

CDP Private Cloud Data Services Data Recovery

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Data Recovery Service overview

The Data Recovery Service (DRS) is a microservice in CDP Private Cloud Data Services. It allows you to back up and restore Kubernetes namespaces and resources on both Embedded Container Service (ECS) and OpenShift Container Platform (OCP) for a few services such as Control Plane and Cloudera Data Warehouse (CDW).

The following sections discuss how to back up and restore Control Plane in detail. You can contact your Cloudera account team to determine whether your CDP service supports DRS, and if so, which components of DRS are being supported.

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*

By default, DRS 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 `drs` namespace is automatically named `cdp-drs`. If you have multiple CDP Private Cloud Data Services installations (as in OCP), DRS is named accordingly.

When you initiate the backup event in the Backup and Restore Manager for Control Plane, DRS 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.

Available methods to back up and restore environment

The following methods are available to back up and restore your environment:

DRS automatic backups

Starting from CDP Private Cloud Data Services 1.5.4, DRS automatic back ups for Control Plane, CDW, and Cloudera Data Engineering (CDE) are enabled by default on ECS clusters for new installations or after cluster upgrade to version 1.5.4 or higher.

You can disable this option, if required. You can also configure the external storage in Longhorn for ECS, and then initiate the DRS automatic backup to it. For more information, see *DRS automatic backups*.



Note: This functionality is not available for OCP.



Important: Automatic backups help ensure that a backup is available. An automatic backup is a consolidated backup of all the Data Services data, so the restore option is not supported for these backups. Automatic backups use a different code path than the Data Service-specific backups and work at the platform level. Service-specific automatic backups are currently not supported.

For more information, see *DRS automatic backups*.

Service-specific CDP CLI options

You can use the CDP CLI options to back up and restore namespaces for Control Plane and CDW.

For the list of available CDP CLI options that you can use for backup and restore purposes, see [drscp](#) and [dw](#).

Backup and Restore Manager

You can back up and restore namespaces for Control Plane and CDW on the Backup and Restore Manager page.

To access this page, click the CDP Private Cloud Data Services Management Console Dashboard Backup Overview View Details option. For more information, see *Access Backup and Restore Manager*.

How backup and restore events work in DRS

Backup event

The backup event does not have any downtime impact, and you can backup the Control Plane while it is running.

When you create a backup, DRS:

1. initiates the backup event or job for the chosen backup entity,

For example, the Control Plane in CDP Private Cloud Data Services.

2. assigns an ID called backupCrn to the backup event,

The backupCRN appears in the CRN column on the Backup and Restore Manager Backups tab. Click the CRN to view more details about the backup event on the Backup [***NAME OF BACKUP***] modal window.

3. creates a backup of the persistent volume claim (PVC) snapshots of the Control Plane namespaces and the backup event's PVC.

Restore event



Note: Do not delete the [***CDP_INSTALLATION_NAMESPACE***]-drs namespace while the restore event is in progress.

When you start the restore event, DRS:

1. initiates the restore event for the chosen backup,
2. assigns an ID called restoreCrn to the restore event,

The restoreCRN appears as CRN on the Backup and Restore Manager Restores tab. Click the CRN to view more details about the restore event.

3. deletes the existing resources and data,

During this stage of 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.

4. restores the resources and data from the backup.

The restore event has a downtime impact because the pods and data are recreated.

DRS automatic backups

By default, CDP Private Cloud Data Services 1.5.4 and higher versions enable Data Recovery Service (DRS) automatic backups for the Control Plane, CDE, and CDW in the compute cluster of ECS. The automatic backups are stored in the Longhorn in-cluster storage. You can also configure the external storage in ECS, and then initiate the automatic back ups to it.

The following storage options are available to store the DRS automatic backups in ECS:

In-cluster storage

By default, DRS automatic backups use Longhorn in-cluster storage. If necessary, you can configure the storage configuration settings in Longhorn by navigating to the Cloudera Manager

Clusters [****CLUSTER NAME****] Status [****ECS CLUSTER NAME****] Web UI Storage UI page.

By default, Kubernetes initiates the first automatic backup within 30 minutes after the backup policy creation is complete, and then takes subsequent backups every hour.

You can change the backup retain count to take backups on an hourly, daily, or weekly basis and you can also disable the DRS automatic backup functionality (set `ENABLED` to `false`) using the `kubectl edit cj automatic-backup -n cdp-drs` command. For more information about using this command in DRS, see *Initiating DRS automatic backups*.

