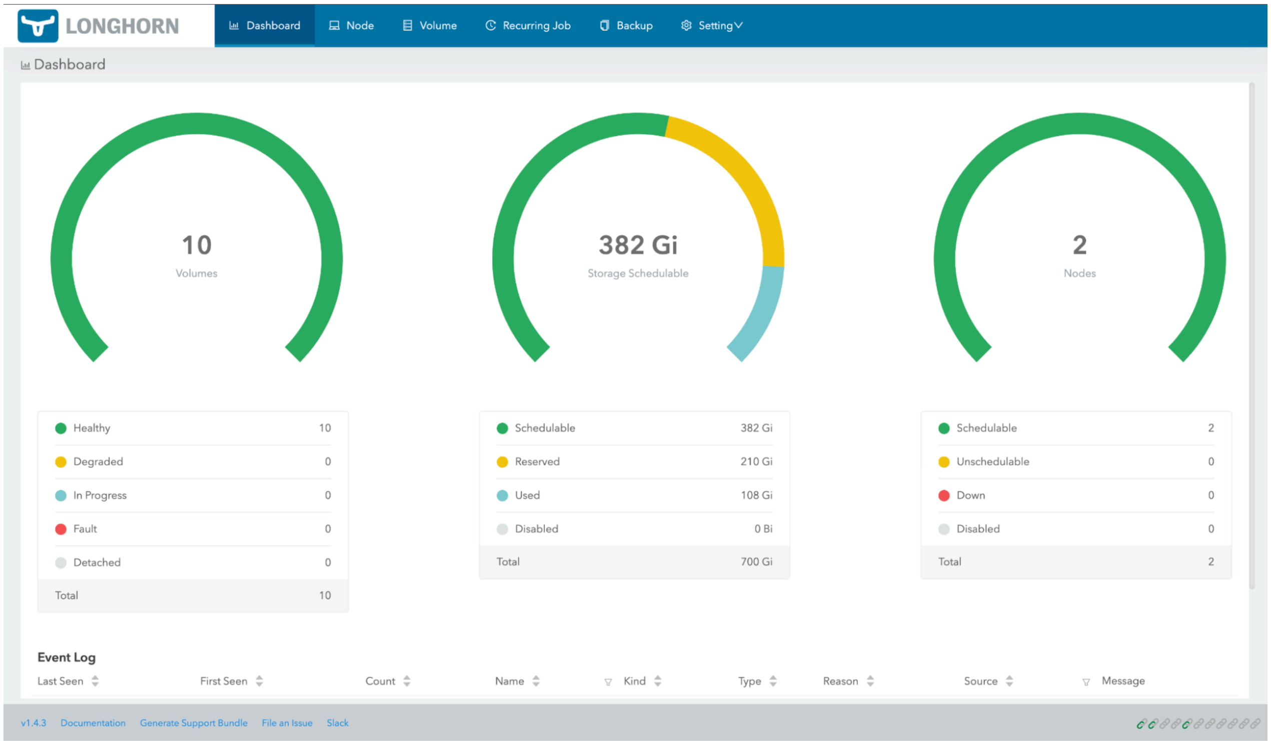
```
longhorn-manager-x9r26                              1/1     Running     0
          2d10h
longhorn-recovery-backend-fc6dccdcb-vnqb6           1/1     Running     0
         2d10h
longhorn-recovery-backend-fc6dccdcb-w4fdr           1/1     Running     0
         2d10h
longhorn-ui-79c96b46cb-4jqrq                        1/1     Running     0
         2d10h
longhorn-ui-79c96b46cb-fvn5g                        1/1     Running     0
          2d10h
```

Check Longhorn status using the UI

In Cloudera Manager, click ECS, then select Web UI > Storage UI.



A healthy system should show healthy volumes, schedulable storage, and schedulable nodes:



● Healthy	10
● Degraded	0
● In Progress	0
● Fault	0
● Detached	0
Total	10

● Schedulable	382 Gi
● Reserved	210 Gi
● Used	108 Gi
● Disabled	0 Bi
Total	700 Gi

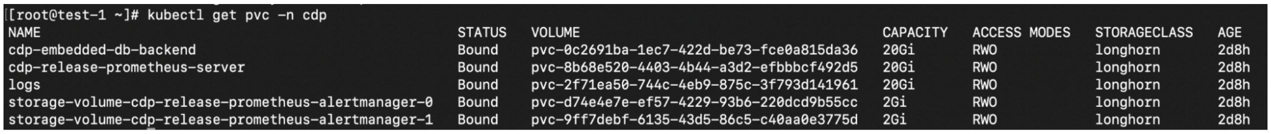
● Schedulable	2
● Unschedulable	0
● Down	0
● Disabled	0
Total	2

Persistent volume claims

Use the following command format to list the persistent volume claims in a namespace:

```
kubectl get pvc -n <namespace>
```

For example, to list the persistent volume claims in the cdp namespace:



```
[root@test-1 ~]# kubectl get pvc -n cdp
NAME                                             STATUS   VOLUME                                     CAPACITY   ACCESS MODES   STORAGECLASS   AGE
cdp-embedded-db-backend                          Bound    pvc-0c2691ba-1ec7-422d-be73-fce0a815da36   20Gi       RWO            longhorn       2d8h
cdp-release-prometheus-server                    Bound    pvc-8b68e520-4403-4b44-a3d2-efbbbcf492d5   20Gi       RWO            longhorn       2d8h
logs                                             Bound    pvc-2f71ea50-744c-4eb9-875c-3f793d141961   20Gi       RWO            longhorn       2d8h
storage-volume-cdp-release-prometheus-alertmanager-0   Bound    pvc-d74e4e7e-ef57-4229-93b6-220dcd9b55cc   2Gi        RWO            longhorn       2d8h
storage-volume-cdp-release-prometheus-alertmanager-1   Bound    pvc-9ff7debf-6135-43d5-86c5-c40aa0e3775d   2Gi        RWO            longhorn       2d8h
```

Common storage issues and workarounds

longhorn-manager not present

Check to see if the longhorn-manager daemonset exists in the longhorn-system namespace. If not, it may have been accidentally deleted. To restore it via the Helm chart:

```
export KUBECONFIG=/etc/rancher/rke2/rke2.yaml
cd /opt/cloudera/parcels/ECS/installer/install/bin/linux
./helm history longhorn -n longhorn-system (note down the latest revision)
./helm rollback longhorn <revision> -n longhorn-system
```

Volume fails to attach to node

When this issue occurs, Longhorn manager reports the following error:

```
time="2023-03-03T01:42:30Z" level=warning
```

```
msg="pvc-e930fca4-0c90-44b0-bedb-9d9d39ec197c-e-c87678d7: 2023/03/02 09:2
7:40
cannot create an available backend for the engine from the addresses
[tcp://10.42.0.21:10120]"
```

Checking the instance-manager pod logs, it shows a discrepancy between the actual and the expected volume size. The volume size has drifted from the requested pvc:

```
[pvc-e930fca4-0c90-44b0-bedb-9d9d39ec197c-r-57d7d0e6]
time="2023-03-03T01:48:08Z" level=info msg="Opening volume
/host/ecs/longhorn-storage/replicas/pvc-e930fca4-0c90-44b0-bedb-9d9d39ec1
97c-fb
bf1fa2, size 10737418240/512"

2023-01-30T14:59:53.514816555-08:00 stderr F
[pvc-84f1c799-284c-4676-9c3a-34a7fdcfe8cc-e-3b7dabc9]
time="2023-01-30T22:59:53Z" level=warning msg="backend tcp://10.42.1.47:1
0000
size does not match 2147483648 != 64424509440 in the engine initiation pha
se"
```

This can be resolved by updating the volume size to the original expected size:

1. SSH into the node that has the replica.
2. cd into the replica folder, for example:

   ```
   cd /longhorn/replicas/pvc-126d40e2-7bff-4679-a310-1a5dc941
   ```

3. Change the size field from its current value to the expected value in the volume.meta file.

Host-level tasks

Starting, stopping, restarting, and refreshing Embedded Container Service Clusters

Procedures to start, stop, restart, and refresh Private Cloud Experience clusters

Starting a Embedded Container Service Cluster

Procedure

1. On the HomeStatus tab, click the Actions Menu to the right of the Embedded Container Service cluster name and select Start.
2. Click the Start button that appears in the next screen to confirm. The Command Details window shows the progress of starting services.

Results

When the All services successfully started message appears, the task is complete and you can close the Command Details window.

Stopping a CDP Private Cloud Data Services Cluster

Procedure

1. On the HomeStatus tab, click the Actions Menu to the right of the Embedded Container Service cluster name and select Stop.
2. Click the Stop button in the confirmation screen. The Command Details window shows the progress of stopping services.

Results

When the All services successfully stopped message appears, the task is complete and you can close the Command Details window.

Note: The cluster-level Stop action does not stop the Cloudera Management Service. You must stop the Cloudera Management Service separately.

Restarting a Embedded Container Service Cluster

Procedure

1. On the HomeStatus tab, click the Actions Menu to the right of the cluster name and select Restart.
2. Click the Restart button that appears in the next screen to confirm.
   The Command Details window shows the progress of stopping services. When the All services successfully started message appears, the task is complete and you can close the Command Details window.
3. Click ActionsUnseal Vault

Refreshing a Embedded Container Service Cluster

Procedure

To refresh a cluster, in the HomeStatus tab, click the Actions Menu to the right of the cluster name and select Refresh Cluster.

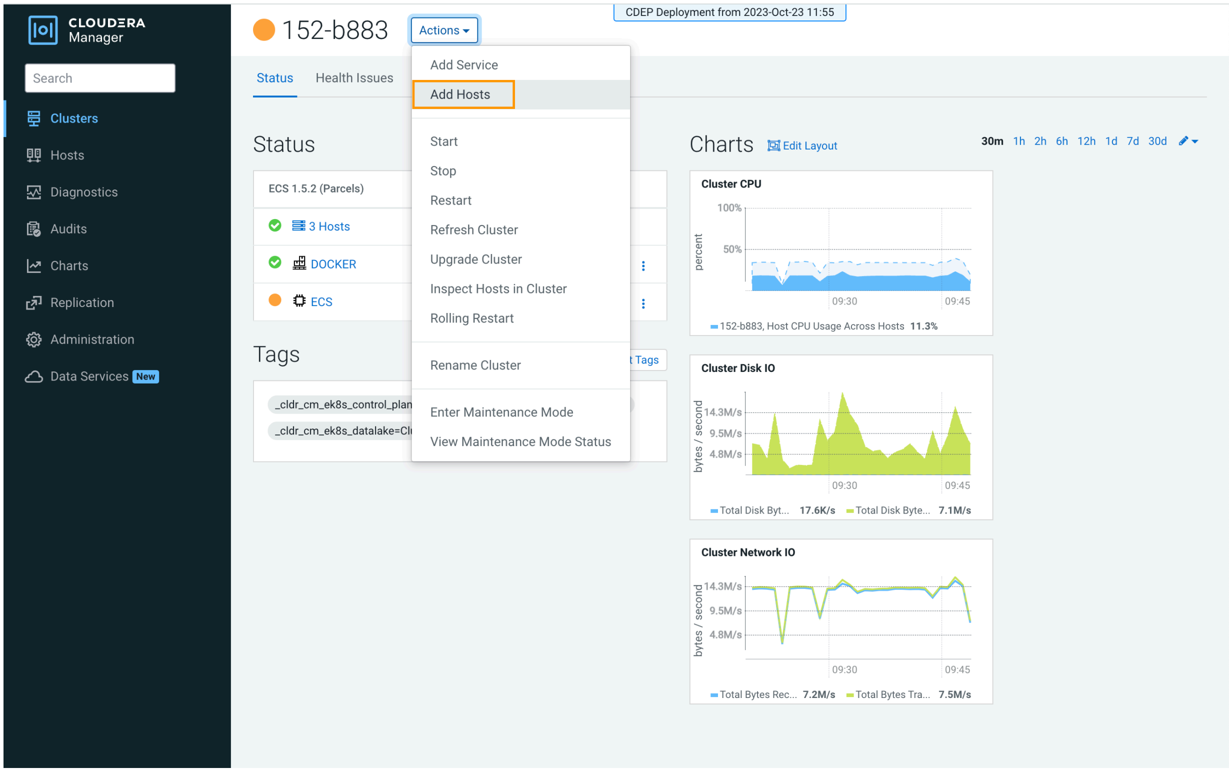
Adding hosts to a Embedded Container Service Cluster

You can add hosts to a Embedded Container Service (ECS) cluster to increase capacity and performance.

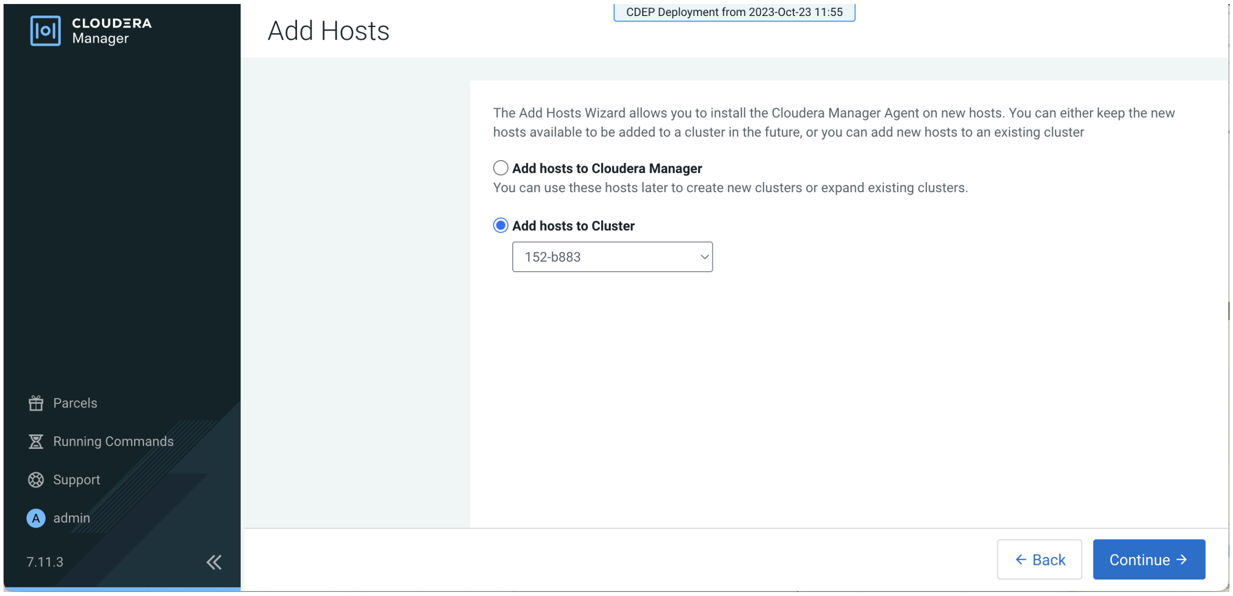
About this task

Procedure

1. On the Cloudera Manager home page, click the ECS Cluster, then select Actions > Add Hosts.



2. On the Add Hosts page, click Add Hosts to Cluster and select the ECS Cluster, then click Continue.


Add Hosts

The Add Hosts Wizard allows you to install the Cloudera Manager Agent on new hosts. You can either keep the new hosts available to be added to a cluster in the future, or you can add new hosts to an existing cluster

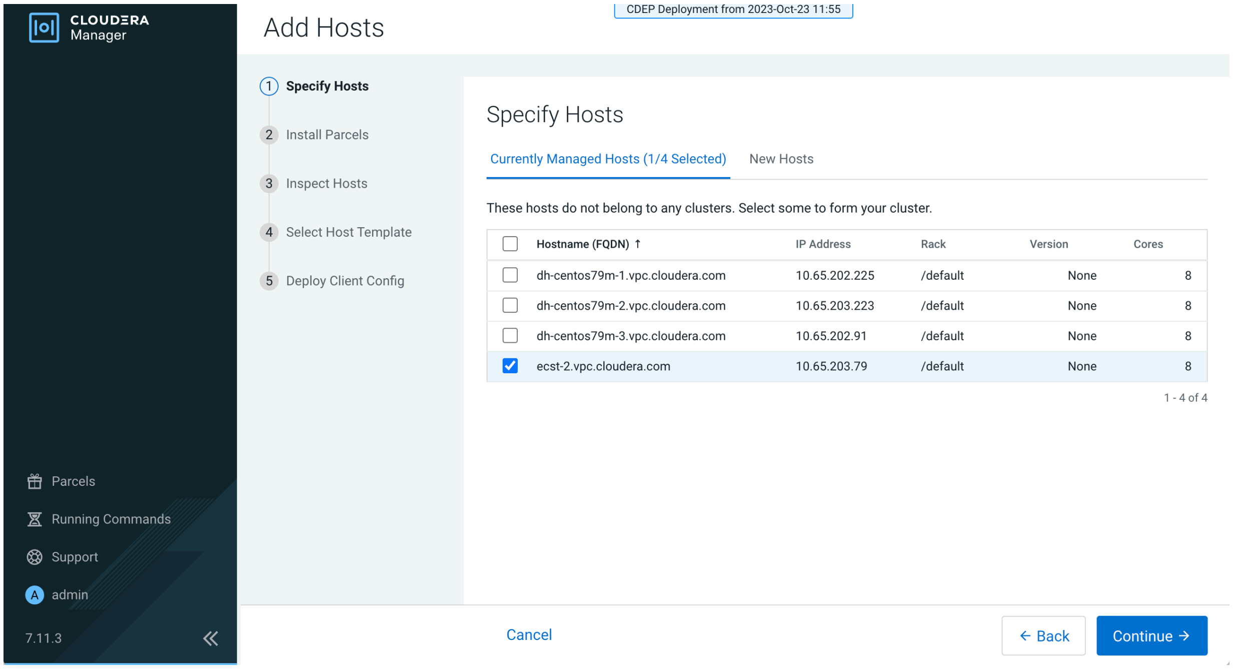
○ **Add hosts to Cloudera Manager**

You can use these hosts later to create new clusters or expand existing clusters.

● **Add hosts to Cluster**

152-b883

3. On the Specify Hosts page, hosts that have already been added to Cloudera Manager are listed on the Currently Managed Hosts tab. You can select one or more of these hosts to add to the ECS cluster.



Add Hosts

Specify Hosts

Currently Managed Hosts (1/4 Selected) New Hosts

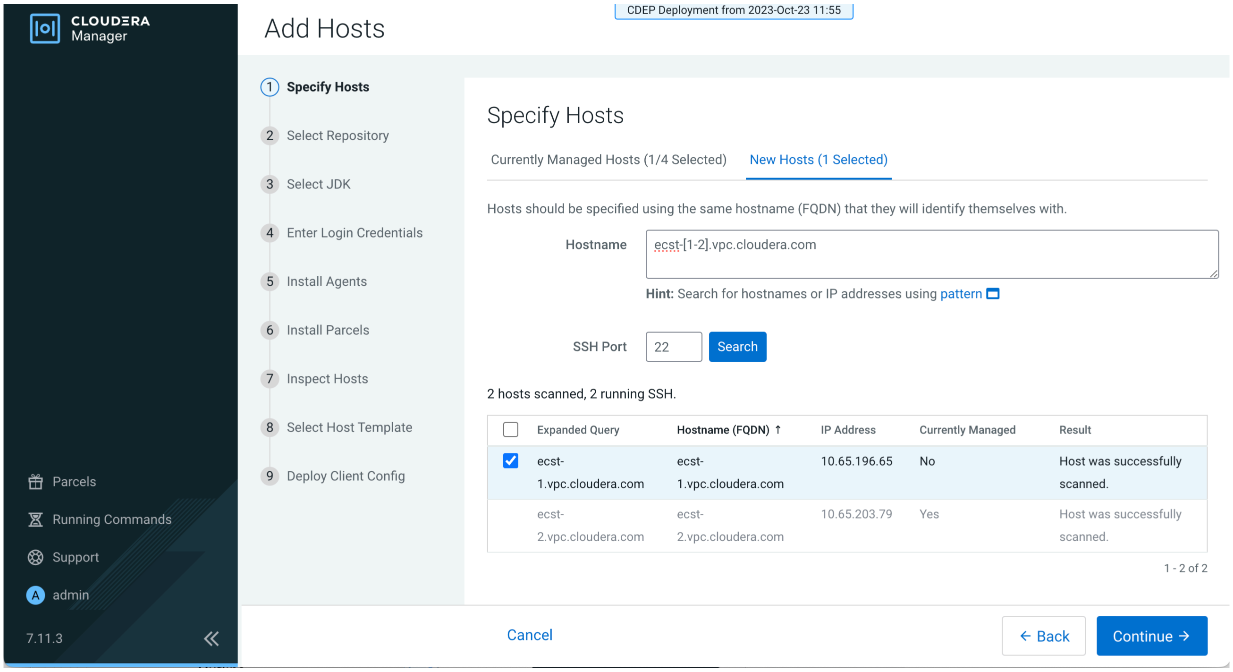
These hosts do not belong to any clusters. Select some to form your cluster.

□	Hostname (FQDN) ↑	IP Address	Rack	Version	Cores
□	dh-centos79m-1.vpc.cloudera.com	10.65.202.225	/default	None	8
□	dh-centos79m-2.vpc.cloudera.com	10.65.203.223	/default	None	8
□	dh-centos79m-3.vpc.cloudera.com	10.65.202.91	/default	None	8
☑	ecst-2.vpc.cloudera.com	10.65.203.79	/default	None	8

1 - 4 of 4

You can also click the New Hosts tab to specify one or more hosts that have not been added to Cloudera Manager. Enter a Fully Qualified Domain Name in the Hostname box, then click Search.

Note: Click the pattern link under the Hostname box to display more information about allowed FQDN patterns.



Add Hosts

Specify Hosts

Currently Managed Hosts (1/4 Selected) New Hosts (1 Selected)

Hosts should be specified using the same hostname (FQDN) that they will identify themselves with.

Hostname: ecst-[1-2].vpc.cloudera.com

Hint: Search for hostnames or IP addresses using pattern

SSH Port: 22

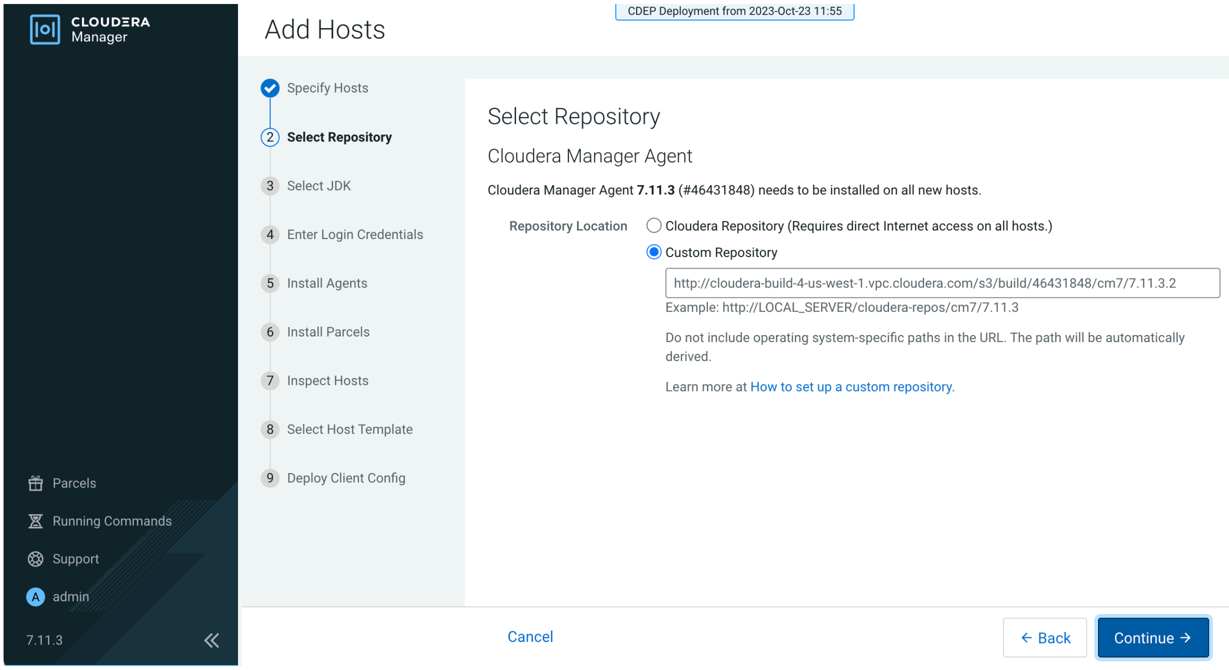
2 hosts scanned, 2 running SSH.

□	Expanded Query	Hostname (FQDN) ↑	IP Address	Currently Managed	Result
☑	ecst-1.vpc.cloudera.com	ecst-1.vpc.cloudera.com	10.65.196.65	No	Host was successfully scanned.
	ecst-2.vpc.cloudera.com	ecst-2.vpc.cloudera.com	10.65.203.79	Yes	Host was successfully scanned.

1 - 2 of 2

After you have finished specifying the ECS hosts, click Continue.

4. On the Select Repository page, the applicable Cloudera Manager Agent repository location is selected by default. Click Continue.



Select Repository

Cloudera Manager Agent

Cloudera Manager Agent **7.11.3** (#46431848) needs to be installed on all new hosts.

Repository Location ○ Cloudera Repository (Requires direct Internet access on all hosts.)

● Custom Repository

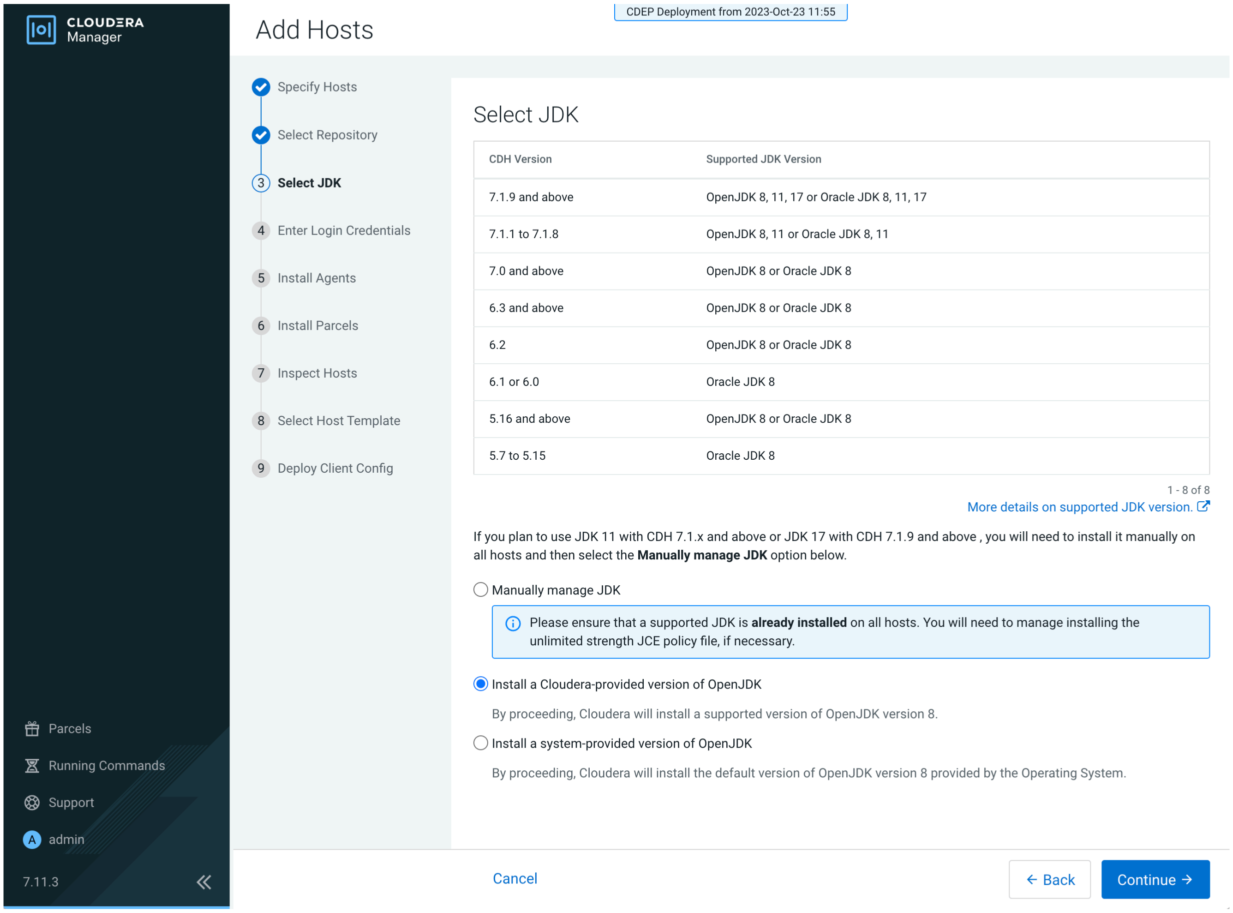
http://cloudera-build-4-us-west-1.vpc.cloudera.com/s3/build/46431848/cm7/7.11.3.2

Example: http://LOCAL_SERVER/cloudera-repos/cm7/7.11.3

Do not include operating system-specific paths in the URL. The path will be automatically derived.

Learn more at How to set up a custom repository.

5. Select a JDK option on the Select JDK page, then click Continue.



Select JDK

CDH Version	Supported JDK Version
7.1.9 and above	OpenJDK 8, 11, 17 or Oracle JDK 8, 11, 17
7.1.1 to 7.1.8	OpenJDK 8, 11 or Oracle JDK 8, 11
7.0 and above	OpenJDK 8 or Oracle JDK 8
6.3 and above	OpenJDK 8 or Oracle JDK 8
6.2	OpenJDK 8 or Oracle JDK 8
6.1 or 6.0	Oracle JDK 8
5.16 and above	OpenJDK 8 or Oracle JDK 8
5.7 to 5.15	Oracle JDK 8

1 - 8 of 8

More details on supported JDK version.

If you plan to use JDK 11 with CDH 7.1.x and above or JDK 17 with CDH 7.1.9 and above , you will need to install it manually on all hosts and then select the **Manually manage JDK** option below.

○ Manually manage JDK

Please ensure that a supported JDK is **already installed** on all hosts. You will need to manage installing the unlimited strength JCE policy file, if necessary.

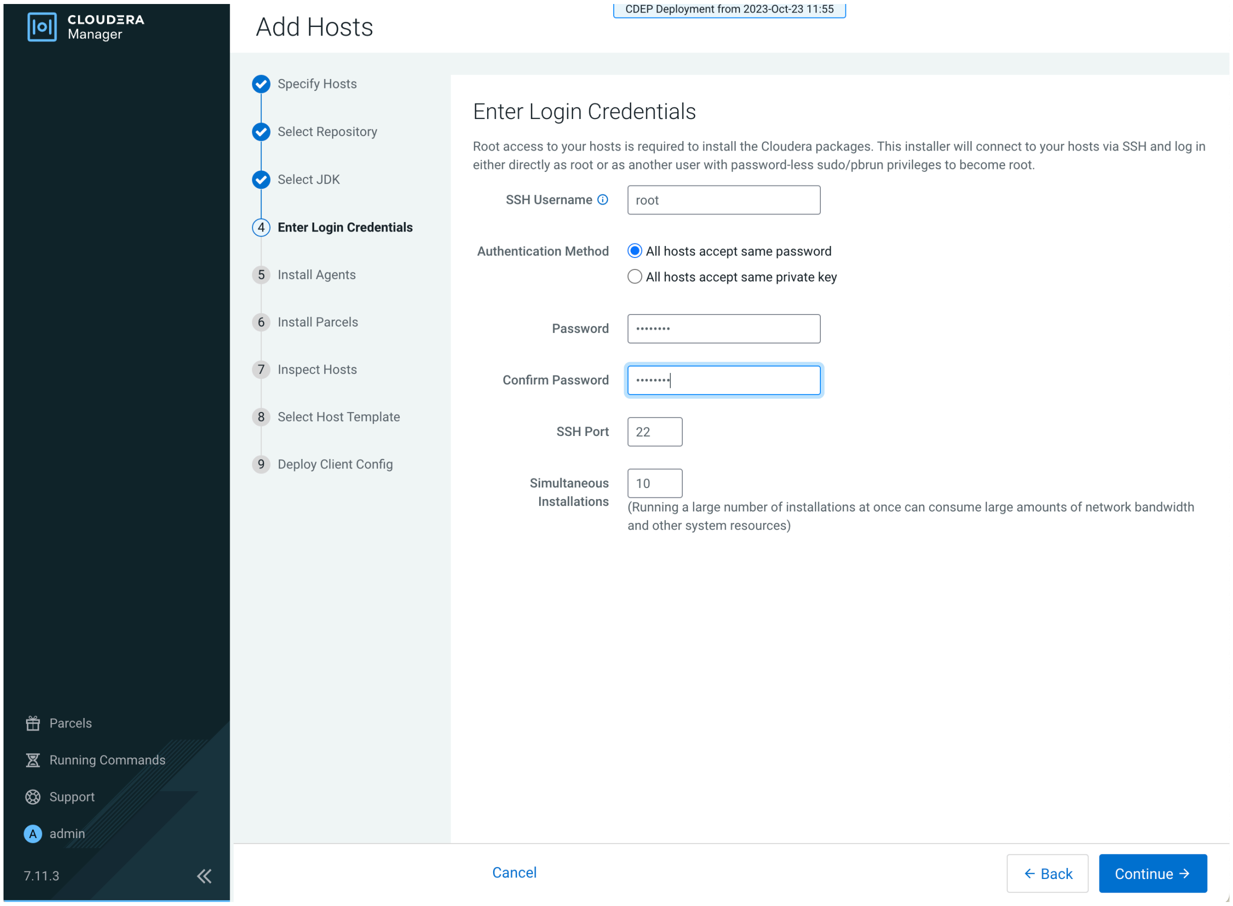
● Install a Cloudera-provided version of OpenJDK

By proceeding, Cloudera will install a supported version of OpenJDK version 8.

○ Install a system-provided version of OpenJDK

By proceeding, Cloudera will install the default version of OpenJDK version 8 provided by the Operating System.

6. On the Enter Login Credentials page, All hosts accept the same password is selected by default. Enter the user name in the SSH Username box, and type in and confirm the password. You can also select the All hosts accept the same private key option and provide the Private Key and passphrase.



Enter Login Credentials

Root access to your hosts is required to install the Cloudera packages. This installer will connect to your hosts via SSH and log in either directly as root or as another user with password-less sudo/pbrun privileges to become root.

SSH Username: root

Authentication Method: ● All hosts accept same password ○ All hosts accept same private key

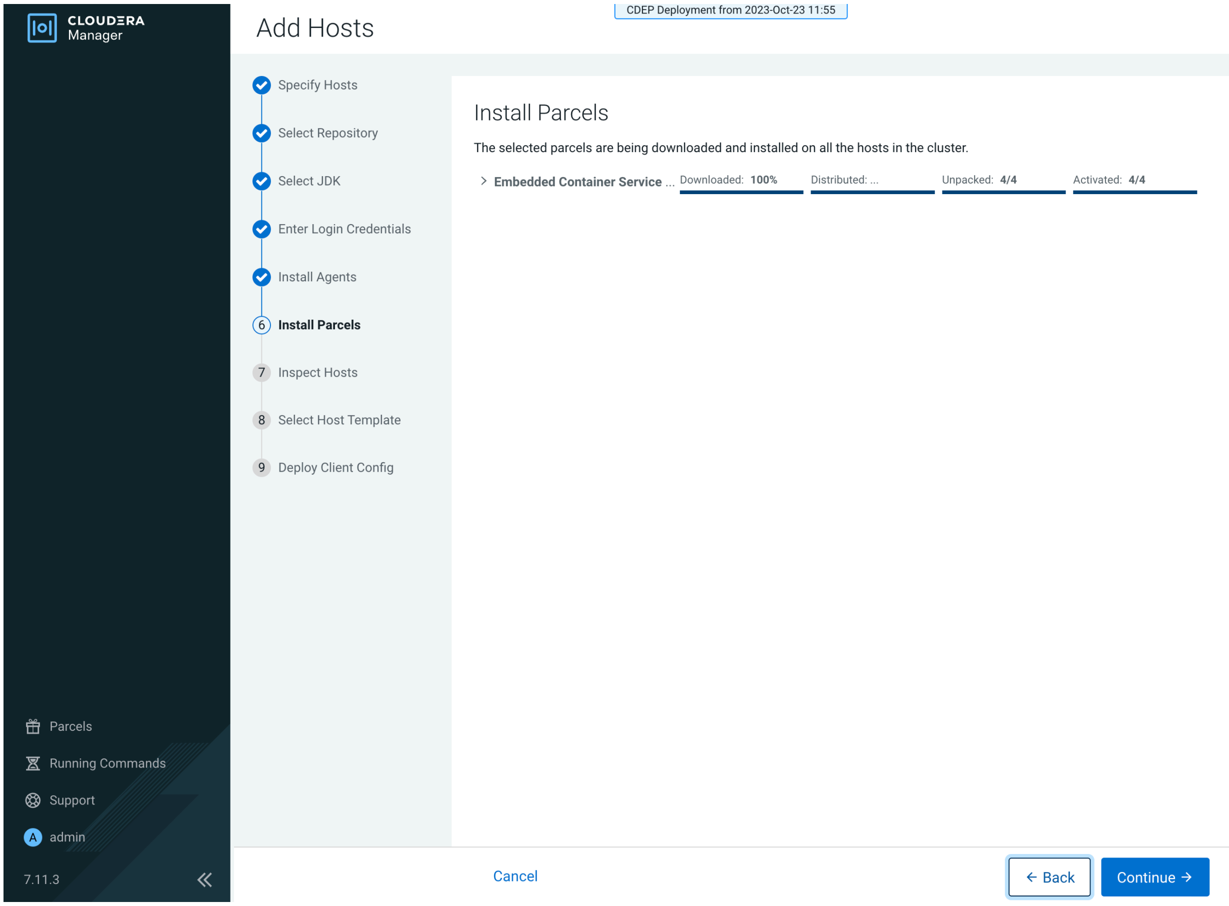
Password: ••••••••

Confirm Password: ••••••••

SSH Port: 22

Simultaneous Installations: 10
(Running a large number of installations at once can consume large amounts of network bandwidth and other system resources)

7. The Cloudera Manager agents are installed, and then the Install Parcels page appears. The selected parcel is downloaded to the Cloudera Manager server host, distributed, unpacked, and activated on the ECS cluster hosts. Click Continue.



CDEP Deployment from 2023-Oct-23 11:55

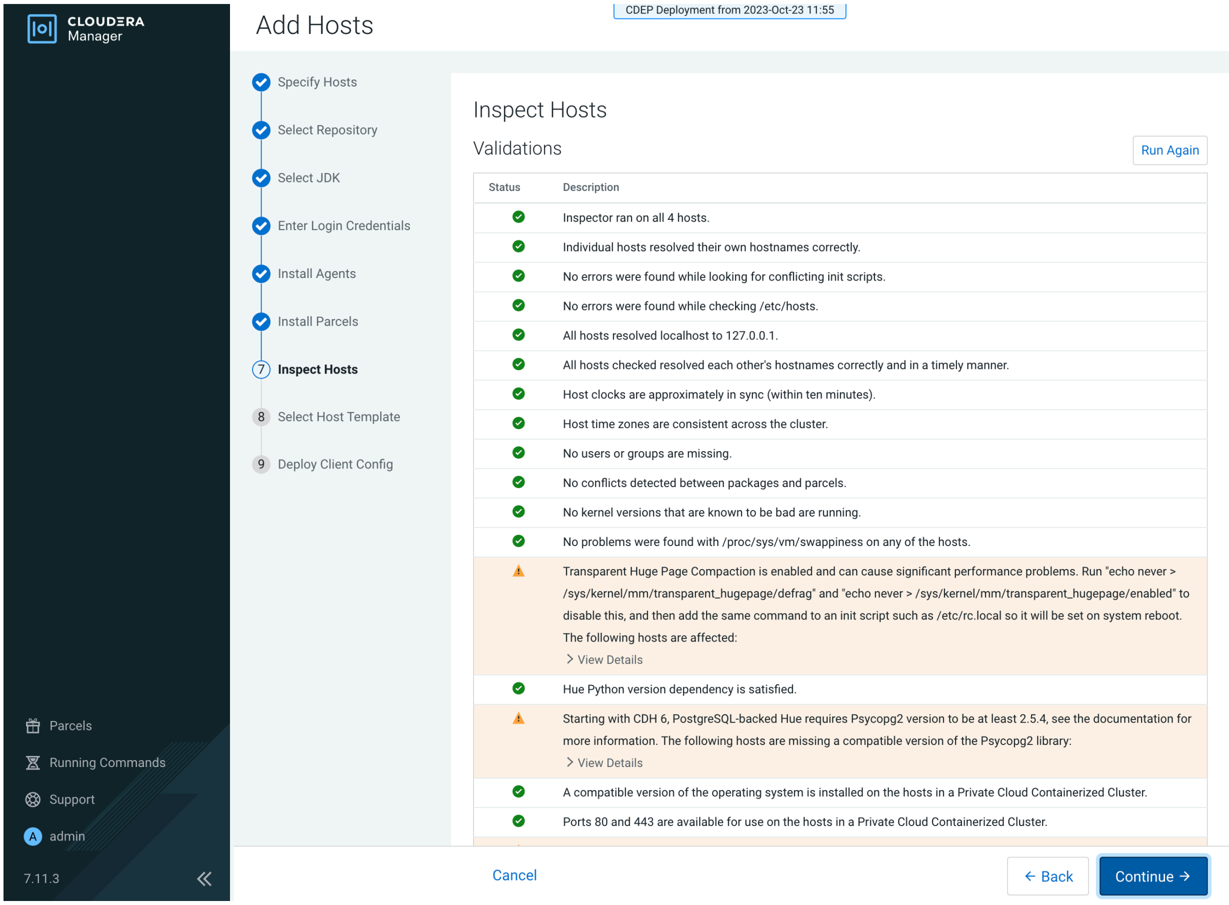
Add Hosts

Install Parcels

The selected parcels are being downloaded and installed on all the hosts in the cluster.

Embedded Container Service ... Downloaded: 100% Distributed: ... Unpacked: 4/4 Activated: 4/4

8. Review the Validations list on the Inspect Hosts page. If issues are detected, you can fix the issues, then click Run Again to repeat the host inspection. Click Continue.



Add Hosts

Inspect Hosts

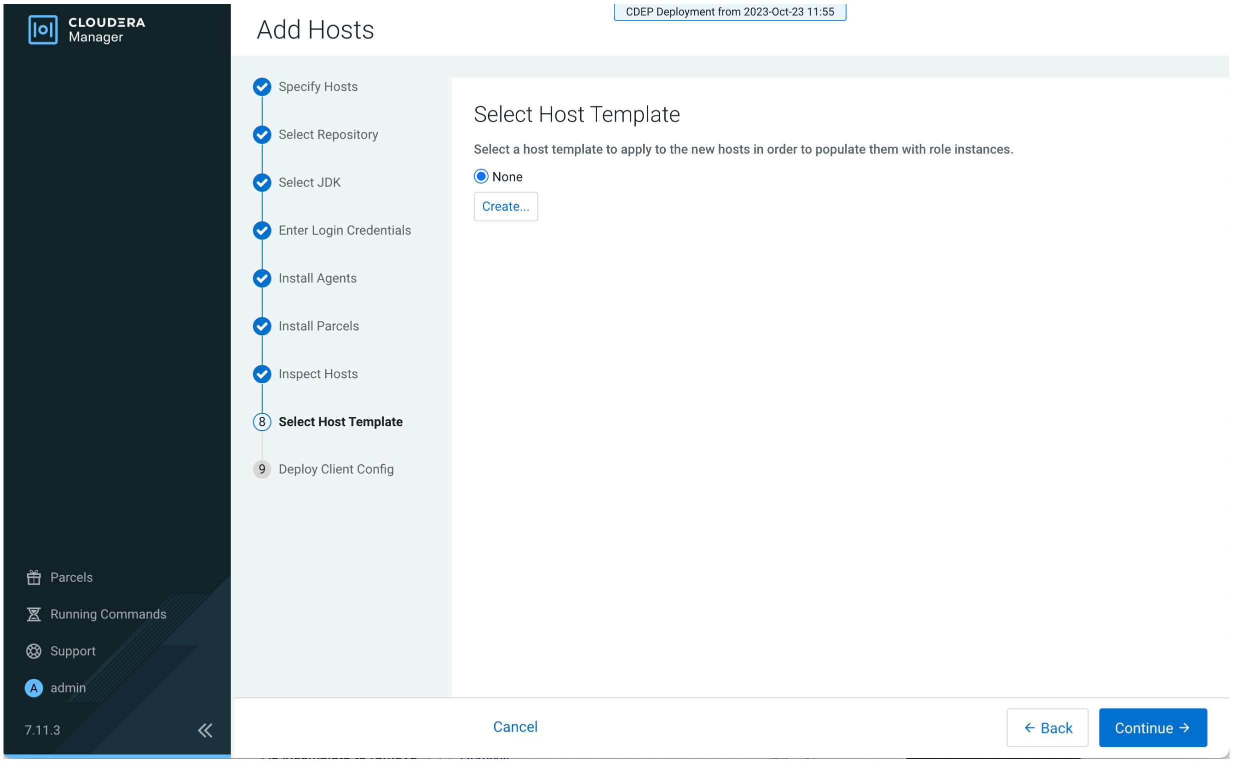
Validations

Status	Description
✓	Inspector ran on all 4 hosts.
✓	Individual hosts resolved their own hostnames correctly.
✓	No errors were found while looking for conflicting init scripts.
✓	No errors were found while checking /etc/hosts.
✓	All hosts resolved localhost to 127.0.0.1.
✓	All hosts checked resolved each other's hostnames correctly and in a timely manner.
✓	Host clocks are approximately in sync (within ten minutes).
✓	Host time zones are consistent across the cluster.
✓	No users or groups are missing.
✓	No conflicts detected between packages and parcels.
✓	No kernel versions that are known to be bad are running.
✓	No problems were found with /proc/sys/vm/swappiness on any of the hosts.
⚠	Transparent Huge Page Compaction is enabled and can cause significant performance problems. Run "echo never > /sys/kernel/mm/transparent_hugepage/defrag" and "echo never > /sys/kernel/mm/transparent_hugepage/enabled" to disable this, and then add the same command to an init script such as /etc/rc.local so it will be set on system reboot. The following hosts are affected: > View Details
✓	Hue Python version dependency is satisfied.
⚠	Starting with CDH 6, PostgreSQL-backed Hue requires Psycopg2 version to be at least 2.5.4, see the documentation for more information. The following hosts are missing a compatible version of the Psycopg2 library: > View Details
✓	A compatible version of the operating system is installed on the hosts in a Private Cloud Containerized Cluster.
✓	Ports 80 and 443 are available for use on the hosts in a Private Cloud Containerized Cluster.

9. The Select Host Template page lists available host templates. Click Create.

Note:

The following three steps describe how to create a host template to assign the Docker Server and Ecs Agent role groups to the new host. You can also select None and add these role instances after adding the host to the cluster, as described at the end of this topic.

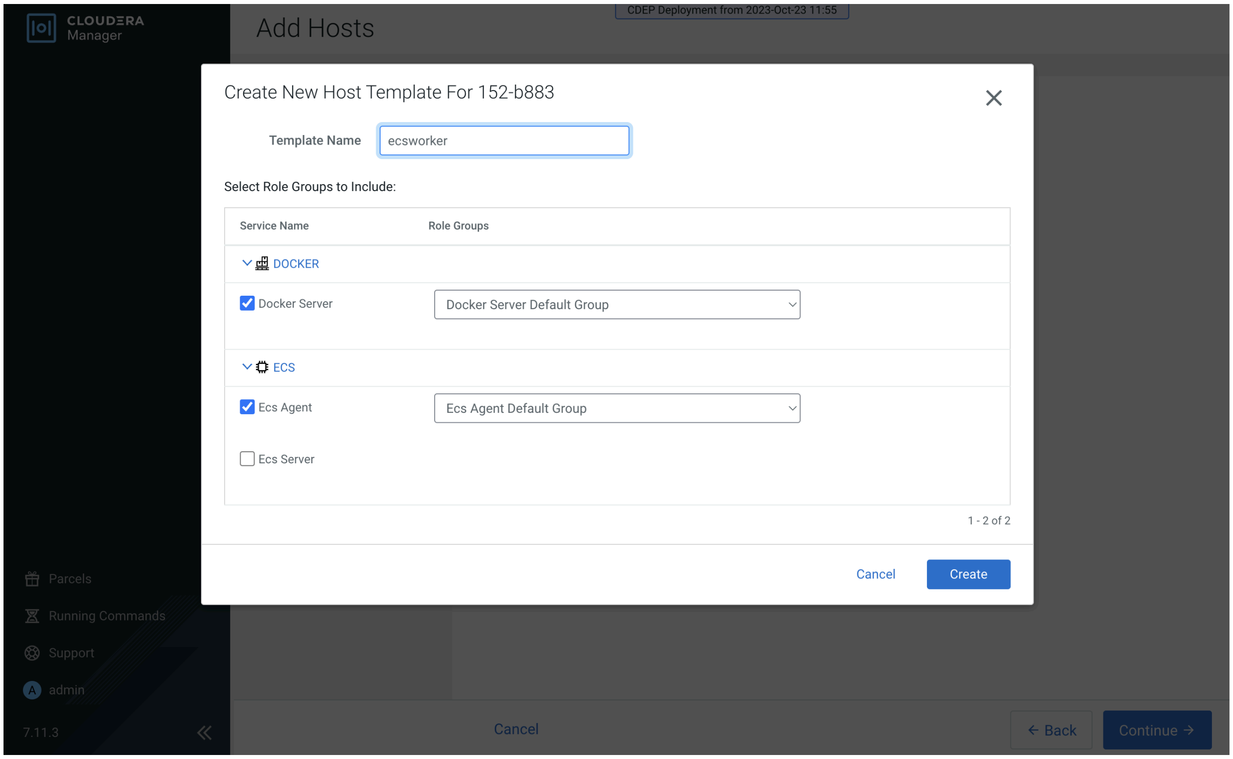


Select Host Template

Select a host template to apply to the new hosts in order to populate them with role instances.

● None

10. On the Create New Host Template pop-up, enter a template name and select the Docker Server and Ecs Agent role groups, then click Create.



Create New Host Template For 152-b883

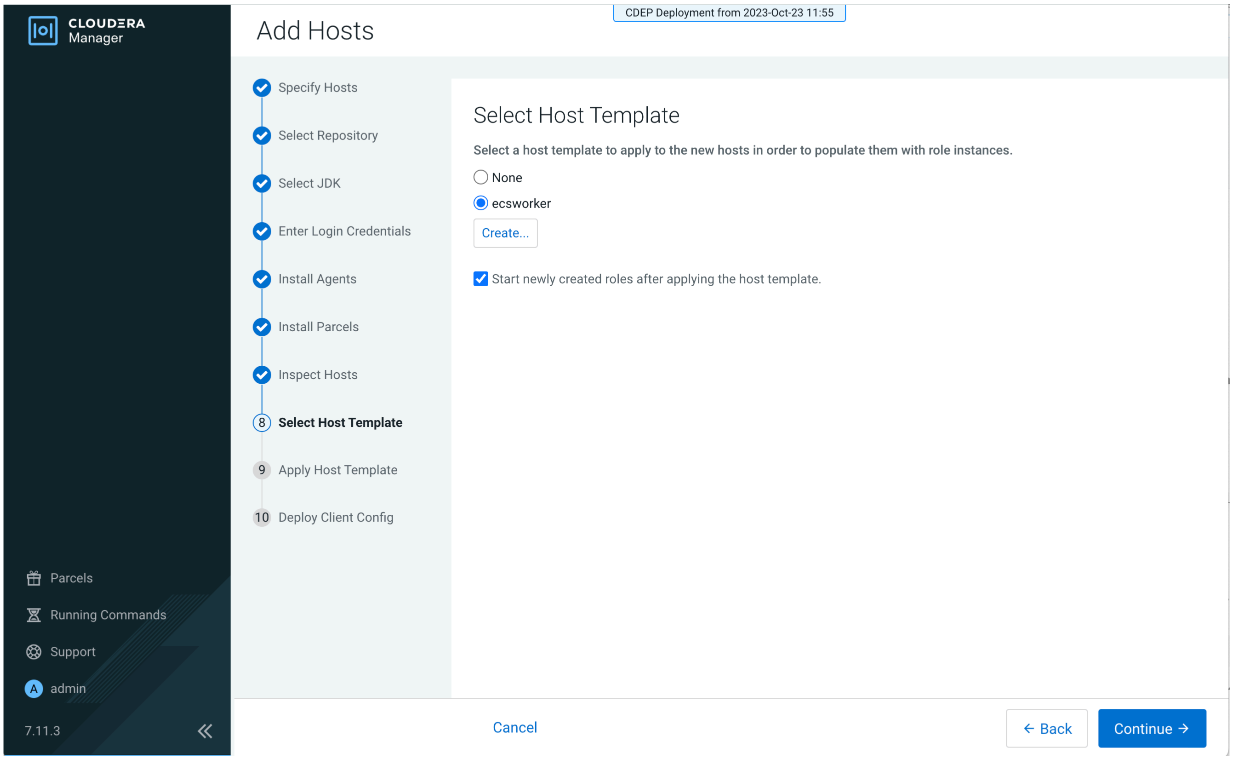
Template Name: ecsworker

Select Role Groups to Include:

Service Name	Role Groups
DOCKER	
☑ Docker Server	Docker Server Default Group
ECS	
☑ Ecs Agent	Ecs Agent Default Group
□ Ecs Server	

1 - 2 of 2

11. On the Select Host Template page, select the new template, then click Continue.



Select Host Template

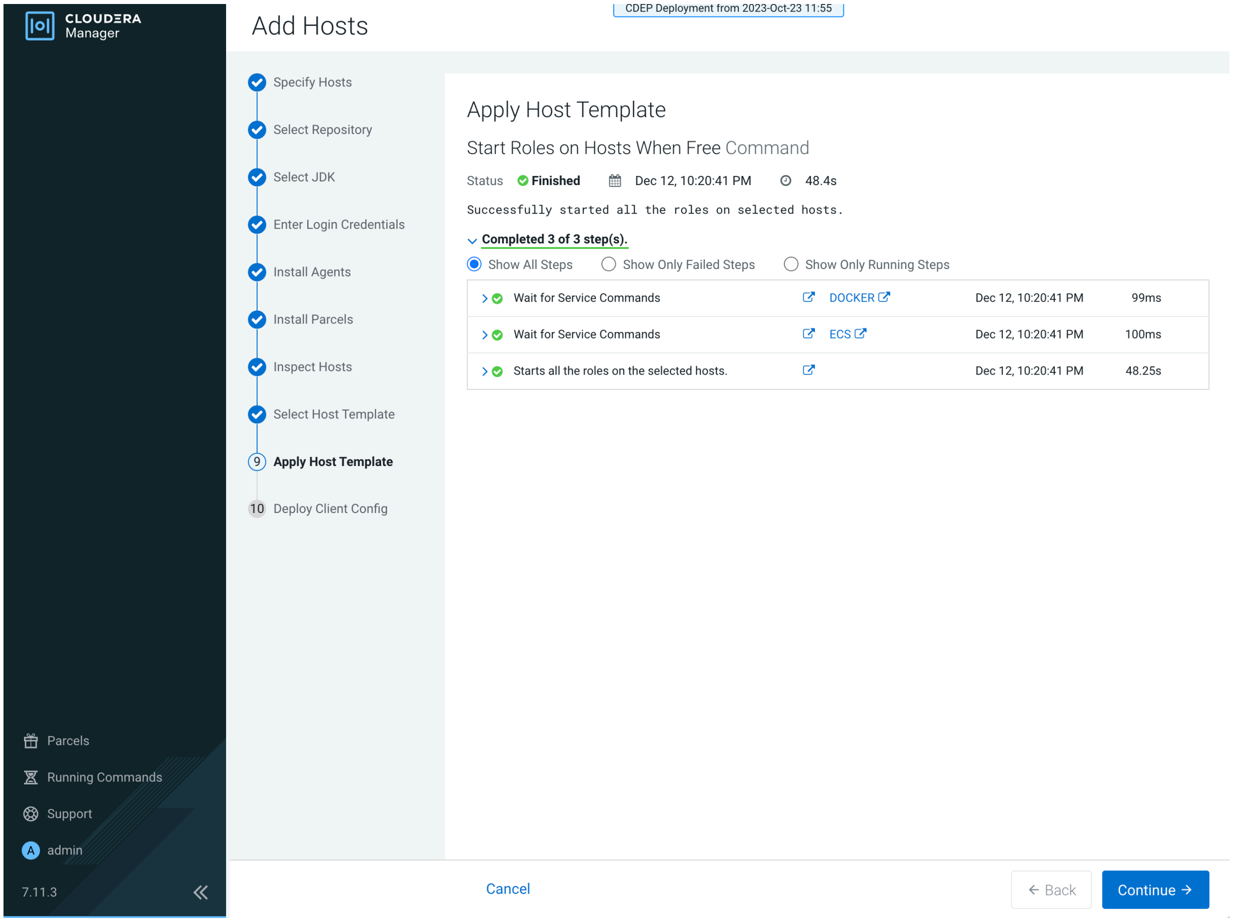
Select a host template to apply to the new hosts in order to populate them with role instances.

○ None

● ecsworker

☑ Start newly created roles after applying the host template.

12. The Apply Host Template page appears. After the roles have successfully started, click Continue.



Apply Host Template

Start Roles on Hosts When Free Command

Status ✓ Finished Dec 12, 10:20:41 PM 48.4s

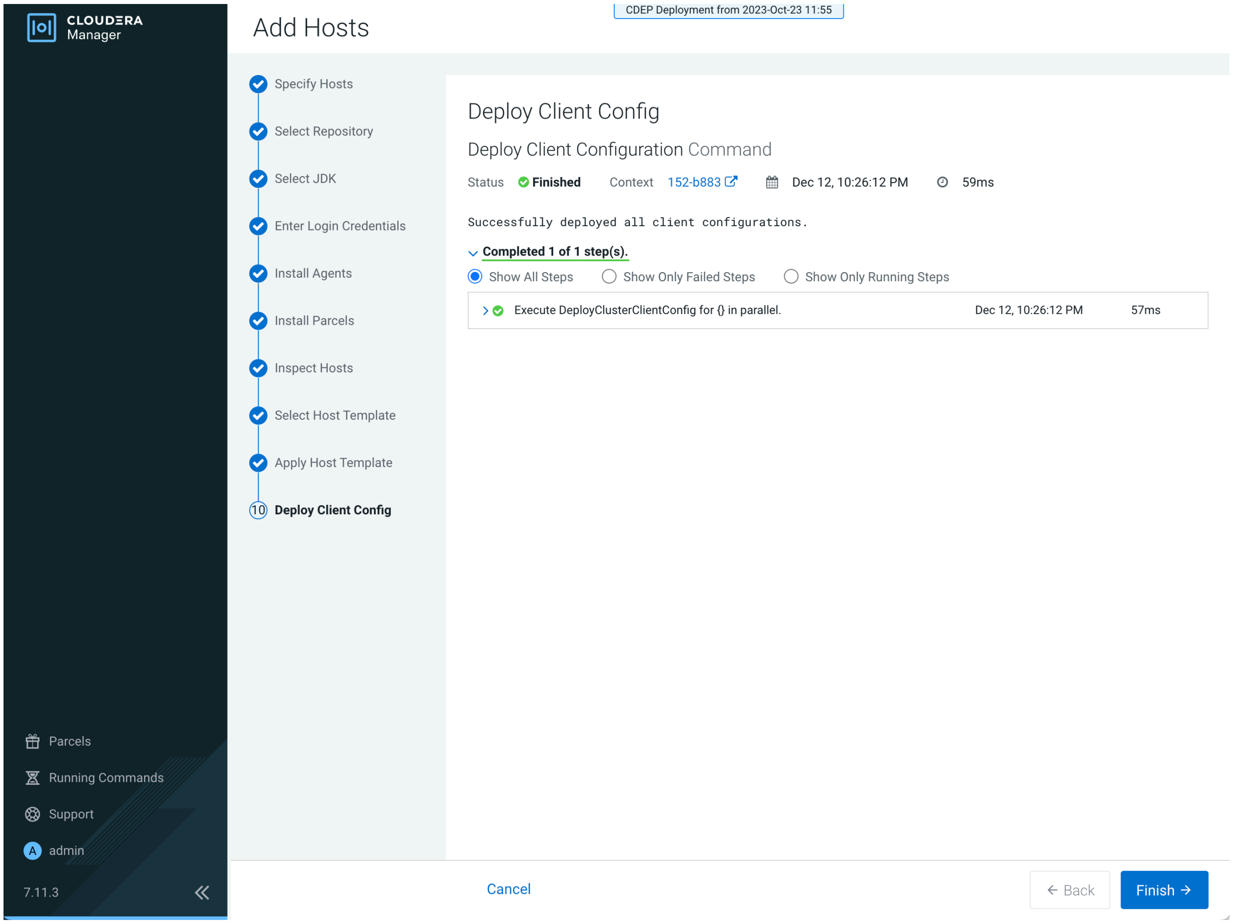
```
Successfully started all the roles on selected hosts.
```

Completed 3 of 3 step(s).

● Show All Steps ○ Show Only Failed Steps ○ Show Only Running Steps

✓ Wait for Service Commands	DOCKER	Dec 12, 10:20:41 PM	99ms
✓ Wait for Service Commands	ECS	Dec 12, 10:20:41 PM	100ms
✓ Starts all the roles on the selected hosts.		Dec 12, 10:20:41 PM	48.25s

13. The Deploy Client Config page appears. After all client configurations have been successfully deployed, click Finish.



Deploy Client Config

Deploy Client Configuration Command

Status ✓ Finished Context 152-b883 Dec 12, 10:26:12 PM 59ms

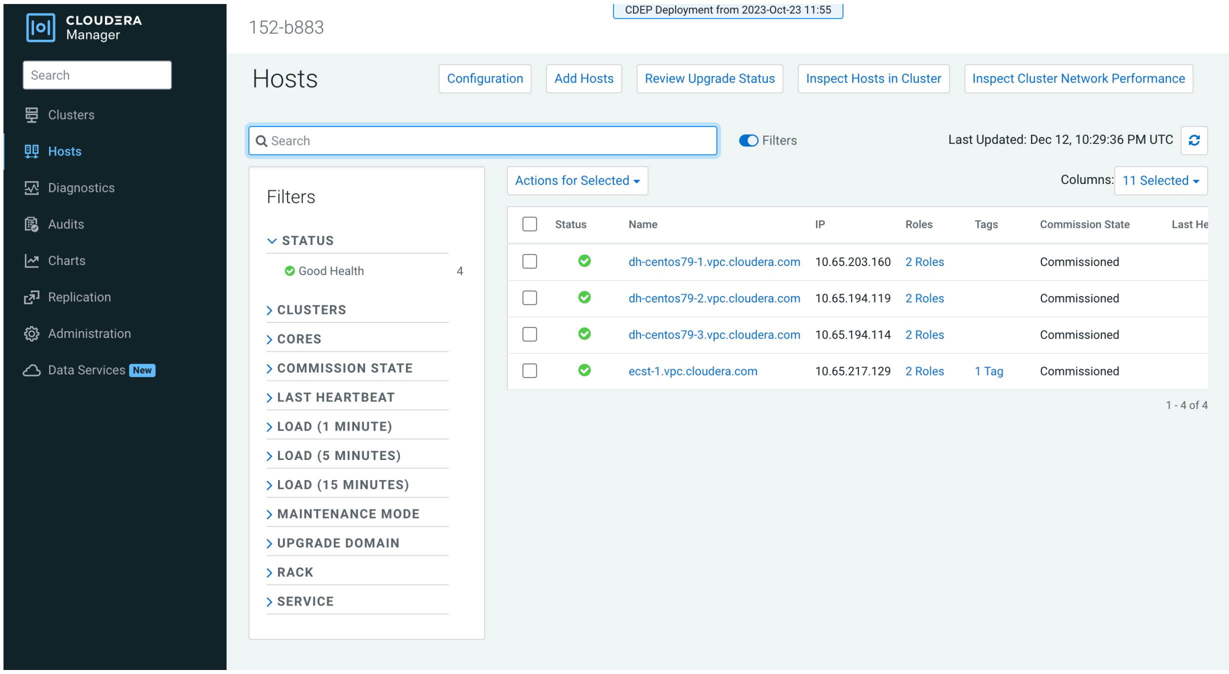
```
Successfully deployed all client configurations.
```

Completed 1 of 1 step(s).

● Show All Steps ○ Show Only Failed Steps ○ Show Only Running Steps

✓ Execute DeployClusterClientConfig for {} in parallel.	Dec 12, 10:26:12 PM	57ms

14. The new host is listed on the ECS cluster Hosts page.



Last Updated: Dec 12, 10:29:36 PM UTC

□	Status	Name	IP	Roles	Tags	Commission State	Last He
□	✓	dh-centos79-1.vpc.cloudera.com	10.65.203.160	2 Roles		Commissioned	
□	✓	dh-centos79-2.vpc.cloudera.com	10.65.194.119	2 Roles		Commissioned	
□	✓	dh-centos79-3.vpc.cloudera.com	10.65.194.114	2 Roles		Commissioned	
□	✓	ecst-1.vpc.cloudera.com	10.65.217.129	2 Roles	1 Tag	Commissioned	

1 - 4 of 4

15. If your ECS hosts are running the CentOS 8.4, OEL 8.4, RHEL 7.9, or RHEL 8 operating systems, you must install iptables on all the ECS hosts.

For CentOS 8.4, OEL 8.4, or RHEL 8, run the following command on each ECS host:

```
yum --setopt=tsflags=noscripts install -y iptables
```

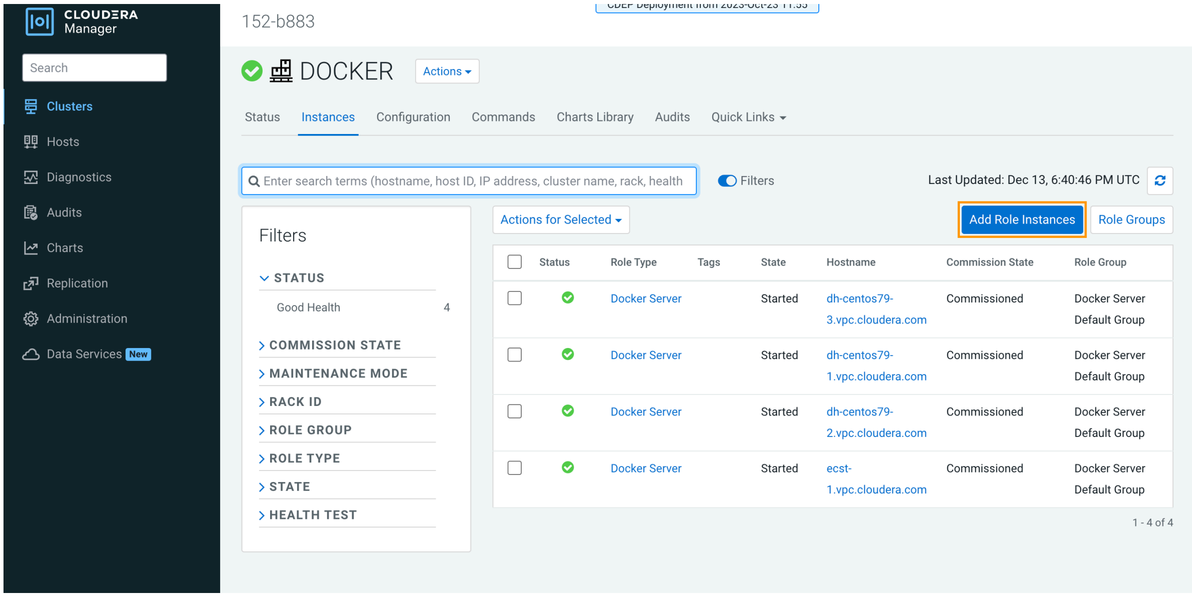
For RHEL 7.9, run the following command on each ECS host:

```
yum install -y iptables
```

16. If you did not apply a host template to assign roles, perform the following steps to assign the Docker Server and Ecs Agent role groups to the new host.

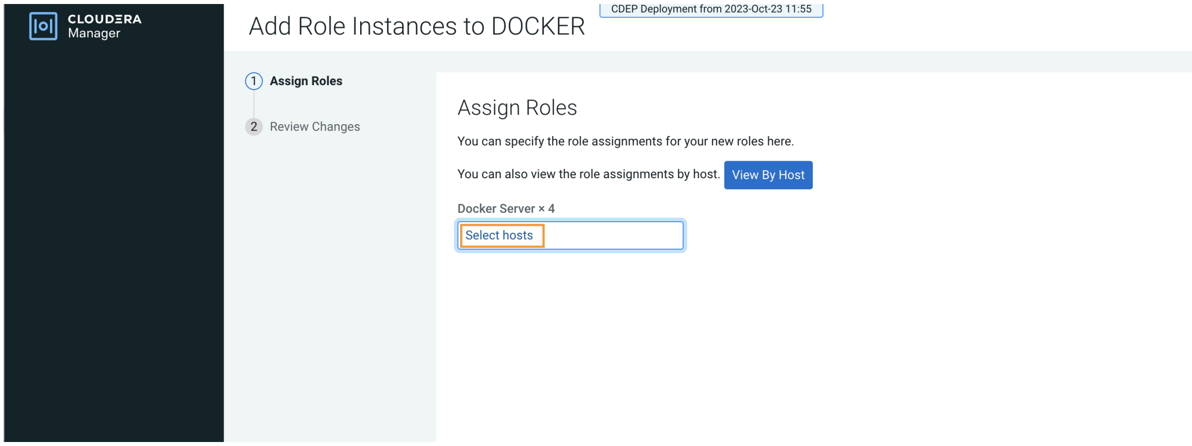
To assign the Docker Server role group:

a. Click DOCKER on the ECS cluster home page, select Instances, then click Add Role Instances.



□	Status	Role Type	Tags	State	Hostname	Commission State	Role Group
□	✓	Docker Server		Started	dh-centos79-3.vpc.cloudera.com	Commissioned	Docker Server Default Group
□	✓	Docker Server		Started	dh-centos79-1.vpc.cloudera.com	Commissioned	Docker Server Default Group
□	✓	Docker Server		Started	dh-centos79-2.vpc.cloudera.com	Commissioned	Docker Server Default Group
□	✓	Docker Server		Started	ecst-1.vpc.cloudera.com	Commissioned	Docker Server Default Group

b. On the Add Role Instances to DOCKER page, click Select hosts.

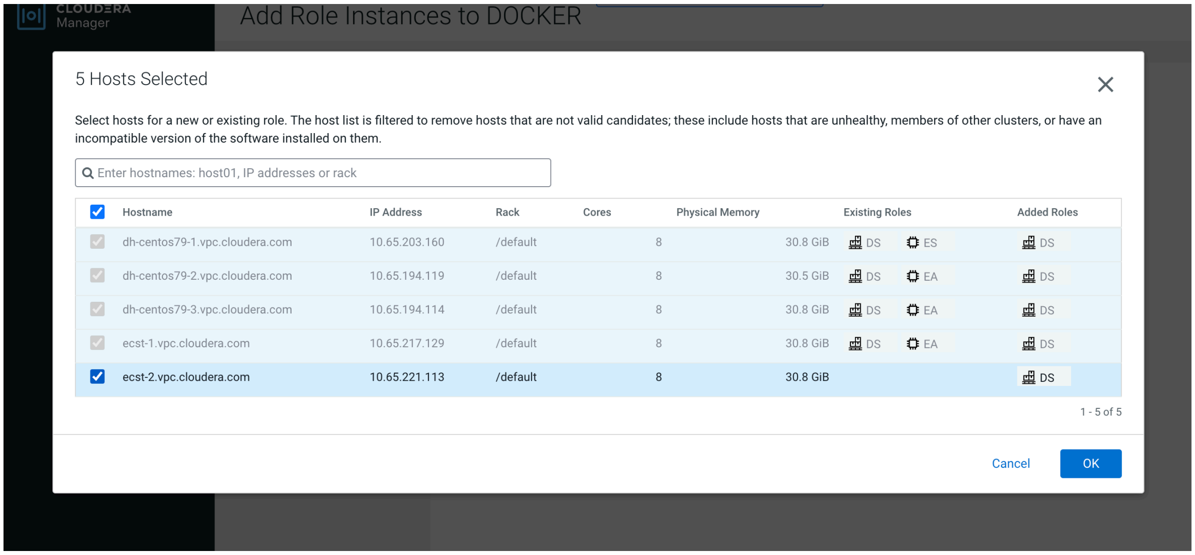


You can specify the role assignments for your new roles here.

You can also view the role assignments by host.

Docker Server × 4

c. On the Hosts Selected pop-up, select the new host, then click OK.



Add Role Instances to DOCKER

5 Hosts Selected

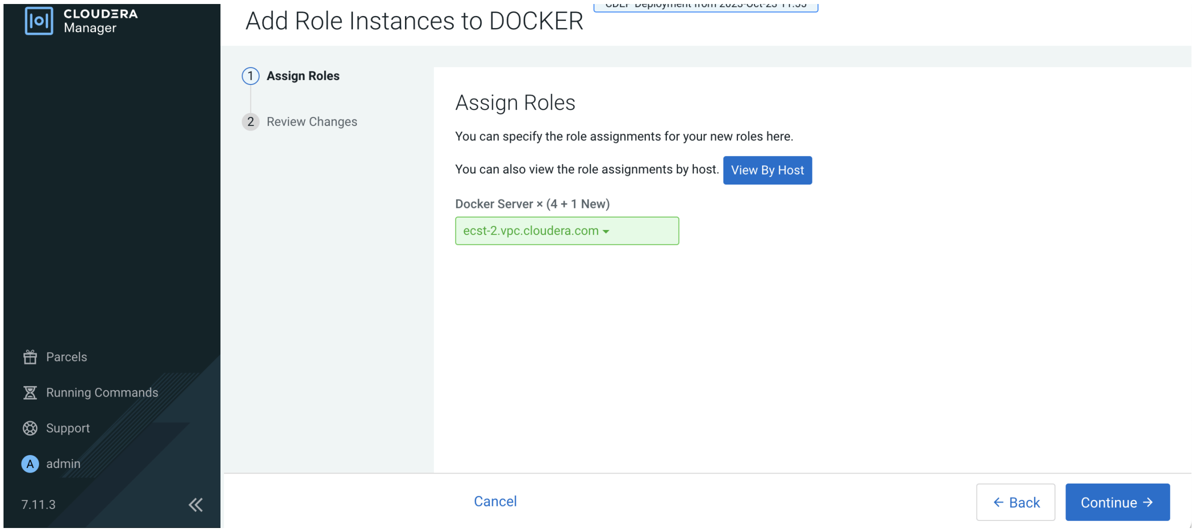
Select hosts for a new or existing role. The host list is filtered to remove hosts that are not valid candidates; these include hosts that are unhealthy, members of other clusters, or have an incompatible version of the software installed on them.

Enter hostnames: host01, IP addresses or rack

☑	Hostname	IP Address	Rack	Cores	Physical Memory	Existing Roles	Added Roles
☑	dh-centos79-1.vpc.cloudera.com	10.65.203.160	/default	8	30.8 GiB	DS ES	DS
☑	dh-centos79-2.vpc.cloudera.com	10.65.194.119	/default	8	30.5 GiB	DS EA	DS
☑	dh-centos79-3.vpc.cloudera.com	10.65.194.114	/default	8	30.8 GiB	DS EA	DS
☑	ecst-1.vpc.cloudera.com	10.65.217.129	/default	8	30.8 GiB	DS EA	DS
☑	ecst-2.vpc.cloudera.com	10.65.221.113	/default	8	30.8 GiB		DS

1 - 5 of 5

d. On the Assign Roles page, click Continue.



Add Role Instances to DOCKER

Assign Roles

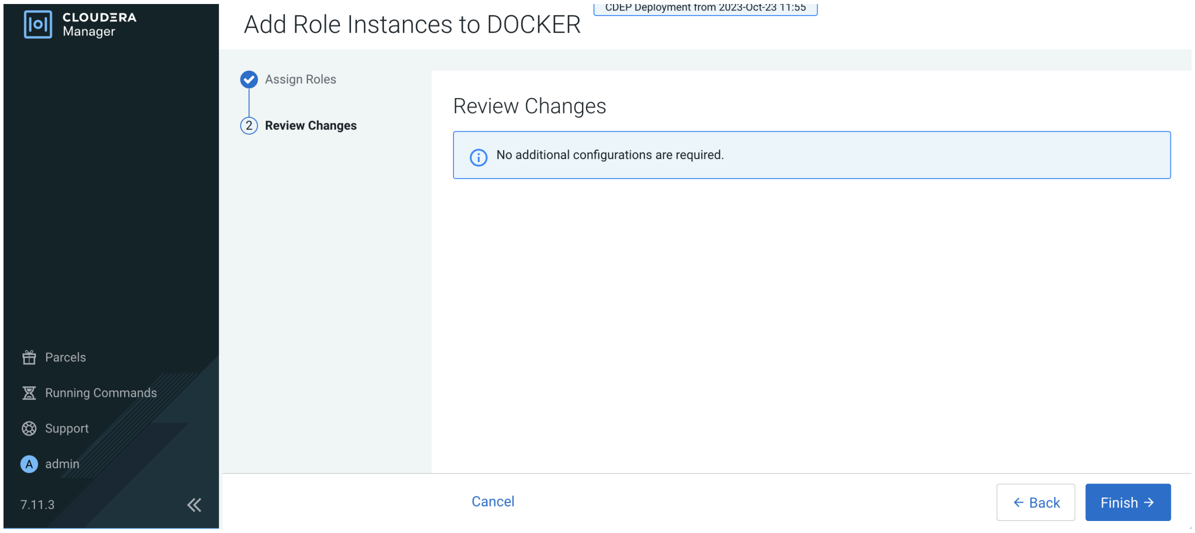
You can specify the role assignments for your new roles here.

You can also view the role assignments by host. View By Host

Docker Server × (4 + 1 New)

ecst-2.vpc.cloudera.com

e. On the Review Changes page, click Finish.



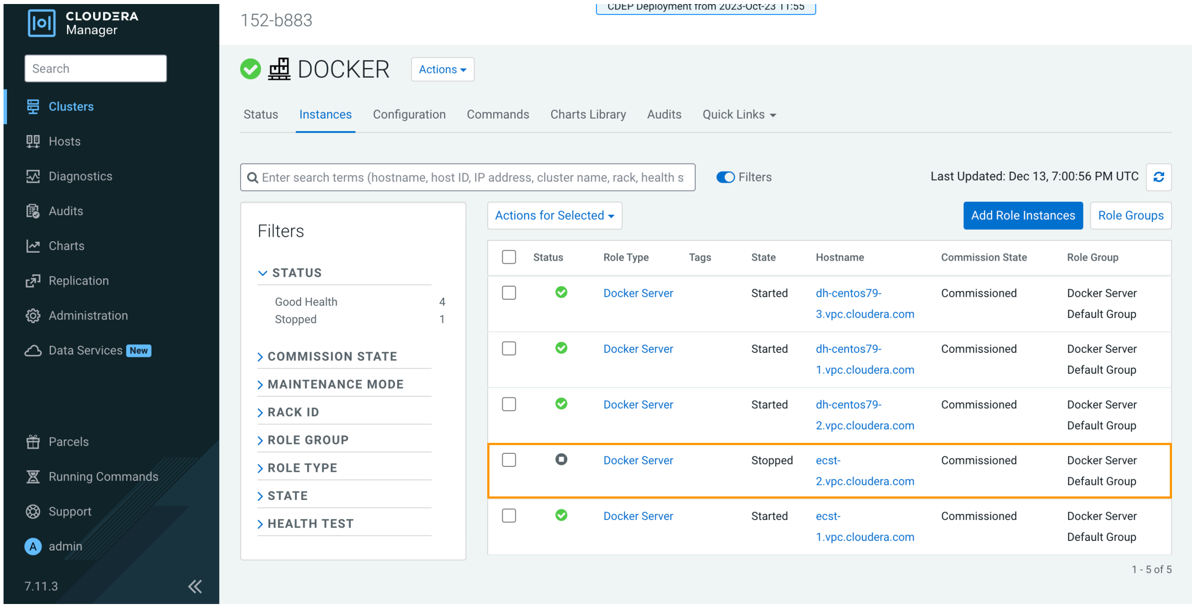
Add Role Instances to DOCKER

CDEP Deployment from 2023-Oct-23 11:55

Review Changes

No additional configurations are required.

f. The new host is listed on the Docker Instances page.



Last Updated: Dec 13, 7:00:56 PM UTC

Filters

STATUS

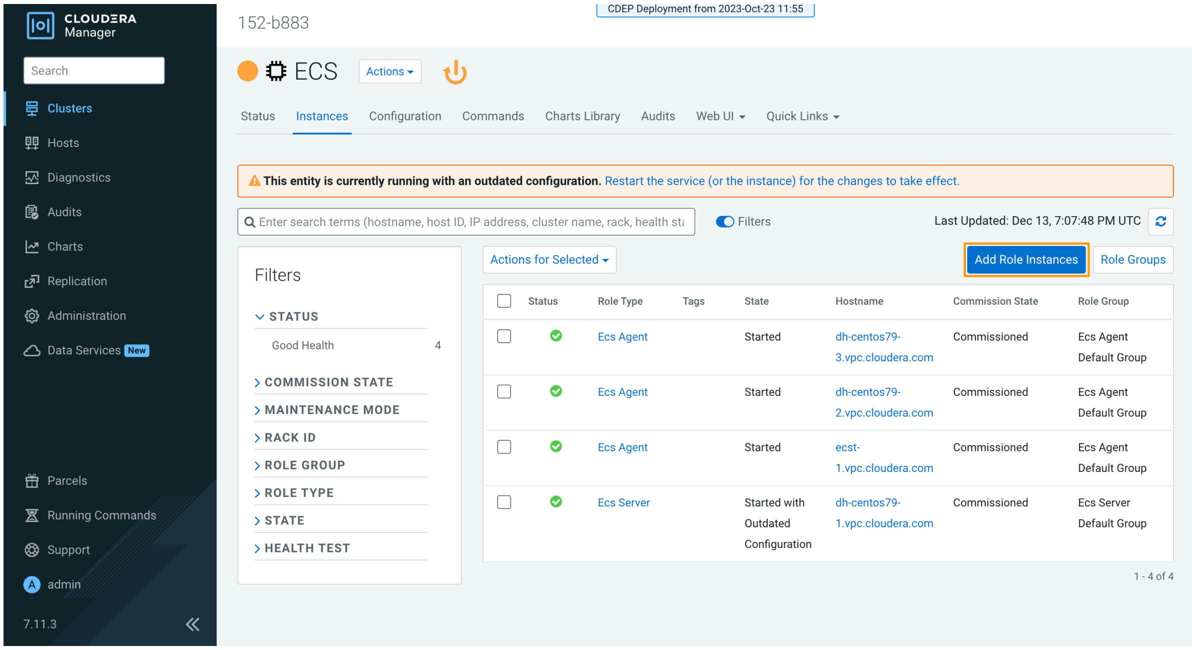
Good Health	4
Stopped	1

☐	Status	Role Type	Tags	State	Hostname	Commission State	Role Group
☐	✓	Docker Server		Started	dh-centos79-3.vpc.cloudera.com	Commissioned	Docker Server Default Group
☐	✓	Docker Server		Started	dh-centos79-1.vpc.cloudera.com	Commissioned	Docker Server Default Group
☐	✓	Docker Server		Started	dh-centos79-2.vpc.cloudera.com	Commissioned	Docker Server Default Group
☐	●	Docker Server		Stopped	ecst-2.vpc.cloudera.com	Commissioned	Docker Server Default Group
☐	✓	Docker Server		Started	ecst-1.vpc.cloudera.com	Commissioned	Docker Server Default Group

1 - 5 of 5

To assign the ECS Agent role group:

a. Click ECS on the ECS cluster home page, select Instances, then click Add Role Instances.



⚠ **This entity is currently running with an outdated configuration.** Restart the service (or the instance) for the changes to take effect.

Last Updated: Dec 13, 7:07:48 PM UTC

Filters

STATUS

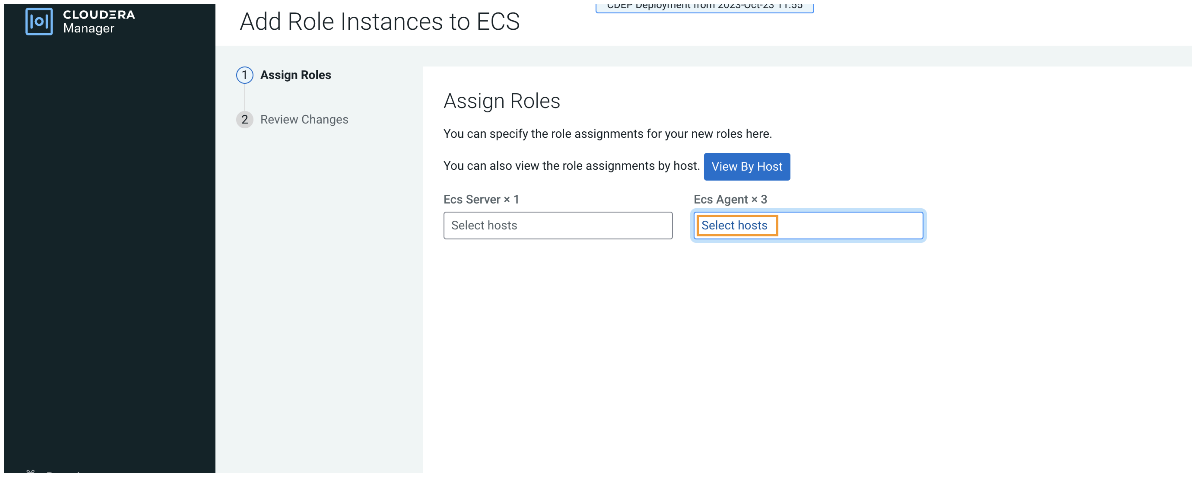
Good Health	4

☐	Status	Role Type	Tags	State	Hostname	Commission State	Role Group
☐	✓	Ecs Agent		Started	dh-centos79-3.vpc.cloudera.com	Commissioned	Ecs Agent Default Group
☐	✓	Ecs Agent		Started	dh-centos79-2.vpc.cloudera.com	Commissioned	Ecs Agent Default Group
☐	✓	Ecs Agent		Started	ecst-1.vpc.cloudera.com	Commissioned	Ecs Agent Default Group
☐	✓	Ecs Server		Started with Outdated Configuration	dh-centos79-1.vpc.cloudera.com	Commissioned	Ecs Server Default Group

1 - 4 of 4

b. On the Add Role Instances to ECS page, in the Ecs Agent box, click Select hosts.

⚠ **Important:** Be sure to click Select hosts in the Ecs Agent box – do not click the link in the Ecs Server box.



Add Role Instances to ECS

Assign Roles

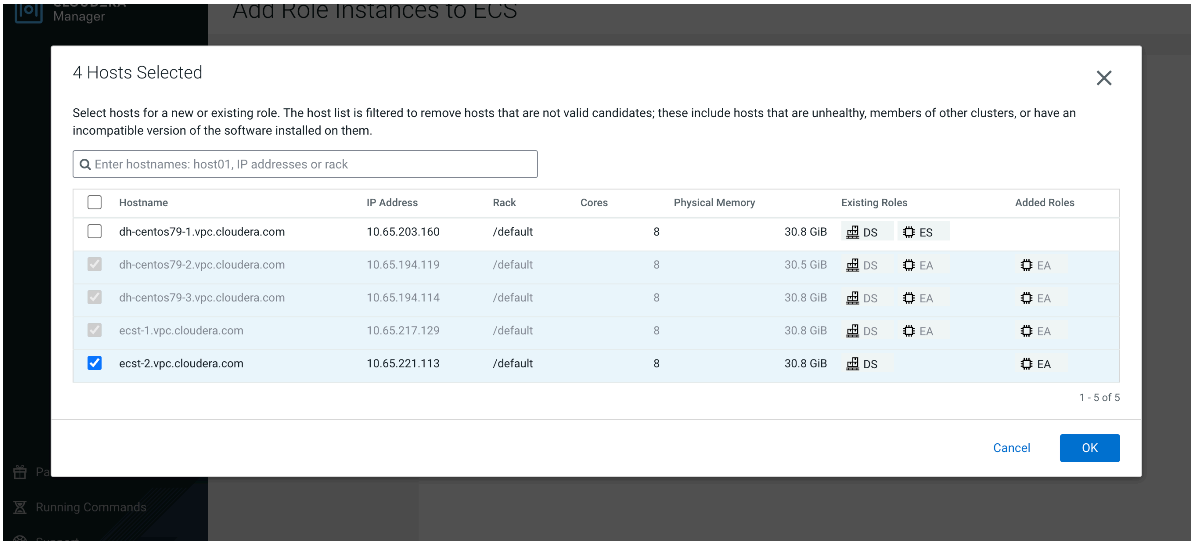
You can specify the role assignments for your new roles here.

You can also view the role assignments by host.

Ecs Server × 1: Select hosts

Ecs Agent × 3: Select hosts

c. On the Hosts Selected pop-up, select the new host, then click OK.



4 Hosts Selected

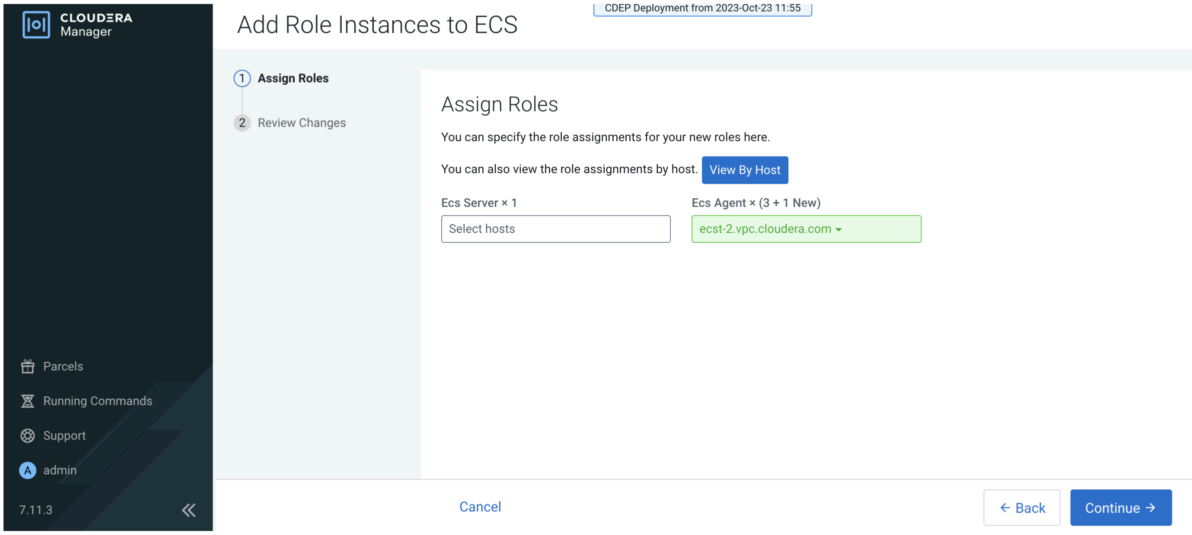
Select hosts for a new or existing role. The host list is filtered to remove hosts that are not valid candidates; these include hosts that are unhealthy, members of other clusters, or have an incompatible version of the software installed on them.

Enter hostnames: host01, IP addresses or rack

☐	Hostname	IP Address	Rack	Cores	Physical Memory	Existing Roles	Added Roles
☐	dh-centos79-1.vpc.cloudera.com	10.65.203.160	/default	8	30.8 GiB	DS ES	
☑	dh-centos79-2.vpc.cloudera.com	10.65.194.119	/default	8	30.5 GiB	DS EA	EA
☑	dh-centos79-3.vpc.cloudera.com	10.65.194.114	/default	8	30.8 GiB	DS EA	EA
☑	ecst-1.vpc.cloudera.com	10.65.217.129	/default	8	30.8 GiB	DS EA	EA
☑	ecst-2.vpc.cloudera.com	10.65.221.113	/default	8	30.8 GiB	DS	EA

1 - 5 of 5

d. On the Assign Roles page, click Continue.



Add Role Instances to ECS

Assign Roles

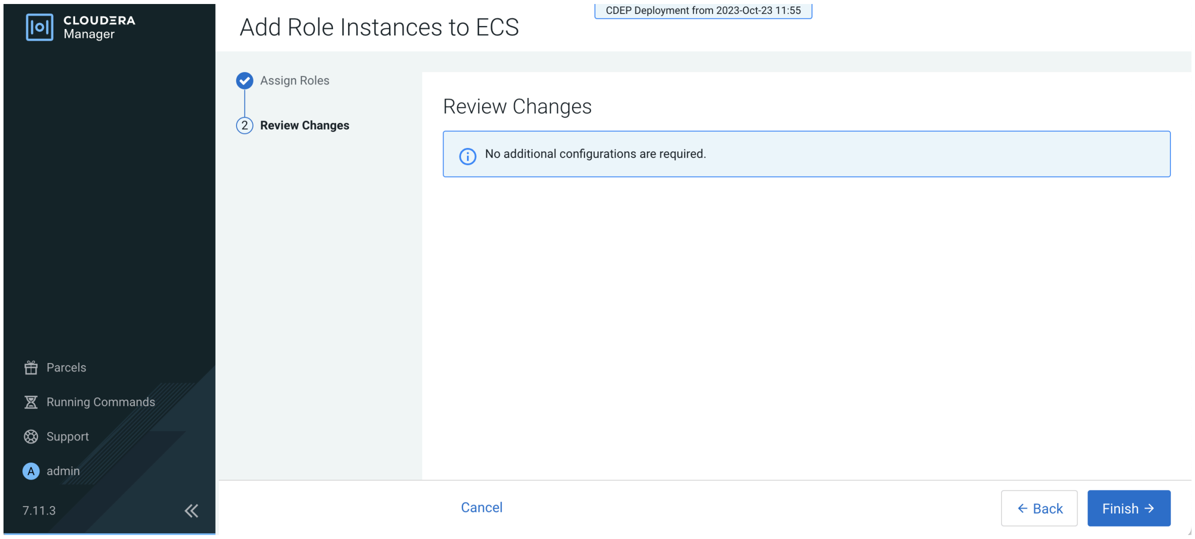
You can specify the role assignments for your new roles here.

You can also view the role assignments by host.

Ecs Server × 1: Select hosts

Ecs Agent × (3 + 1 New): ecst-2.vpc.cloudera.com

e. On the Review Changes page, click Finish.



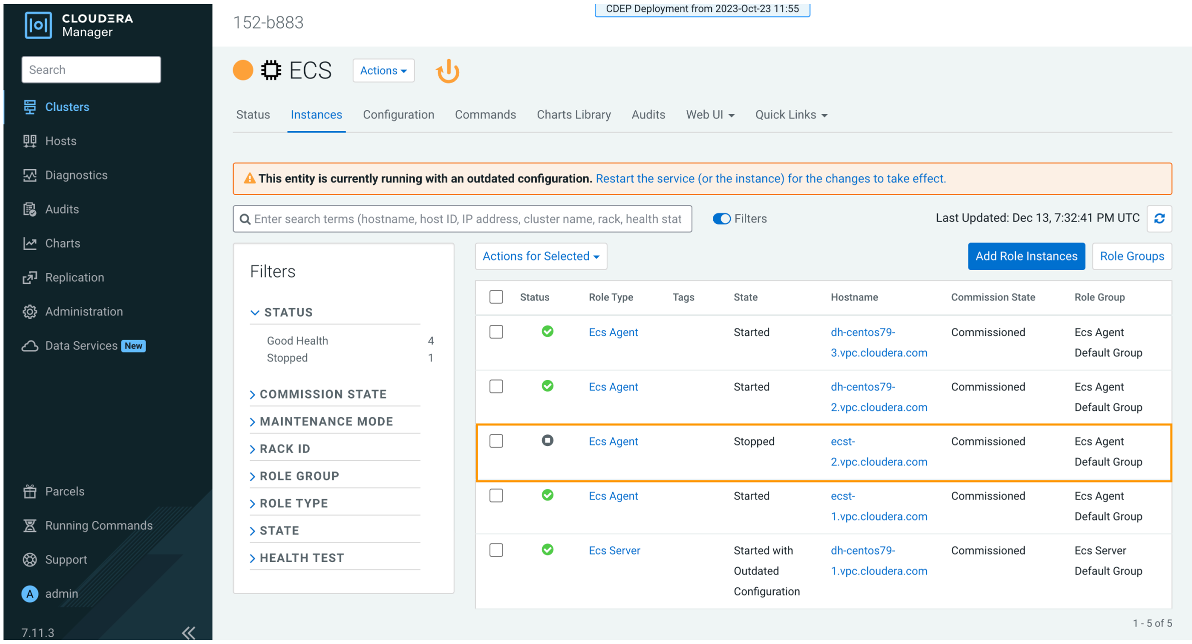
CDEP Deployment from 2023-Oct-23 11:55

Add Role Instances to ECS

Review Changes

No additional configurations are required.

f. The new host is listed on the ECS Instances page.



CDEP Deployment from 2023-Oct-23 11:55

152-b883

ECS

This entity is currently running with an outdated configuration. Restart the service (or the instance) for the changes to take effect.

Enter search terms (hostname, host ID, IP address, cluster name, rack, health stat

Filters

Last Updated: Dec 13, 7:32:41 PM UTC

Filters

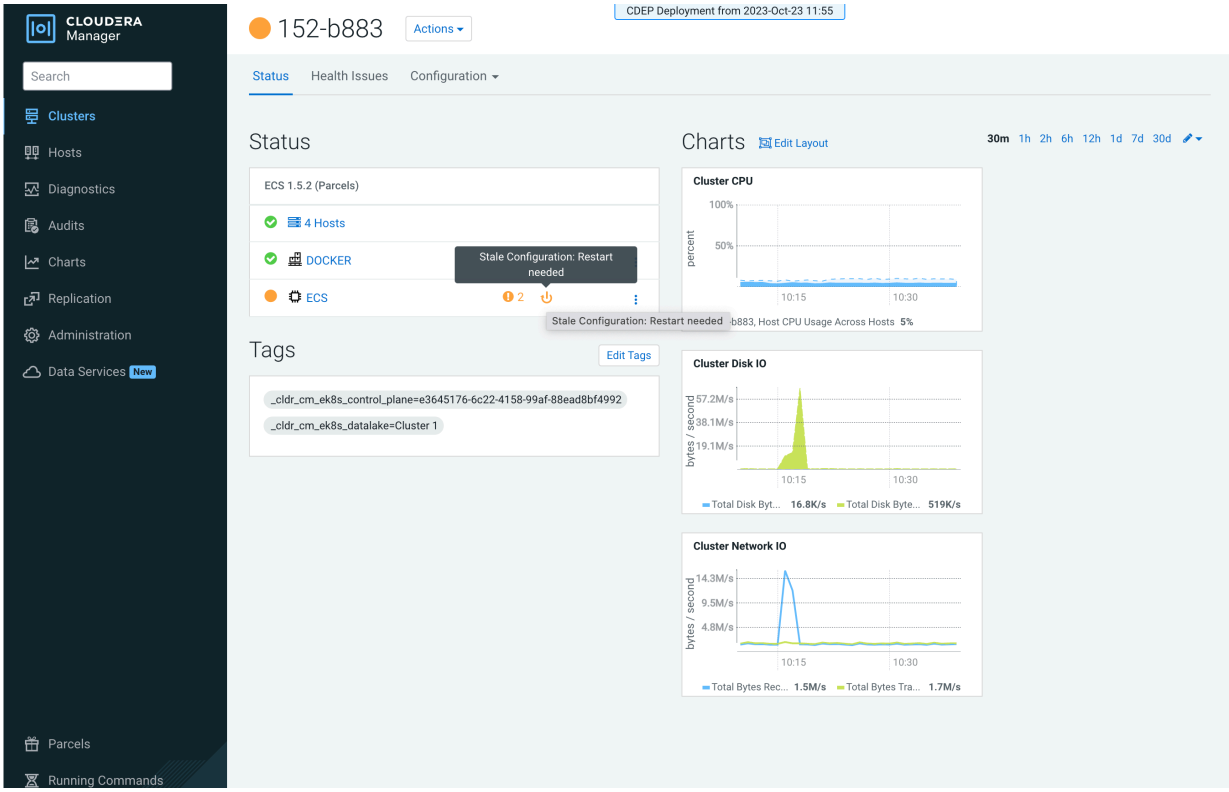
STATUS

Good Health	4
Stopped	1

	Status	Role Type	Tags	State	Hostname	Commission State	Role Group
□	✓	Ecs Agent		Started	dh-centos79-3.vpc.cloudera.com	Commissioned	Ecs Agent Default Group
□	✓	Ecs Agent		Started	dh-centos79-2.vpc.cloudera.com	Commissioned	Ecs Agent Default Group
□	●	Ecs Agent		Stopped	ecst-2.vpc.cloudera.com	Commissioned	Ecs Agent Default Group
□	✓	Ecs Agent		Started	ecst-1.vpc.cloudera.com	Commissioned	Ecs Agent Default Group
□	✓	Ecs Server		Started with Outdated Configuration	dh-centos79-1.vpc.cloudera.com	Commissioned	Ecs Server Default Group

1 - 5 of 5

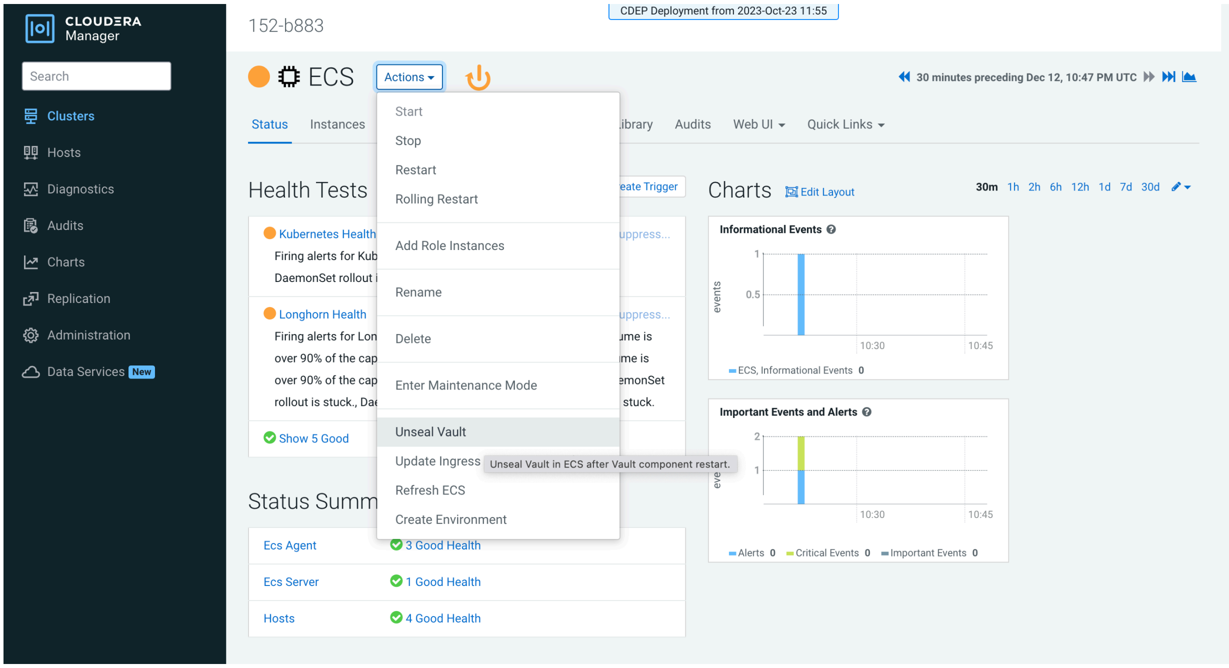
17. Restart the ECS cluster by clicking the ECS Restart icon, or by selecting Actions > Restart on the ECS cluster home page.



Stale Configuration: Restart needed

Stale Configuration: Restart needed

18. Click ECS on the ECS cluster home page, then select Actions > Unseal Vault.



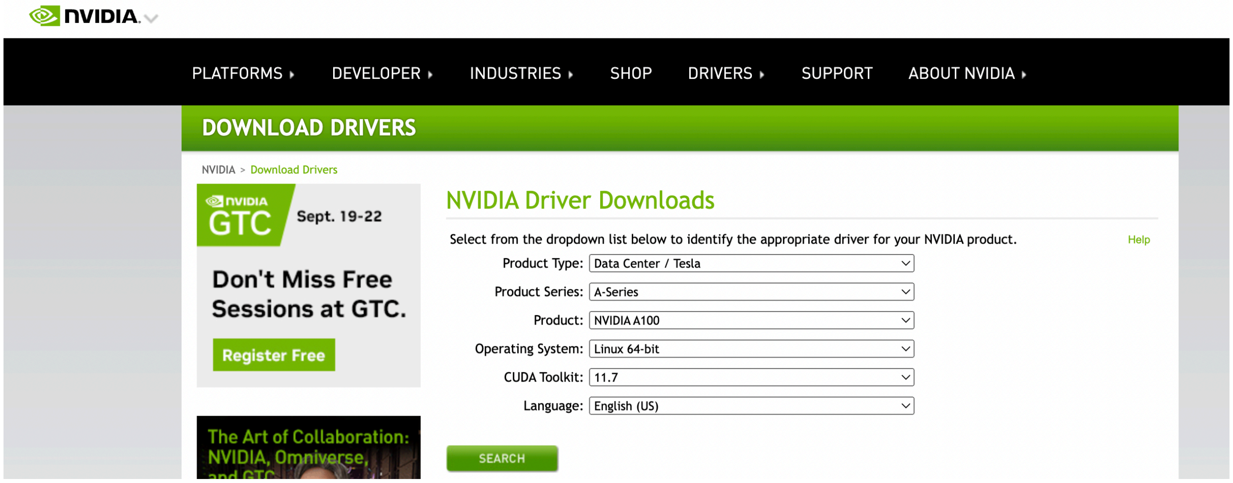
Unseal Vault in ECS after Vault component restart.

Installing NVIDIA GPU software in ECS

After you add a host containing a NVIDIA GPU card in an Embedded Container Service (ECS) cluster, you must install the NVIDIA GPU software driver and its associated software. You can then test the GPU card in the Cloudera Machine Learning (CML) workspace.

Installing the NVIDIA driver and container runtime

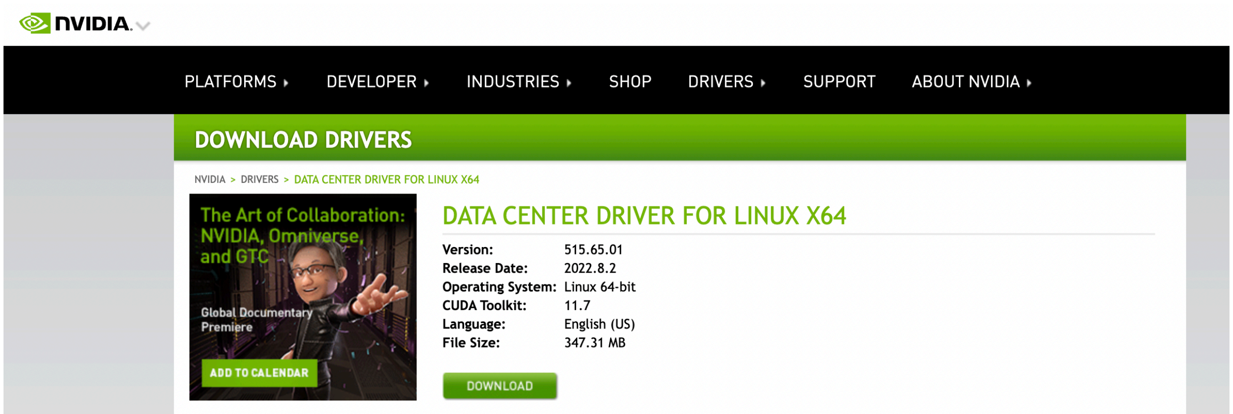
1. Use the NVIDIA Driver Downloads page to determine the software driver version required for your NVIDIA GPU card. This example uses a NVIDIA A100 GPU card, which requires driver version 515.65.01.



NVIDIA Driver Downloads

Select from the dropdown list below to identify the appropriate driver for your NVIDIA product.

Product Type:	Data Center / Tesla
Product Series:	A-Series
Product:	NVIDIA A100
Operating System:	Linux 64-bit
CUDA Toolkit:	11.7
Language:	English (US)



NVIDIA
PLATFORMS
DEVELOPER
INDUSTRIES
SHOP
DRIVERS
SUPPORT
ABOUT NVIDIA
DOWNLOAD DRIVERS
NVIDIA > DRIVERS > DATA CENTER DRIVER FOR LINUX X64
The Art of Collaboration: NVIDIA, Omniverse, and GTC
Global Documentary Premiere
ADD TO CALENDAR
DOWNLOAD

DATA CENTER DRIVER FOR LINUX X64

Version:	515.65.01
Release Date:	2022.8.2
Operating System:	Linux 64-bit
CUDA Toolkit:	11.7
Language:	English (US)
File Size:	347.31 MB

2. Run the following command to cordon the GPU worker node:

```
# kubectl cordon ecsgpu.cdpkvm.cldr node/ecsgpu.cdpkvm.cldr cordoned
```

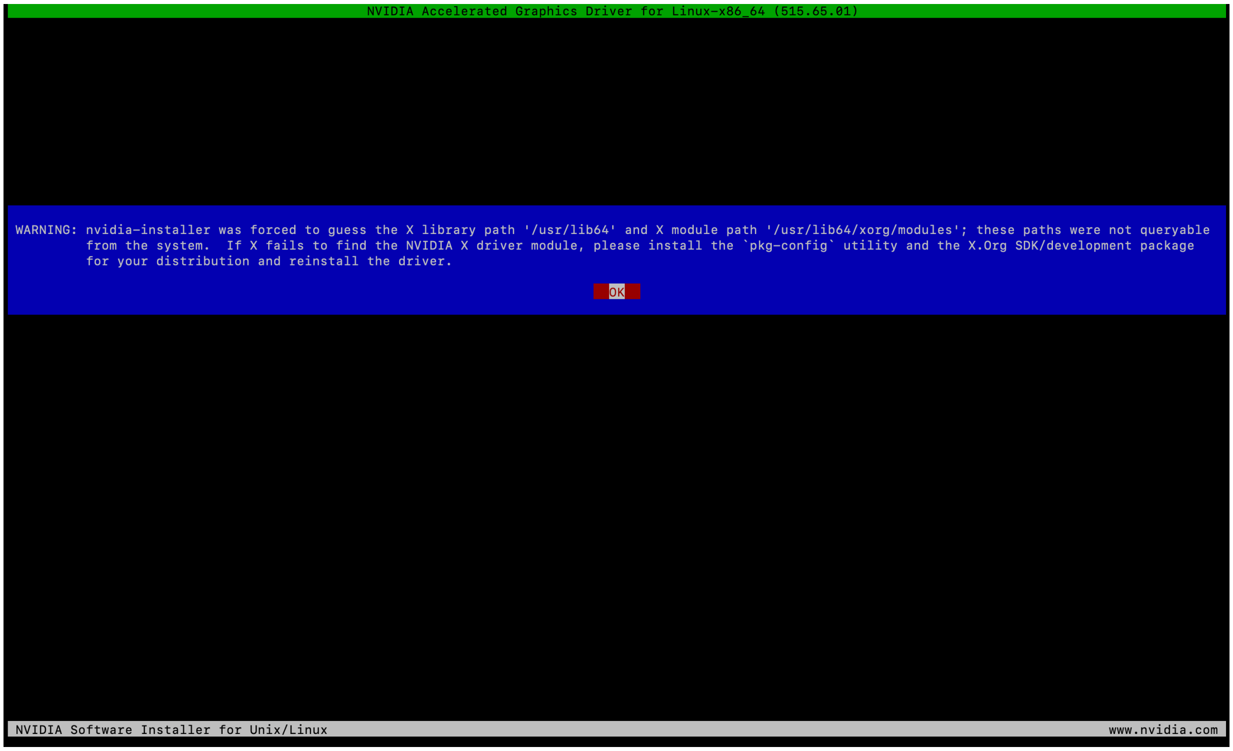
3. On the ECS host with the NVIDIA GPU card, install the required Operating System (OS) software packages as shown below, and then reboot the node. In this example, the host OS is Centos 7.9, and the host name of the node with the GPU card is ecsgpu.cdpkvm.cldr.

```
# yum update -y# yum install -y tar bzip2 make automake gcc gcc-c++ pciu
tils elfutils-libelf-devel libglvnd-devel vim bind-utils wget
# yum install -y https://dl.fedoraproject.org/pub/epel/epel-release-latest
-7.noarch.rpm
# yum -y group install "Development Tools"# yum install -y kernel-devel-$(
uname -r) kernel-headers-$(uname -r)
# reboot
```

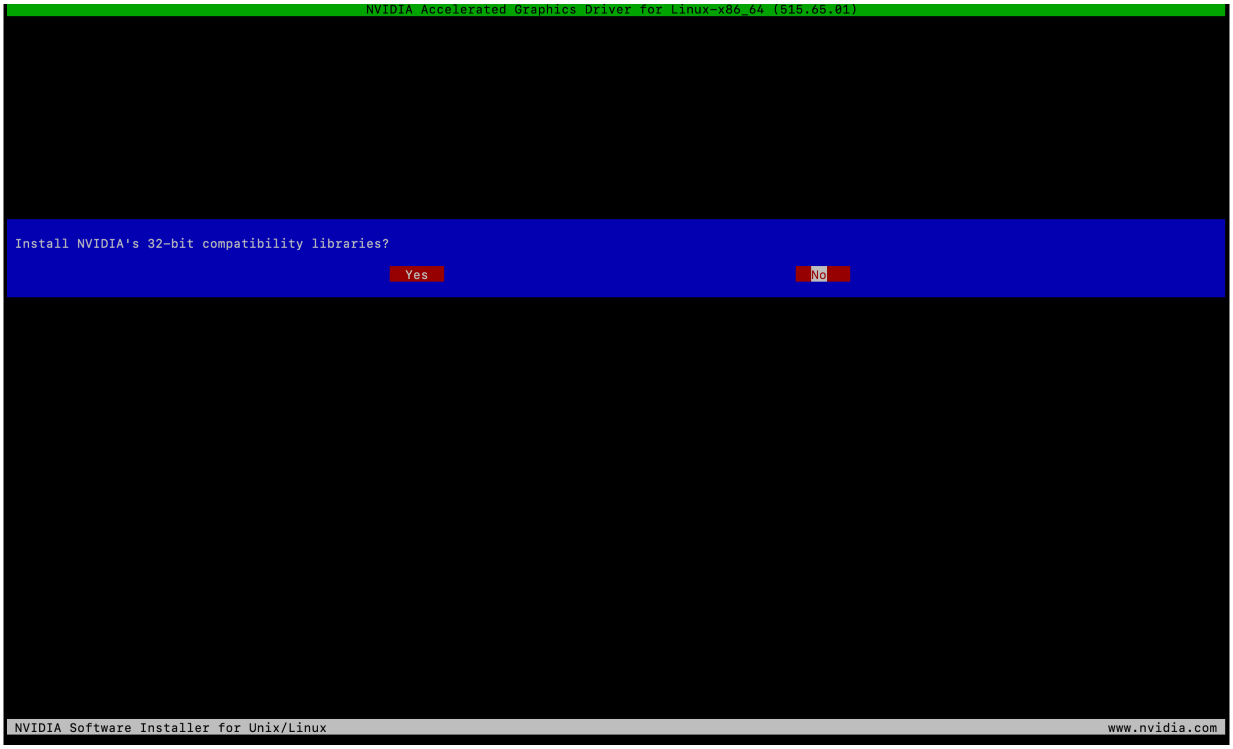
4. Next, run the following commands to install the NVIDIA driver and nvidia-container-runtime software:

```
# BASE_URL=https://us.download.nvidia.com/tesla# DRIVER_VERSION=515.65.01
# curl -fSsl -O $BASE_URL/$DRIVER_VERSION/NVIDIA-Linux-x86_64-$DRIVER_VERS
ION.run
```

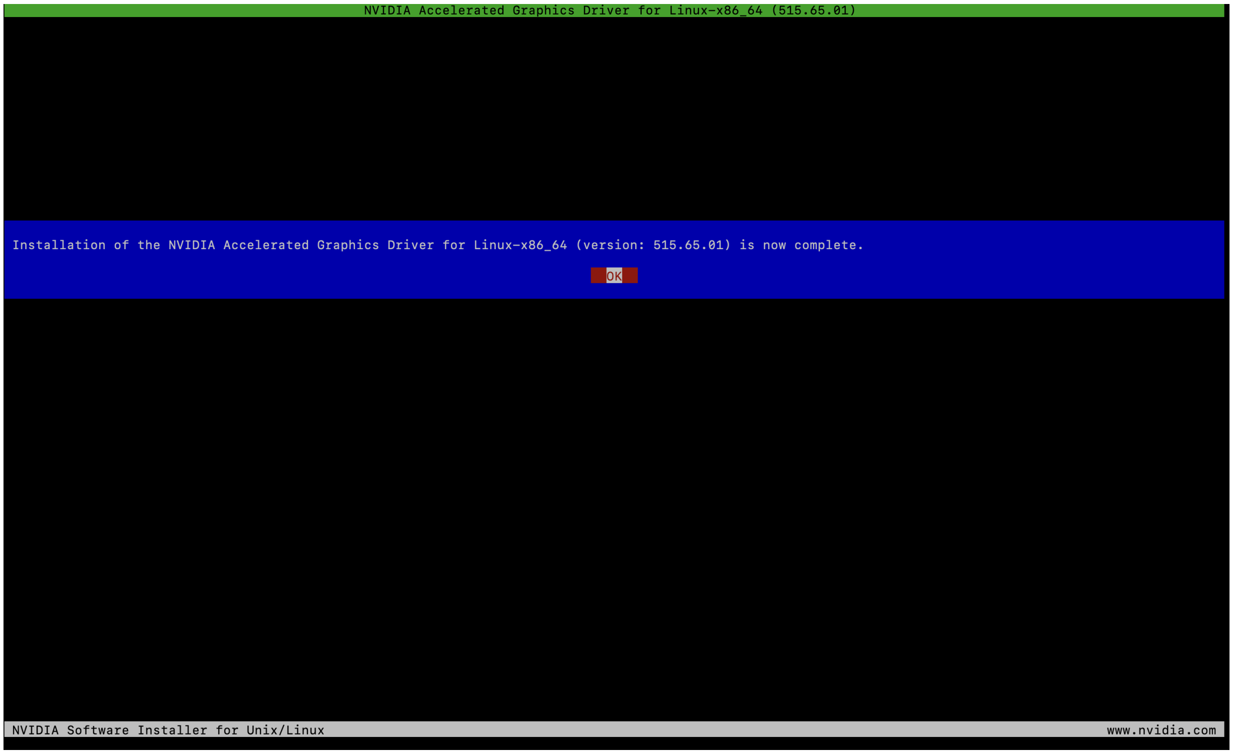
```
# sh NVIDIA-Linux-x86_64-$DRIVER_VERSION.run
```


NVIDIA Accelerated Graphics Driver for Linux-x86_64 (515.65.01)
OK
NVIDIA Software Installer for Unix/Linux
www.nvidia.com

```
WARNING: nvidia-installer was forced to guess the X library path '/usr/lib64' and X module path '/usr/lib64/xorg/modules'; these paths were not queryable
         from the system.  If X fails to find the NVIDIA X driver module, please install the `pkg-config` utility and the X.Org SDK/development package
         for your distribution and reinstall the driver.
```


NVIDIA Accelerated Graphics Driver for Linux-x86_64 (515.65.01)
Yes
No
NVIDIA Software Installer for Unix/Linux
www.nvidia.com

```
Install NVIDIA's 32-bit compatibility libraries?
```



NVIDIA Accelerated Graphics Driver for Linux-x86_64 (515.65.01)

Installation of the NVIDIA Accelerated Graphics Driver for Linux-x86_64 (version: 515.65.01) is now complete.

5. After the installation is complete, run the nvidia-smi tool and ensure that the driver was successfully deployed. The output should look similar to the following example:

```
[root@ecsgpu ~]# nvidia-smi
 Wed Aug 24 13:03:46 2022
 +---------------------------------------------------------------------
--------+
 | NVIDIA-SMI 515.65.01    Driver Version: 515.65.01    CUDA Version: 11.7
     |
 |-------------------------------+----------------------+----------------
------+
 | GPU  Name        Persistence-M| Bus-Id        Disp.A | Volatile Uncorr.
 ECC |
 | Fan  Temp  Perf  Pwr:Usage/Cap|         Memory-Usage | GPU-Util  Com
pute M. |
 |                               |                      |               MI
G M. |
 |===============================+======================+================
======|
 |   0  NVIDIA A100-PCI...  Off  | 00000000:08:00.0 Off |
   0 |
 | N/A   32C    P0    37W / 250W |      0MiB / 40960MiB |      3%
Default |
 |                               |                      |             Disa
bled |
 +-------------------------------+----------------------+----------------
------+


 +----------------------------------------------------------------------
-------+
 | Processes:
      |
 |  GPU   GI   CI        PID   Type   Process name                  GPU Me
mory |
 |        ID   ID                                                   Usage
     |
 |=======================================================================
=======|
 |  No running processes found
      |
 +-------------------------------------------------------------------------
-----+

 [root@ecsgpu ~]# lsmod | grep nvidia
 nvidia_drm             53212  0
 nvidia_modeset       1142094  1 nvidia_drm
 nvidia              40761292  1 nvidia_modeset
 drm_kms_helper        186531  3 qxl,nouveau,nvidia_drm
 drm                   468454  7 qxl,ttm,drm_kms_helper,nvidia,nouveau,n
vidia_drm

 [root@ecsgpu ~]# dmesg | grep nvidia
 [  123.588172] nvidia: loading out-of-tree module taints kernel.
 [  123.588182] nvidia: module license 'NVIDIA' taints kernel.
 [  123.704411] nvidia: module verification failed: signature and/or requi
red key missing - tainting kernel
 [  123.802826] nvidia-nvlink: Nvlink Core is being initialized, major dev
ice number 239
 [  123.925577] nvidia-uvm: Loaded the UVM driver, major device number 23
7.
 [  123.934813] nvidia-modeset: Loading NVIDIA Kernel Mode Setting Driver
 for UNIX platforms  515.65.01  Wed Jul 20 13:43:59 UTC 2022
 [  123.940999] [drm] [nvidia-drm] [GPU ID 0x00000800] Loading driver
 [  123.941018] [drm] Initialized nvidia-drm 0.0.0 20160202 for 0000:08:0
0.0 on minor 1
 [  123.958317] [drm] [nvidia-drm] [GPU ID 0x00000800] Unloading driver
 [  123.968642] nvidia-modeset: Unloading
 [  123.978362] nvidia-uvm: Unloaded the UVM driver.
 [  123.993831] nvidia-nvlink: Unregistered Nvlink Core, major device numb
er 239
 [  137.450679] nvidia-nvlink: Nvlink Core is being initialized, major de
vice number 240
 [  137.503657] nvidia-modeset: Loading NVIDIA Kernel Mode Setting Driver
 for UNIX platforms  515.65.01  Wed Jul 20 13:43:59 UTC 2022
 [  137.508187] [drm] [nvidia-drm] [GPU ID 0x00000800] Loading driver
 [  137.508190] [drm] Initialized nvidia-drm 0.0.0 20160202 for 0000:08:
00.0 on minor 1
 [  149.717193] nvidia 0000:08:00.0: irq 48 for MSI/MSI-X
 [  149.717222] nvidia 0000:08:00.0: irq 49 for MSI/MSI-X
 [  149.717248] nvidia 0000:08:00.0: irq 50 for MSI/MSI-X
 [  149.717275] nvidia 0000:08:00.0: irq 51 for MSI/MSI-X
 [  149.717301] nvidia 0000:08:00.0: irq 52 for MSI/MSI-X
 [  149.717330] nvidia 0000:08:00.0: irq 53 for MSI/MSI-X
```

6. Install the nvidia-container-runtime software package, and then reboot the server:

```
# curl -s -L https://nvidia.github.io/nvidia-container-runtime/$(. /etc/
os-release;echo $ID$VERSION_ID)/nvidia-container-runtime.repo |  sudo te
e /etc/yum.repos.d/nvidia-container-runtime.repo# yum -y install nvidia-
container-runtime# rpm -qa | grep nvidia
 libnvidia-container-tools-1.11.0-1.x86_64
 libnvidia-container1-1.11.0-1.x86_64
 nvidia-container-toolkit-base-1.11.0-1.x86_64
 nvidia-container-runtime-3.11.0-1.noarch
 nvidia-container-toolkit-1.11.0-1.x86_64

 # nvidia-container-toolkit -version
 NVIDIA Container Runtime Hook version 1.11.0
 commit: d9de4a0

 # reboot
```

7. Uncordon the GPU worker node:

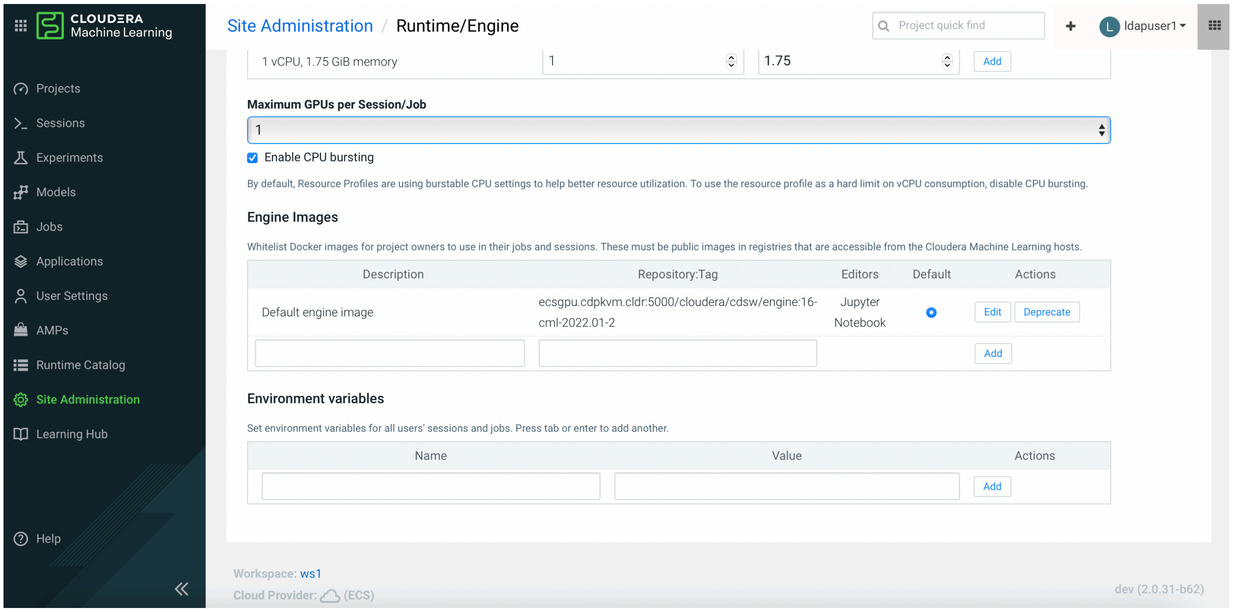
```
# kubectl uncordon ecsgpu.cdpkvm.cldr node/ecsgpu.cdpkvm.cldr cordoned
```

Testing the NVIDIA GPU card in CML

1. SSH into the ECS master node in the CDP Private Cloud Data Services cluster and run the following command to ensure that the ecsgpu.cdpkvm.cldr host has the nvidia.com/gpu: field in the node specification. Host ecsgpu.cdpkvm.cldr is a typical ECS worker node with the NVIDIA GPU card installed.

```
[root@ecsmaster1 ~]# kubectl describe node ecsgpu.cdpkvm.cldr | grep-A15
 Capacity:
 Capacity:
     cpu:                 16
     ephemeral-storage:   209703916Ki
     hugepages-1Gi:       0
     hugepages-2Mi:       0
     memory:              263975200Ki
     nvidia.com/gpu:      1
     pods:                110
 Allocatable:
     cpu:                 16
     ephemeral-storage:   203999969325
     hugepages-1Gi:       0
     hugepages-2Mi:       0
     memory:              263975200Ki
     nvidia.com/gpu:      1
     pods:                110

 [root@ecsmaster1 ~]# kubectl describe node ecsworker1.cdpkvm.cldr | grep-
A13 Capacity:
 Capacity:
     cpu:                 16
     ephemeral-storage:   103797740Ki
     hugepages-1Gi:       0
     hugepages-2Mi:       0
     memory:              263974872Ki
     pods:                110
 Allocatable:
     cpu:                 16
     ephemeral-storage:   100974441393
     hugepages-1Gi:       0
     hugepages-2Mi:       0
     memory:              263974872Ki
     pods:                110
```

2. In the CDP Private Cloud Data Services CML workspace, select Site Administration > Runtime/Engine. Specify a number for Maximum GPUs per Session/Job. This procedure effectively allows the CML session to consume the GPU card.



Site Administration / Runtime/Engine

1 vCPU, 1.75 GiB memory | 1 | 1.75

Maximum GPUs per Session/Job

1

☑ Enable CPU bursting

By default, Resource Profiles are using burstable CPU settings to help better resource utilization. To use the resource profile as a hard limit on vCPU consumption, disable CPU bursting.

Engine Images

Whitelist Docker images for project owners to use in their jobs and sessions. These must be public images in registries that are accessible from the Cloudera Machine Learning hosts.

Description	Repository:Tag	Editors	Default	Actions
Default engine image	ecsgpu.cdpkvm.cldr:5000/cloudera/cdsw/engine:16-cml-2022.01-2	Jupyter Notebook	●	Edit Deprecate
				Add

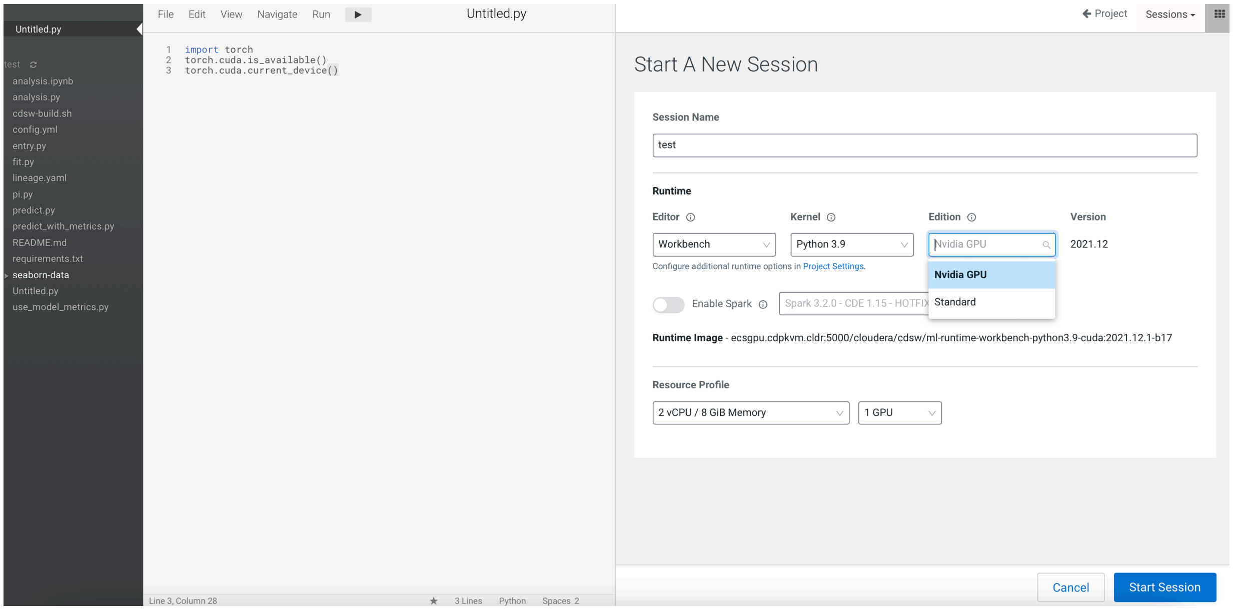
Environment variables

Set environment variables for all users' sessions and jobs. Press tab or enter to add another.

Name	Value	Actions
		Add

Workspace: ws1
Cloud Provider: (ECS)
dev (2.0.31-b62)

3. Create a CML project and start a new session by selecting the Workbench editor with a Python kernel and a NVIDIA GPU edition. Specify the number of GPUs to use – in this example, 1 GPU is specified.



```
import torch
torch.cuda.is_available()
torch.cuda.current_device()
```

Start A New Session

Session Name

test

Runtime

Editor	Kernel	Edition	Version
Workbench	Python 3.9	Nvidia GPU	2021.12

Configure additional runtime options in Project Settings.

Nvidia GPU
Standard

Enable Spark | Spark 3.2.0 - CDE 1.15 - HOTFIX

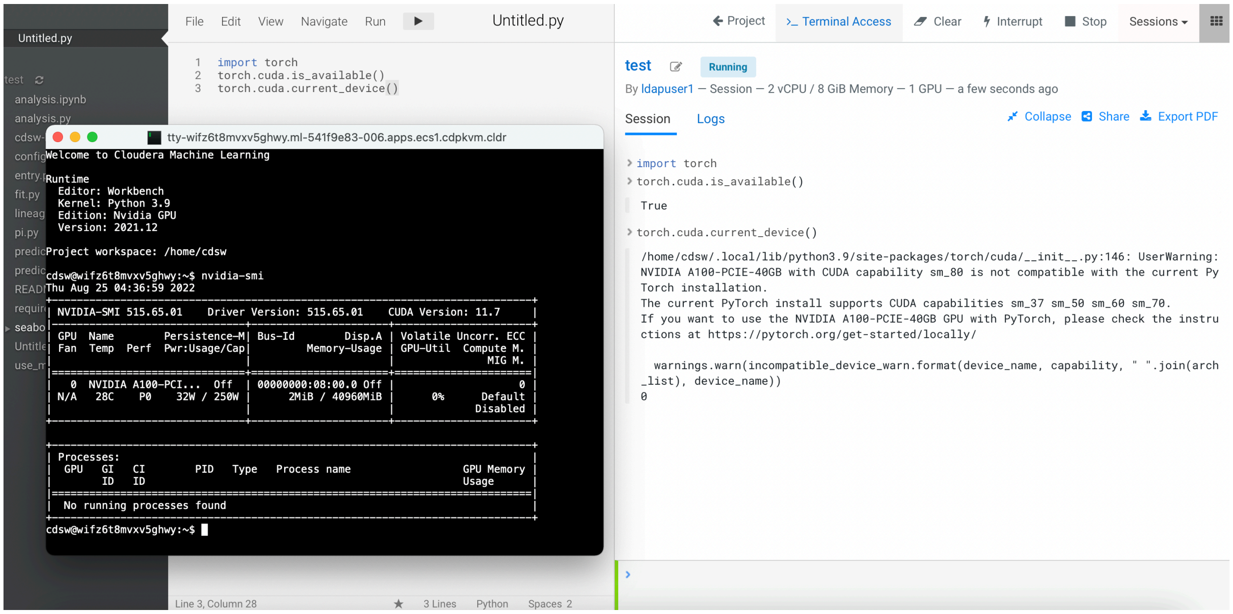
Runtime Image - ecsgpu.cdpkvm.cldr:5000/cloudera/cdsw/ml-runtime-workbench-python3.9-cuda:2021.12.1-b17

Resource Profile

2 vCPU / 8 GiB Memory | 1 GPU

4. Create a new Python file and run the following script. Also, open the terminal session and run the nvidia-smi tool. Note that the output shows the NVIDIA GPU card details.

```
!pip3install torchimport torchtorch.cuda.is_available()torch.cuda.device
_count()torch.cuda.get_device_name(0)
```



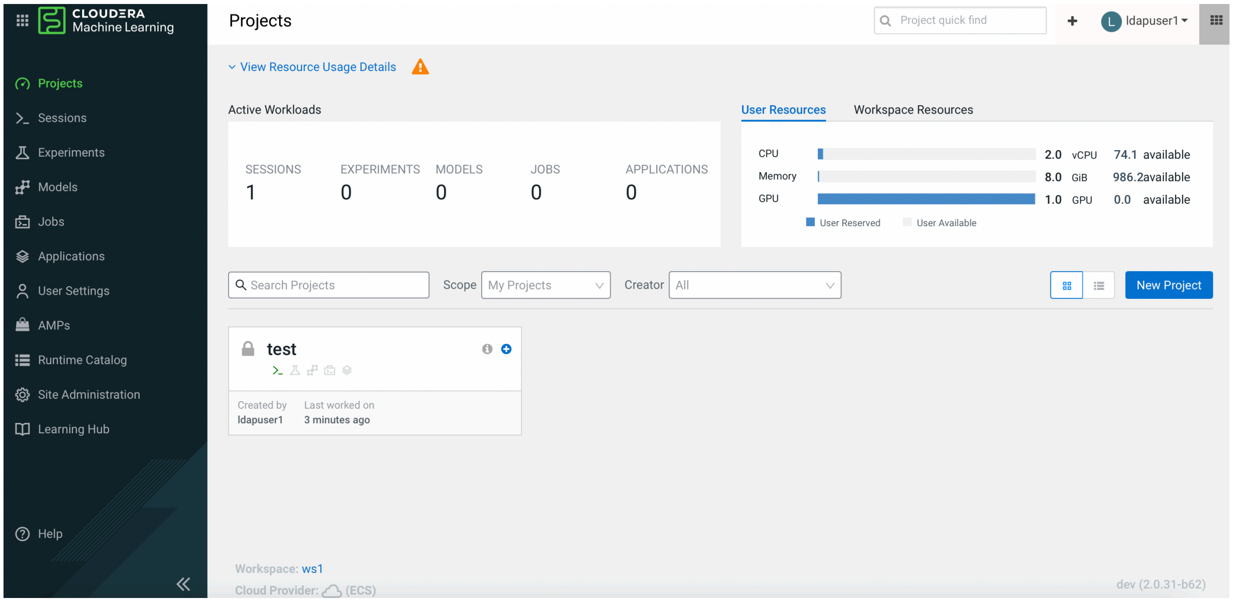
```
import torch
torch.cuda.is_available()
torch.cuda.current_device()
```

```
Welcome to Cloudera Machine Learning

Runtime
  Editor: Workbench
  Kernel: Python 3.9
  Edition: Nvidia GPU
  Version: 2021.12

Project workspace: /home/cdsw

cdsw@wifz6t8mvxv5ghwy:~$ nvidia-smi
Thu Aug 25 04:36:59 2022
+-----------------------------------------------------------------------------+
| NVIDIA-SMI 515.65.01    Driver Version: 515.65.01    CUDA Version: 11.7     |
|-------------------------------+----------------------+----------------------+
| GPU  Name        Persistence-M| Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp  Perf  Pwr:Usage/Cap|         Memory-Usage | GPU-Util  Compute M. |
|                               |                      |               MIG M. |
|===============================+======================+======================|
|   0  NVIDIA A100-PCI...  Off  | 00000000:08:00.0 Off |                    0 |
| N/A   28C    P0    32W / 250W |      2MiB / 40960MiB |      0%      Default |
|                               |                      |             Disabled |
+-------------------------------+----------------------+----------------------+

+-----------------------------------------------------------------------------+
| Processes:                                                                  |
|  GPU   GI   CI        PID   Type   Process name                  GPU Memory |
|        ID   ID                                                   Usage      |
|=============================================================================|
|  No running processes found                                                 |
+-----------------------------------------------------------------------------+
cdsw@wifz6t8mvxv5ghwy:~$ █
```

By ldapuser1 — Session — 2 vCPU / 8 GiB Memory — 1 GPU — a few seconds ago

```
> import torch
> torch.cuda.is_available()
  True
> torch.cuda.current_device()
  /home/cdsw/.local/lib/python3.9/site-packages/torch/cuda/__init__.py:146: UserWarning:
  NVIDIA A100-PCIE-40GB with CUDA capability sm_80 is not compatible with the current Py
  Torch installation.
  The current PyTorch install supports CUDA capabilities sm_37 sm_50 sm_60 sm_70.
  If you want to use the NVIDIA A100-PCIE-40GB GPU with PyTorch, please check the instru
  ctions at https://pytorch.org/get-started/locally/

    warnings.warn(incompatible_device_warn.format(device_name, capability, " ".join(arch
  _list), device_name))
  0
```

5. Navigate to the CML Projects page and confirm that the User Resources dashboard displays the GPU card availability.



Projects

Active Workloads

SESSIONS	EXPERIMENTS	MODELS	JOBS	APPLICATIONS
1	0	0	0	0

CPU	2.0 vCPU	74.1 available
Memory	8.0 GiB	986.2available
GPU	1.0 GPU	0.0 available

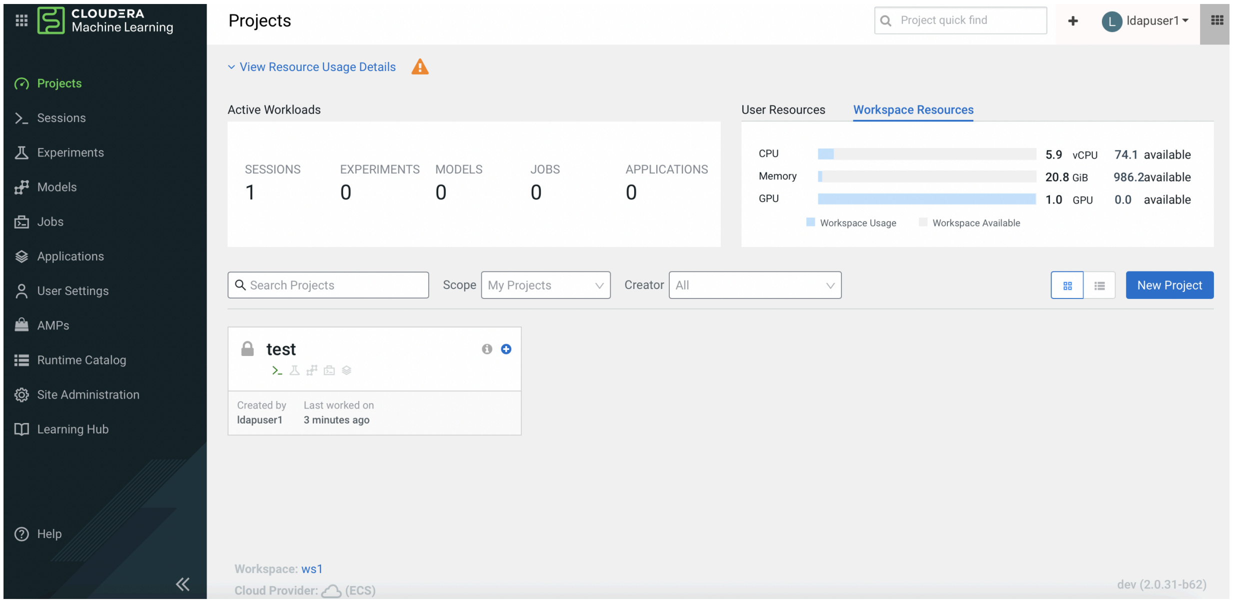
■ User Reserved ■ User Available

Scope: My Projects Creator: All

test

Created by ldapuser1 Last worked on 3 minutes ago

Workspace: ws1
Cloud Provider: (ECS)
dev (2.0.31-b62)



Projects

Active Workloads

SESSIONS	EXPERIMENTS	MODELS	JOBS	APPLICATIONS
1	0	0	0	0

CPU	5.9 vCPU	74.1 available
Memory	20.8 GiB	986.2available
GPU	1.0 GPU	0.0 available

■ Workspace Usage ■ Workspace Available

Scope: My Projects Creator: All

test

Created by ldapuser1 Last worked on 3 minutes ago

Workspace: ws1
Cloud Provider: (ECS)
dev (2.0.31-b62)

6. SSH into the ECS master node and run the following command to verify that the node that hosting the above CML project session pod is ecsgpu.cdpkvm.cldr.

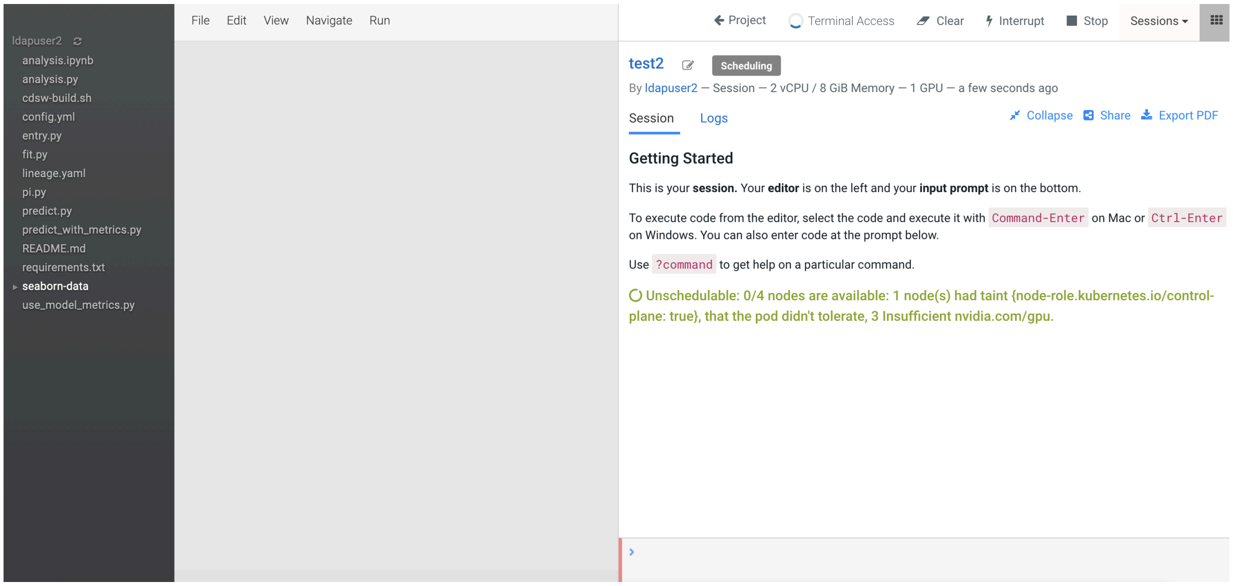
```
[root@ecsmaster1 ~]# oc -n workspace1-user-1 describe pod wifz6t8mvxv5ghwy
 | grep Node:
 Node:          ecsgpu.cdpkvm.cldr/10.15.4.185

 [root@ecsmaster1 ~]# oc -n workspace1-user-1 describe pod wifz6t8mvxv5gh
wy | grep-B2-i nvidia
     Limits:
         memory:           7714196Ki
         nvidia.com/gpu:   1
     --
         cpu:              1960m
         memory:           7714196Ki
         nvidia.com/gpu:   1
```

```
      --
```

7. When a process is consuming the NVIDIA GPU, the output of the nvidia-smi tool shows the PID of that process (in this case, the CML session pod).

```
[root@ecsgpu ~]# nvidia-smi
 Thu Aug 25 13:58:40 2022
 +-----------------------------------------------------------------------
--------+
 | NVIDIA-SMI 515.65.01    Driver Version: 515.65.01    CUDA Version: 11.7
     |
 |-------------------------------+----------------------+----------------
------+
 | GPU  Name        Persistence-M| Bus-Id        Disp.A | Volatile Uncorr.
 ECC |
 | Fan  Temp  Perf  Pwr:Usage/Cap|         Memory-Usage | GPU-Util  Com
pute M. |
 |                               |                      |               MI
G M. |
 |===============================+======================+================
======|
 |   0  NVIDIA A100-PCI...  Off  | 00000000:08:00.0 Off |
   0 |
 | N/A   29C    P0    35W / 250W |  39185MiB / 40960MiB |      0%
Default |
 |                               |                      |             Disa
bled |
 +-------------------------------+----------------------+----------------
------+

 +-----------------------------------------------------------------------
-------+
 | Processes:
      |
 |  GPU   GI   CI        PID   Type   Process name                  GPU Me
mory |
 |        ID   ID                                                   Usage
     |
 |=======================================================================
=======|
 |   0   N/A  N/A     29990      C   /usr/local/bin/python3.9       391
83MiB   |
 +-----------------------------------------------------------------------
-----+
```

8. In the event that the ECS platform has no available worker node with a GPU card, provisioning a session with GPU will result in a Pending state as the system is looking for a worker node installed with at least one NVIDIA GPU card.



test2 Scheduling

By ldapuser2 — Session — 2 vCPU / 8 GiB Memory — 1 GPU — a few seconds ago

Getting Started

This is your **session.** Your **editor** is on the left and your **input prompt** is on the bottom.

To execute code from the editor, select the code and execute it with `Command-Enter` on Mac or `Ctrl-Enter` on Windows. You can also enter code at the prompt below.

Use `?command` to get help on a particular command.

Unschedulable: 0/4 nodes are available: 1 node(s) had taint {node-role.kubernetes.io/control-plane: true}, that the pod didn't tolerate, 3 Insufficient nvidia.com/gpu.

Decommissioning ECS Hosts

You can decommission ECS hosts and remove them from the cluster.

About this task

1. Cordon the node. Longhorn will automatically disable the node scheduling when a Kubernetes node is cordoned. Run the following command on any ECS Server host:

```
kubectl cordon [***node***]
```

2. Drain the node to move the workload to somewhere else. Run the following command on any ECS Server host:

```
kubectl drain [***node***] --ignore-daemonsets --pod-selector='app!=csi-at
tacher,app!=csi-provisioner' --delete-emptydir-data
```

3. Detach all the volumes on the node. Navigate to the ECS Service page on Cloudera Manager UI.

   a. In the Web UI dropdown, select Storage UI to open the Longhorn UI.

   b. Under the Volume tab in Longhorn UI, select the volumes on this node. Click Detach and select Yes on the screen prompt.

   If the node has been drained, all the workloads should be migrated to another node already.

   If there are any other volumes remaining attached, detach them before continuing.
4. Remove the node from Longhorn using the Delete in the Node tab. Or, remove the node from Kubernetes. Run the following command on any ECS Server host:

```
kubectl delete node [***node-name***]
```

   Longhorn will automatically remove the node from the cluster.
5. Uninstall ECS and Docker artifacts from the host. Run below commands on the host:

```
cd /opt/cloudera/parcels/ECS/bin
./rke2-killall.sh # usually 2 times is sufficient
```

```
./rke2-uninstall.sh
rm -rf /ecs/* # assumes the default defaultDataPath and lsoDataPath
rm -rf /var/lib/docker_server/* # deletes the auth and certs
rm -rf /etc/docker/certs.d/* # delete the ca.crt
rm -rf /docker # assumes the default defaultDataPath for docker
```

6. Go to the Hosts page for the ECS Cluster, select that host, and under Actions for Selected, click Begin Maintenance (Suppress Alerts/Decommission)

ECS Server High Availability

ECS Server High Availability (HA) is not enabled by default – you must enable it after installing ECS. If you do not wish to enable ECS HA, you can safely ignore this section. If you are enabling ECS HA, you should review the following notes and supported ECS Server scenarios before proceeding.

Note:

- Longhorn replication defaults to two replicas. This can be set only during the installation time. Three or more replicas potentially have performance issues.
- Kubectl delete node <host> permanently removes host from cluster and any data on the host is lost. You must reformat the host before reading to the cluster.
- Single node failure may cause the Control Plane or any other management service to be unavailable. In 1.3.4 or later, it will take several minutes to recover automatically.

ECS Server scenarios

Clusters with only two servers are not supported. This is only for the temporary transition from a single server cluster to a three server cluster.

1. Three or more servers
    - Redundancy requirements:
        - One failure requires three or more servers
        - Two failures require five or more servers
        - For more information see, Fault Tolerance
    - To recover, you must scale-up the ECS Server roles. For more information on adding ECS node to a cluster, see the following section.
2. Two servers to one server
    - Only after a double failure in a three server cluster
    - To recover:
        - Stop the ECS service
        - Remove both the failed ECS server roles and hosts from cluster
        - On the surviving server, run the following command `/opt/cloudera/parcels/ECS/bin/rke2 server --cluster-reset`
        - Start the ECS service
3. Single server
    - No failure supported

Enable ECS Server HA Post ECS Installation

If you want to enable ECS Server for High Availability after installing ECS, then you must proceed with this section. If you do not want to enable ECS HA, you can safely ignore this section.

As a prerequisite, during the installation, you must have installed ECS with 1 master (with app_domain as Load Balancer URL) + agents. When you are adding more masters, ensure that you add Docker server as well.

Install iptables on the new ECS master nodes

You must install iptables on all of the additional ECS master nodes.

If your ECS hosts are running the CentOS 8.4, OEL 8.4, or RHEL 8 operating systems, you must install iptables on all the ECS hosts. Run the following command on each additional ECS master node:

```
yum --setopt=tsflags=noscripts install -y iptables
```

Adding hosts to the containerized cluster

You must add hosts to the containerized cluster.

1. Log in to Cloudera Manager.
2. Navigate to the ECS service.
3. Click the Actions drop-down.
4. Click the Add Hosts button. The Add Hosts page appears.
5. Select the Add hosts to cluster option.
6. Select the cluster where you want to add the host from the drop-down list. Click Continue.
7. In the Specify Hosts page, provide a list of available hosts or you can add new hosts. You can provide the Fully Qualified Domain Name (FQDN) in the following patterns: You can specify multiple addresses and address ranges by separating them by commas, semicolons, tabs, or blank spaces, or by placing them on separate lines. Use this technique to make more specific searches instead of searching overly wide ranges.

   For example, use host[1-3].network.com to specify these hosts: host1.network.com, host2.network.com, host3.network.com.

   Click Continue.
8. In the Select Repository page, you must specify the repository location. Choose any one of the following:
   a. Cloudera Repository (Requires direct internet access on all hosts)
   b. Custom Repository
9. In the Select JDK page, select any one from the below options:
   a. Manually manage JDK
   b. Install a Cloudera-provided version of OpenJDK
   c. Install a system-provided version of OpenJDK
10. In the Enter Login Credentials page select the SSH Username and provide the password.
11. The Install Agents page appears. Click Continue.
12. In the Install Parcels page, the selected parcels are downloaded and installed on the host cluster. Click Continue.
13. In the Inspect Hosts page, you can inspect your hosts. If the inspect tool displays any issues, you can fix those issues and run the inspect tool again. Click Continue.
14. In the Select Host Template page, select the hosts.
15. The Deploy Client Config page appears. Click Finish.

Adding Role Instances to Docker Server

You must add role instances to the docker server.

1. Log in to Cloudera Manager.
2. Navigate to the ECS service.
3. Open Docker Server.
4. Click the Actions drop-down.
5. Click the Add Role Instances button.
6. Select the hosts.
7. Click OK.

Adding Role Instances to Containerised Cluster

You must add the role instances to the containerised cluster.

1. Log in to Cloudera Manager.
2. Navigate to the ECS service.
3. Click the Actions drop-down.
4. Click the Add Role Instances button. The Add Role Instances page appears.
5. In the Assign Roles page, specify the role assignments for your new roles. Click Continue.
6. In the Review Changes page, click Finish.

Starting Docker Server on Nodes

You must start the Docker server on nodes.

1. Log in to Cloudera Manager.
2. Navigate to the ECS service.
3. Open Docker Server.
4. Click the Actions for Selected drop-down.
5. Click Start. Docker Server starts.

Starting ECS Server on Nodes

You must start the ECS server on nodes.

1. Log in to Cloudera Manager.
2. Navigate to the ECS service.
3. Click the Instances tab.
4. Select the nodes by clicking the checkbox
5. Click the Actions for Selected drop-down.
6. Click Start. ECS Server starts.

Refreshing ECS

You must refresh the ECS servers.

1. Log in to Cloudera Manager.
2. Navigate to the ECS service.
3. Click the Actions drop-down.
4. Click the Refresh button.

Checking Nodes and Pods in the UI

You must check the nodes and pods in the UI.

1. Log in to Cloudera Manager.
2. Navigate to the ECS service.
3. Click the Web UI drop-down.
4. Click ECS Web UI. The Kubernetes web UI page opens in a new tab.
5. Check the Nodes and Pods on the Web UI.

Enable ECS Server HA and promote agents Post ECS Installation

If you want to enable ECS Server for High Availability after installing ECS, then you must proceed with this section. If you do not want to enable ECS HA, you can safely ignore this section.

As a prerequisite, during the installation, you must have installed ECS with 1 master (with app_domain as Load Balancer URL) + agents. This allows you to promote Agents as masters.

Enabling ECS Server deployment for High Availability

You can enable ECS Server deployment for High Availability by installing a Load Balancer and promoting the existing ECS Agents to ECS Server. By performing this procedure, you will be able to deploy HA on your existing ECS Server. You must have an ECS cluster installed and configured with a single ECS Server.

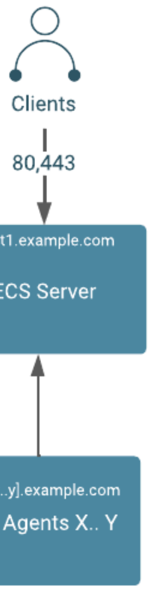
If you have a production quality ECS cluster, Cloudera recommends that you configure ECS Server High Availability. You can also consider having an ECS Server HA for any non-production ECS cluster that you expect to be available long-term.

Enabling ECS Server deployment for High Availability involves preparing your cluster, configuring a DNS wildcard entry, adding a Load Balancer into the topology, and promoting ECS Agents to the ECS Server. An ECS High Availability cluster must consist of:

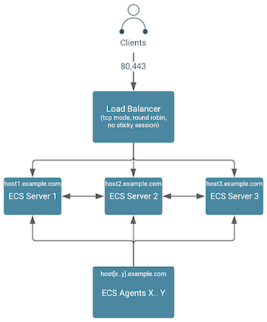
- An odd number of server nodes that will run etcd, the Kubernetes API, and other control plane services. Cloudera recommends a minimum of three ECS Server nodes.
- Two or more agent nodes that are designated to run CDP data services.
- A software or hardware Load balancer using TCP mode (non-terminating https).

Note: A Load Balancer is required for the ECS Server HA. This documentation uses HAProxy as an example. However, Cloudera recommends that you use your production quality Load Balancer technology from commercial vendors.

Architecture of CDP Private Cloud Data Services on a single ECS Server:



Architecture of CDP Private Cloud Data Services with High Availability:



Preparing the cluster for High Availability:

Review the table to understand the requirements for enabling the High Availability.

1. This process has been tested with a minimum of five ECS hosts. However, Cloudera recommends six or more hosts.
2. DNS requirements for ECS High Availability must be fulfilled.

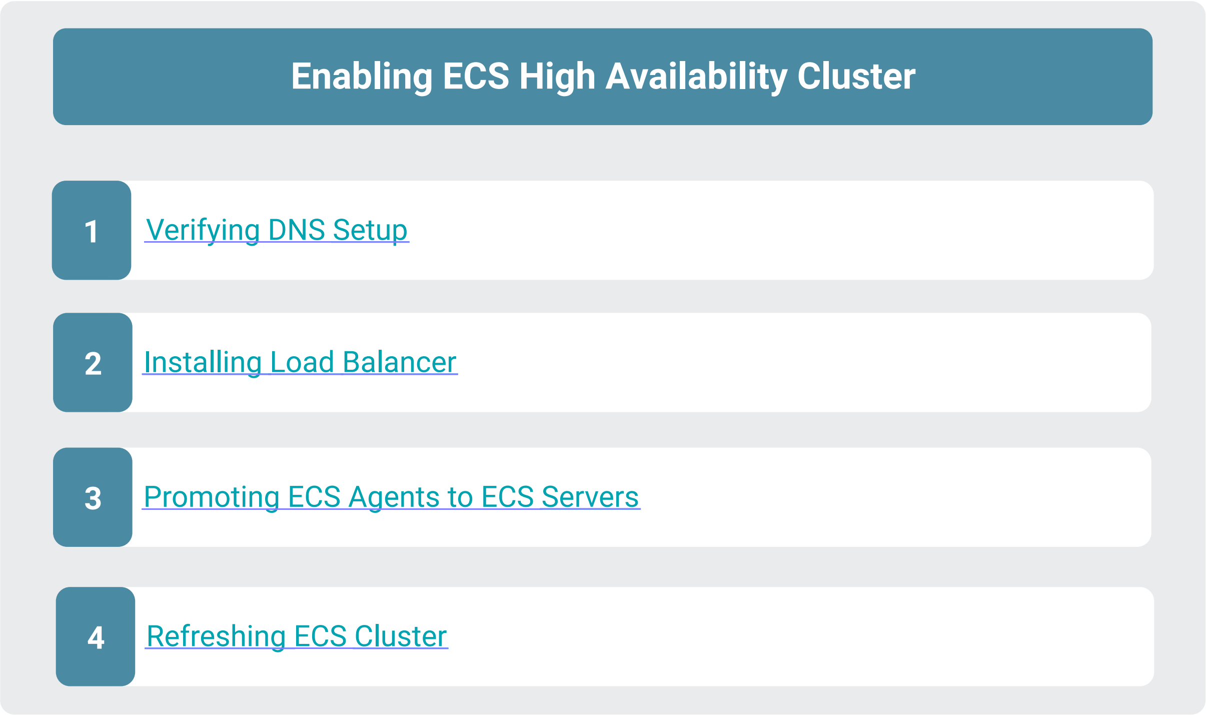
Hostname	Subdomain	Expected Roles	DNS ForwardZone	Reverse Zone PTR
“Wildcard” (hostname = *)	apps.ecs.example.com The string “apps” is required, “ecs” is up to user	Virtual app domain wildcard	“A Record” wildcard (hostname = *), may be a CNAME on certain DNS systems that use text-based config. Resolves to fixed IP of ha_proxy (or VIP of some commerical LB’s)	N
“apps alias”	apps.ecs.example.com	Virtual app domain alias	“CNAME” alias points to A Record of ha_proxy (or VIP). Alternatively, this can be an ARecord with IP of ha_proxy (or VIP)	N/A
HAProxy (or commercial LB)	<domain of your LB>	HA Load Balancer	Depends on vendor/ software	
ecs-master1	example.com	ECS Server 1 Docker server	“A Record” resolves to IP of ecs-master1	Y
ecs-master2	example.com	ECS Server 2 Docker server	“A Record” resolves to IP of ecs-master2	Y
ecs-master3	example.com	ECS Server 3 Docker server	“A Record” resolves to IP of ecs-master3	Y
ecs-agentN	example.com	ECS Agent N Docker server N	“A Record” resolves to IP of ecs-agentN	Y

Note:

1. The above table uses a consistent subdomain (“example.com”) but this is not mandatory. To support multiple domains, you must follow certain steps to ensure that the domains are forward and reverse resolvable using DNS, from all Base cluster and ECS cluster hosts (that is through forest/domain level trusts and/or hosts level /etc/resolv.conf config). You must avoid the use of /etc/hosts entries.
2. A predefined wildcard DNS record allows the resolution of *.apps.<app domain name> to the IP address of the Load Balancer. You cannot proceed further until this is in place.

High Level steps to enable an ECS High Availability cluster

Review the high level steps to understand the steps in enabling High Availability.



Enabling ECS High Availability Cluster

1 Verifying DNS Setup

2 Installing Load Balancer

3 Promoting ECS Agents to ECS Servers

4 Refreshing ECS Cluster

Note:

1. You must have installed an ECS with one ECS server and other nodes that are ECS Agents.
2. You must have a DNS wildcard record that has an IP address pointing to your Load Balancer (hostname or VIP). For more information, see the KB article.

Verifying DNS setup

You must verify the DNS setup to ensure that the app domain DNS hostname points to the Load Balancer.

Procedure

1. Verify that the app domain DNS hostname has moved from single non-HA ECS Server to the Load Balancer.

Hostname	Expected Roles	DNS
ecs-loadbalancer.example.com	Load Balancer	Resolves to IP of LB host (or VIP). The example uses 10.10.0.99. Both *.apps.ecs.example.com and apps.ecs.example.com resolve to 10.10.0.99.

2. Verify the DNS setup with nslookup.

   Note: You must verify that a random hostname resolves in the wildcard entry. In this example, Cloudera uses foobar.apps.ecs.example.com as the random name. Both entries should resolve to the same IP address.

   For example,

```
$ hosts="apps.ecs.example.com foobar.apps.ecs.example.com"
$ for target in $hosts; do nslookup $target; done

Server: 10.10.xx.xx
Address: 10.10.xx.xx#53

apps.ecs.example.com canonical name = ecs-loadbalancer.example.com.
Name: ecs-loadbalancer.example.com
```

```
Address: 10.10.0.99

Server: 10.10.xx.xx
Address: 10.10.xx.xx#53

Name: foobar.apps.ecs.example.com
Address: 10.10.0.99
```

Results

DNS setup is verified.

What to do next

You must now install the Load Balancer.

Installing Load Balancer

To install the HAProxy Load Balancer, Cloudera uses an example that uses a single instance of HAProxy, configured with round robin balancing and TCP mode. This allows for non-terminating https (https passthrough). The HAProxy service can be configured for High Availability using keepalived.

Before you begin

You must consult your operating system vendor's documentation for requirements and the install guide for configuring HAproxy with keepalived.

To install a HAProxy Load Balancer, you must ssh into the HAProxy host, install, and then configure HAProxy:

Procedure

1. `sudo su -`
2. `yum install haproxy -y`
3. `cp /etc/haproxy/haproxy.cfg /etc/haproxy/haproxy.cfg.bak`
4. `cat > /etc/haproxy/haproxy.cfg << EOF`

   global

log	127.0.0.1 local2
chroot	/var/lib/haproxy
pidfile	/var/run/haproxy.pid
user	haproxy
group	haproxy
daemon	

   defaults

mode	tcp
log	global
option	tcplog
option	dontlognull
option	redispatch
retries	3

maxconn	5000
timeout connect	5s
timeout client	50s
timeout server	50s

listen stats

```
bind *:8081
mode http
stats enable
stats refresh 30s
stats uri /stats
monitor-uri /healthz
```

frontend fe_k8s_80

```
bind *:80
default_backend be_k8s_80
```

backend be_k8s_80

```
balance roundrobin
mode tcp
server ecs-server1.example.com 10.10.0.1:80 check
server ecs-server2.example.com 10.10.0.2:80 check
server ecs-server3.example.com 10.10.0.3:80 check
```

frontend fe_k8s_443

```
bind *:443
default_backend be_k8s_443
```

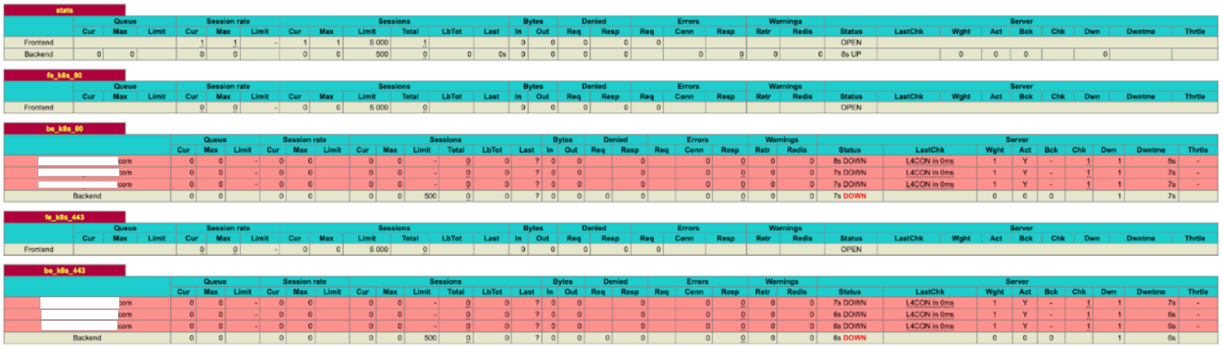
backend be_k8s_443

```
balance roundrobin
mode tcp
server ecs-server1.example.com 10.10.0.1:443 check
server ecs-server2.example.com 10.10.0.2:443 check
server ecs-server3.example.com 10.10.0.3:443 check
```

EOF

```
systemctl enable haproxy
systemctl restart haproxy
systemctl status haproxy
```

5. You can verify that all the hosts are shown from the HAproxy UI. However, at this point the hosts are not listening to the configured ports.



stats

	Queue			Session rate			Sessions						Bytes		Denied		Errors			Warnings		Server								
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntme	Thrtle
Frontend				1	1	-	1	1	5 000	1			0	0	0	0	0					OPEN								
Backend	0	0		0	0		0	0	500	0	0	0s	0	0	0	0		0	0	0	0	8s UP		0	0	0		0		

fe_k8s_80

	Queue			Session rate			Sessions						Bytes		Denied		Errors			Warnings		Server								
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntme	Thrtle
Frontend				0	0	-	0	0	5 000	0			0	0	0	0	0					OPEN								

be_k8s_80

	Queue			Session rate			Sessions						Bytes		Denied		Errors			Warnings		Server								
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntme	Thrtle
[redacted]com	0	0	-	0	0		0	0	-	0	0	?	0	0		0		0	0	0	0	8s DOWN	L4CON in 0ms	1	Y	-	1	1	8s	-
[redacted]com	0	0	-	0	0		0	0	-	0	0	?	0	0		0		0	0	0	0	7s DOWN	L4CON in 0ms	1	Y	-	1	1	7s	-
[redacted]com	0	0	-	0	0		0	0	-	0	0	?	0	0		0		0	0	0	0	7s DOWN	L4CON in 0ms	1	Y	-	1	1	7s	-
Backend	0	0		0	0		0	0	500	0	0	?	0	0	0	0		0	0	0	0	7s DOWN		0	0	0		1	7s	

fe_k8s_443

	Queue			Session rate			Sessions						Bytes		Denied		Errors			Warnings		Server								
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntme	Thrtle
Frontend				0	0	-	0	0	5 000	0			0	0	0	0	0					OPEN								

be_k8s_443

	Queue			Session rate			Sessions						Bytes		Denied		Errors			Warnings		Server								
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntme	Thrtle
[redacted]com	0	0	-	0	0		0	0	-	0	0	?	0	0		0		0	0	0	0	7s DOWN	L4CON in 0ms	1	Y	-	1	1	7s	-
[redacted]com	0	0	-	0	0		0	0	-	0	0	?	0	0		0		0	0	0	0	6s DOWN	L4CON in 0ms	1	Y	-	1	1	6s	-
[redacted]com	0	0	-	0	0		0	0	-	0	0	?	0	0		0		0	0	0	0	6s DOWN	L4CON in 0ms	1	Y	-	1	1	6s	-
Backend	0	0		0	0		0	0	500	0	0	?	0	0	0	0		0	0	0	0	6s DOWN		0	0	0		1	6s	

Important: Since you already have an ECS cluster running, you must alter your DNS wildcard to point to the IP address of the HAProxy server. You cannot change the Application Domain configured through the ECS wizard. So you must ensure that you send all ingress traffic to the HAProxy IP address by making that change in the IP address of your wildcard DNS Record.

Note:

a. Application Domain (app_domain property in Cloudera Manager) maps to your wildcard DNS record (For example, app_domain ecs.example.com maps to your DNS entry *.apps.ecs.example.com)

b. The resolved IP address must be the host IP (or VIP) of your Load Balancer. For more information, see the Verify DNS Step 5 above.

Results

Load Balancer is now installed.

Promoting ECS Agents to ECS Servers

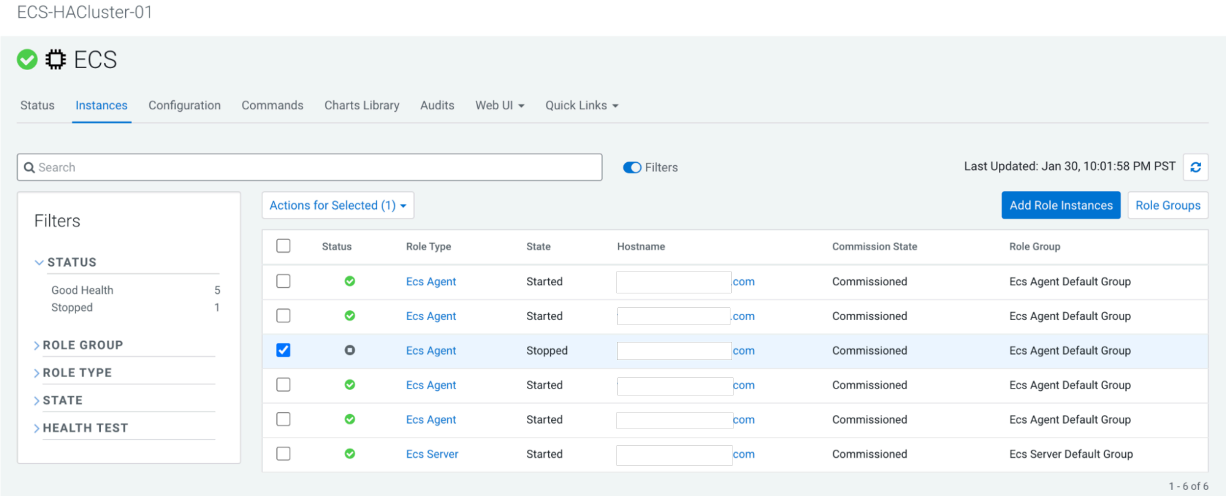
After installing the Load Balancer, you must reconfigure the existing Embedded Container Service (ECS) Agents to ECS Servers. This process is referred to as promoting the agents to servers. You must promote only one agent at a time.

About this task

In this example we will promote the ECS agent on agent1.example.com and then promote the ECS agent on agent2.example.com.

Procedure

1. In Cloudera Manager, select the ECS cluster, then click ECS. Stop the ECS agent running on agent1 and then delete the agent.



ECS-HACluster-01

ECS

Last Updated: Jan 30, 10:01:58 PM PST

Filters

STATUS

Good Health	5
Stopped	1

ROLE GROUP

ROLE TYPE

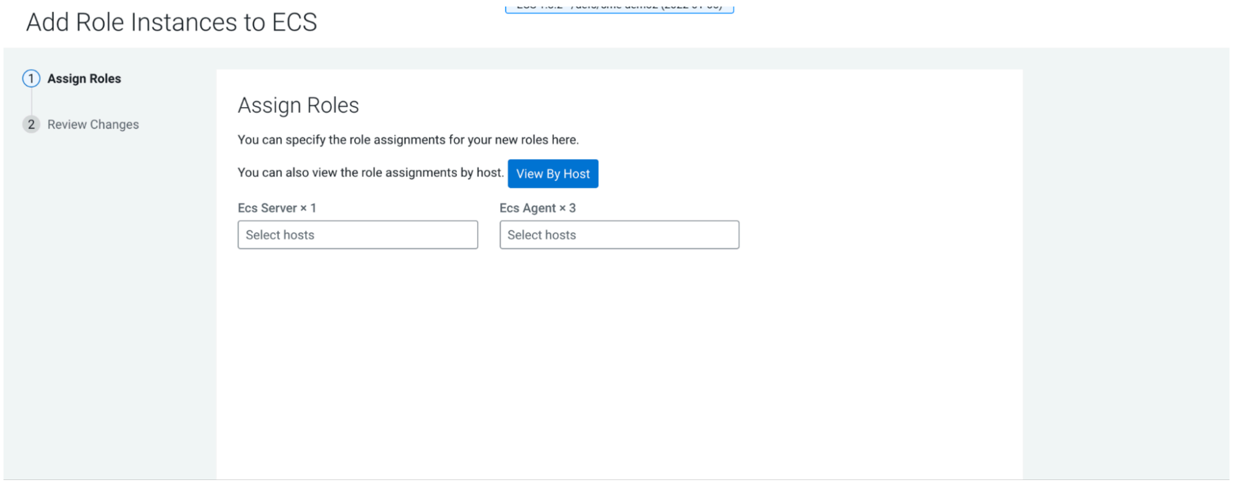
STATE

HEALTH TEST

□	Status	Role Type	State	Hostname	Commission State	Role Group
□	✓	Ecs Agent	Started	[redacted]com	Commissioned	Ecs Agent Default Group
□	✓	Ecs Agent	Started	[redacted].com	Commissioned	Ecs Agent Default Group
☑	○	Ecs Agent	Stopped	[redacted]com	Commissioned	Ecs Agent Default Group
□	✓	Ecs Agent	Started	[redacted]com	Commissioned	Ecs Agent Default Group
□	✓	Ecs Agent	Started	[redacted]com	Commissioned	Ecs Agent Default Group
□	✓	Ecs Server	Started	[redacted]com	Commissioned	Ecs Server Default Group

1 - 6 of 6

2. In ECS, click Add Role Instances.



Add Role Instances to ECS

Assign Roles

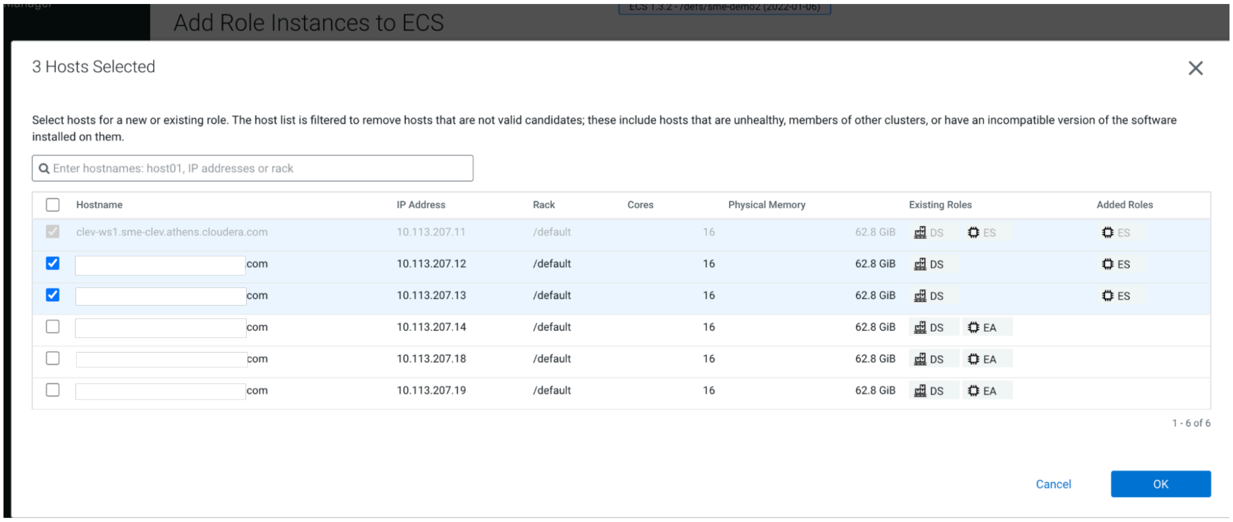
You can specify the role assignments for your new roles here.

You can also view the role assignments by host. View By Host

Ecs Server × 1: Select hosts

Ecs Agent × 3: Select hosts

3. Add the available host agent1 as an ECS server in the Add Role Instances to ECS pop-up. Click OK.



Add Role Instances to ECS

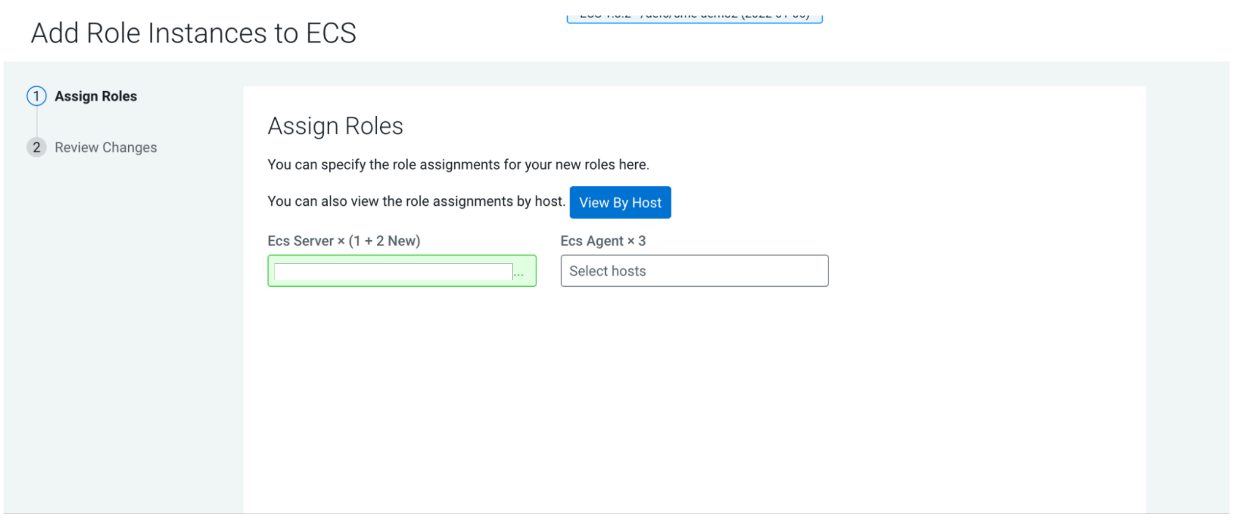
3 Hosts Selected

Select hosts for a new or existing role. The host list is filtered to remove hosts that are not valid candidates; these include hosts that are unhealthy, members of other clusters, or have an incompatible version of the software installed on them.

Enter hostnames: host01, IP addresses or rack

□	Hostname	IP Address	Rack	Cores	Physical Memory	Existing Roles	Added Roles
☑	clev-ws1.sme-clev.athens.cloudera.com	10.113.207.11	/default	16	62.8 GiB	DS ES	ES
☑	[redacted]com	10.113.207.12	/default	16	62.8 GiB	DS	ES
☑	[redacted]com	10.113.207.13	/default	16	62.8 GiB	DS	ES
□	[redacted]com	10.113.207.14	/default	16	62.8 GiB	DS EA	
□	[redacted]com	10.113.207.18	/default	16	62.8 GiB	DS EA	
□	[redacted]com	10.113.207.19	/default	16	62.8 GiB	DS EA	

1 - 6 of 6



Add Role Instances to ECS

Assign Roles

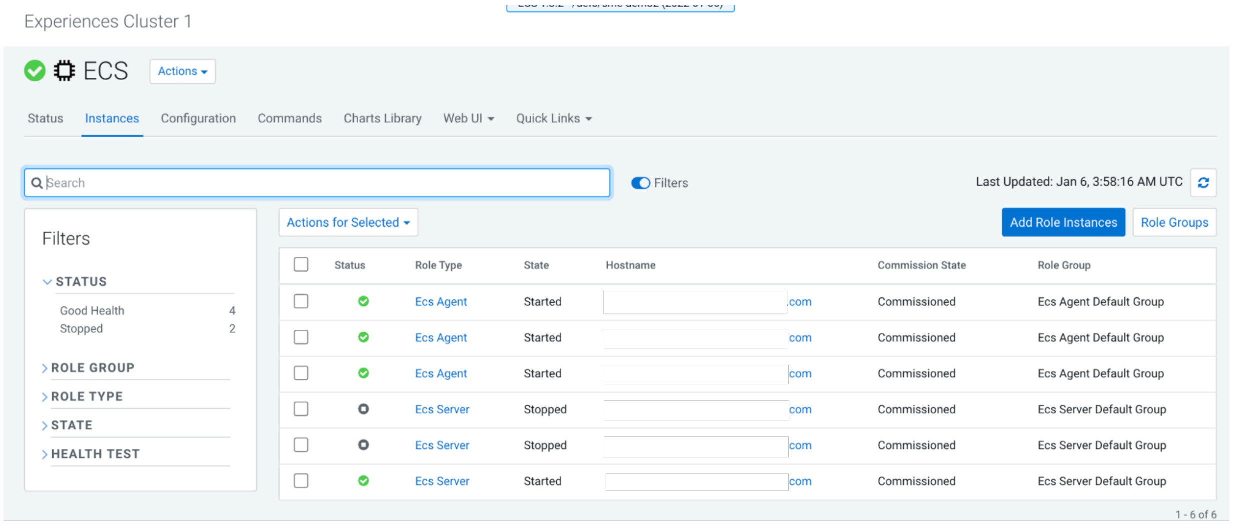
You can specify the role assignments for your new roles here.

You can also view the role assignments by host. View By Host

Ecs Server × (1 + 2 New): [redacted]...

Ecs Agent × 3: Select hosts

4. Click Continue.



Experiences Cluster 1

ECS Actions

Search

Filters

Last Updated: Jan 6, 3:58:16 AM UTC

Filters

STATUS

Good Health	4
Stopped	2

ROLE GROUP

ROLE TYPE

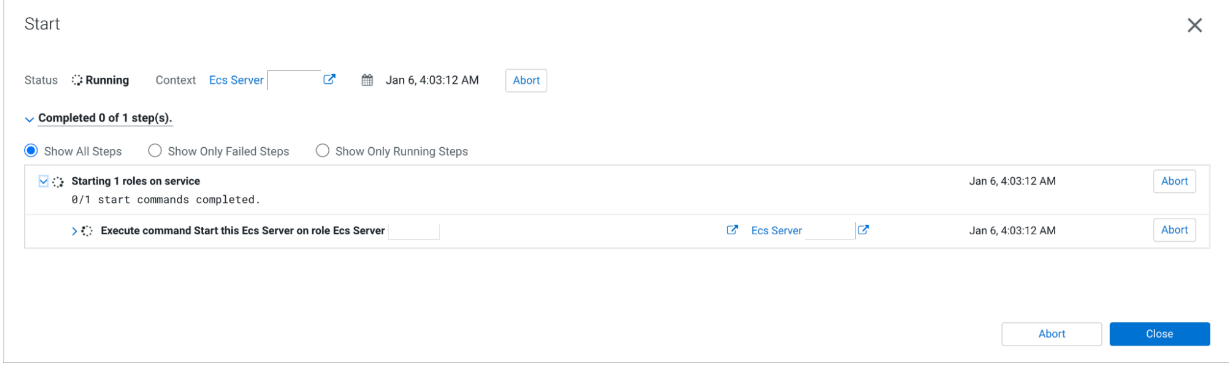
STATE

HEALTH TEST

□	Status	Role Type	State	Hostname	Commission State	Role Group
□	✓	Ecs Agent	Started	[redacted]com	Commissioned	Ecs Agent Default Group
□	✓	Ecs Agent	Started	[redacted]com	Commissioned	Ecs Agent Default Group
□	✓	Ecs Agent	Started	[redacted]com	Commissioned	Ecs Agent Default Group
□	○	Ecs Server	Stopped	[redacted]com	Commissioned	Ecs Server Default Group
□	○	Ecs Server	Stopped	[redacted]com	Commissioned	Ecs Server Default Group
□	✓	Ecs Server	Started	[redacted]com	Commissioned	Ecs Server Default Group

1 - 6 of 6

5. Start the new ECS server from the ECS Instances view. For example, start the ECS server on agent1.



Start

Status Running Context Ecs Server Jan 6, 4:03:12 AM Abort

Completed 0 of 1 step(s).

● Show All Steps ○ Show Only Failed Steps ○ Show Only Running Steps

Starting 1 roles on service Jan 6, 4:03:12 AM Abort

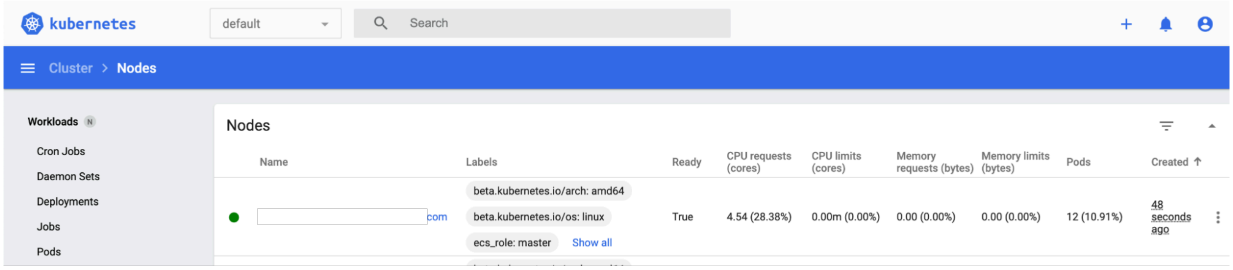
```
0/1 start commands completed.
```

Execute command Start this Ecs Server on role Ecs Server Ecs Server Jan 6, 4:03:12 AM Abort

6. Confirm the node's status from the Web UI or the command line by running the following command:

```
sudo /var/lib/rancher/rke2/bin/kubectl --kubeconfig=/etc/rancher/rke2/rk
e2.yaml get nodes
```

Note: Do not proceed until the node status is Ready. This may take several minutes.



Nodes

Name	Labels	Ready	CPU requests (cores)	CPU limits (cores)	Memory requests (bytes)	Memory limits (bytes)	Pods	Created
● com	beta.kubernetes.io/arch: amd64 beta.kubernetes.io/os: linux ecs_role: master Show all	True	4.54 (28.38%)	0.00m (0.00%)	0.00 (0.00%)	0.00 (0.00%)	12 (10.91%)	48 seconds ago

What to do next

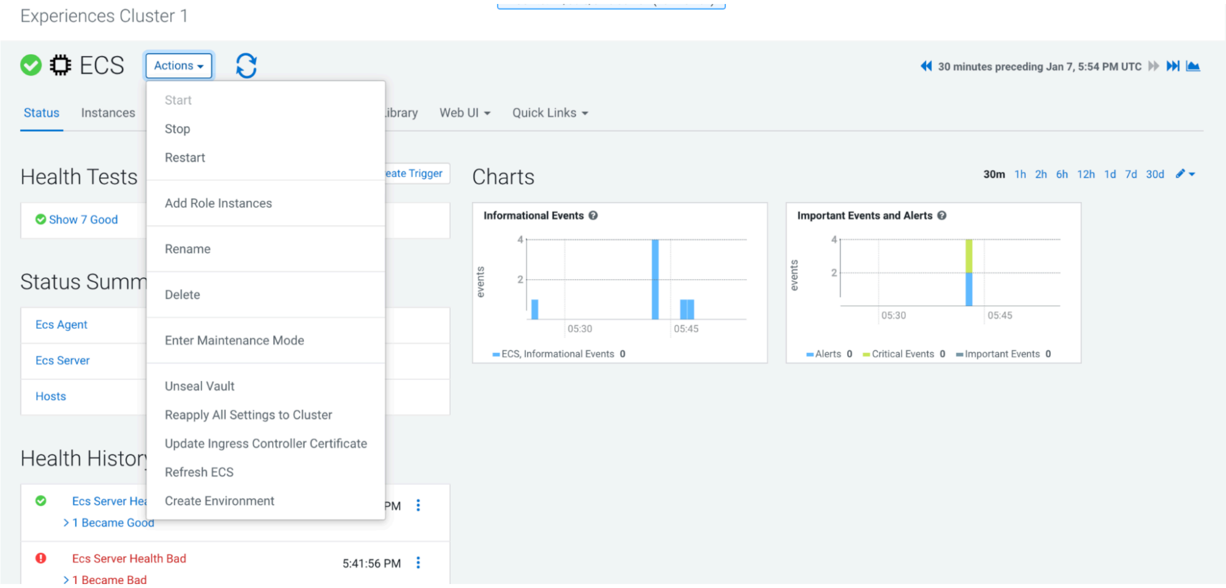
When agent1 is ready, you can promote agent2. To promote agent2, perform steps 1-8 again using agent2.example.com.

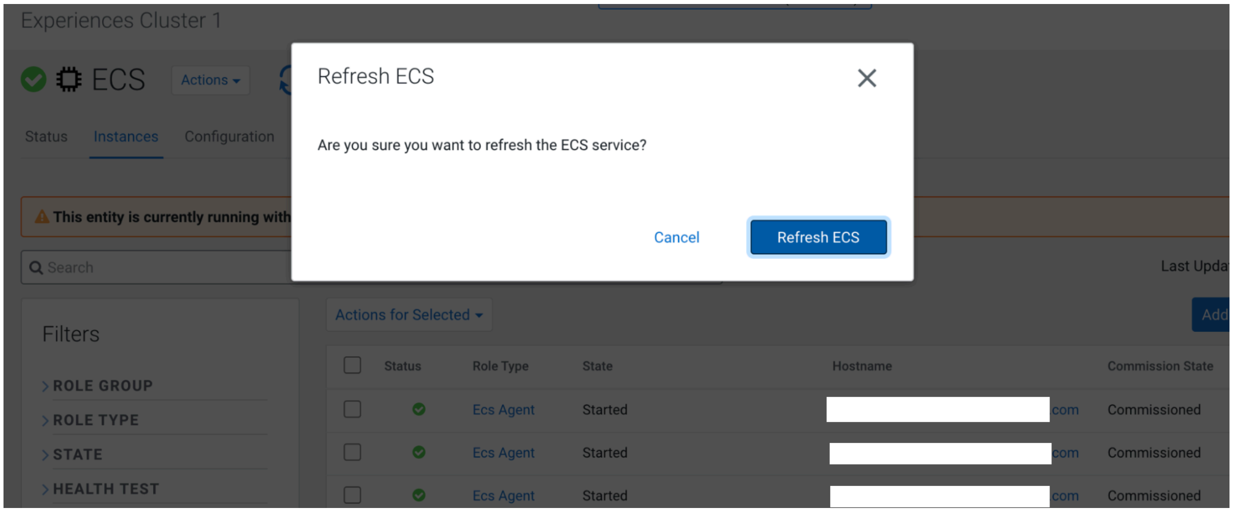
Refreshing ECS

After all the ECS Agents are promoted to ECS Servers, you must log in to Cloudera Manager and refresh the ECS cluster.

Procedure

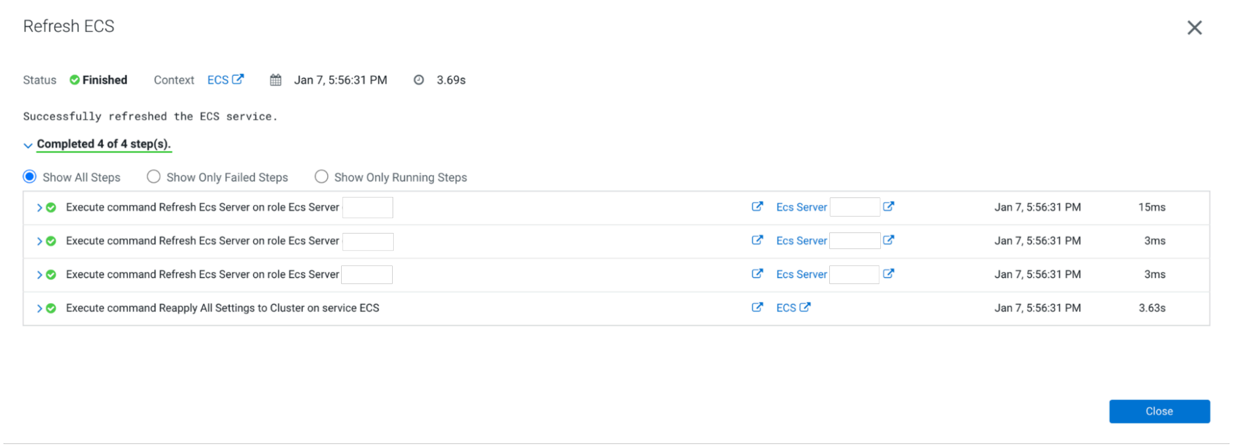
1. Navigate to ECS Cluster >> ECS view >> Actions >> Refresh ECS. This sets the ingress proxy so that all three servers are eligible to process incoming commands.





Are you sure you want to refresh the ECS service?

	Status	Role Type	State	Hostname	Commission State
□	✓	Ecs Agent	Started	[redacted].com	Commissioned
□	✓	Ecs Agent	Started	[redacted].com	Commissioned
□	✓	Ecs Agent	Started	[redacted].com	Commissioned



Status ✓ Finished Context ECS Jan 7, 5:56:31 PM 3.69s

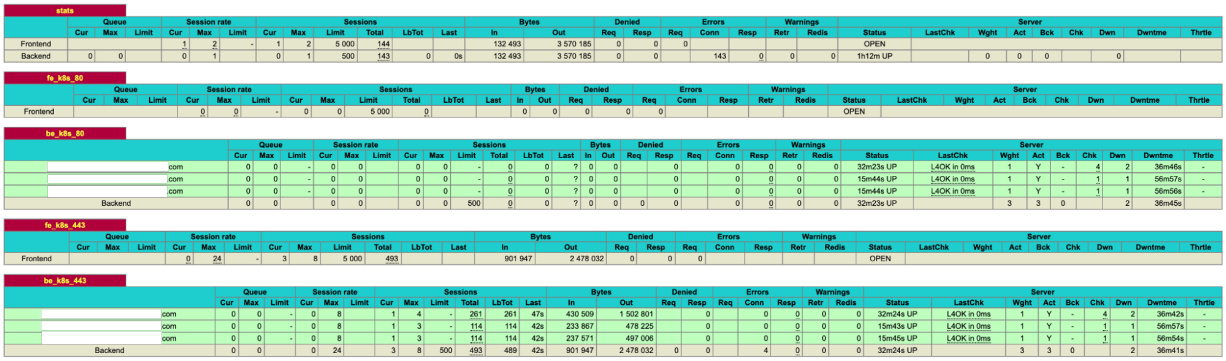
```
Successfully refreshed the ECS service.
```

Completed 4 of 4 step(s).

● Show All Steps ○ Show Only Failed Steps ○ Show Only Running Steps

✓ Execute command Refresh Ecs Server on role Ecs Server [redacted]	Ecs Server [redacted]	Jan 7, 5:56:31 PM	15ms
✓ Execute command Refresh Ecs Server on role Ecs Server [redacted]	Ecs Server [redacted]	Jan 7, 5:56:31 PM	3ms
✓ Execute command Refresh Ecs Server on role Ecs Server [redacted]	Ecs Server [redacted]	Jan 7, 5:56:31 PM	3ms
✓ Execute command Reapply All Settings to Cluster on service ECS	ECS	Jan 7, 5:56:31 PM	3.63s

2. Confirm that all backends of HAProxy display the status UP. This may take several minutes.



stats

	Queue			Session rate			Sessions						Bytes		Denied		Errors			Warnings		Server								
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntme	Thrtle
Frontend				1	2	-	1	2	5 000	144			132 493	3 570 185	0	0	0					OPEN								
Backend	0	0		0	1		0	1	500	143	0	0s	132 493	3 570 185	0	0		143	0	0	0	1h12m UP		0	0	0		0		

fe_k8s_80

	Queue			Session rate			Sessions						Bytes		Denied		Errors			Warnings		Server								
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntme	Thrtle
Frontend				0	0	-	0	0	5 000	0			0	0	0	0	0					OPEN								

be_k8s_80

	Queue			Session rate			Sessions						Bytes		Denied		Errors			Warnings		Server								
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntme	Thrtle
[redacted]com	0	0	-	0	0		0	0	-	0	0	?	0	0		0		0	0	0	0	32m23s UP	L4OK in 0ms	1	Y	-	4	2	36m46s	-
[redacted].com	0	0	-	0	0		0	0	-	0	0	?	0	0		0		0	0	0	0	15m44s UP	L4OK in 0ms	1	Y	-	1	1	56m57s	-
[redacted].com	0	0	-	0	0		0	0	-	0	0	?	0	0		0		0	0	0	0	15m44s UP	L4OK in 0ms	1	Y	-	1	1	56m56s	-
Backend	0	0		0	0		0	0	500	0	0	?	0	0	0	0		0	0	0	0	32m23s UP		3	3	0		2	36m45s	

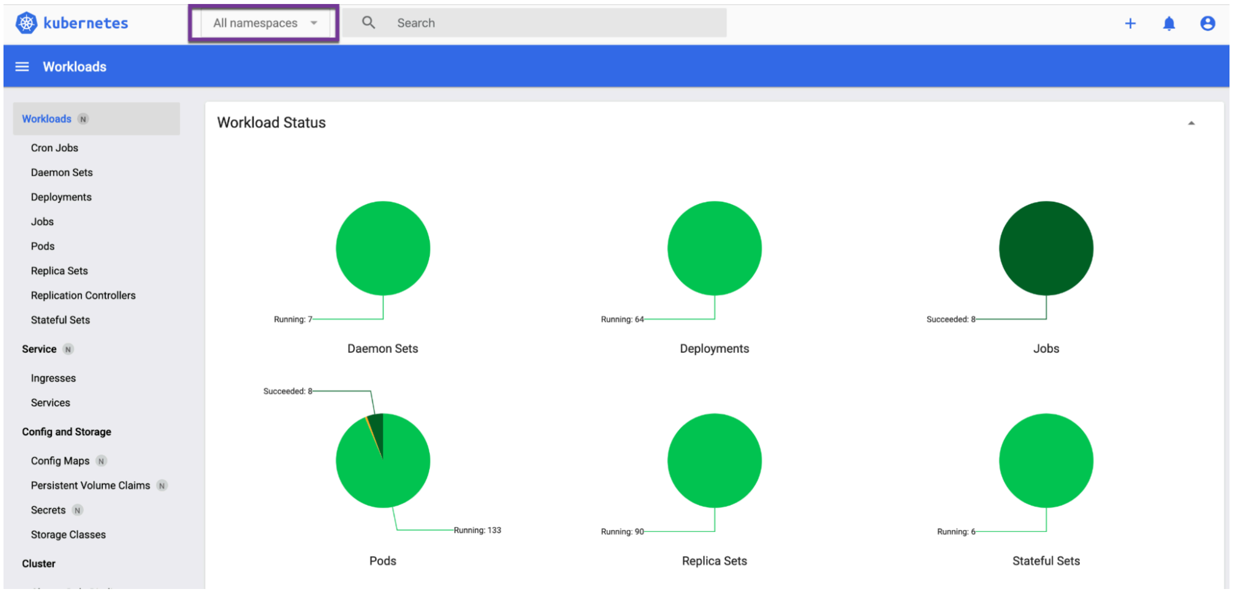
fe_k8s_443

	Queue			Session rate			Sessions						Bytes		Denied		Errors			Warnings		Server								
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntme	Thrtle
Frontend				0	24	-	3	8	5 000	493			901 947	2 478 032	0	0	0					OPEN								

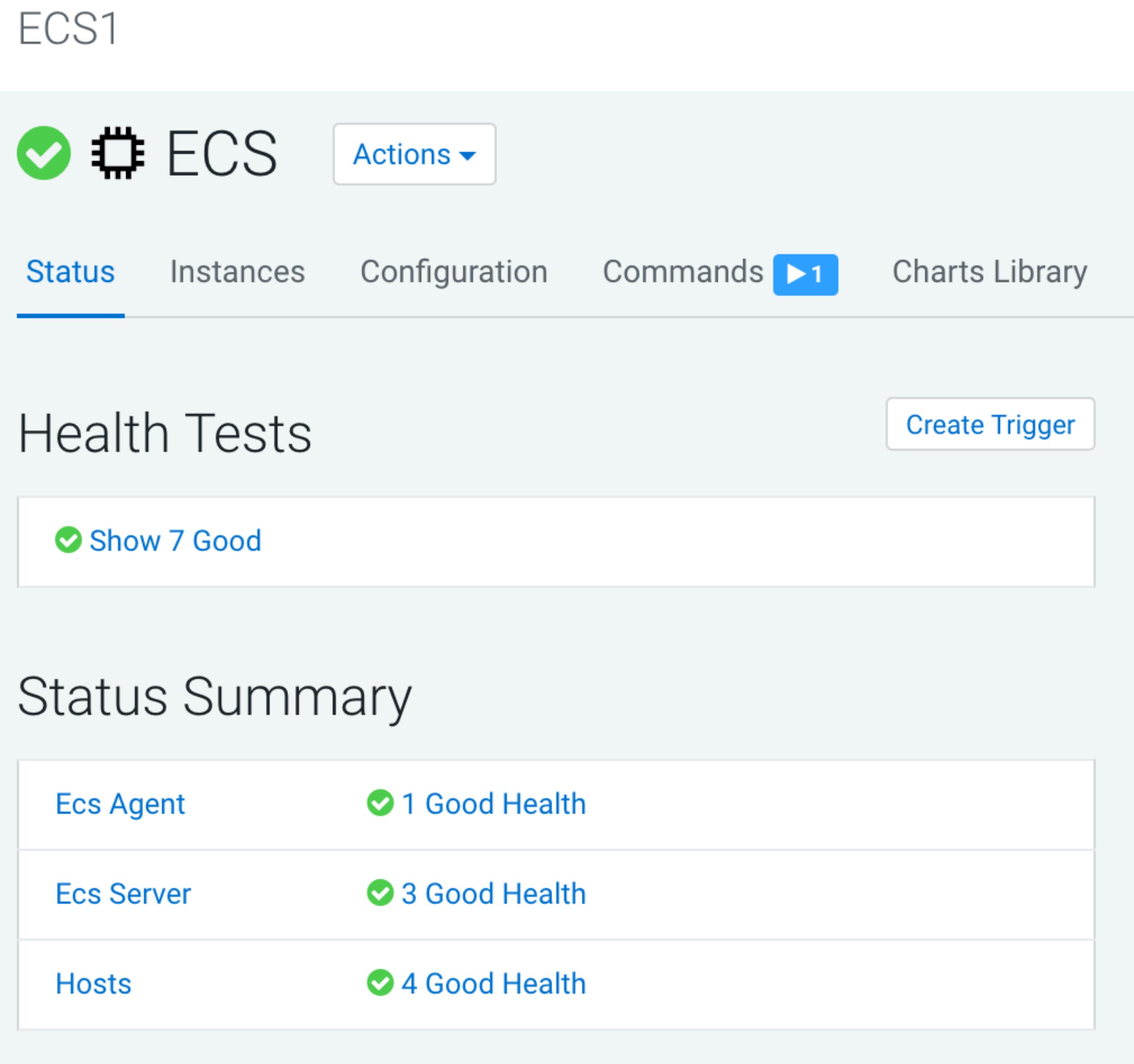
be_k8s_443

	Queue			Session rate			Sessions						Bytes		Denied		Errors			Warnings		Server								
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntme	Thrtle
[redacted]com	0	0	-	0	8		1	4	-	261	261	47s	430 509	1 502 801		0		0	0	0	0	32m24s UP	L4OK in 0ms	1	Y	-	4	2	36m42s	-
[redacted]com	0	0	-	0	8		1	3	-	114	114	42s	233 867	478 225		0		0	0	0	0	15m43s UP	L4OK in 0ms	1	Y	-	1	1	56m57s	-
[redacted]com	0	0	-	0	8		1	3	-	114	114	42s	237 571	497 006		0		0	0	0	0	15m45s UP	L4OK in 0ms	1	Y	-	1	1	56m54s	-
Backend	0	0		0	24		3	8	500	493	489	42s	901 947	2 478 032	0	0		4	0	0	0	32m24s UP		3	3	0		2	36m41s	

3. Confirm that all pods are green in the ECS webUI >> (All Namespaces) >> Workloads.



4. Confirm that there are no alerts in the ECS service.



Results

High Availability is now deployed on your ECS cluster.

Create an environment-wide backup

Data Recovery Service (DRS), a microservice in CDP Private Cloud Data Services, enables you to create an environment-wide backup of Kubernetes namespaces and resources on Embedded Container Service (ECS) and OpenShift Container Platform (OCP) in CDP Private Cloud Data Services Management Console.

Cloudera recommends that you create a backup of your Kubernetes namespace before a maintenance activity, before you upgrade, or in general, as a best practice.

Role Required: *PowerUser*

When you initiate the backup event in the Backup and Restore Manager for Control Plane, the data recovery service takes a backup of the following resources and data:

- Kubernetes resources associated with the *cdp* namespace and the embedded vault namespaces of the Control Plane in CDP Private Cloud Data Services. The resources include deployment-related information, stateful sets, secrets, and configmaps.
- Data used by the stateful pods, such as the data in the embedded database and Kubernetes persistent volume claim.

The data recovery service can back up and restore Kubernetes namespaces behind Cloudera Data Warehouse (CDW) entities (for example, Database Catalogs and Virtual Warehouses) on demand.

By default, the data recovery service is located in the *[***CDP_INSTALLATION_NAMESPACE***]*-drs namespace. For example, if the CDP Private Cloud Data Services installation is located in the *cdp* namespace, the data recovery service namespace is automatically named *cdp-drs*. If you have multiple CDP Private Cloud Data Services installations (as in OCP), the data recovery service is named accordingly.

The Data Recovery Service requires CSI snapshots to back up and restore Kubernetes namespaces and resources. The CSI snapshots are enabled on ECS by default. You might require an additional license to enable CSI snapshots in Red Hat ODF storage on OCP.

You can choose one of the following methods to back up and restore namespaces:

- **Backup and Restore Manager** in the CDP Private Cloud Data Services Management Console
- CDP CLI options

Creating backup of Control Plane and restoring it

The Backup and Restore Manager in the CDP Private Cloud Data Services Management Console helps you to backup and restore Kubernetes namespaces and resources on Embedded Container Service (ECS) and OpenShift Container Platform (OCP). You can also restore and delete the backups.

Before you begin

Ensure that the following prerequisites are complete:

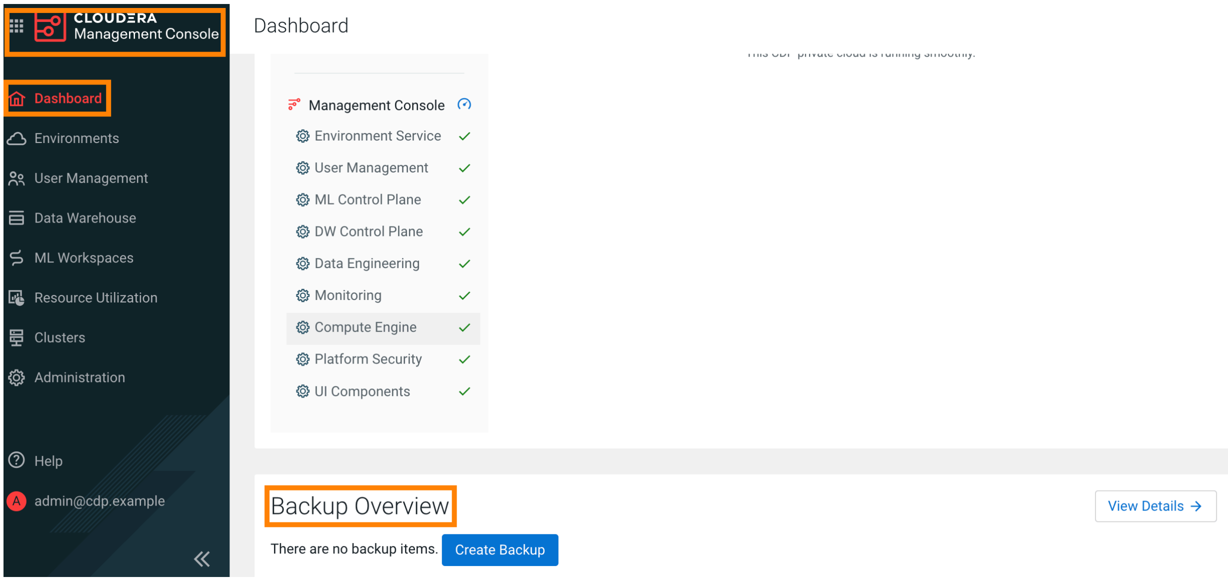
- You must have the *PowerUser* role.
- For OCP, ensure that a VolumeSnapshotClass is installed with a CSI driver that matches the CSI driver for the storage class used.

About this task

The following steps show how to create a backup of the Kubernetes namespaces and resources in the Control Plane, restore a backup, delete a backup, view logs for an event, and sample CDP CLI commands.

Procedure

1. Go to the CDP Private Cloud Data Services Management Console Dashboard Backup Overview section.



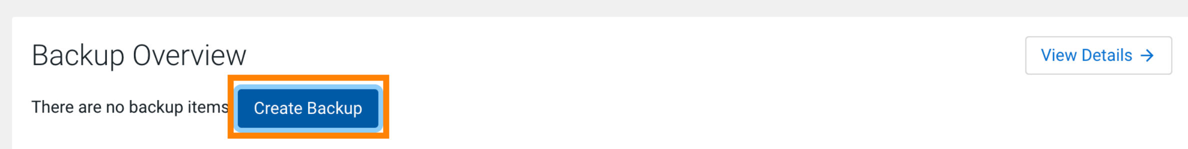
This CDP private cloud is running smoothly.

There are no backup items.

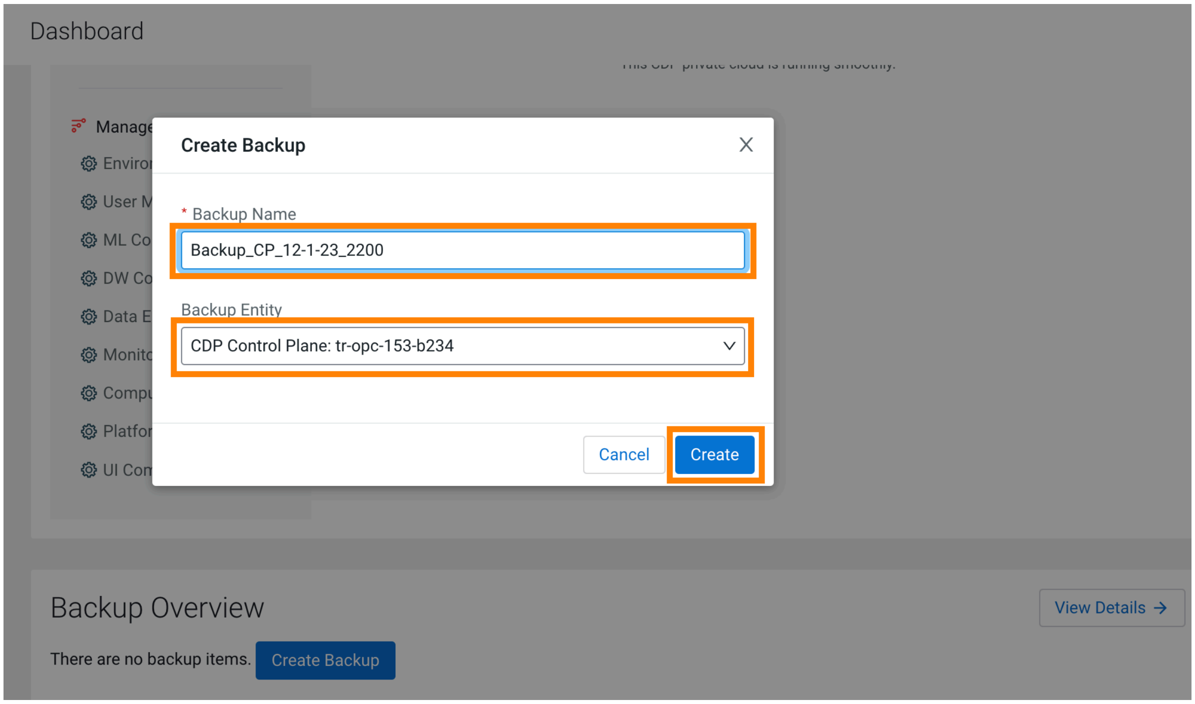
2. To create a backup, perform the following steps:

   When you create a backup of the Control Plane, the data recovery service initiates the backup event or job for the chosen backup entity, assigns an ID called backupCrn to the backup event, and creates a backup of the persistent volume claim (PVC) snapshots of the Control Plane namespaces and the backup event's PVC. CRN or Customer Resource Number is the Cloudera-specific identifier provided for an event or job.

a) Click Create Backup in the Backup Overview section to create the first backup.



b) Enter a unique Backup Name and choose the Backup Entity that you want to back up in the **Create Backup** modal window, and then click Create.

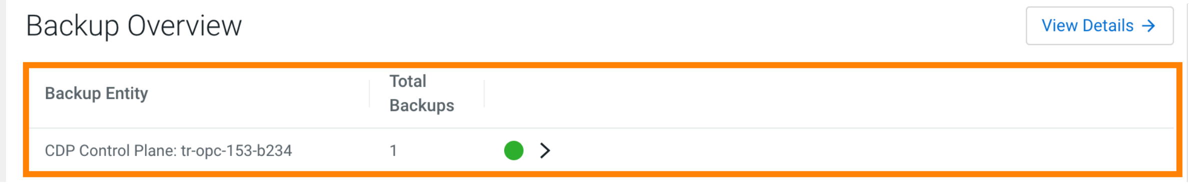


* Backup Name: Backup_CP_12-1-23_2200

Backup Entity: CDP Control Plane: tr-opc-153-b234

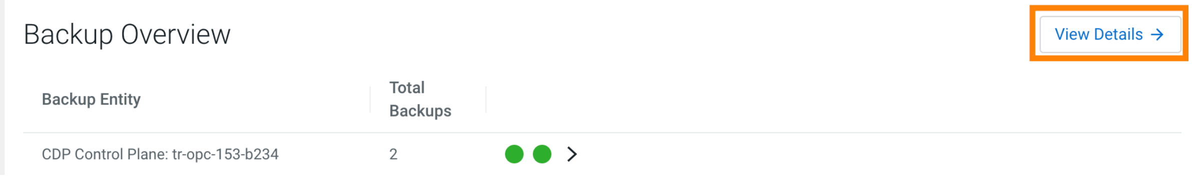
c) The data recovery service initiates the backup event and generates a backupCRN which is an automatically assigned ID for the backup event.

The backup event appears in the **Backup Overview** section.



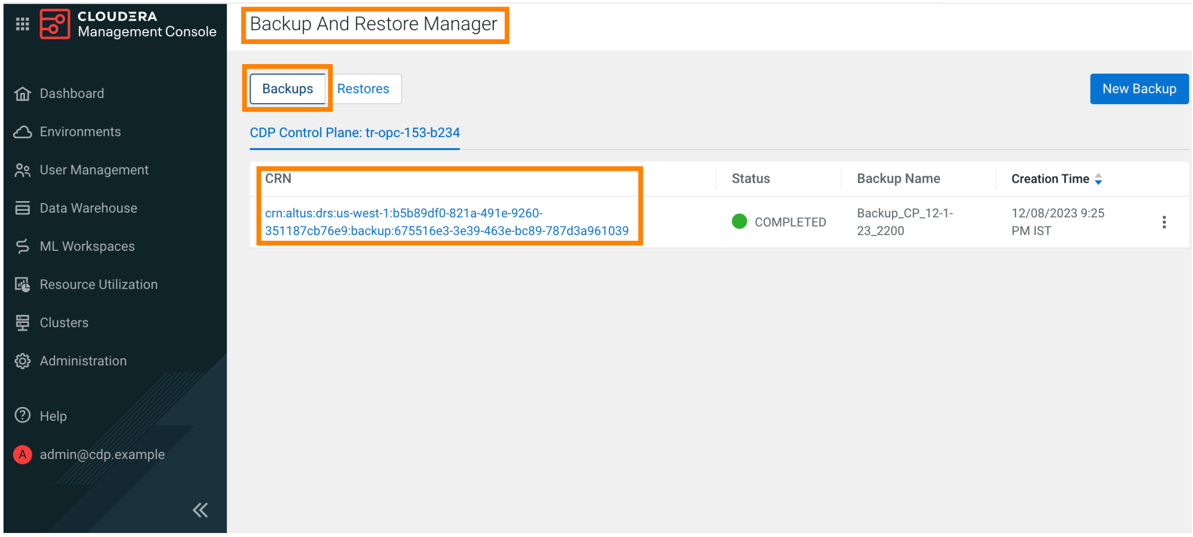
Backup Entity	Total Backups	
CDP Control Plane: tr-opc-153-b234	1	● >

d) Click View Details. The **Backup and Restore Manager** page appears.



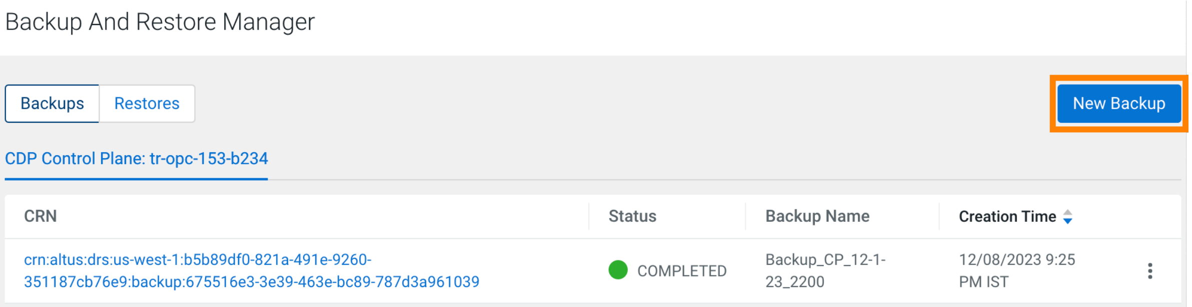
Backup Entity	Total Backups	
CDP Control Plane: tr-opc-153-b234	2	● ● >

e) The backupCRN appears as a CRN on the **Backup and Restore Manager** page that you can click to view the backup event details.



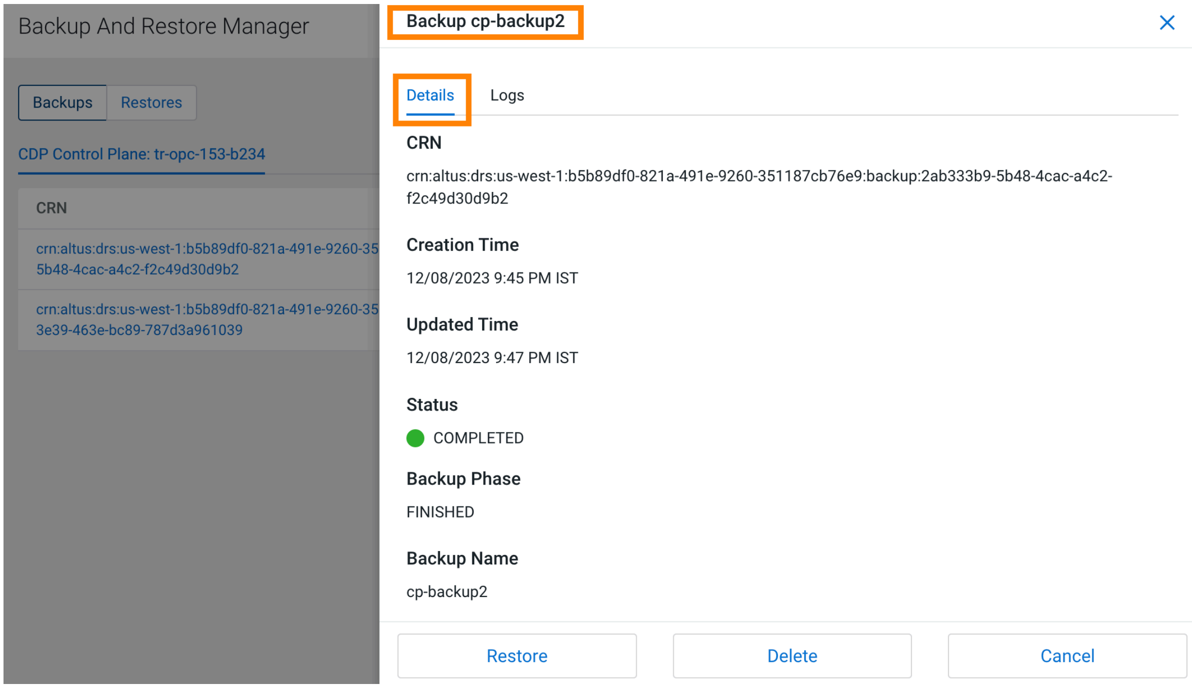
CRN	Status	Backup Name	Creation Time
crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:backup:675516e3-3e39-463e-bc89-787d3a961039	● COMPLETED	Backup_CP_12-1-23_2200	12/08/2023 9:25 PM IST

f) For subsequent backups, click New Backup on the Backup and Restore Manager page.


Backup And Restore Manager
Backups
Restores
New Backup
CDP Control Plane: tr-opc-153-b234

CRN	Status	Backup Name	Creation Time
crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:backup:675516e3-3e39-463e-bc89-787d3a961039	● COMPLETED	Backup_CP_12-1-23_2200	12/08/2023 9:25 PM IST

g) Click the CRN to view more details about it on the Backup *[***backup name***]* modal window. For example, the following image shows the **Backup cp-backup2** modal window.


Backup And Restore Manager
Backups
Restores
CDP Control Plane: tr-opc-153-b234
CRN
crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-35
5b48-4cac-a4c2-f2c49d30d9b2
crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-35
3e39-463e-bc89-787d3a961039
Backup cp-backup2
Details
Logs
Restore
Delete
Cancel

CRN

crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:backup:2ab333b9-5b48-4cac-a4c2-f2c49d30d9b2

Creation Time

12/08/2023 9:45 PM IST

Updated Time

12/08/2023 9:47 PM IST

Status

● COMPLETED

Backup Phase

FINISHED

Backup Name

cp-backup2

3. To restore a backup, perform the following steps:

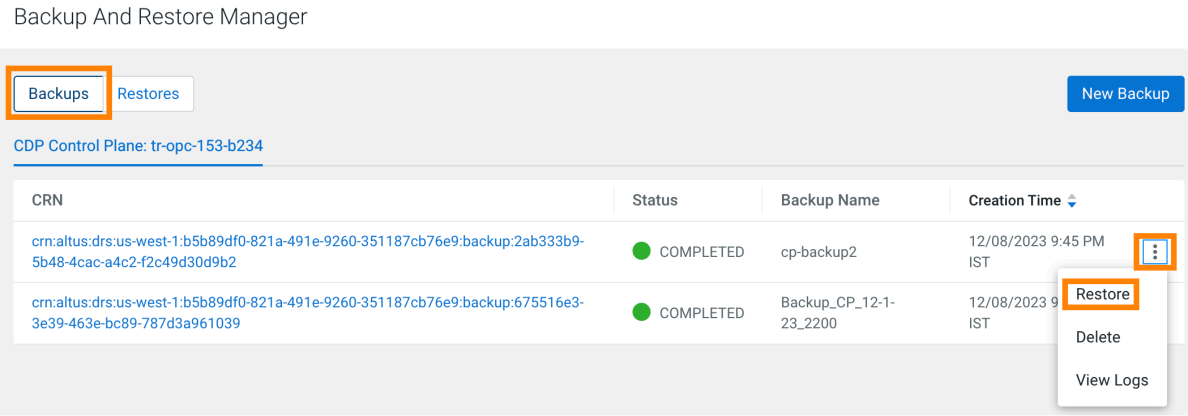
When you start the restore a backup, the data recovery service initiates the restore event based on the chosen backup, assigns an ID called restoreCrn to the restore event, deletes the existing resources and data, and restores the resources and data from the backup.

> **Note:** The restore event has a downtime impact because the PODs and data are recreated. During the restore event, the ECS restore vault is sealed and the POD is down which might appear as a failure in the control plane environment. After the restore event is complete, the vault and POD are auto-recovered and restored. Depending on the number of resources and data, this step might take a maximum of 10 minutes to complete. If the environment does not come up, see the logs to troubleshoot. You can also contact your Cloudera account team.

a) Go to the Backup and Restore Manager Backups tab.

b) Click Actions Restore , and then click OK in the **Restore** modal window to acknowledge that you want to restore the backup.

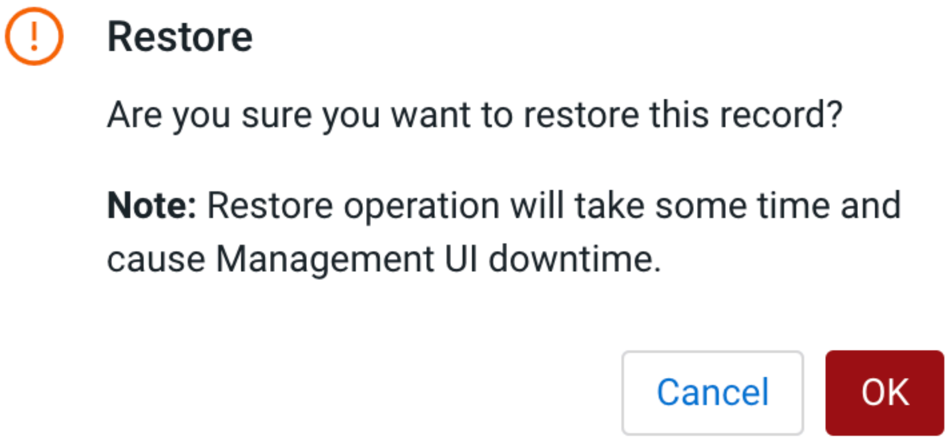
> **Important:** Do not delete the *[***CDP_INSTALLATION_NAMESPACE***]*-drs namespace while the restore event is in progress. For example, if the CDP Private Cloud Data Services installation is located in the *cdp* namespace, the data recovery service namespace is automatically named *cdp-drs*.



Backup And Restore Manager

CDP Control Plane: tr-opc-153-b234

CRN	Status	Backup Name	Creation Time
crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:backup:2ab333b9-5b48-4cac-a4c2-f2c49d30d9b2	● COMPLETED	cp-backup2	12/08/2023 9:45 PM IST
crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:backup:675516e3-3e39-463e-bc89-787d3a961039	● COMPLETED	Backup_CP_12-1-23_2200	12/08/2023 9 IST

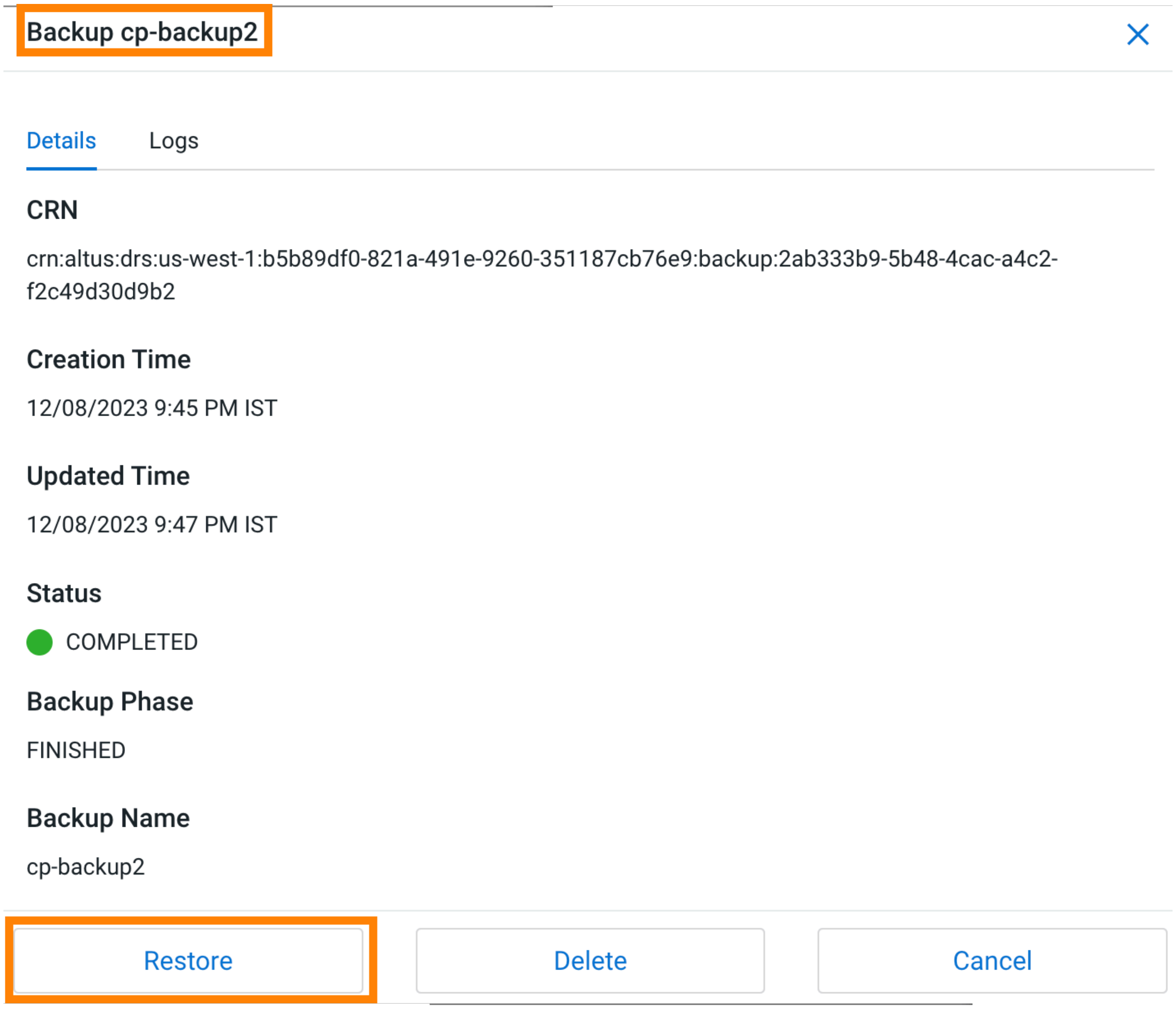


Restore

Are you sure you want to restore this record?

Note: Restore operation will take some time and cause Management UI downtime.

c) Alternatively, click the CRN of the required backup, click Restore on the Backup *[***name of backup***]* modal window, and then click OK to acknowledge that you want to restore the backup.



Backup cp-backup2

CRN

crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:backup:2ab333b9-5b48-4cac-a4c2-f2c49d30d9b2

Creation Time

12/08/2023 9:45 PM IST

Updated Time

12/08/2023 9:47 PM IST

Status

● COMPLETED

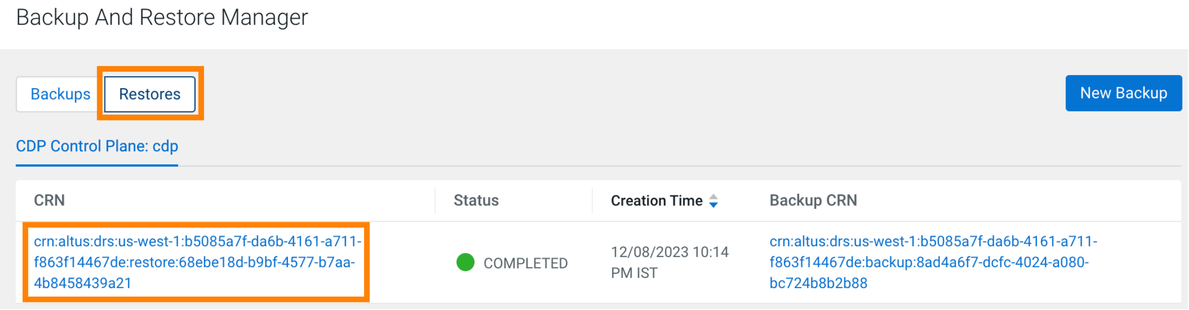
Backup Phase

FINISHED

Backup Name

cp-backup2

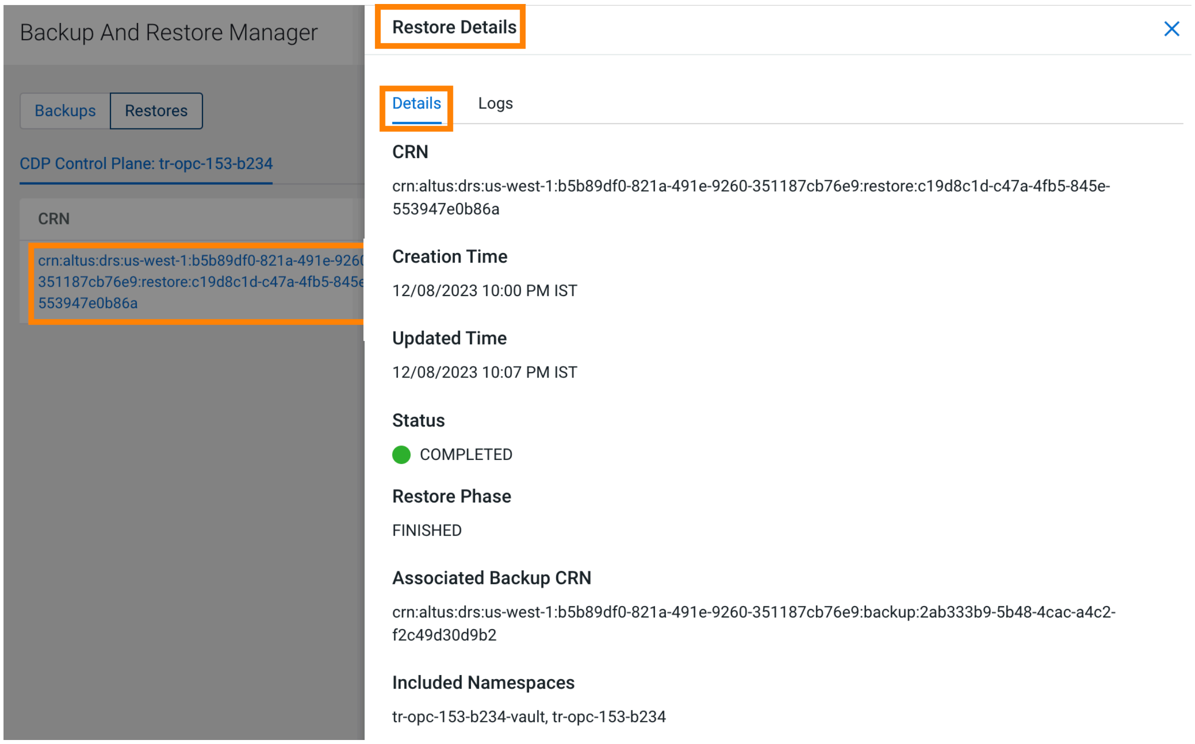
d) Go to the **Restores** tab to view the CRN for the restore event and other details about the restore event.



Backup And Restore Manager

CRN	Status	Creation Time	Backup CRN
crn:altus:drs:us-west-1:b5085a7f-da6b-4161-a711-f863f14467de:restore:68ebe18d-b9bf-4577-b7aa-4b8458439a21	● COMPLETED	12/08/2023 10:14 PM IST	crn:altus:drs:us-west-1:b5085a7f-da6b-4161-a711-f863f14467de:backup:8ad4a6f7-dcfc-4024-a080-bc724b8b2b88

e) Click the CRN for a restore event to see its details on the **Restore Details** modal window.



Backup And Restore Manager
Backups
Restores
CDP Control Plane: tr-opc-153-b234
CRN
crn:altus:drs:us-west-1:b5b89df0-821a-491e-926
351187cb76e9:restore:c19d8c1d-c47a-4fb5-845e
553947e0b86a
Restore Details
Details
Logs

CRN

crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:restore:c19d8c1d-c47a-4fb5-845e-553947e0b86a

Creation Time

12/08/2023 10:00 PM IST

Updated Time

12/08/2023 10:07 PM IST

Status

● COMPLETED

Restore Phase

FINISHED

Associated Backup CRN

crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:backup:2ab333b9-5b48-4cac-a4c2-f2c49d30d9b2

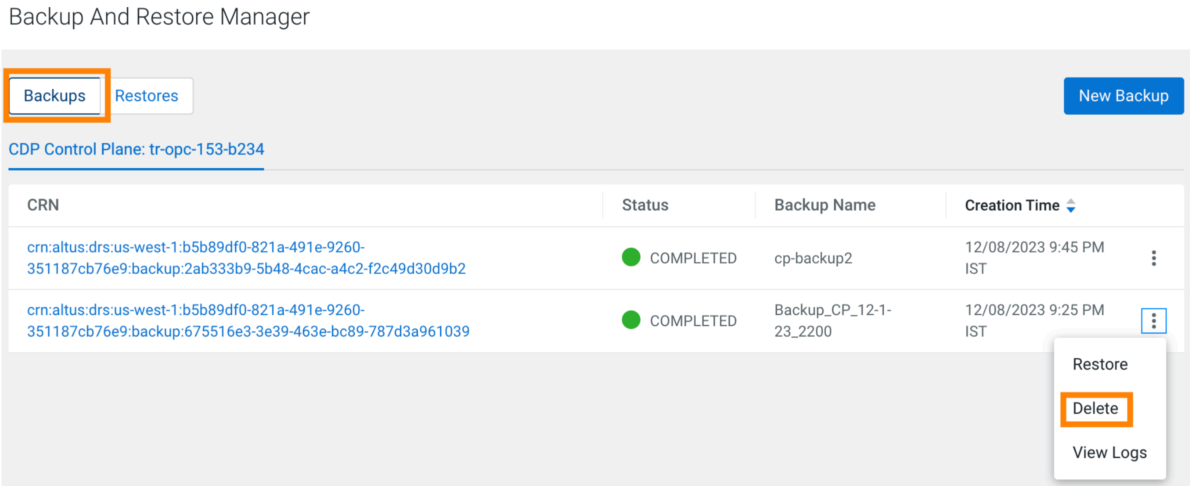
Included Namespaces

tr-opc-153-b234-vault, tr-opc-153-b234

4. To delete a backup, perform the following steps:

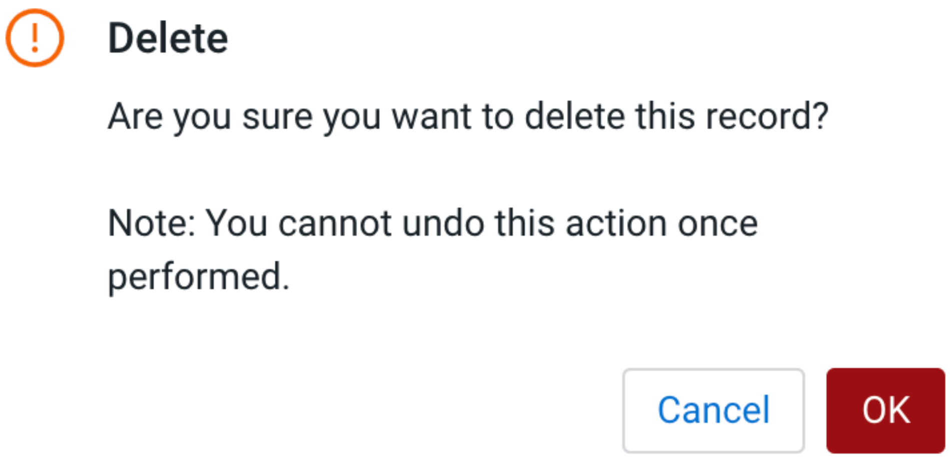
a) Go to the Backup and Restore Manager Backups tab.

b) Click Actions Delete , and then click OK in the Delete modal window to acknowledge that you want to delete the backup.



Backup And Restore Manager

CRN	Status	Backup Name	Creation Time
crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:backup:2ab333b9-5b48-4cac-a4c2-f2c49d30d9b2	● COMPLETED	cp-backup2	12/08/2023 9:45 PM IST
crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:backup:675516e3-3e39-463e-bc89-787d3a961039	● COMPLETED	Backup_CP_12-1-23_2200	12/08/2023 9:25 PM IST

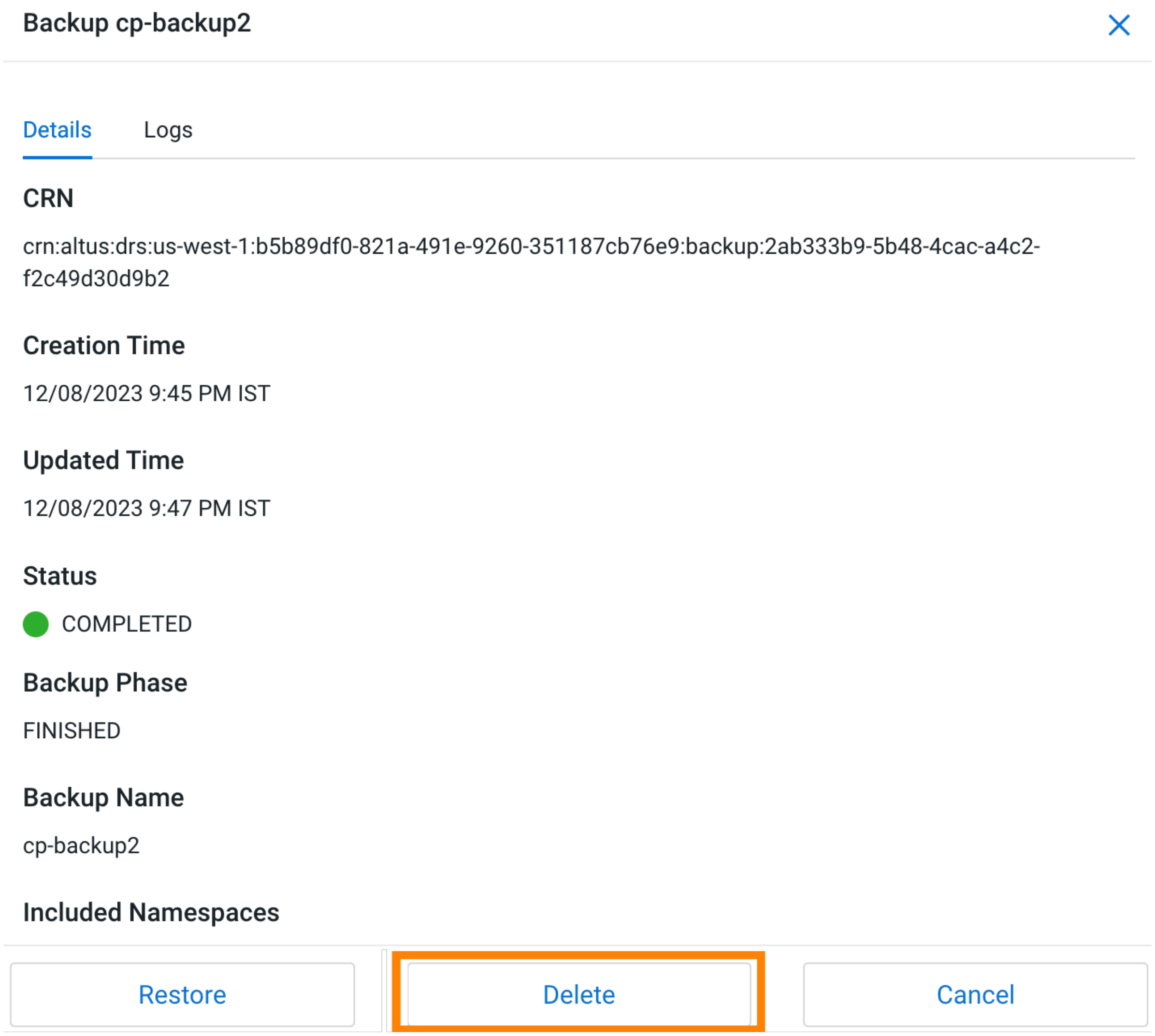


Delete

Are you sure you want to delete this record?

Note: You cannot undo this action once performed.

c) Alternatively, click the CRN of the required backup. Click Delete on the Backup *[***name of backup***]* modal window, and then click OK to acknowledge that you want to delete the backup.



Backup cp-backup2

CRN

crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:backup:2ab333b9-5b48-4cac-a4c2-f2c49d30d9b2

Creation Time

12/08/2023 9:45 PM IST

Updated Time

12/08/2023 9:47 PM IST

Status

● COMPLETED

Backup Phase

FINISHED

Backup Name

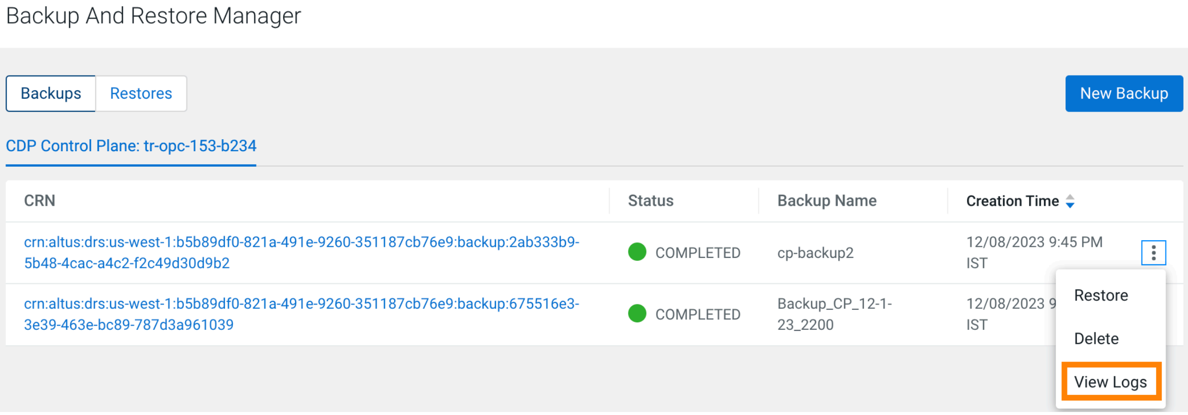
cp-backup2

Included Namespaces

5. To view the logs for a backup or restore event, perform the following steps:

a) Go to the Backup and Restore Manager Backups tab.

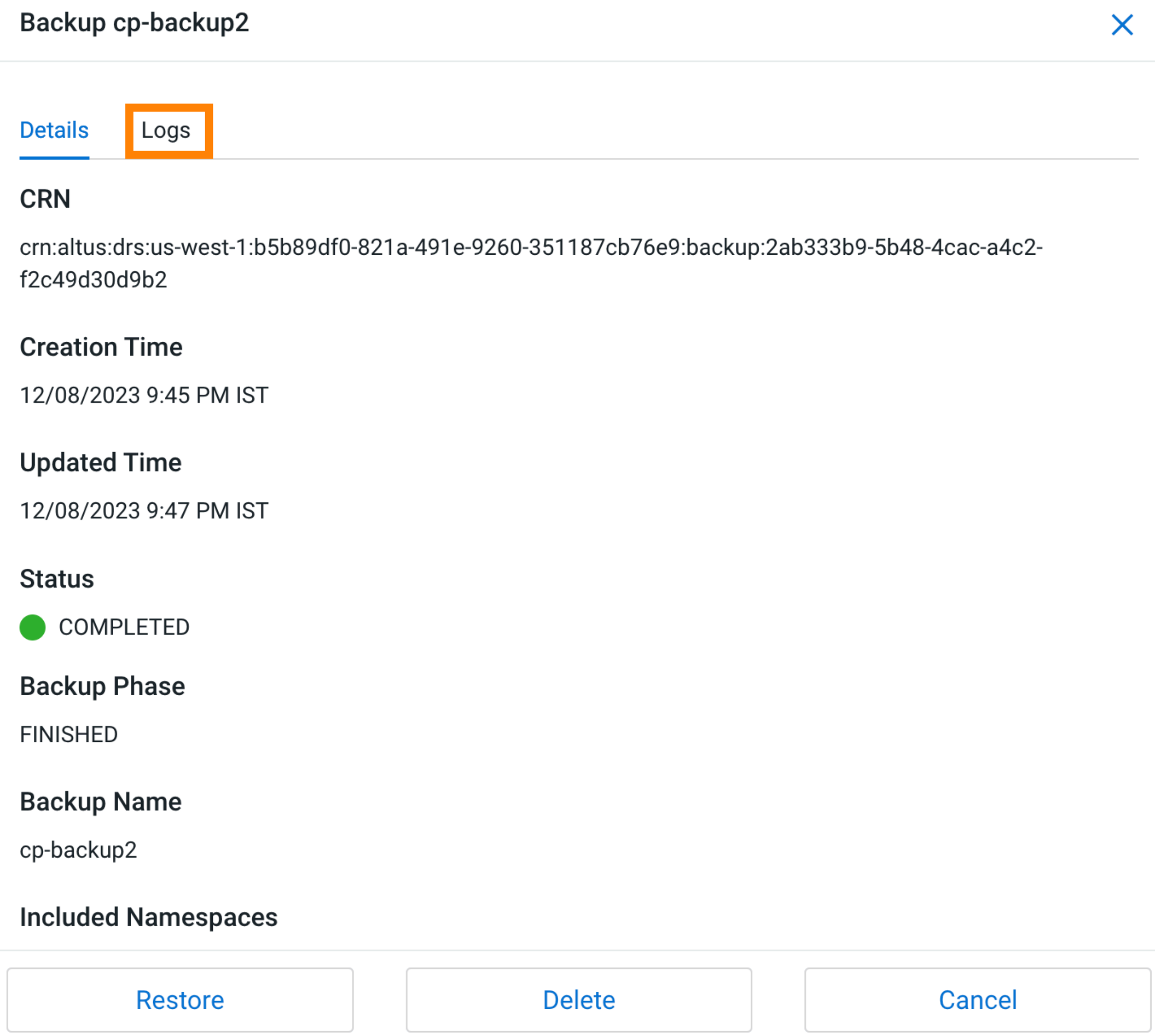
b) Click Actions Logs for the required backup.



Backup And Restore Manager

CRN	Status	Backup Name	Creation Time
crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:backup:2ab333b9-5b48-4cac-a4c2-f2c49d30d9b2	● COMPLETED	cp-backup2	12/08/2023 9:45 PM IST
crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:backup:675516e3-3e39-463e-bc89-787d3a961039	● COMPLETED	Backup_CP_12-1-23_2200	12/08/2023 9 IST

c) Click the Logs tab on the modal window.



Backup cp-backup2

CRN

crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:backup:2ab333b9-5b48-4cac-a4c2-f2c49d30d9b2

Creation Time

12/08/2023 9:45 PM IST

Updated Time

12/08/2023 9:47 PM IST

Status

● COMPLETED

Backup Phase

FINISHED

Backup Name

cp-backup2

Included Namespaces

d) Alternatively, you can click the CRN for a backup event on the **Backups** tab, or click the CRN for a restore event on the **Restores** tab to open the modal window to view the logs for the event.

6. The following sample CDP CLI options show how to create a backup, restore or delete it, and monitor the progress of the events:

a) Create a backup using the create-backup CDP CLI option.

The following sample snippet creates a backup named *Backup 2*.

```
cdp.sh --form-factor private --endpoint-url https://console-cp1.apps.sha
red-os-01.kcloud.cloudera.com drscp create-backup --backup-name "Backup
 2"
```

b) Track the progress of the current status of the specified backupCrn (backup event) using the describe-backup CDP CLI option.

The following sample snippet output shows the current status of the *crn:altus:drs:us-west-1:18be-4c75-8c7f-f32e697dba4a:backup:91193c4f-45f0-949c-13e232f14c9e* backupCrn.

```
cdp.sh --no-verify-tls --endpoint-url https://console-cdp.apps.drs31-1.v
pc.cloudera.com --no-verify-tls --form-factor private drscp describe-
backup --backup-crn crn:altus:drs:us-west-1:18be-4c75-8c7f-f32e697dba4
a:backup:91193c4f-45f0-949c-13e232f14c9e
```

c) List all the backups using the list-backup CDP CLI option.

The following sample snippet output lists all the available backups.

```
cdp.sh --no-verify-tls --endpoint-url https://console-cdp.apps.lh-lp1-1.
vpc.cloudera.com --no-verify-tls --form-factor private drscp list-backup
```

d) Restore a specific backup, using its CRN, with the restore-backup CDP CLI option.

The following sample snippet restores the backup of *crn:altus:drs:us-west-1:88d84e3c-4c3e-9903-6c388a689690:backup:aebe-96d7-b79d10b64183* CRN.

```
cdp.sh --form-factor private --no-verify-tls --endpoint-url https://cons
ole-ocp1.apps.shared-os-01.kcloud.cloudera.com drscp restore-backup --b
ackup-crn crn:altus:drs:us-west-1:88d84e3c-4c3e-9903-6c388a689690:backup
:aebe-96d7-b79d10b64183
```

e) Track the current status of the specified restoreCrn (restore event) using the describe-restore CDP CLI option.

The following sample snippet output shows the current status of the *crn:altus:drs:us-west-1:a70c917a-4be8-927c-d36f3f7db2de:restore:c3b34532-4391-b62d-3f471fae5a40* restoreCrn:

```
cdp.sh --form-factor private --no-verify-tls --endpoint-url https://cons
ole-cp1.apps.shared-os-01.kcloud.cloudera.com drscp describe-restore --r
estore-crn crn:altus:drs:us-west-1:a70c917a-4be8-927c-d36f3f7db2de:resto
re:c3b34532-4391-b62d-3f471fae5a40
```

For information about all the available CDP CLI options to backup and restore Control Plane and CDW, see CDP CLI options for Control Plane namespaces and CDP CLI options for Cloudera Data Warehouse (CDW).

To set up a CDP client to run the CDP CLI commands, see CDP Private Cloud CLI.

Troubleshooting Backup and Restore Manager

The troubleshooting scenarios in this topic help you to troubleshoot issues that might appear for DRS in the Control Plane. The “Backup and Restore Manager” in CDP Private Cloud Data Services Management Console leverages the data recovery service capabilities to backup and restore Kubernetes namespaces and resources.

CDP Control Plane UI or the Backup and Restore Manager becomes inaccessible after a failed restore event?

Condition

What to do if the CDP Control Plane UI does not come up or the Backup and Restore Manager (or drscp options) becomes inaccessible after a failed restore event?

Cause

Sometimes, some configurations take more time to restore. For example, in a shared cluster (OCP) that is heavily loaded, the restore event might surpass the set timeout limit. In this scenario, you can either wait or rerun the restore event again.

Tip: Run the restore event for such scenarios during non-peak hours.

Solution

You can perform one of the following steps after a failed restore event:

- Wait for a minimum of 15 minutes. This might resolve the issue automatically if the issue was caused due to timeout. You can verify this in the logs.
- Run restore again. This might resolve the issue if it was temporary such as, restore event during cluster maintenance.

If the Control Plane is not restored successfully even after you follow the steps, contact Cloudera Support for further assistance.

Timeout error appears in Backup and Restore Manager?

Condition

What to do if a timeout error appears in the Backup and Restore Manager (or drscp options) during a restore event?

Solution

When the restore event crosses the time set in the POD_CREATION_TIMEOUT environment property of the cdp-release-thunderhead-drsprovider deployment in the drs namespace, a timeout error appears. By default, the property is set to 900 seconds. In this scenario, you must manually verify whether the pods are up or not.

Stale configurations in Cloudera Manager after a restore event?

Condition

Why are stale configurations in Cloudera Manager found after a restore event?

Cause

This scenario appears when you take a backup of the CDP Private Cloud Data Services Control Plane, upgrade Data Services, and then perform a restore. During the upgrade process, new parcels are activated and configurations in Cloudera Manager might have changed.

Solution

It is recommended that you restart Cloudera Manager after the upgrade process is complete and then initiate the restore event.

Timeout error during backup of OCP clusters

Condition

What to do when the “The execution of the sync command has timed out" error appears during a backup event for OCP clusters?

Cause

This scenario is observed when the cluster is heavily used and the backup event is initiated during peak hours.

Solution

You can restart the nodes, this causes the disk to unmount and forces the operating system to write any data in its cache to the disk. After the restart is complete, initiate another backup. If any warnings appear, scrutinize to verify whether there are any dire warnings, otherwise the generated backup is safe to use. The only drawback in this scenario is the downtime impact, that is the time taken to back up the OCP clusters is longer than usual. Therefore, it is recommended that you back up the clusters during non-peak hours.

If the sync errors continue to appear, contact your IT department to check whether there is an issue with the storage infrastructure which might be preventing the sync command from completing on time.

Managing certificates

Adjusting the expiration time of ECS cluster certificates

The internal ECS cluster self-signed certificate expiration times are set to one year by default. To avoid certificate expiration errors, you may want to extend the ECS cluster expiration times.

About this task

Note:

This topic only applies to internal certificates within ECS. It does not apply to the ingress controller certificate.

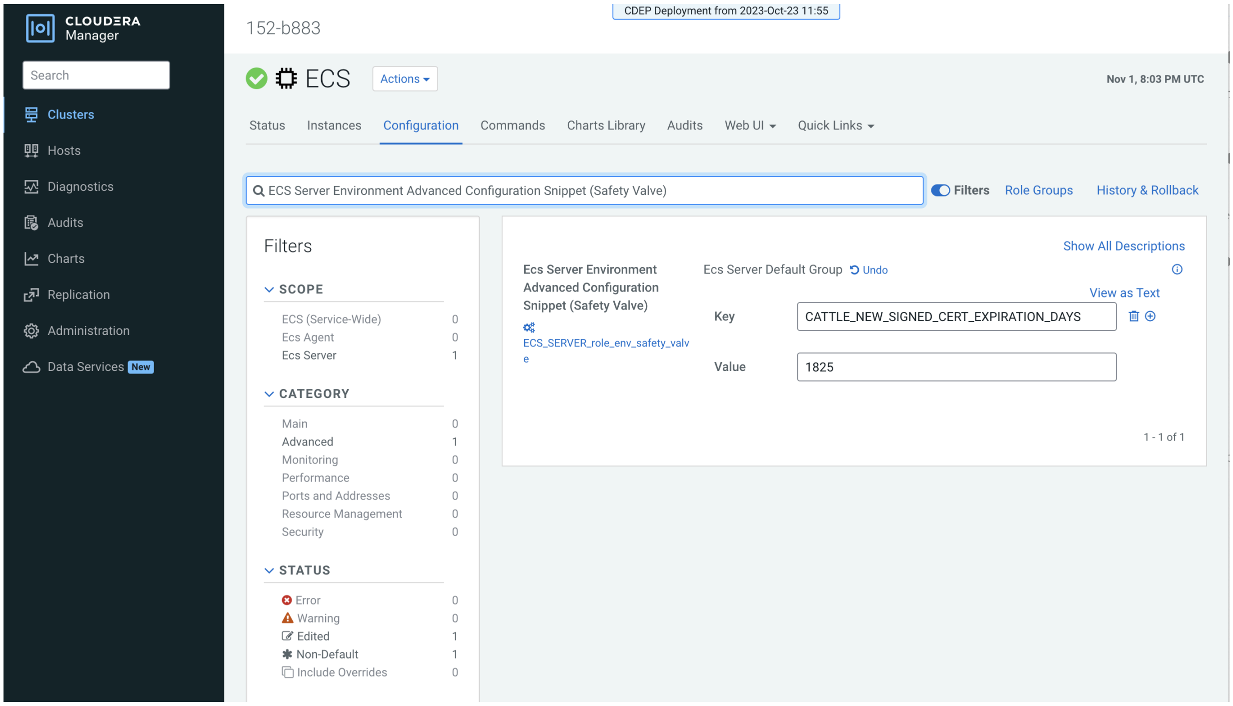
- These steps describe how to adjust the expiration time of internal cluster certificates in an existing ECS cluster.
- For a new cluster, if the nodes have been added to Cloudera Manager before creating the ECS cluster, you can add the new safety valve configuration properties in Cloudera Manager before creating the ECS cluster.

Adjusting the expiration time of the RKE Kubernetes cluster certificate

1. In Cloudera Manager, select the ECS cluster, then click ECS.
2. Click the Configuration tab, then use the Search box to locate the Ecs Server Environment Advanced Configuration Snippet (Safety Valve) configuration property.

3. Click the + icon, then enter the following configuration setting. In this example, the certificate expiration is set to 5 years (1825 days):

   - Key: CATTLE_NEW_SIGNED_CERT_EXPIRATION_DAYS
   - Value: 1825



ECS Server Environment Advanced Configuration Snippet (Safety Valve)

Ecs Server Environment Advanced Configuration Snippet (Safety Valve)
ECS_SERVER_role_env_safety_valve

Ecs Server Default Group

Key: CATTLE_NEW_SIGNED_CERT_EXPIRATION_DAYS

Value: 1825

4. Click Save Changes.
5. On the ECS Cluster landing page, click Actions > Refresh Cluster.
6. After the Refresh is complete, click Actions > Rolling Restart.
7. After the restart is complete, the certificate expiration time is reset to the new value. You can also use the CLI to verify the new certificate expiration setting:

```
[root@host-1 ~]# cat /proc/47803/environ
CDH_PIG_HOME=/usr/lib/pigLD_LIBRARY_PATH=:/opt/cloudera/cm-agent/libCMF
_AGENT_ARGS=CDH_KAFKA_HOME=/usr/lib/kafka
CONF_DIR=/var/run/cloudera-scm-agent/process/1546342871-ecs-ECS_SERVERCDH_
PARQUET_HOME=/usr/lib/parquet
PARCELS_ROOT=/opt/cloudera/parcelsPARCEL_DIRNAMES=ECS-1.5.2-b866-ecs-1.5.2
-b866.p0.46395126LANG=en_US.UTF-8
CDH_HADOOP_BIN=/usr/bin/hadoopCDH_KMS_HOME=/usr/lib/hadoop-kmsCGROUP_GROUP
_CPU=CMF_PACKAGE_DIR=/opt/cloudera/cm-agent/service
ORACLE_HOME=/usr/share/oracle/instantclientMGMT_HOME=/opt/cloudera/cmINV
OCATION_ID=04c94a229a2b4684a95f8ec63783c81e
JSVC_HOME=/usr/libexec/bigtop-utilsCDH_IMPALA_HOME=/usr/lib/impalaKRB5_C
ONFIG=/etc/krb5.conf
CDH_YARN_HOME=/usr/lib/hadoop-yarnCLOUDERA_POSTGRESQL_JDBC_JAR=/opt/clo
udera/cm/lib/postgresql-42.5.1.jar
CDH_SOLR_HOME=/usr/lib/solrHIVE_DEFAULT_XML=/etc/hive/conf.dist/hive-defa
ult.xml
CLOUDERA_ORACLE_CONNECTOR_JAR=/usr/share/java/oracle-connector-java.jarC
GROUP_GROUP_BLKIO=system.slice/cloudera-scm-agent.service
CGROUP_ROOT_BLKIO=/sys/fs/cgroup/blkioCGROUP_ROOT_CPU=/sys/fs/cgroup/cpu,c
puacctKEYTRUSTEE_KP_HOME=/usr/share/keytrustee-keyprovider
CLOUDERA_MYSQL_CONNECTOR_JAR=/usr/share/java/mysql-connector-java.jarCMF_
SERVER_ROOT=/opt/cloudera/cm
CGROUP_ROOT_CPUACCT=/sys/fs/cgroup/cpu,cpuacctCDH_FLUME_HOME=/usr/lib/f
lume-ng
```

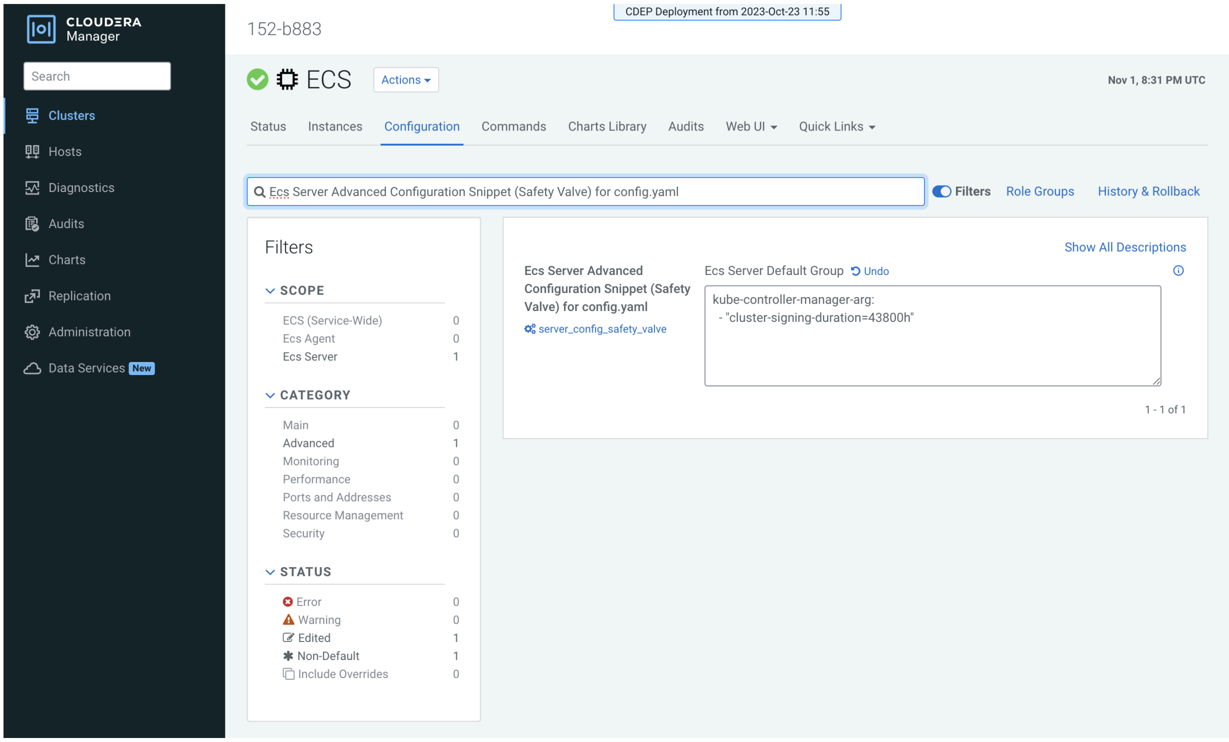
```
CATTLE_NEW_SIGNED_CERT_EXPIRATION_DAYS=1825
<snip!>
```

```
[root@host-1 ~]# openssl x509 -in /var/lib/rancher/rke2/agent/serving-kubele
t.crt -noout -text
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 4005696761303552502 (0x379717fb376e51f6)
        Signature Algorithm: ecdsa-with-SHA256
        Issuer: CN = rke2-server-ca@1697759349
        Validity
            Not Before: Oct 19 23:49:09 2023 GMT
            Not After : Oct 17 23:49:10 2028 GMT
        Subject: CN = host-1.rke-1019.kcloud.cloudera.com
        Subject Public Key Info:
            Public Key Algorithm: id-ecPublicKey
                Public-Key: (256 bit)
                pub:
                    04:92:81:74:b8:fb:aa:6c:c5:9a:40:2c:5f:91:60:
                    35:16:9a:d5:41:b2:bf:d8:29:f4:ed:68:ed:cd:3d:
                    87:0e:59:db:27:26:c5:d8:a7:79:c7:23:8f:0b:71:
                    c2:f5:d4:36:fe:97:a9:b5:62:ee:9d:9b:6d:ed:25:
                    60:fd:26:3a:08
                ASN1 OID: prime256v1
                NIST CURVE: P-256
        X509v3 extensions:
            X509v3 Key Usage: critical
                Digital Signature, Key Encipherment
            X509v3 Extended Key Usage:
                TLS Web Server Authentication
            X509v3 Authority Key Identifier:
                keyid:26:8F:9F:A1:04:CE:2D:04:3A:03:11:87:9D:DF:5A:B7:5C:0
6:72:32
            X509v3 Subject Alternative Name:
                DNS:host-1.rke-1019.kcloud.cloudera.com, DNS:localhost, IP
 Address:127.0.0.1, IP Address:10.17.130.15
    Signature Algorithm: ecdsa-with-SHA256
         30:46:02:21:00:fc:5c:89:ab:99:a6:79:33:a9:28:da:a8:47:
         52:cf:1f:43:13:8c:06:2e:23:67:4c:b4:b0:d6:e3:f9:b6:ad:
         50:02:21:00:c7:64:aa:86:97:5a:f3:12:7e:3f:a2:f1:ab:93:
         17:6c:3a:37:34:01:ef:ba:7f:08:85:70:2c:c9:40:e0:30:f5
```

Adjusting the expiration time of the Vault certificate

1. In Cloudera Manager, select the ECS cluster, then click ECS.
2. Click the Configuration tab, then use the Search box to locate the Ecs Server Advanced Configuration Snippet (Safety Valve) for config.yaml configuration property.
3. Enter the following configuration setting. In this example, the certificate expiration is set to 5 years (43800 hours):

```
kube-controller-manager-arg:
  - "cluster-signing-duration=43800h"
```



Ecs Server Advanced Configuration Snippet (Safety Valve) for config.yaml

Ecs Server Advanced Configuration Snippet (Safety Valve) for config.yaml
server_config_safety_valve

Ecs Server Default Group

```
kube-controller-manager-arg:
 - "cluster-signing-duration=43800h"
```

4. Click Save Changes.
5. Contact Cloudera support and ask them to provide you with a copy of the rotate-vault-cert.sh file.
6. Copy the rotate-vault-cert.sh file to the ECS master host. Set JAVA_HOME if needed.
7. Run the following command:

   ./rotate-vault-cert.sh   APP_DOMAIN
8. Unseal Vault.
9. Restart all of the pods in the CDP namespace.
10. If you are using a default self-signed ingress controller certificate, update the ingress controller certificate (follow the steps in the script output).
11. You can use the CLI to verify the new certificate expiration setting:

```
root       49076   48970  2 16:49 ?        00:00:10 kube-controller-mana
ger
--flex-volume-plugin-dir=/var/lib/kubelet/volumeplugins --terminated-pod-
gc-threshold=1000 --permit-port-sharing=true
--allocate-node-cidrs=true --authentication-kubeconfig=/var/lib/rancher/
rke2/server/cred/controller.kubeconfig
--authorization-kubeconfig=/var/lib/rancher/rke2/server/cred/controller.
kubeconfig --bind-address=127.0.0.1
--cluster-cidr=10.42.0.0/16 --cluster-signing-duration=43800h
<snip!>
```

```
[root@host-1 ~]# openssl x509 -in vault.pem -noout -text
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number:
            db:b7:a7:c3:79:86:4c:54:e8:97:49:bf:99:3d:df:a9
        Signature Algorithm: ecdsa-with-SHA256
        Issuer: CN = rke2-server-ca@1697759349
        Validity
```

```
           Not Before: Oct 19 23:46:38 2023 GMT
            Not After : Oct 17 23:46:38 2028 GMT
        Subject: O = system:nodes, CN = "system:node:vault.vault-system.svc
;"
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                RSA Public-Key: (2048 bit)
                Modulus:
                    00:94:93:2e:9d:5c:01:5a:95:46:b2:9d:aa:23:c4:
                    4e:0f:92:07:7e:0e:3a:21:7d:ef:95:e8:09:d3:88:
                    38:ac:e9:9f:c2:36:37:04:56:43:87:3a:6f:34:08:
                    09:8f:3f:df:31:79:d6:12:db:78:f6:1c:9b:0e:c2:
                    d0:f5:25:50:86:37:d5:ff:f7:a0:82:6f:55:d1:ff:
                    03:54:f8:ce:8b:02:87:2d:af:3f:71:f8:c4:a9:f0:
                    24:50:7b:07:70:3d:7a:be:9d:41:f0:15:2f:56:c3:
                    d3:0d:1a:e1:87:8e:69:89:ff:bf:1b:f2:84:87:6c:
                    5e:f9:13:8b:2c:5c:de:64:9e:ae:de:6a:f0:7c:ae:
                    d9:01:41:aa:39:00:b3:2d:4f:5c:db:fb:2b:80:31:
                    88:b5:40:24:e1:06:08:c4:ad:82:70:a1:9e:4c:3e:
                    00:0d:61:d9:1a:5c:c7:11:a7:79:68:66:34:b2:c2:
                    e9:63:a8:5d:d1:13:be:e6:f1:8f:03:87:3d:be:eb:
                    b7:ce:a5:eb:56:81:37:5b:9d:ce:82:34:15:99:16:
                    4c:65:20:d9:df:e6:63:56:c2:49:79:e8:66:ce:c1:
                    01:9d:87:a2:ba:02:c0:7c:2b:e5:37:30:c5:23:bd:
                    87:a1:c8:2b:a9:49:be:67:31:22:8d:a4:68:f9:bd:
                    be:23
                Exponent: 65537 (0x10001)
        X509v3 extensions:
            X509v3 Key Usage: critical
                Digital Signature, Key Encipherment
            X509v3 Extended Key Usage:
                TLS Web Server Authentication
            X509v3 Basic Constraints: critical
                CA:FALSE
            X509v3 Authority Key Identifier:
                keyid:26:8F:9F:A1:04:CE:2D:04:3A:03:11:87:9D:DF:5A:B7:5C:0
6:72:32
            X509v3 Subject Alternative Name:
                DNS:vault, DNS:vault.vault-system, DNS:vault.vault-system.
svc, DNS:vault.vault-system.svc.cluster.local, DNS:vault.localhost.localdoma
in, DNS:*.apps.host-1.rke-1019.kcloud.cloudera.com, IP Address:127.0.0.1
    Signature Algorithm: ecdsa-with-SHA256
         30:46:02:21:00:d9:5e:38:fc:31:9b:5a:eb:fc:7d:c2:8f:b3:
         54:5e:28:f0:8f:00:eb:36:65:9f:d3:70:ae:a2:79:77:ee:b5:
         f7:02:21:00:f4:e8:6f:c9:bd:bb:92:9d:63:81:69:55:67:8b:
         8a:f3:a4:5d:c1:67:66:b0:40:ff:22:a6:c3:6f:4f:8e:b2:8e
```

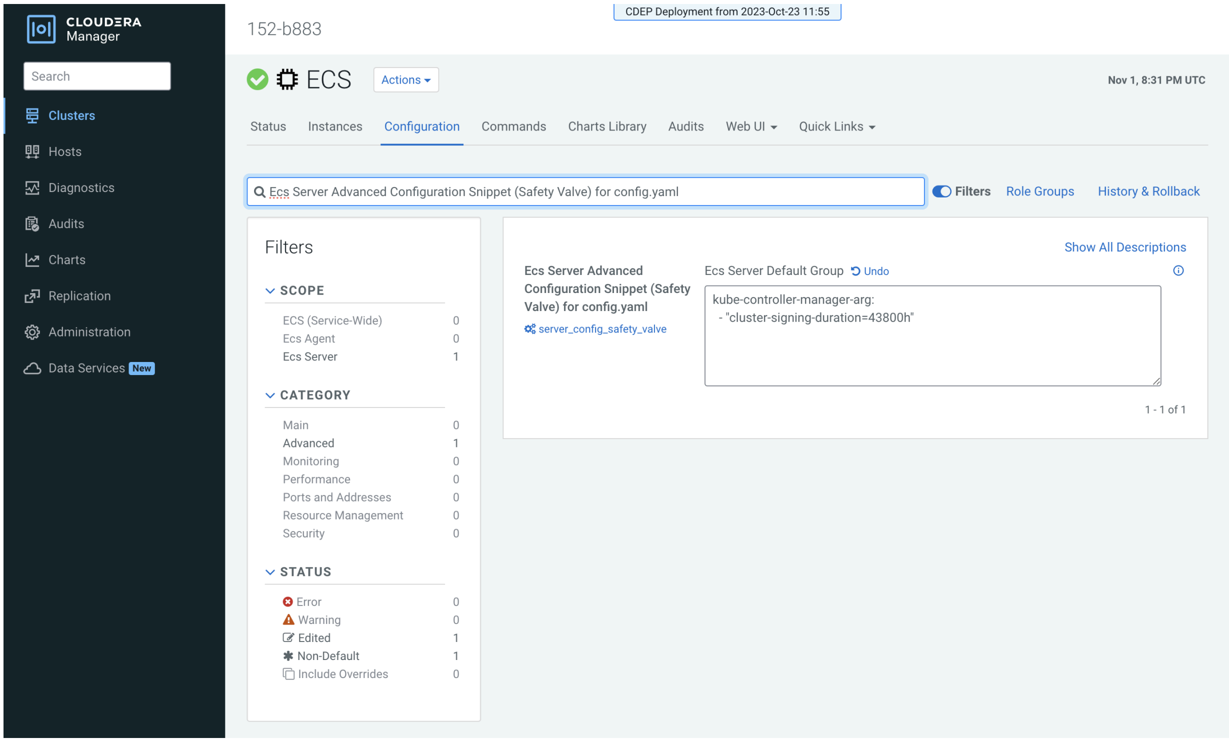
Adjusting the expiration time of the ECS webhook certificate

1. In Cloudera Manager, select the ECS cluster, then click ECS.
2. Click the Configuration tab, then use the Search box to locate the Ecs Server Advanced Configuration Snippet (Safety Valve) for config.yaml configuration property.
3. Enter the following configuration setting. In this example, the certificate expiration is set to 5 years (43800 hours):

```
kube-controller-manager-arg:
  - "cluster-signing-duration=43800h"
```

Note:

The kube-controller-manager-arg property controls the expiration time of both the Vault and the ECS webhook certificates.



Ecs Server Advanced Configuration Snippet (Safety Valve) for config.yaml

Ecs Server Advanced Configuration Snippet (Safety Valve) for config.yaml
server_config_safety_valve

Ecs Server Default Group

```
kube-controller-manager-arg:
 - "cluster-signing-duration=43800h"
```

4. Click Save Changes.
5. Contact Cloudera support and ask them to provide you with a copy of the rotate-webhook-cert.sh file.
6. Copy the rotate-webhook-cert.sh file to the ECS master host.
7. Run the following command:

   ./rotate-webhook-cert.sh   APP_DOMAIN
8. Check for any pods in the Pending state whose status shows that they cannot tolerate the node-role.kubernetes.io/control-plane toleration. Restart those pods.
9. You can use the CLI to verify the new certificate expiration setting:

```
root       49076   48970  2 16:49 ?        00:00:10 kube-controller-mana
ger
--flex-volume-plugin-dir=/var/lib/kubelet/volumeplugins --terminated-pod-
gc-threshold=1000 --permit-port-sharing=true
--allocate-node-cidrs=true --authentication-kubeconfig=/var/lib/rancher/
rke2/server/cred/controller.kubeconfig
--authorization-kubeconfig=/var/lib/rancher/rke2/server/cred/controller.
kubeconfig --bind-address=127.0.0.1
--cluster-cidr=10.42.0.0/16 --cluster-signing-duration=43800h
<snip!>
```

```
[root@host-1 ~]# openssl x509 -in ecs-tolerations-webhook-cert.pem -noout -t
ext
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number:
            a5:31:94:f4:84:bb:3b:a2:a4:63:8d:ec:de:b5:37:53
        Signature Algorithm: ecdsa-with-SHA256
        Issuer: CN = rke2-server-ca@1697759349
        Validity
            Not Before: Oct 19 23:45:48 2023 GMT
            Not After : Oct 17 23:45:48 2028 GMT
        Subject: O = system:nodes, CN = "system:node:ecs-tolerations-webhook
.ecs-webhooks.svc;"
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                RSA Public-Key: (2048 bit)
                Modulus:
                    00:cc:12:e1:54:b8:aa:42:94:aa:11:a5:f7:35:0e:
                    0c:de:76:5b:d5:c6:c1:34:0b:b8:b7:2b:15:08:1d:
                    02:44:0f:2e:e1:17:dc:73:6a:e4:6c:df:5b:ac:43:
                    97:2e:34:73:f7:c9:6f:cf:c2:a8:52:79:b1:89:ea:
                    51:22:e1:41:b8:6a:ba:fd:22:a2:bf:a2:46:a4:8e:
                    f5:c6:2d:05:c3:a5:1d:6b:60:da:e8:40:a5:e1:e1:
                    5a:55:0e:94:2d:91:dd:71:d1:e9:aa:27:5d:e6:fc:
                    ea:5f:ea:c6:8e:52:71:27:ce:c2:a7:1b:10:ca:db:
                    db:27:c8:46:6d:14:d1:d0:b3:f5:ab:74:a9:63:8b:
                    71:83:31:eb:ad:87:1b:3b:8d:ff:ce:d0:7f:d1:1b:
```