External storage

ECS uses Longhorn as the underlying storage provisioner. In Longhorn, you can store snapshots externally using an S3 compatible storage such as Ozone or NFS v4. After you configure the external storage, edit the automatic-backup cron job to initiate the automatic backups.



Important: Automatic backups help ensure that a backup is available. An automatic backup is a consolidated backup of all the Data Services data, so the restore option is not supported for these backups. Automatic backups use a different code path than the Data Service-specific backups and work at the platform level. Service-specific automatic backups are currently not supported.

Configuring external storage in ECS for DRS automatic backups

Before you initiate Data Recovery Service (DRS) automatic backups to the external storage in Longhorn, you must complete the prerequisites.

Procedure

1. Complete the following prerequisites:

- a) Ensure that the following requirements are met depending on the storage you choose for DRS automatic backups:
 - An S3 compatible storage, such as Ozone, must be available in the base cluster. You must have the required access key and secret to the storage, and the provisioned bucket must have a minimum of 5 TB storage space.
 - An NFS v4 storage must have a minimum of 5 TB of free space.
- b) You must have SSH access to the base cluster node.



Note: If you are using Ozone storage, ensure that you have the SSH access to the base cluster running the S3 gateway service.

- c) You must have SSH access to the ECS master node.



Tip: After you log into the terminal of the master node, run the following commands to access kubectl utility:

1. `export PATH="/var/lib/rancher/rke2/bin:/opt/cloudera/parcels/ECS/docker/:$PATH"`
2. `export KUBECONFIG=/etc/rancher/rke2/rke2.yaml`

2. Perform the following steps to change the default volume snapshot class value from `snap` (this value saves snapshots in the in-cluster storage in Longhorn) to `bak` (this value saves snapshots in the external storage in Longhorn):

- a) Run the `kubectl edit vsclass longhorn kubectl` command.
- b) Change the type parameter to `bak` as shown in the following sample snippet:

```
apiVersion: snapshot.storage.k8s.io/v1
deletionPolicy: Delete
driver: driver.longhorn.io
kind: VolumeSnapshotClass
```

```

metadata:
  name: longhorn
  parameters:
  type: bak

```

3. Complete the following steps if you are using Ozone S3 storage in Longhorn:

- a) Run the `scp root@[***BASE_CLUSTER_HOST***]:/var/lib/cloudera-scm-agent/agent-cert/cm-auto-global_cacerts.pem` command to obtain the TLS certificate for Ozone.

DRS uses this certificate to communicate with the S3 gateway service using HTTPS.

- b) Create a secret that Longhorn can use for S3 access. To accomplish this task, you must have the S3 access key, S3 secret, S3 endpoint, and S3 certificate for Ozone storage. You must also enable a virtual host to use the S3 compatible endpoint (Ozone).

The following sample snippet shows the `kubectl` command to create a secret:

```

kubectl create secret generic ozone-secret
--from-literal=AWS_ACCESS_KEY_ID=s3g/drs1-1.drs1.root.hwx.site@ROOT.HW
X.SITE
--from-literal=AWS_SECRET_ACCESS_KEY=9d9e46cc77bb510821f0dbc42c584a8b
7482b51dec9d3eb63c
--from-literal=AWS_ENDPOINTS=https://drs1.root.hwx.site:9879/longhorn
--from-literal=VIRTUAL_HOSTED_STYLE=true --from-file=AWS_CERT=cm-auto-g
lobal_cacerts.pem
-n longhorn-system

```

For more information, see *Longhorn documentation*.



Tip: Longhorn's URL is built using a combination of the `AWS_ENDPOINTS` value and the S3 virtual path as explained in Step 5.

4. Run the `kubectl edit deploy cdp-release-thunderhead-drsprovider -n cdp-drs` command, and set the `TAKE_PVC_CLONE` environment value to `false`.

This step ensures that the backups do not create a persistent volume claim (PVC) clone for external snapshot.

By default, Longhorn configuration is set to in-cluster storage and this storage requires a PVC copy to perform the DRS restore operation (DRS uses CSI snapshot technology). Therefore, to use the external storage, you must configure the volume snapshot class to `bak` and then configure the `TAKE_PVC_CLONE` environment value to `false`.

5. Configure the volume for NFS storage or bucket for Ozone S3 (on the `Setting General` page) in the Longhorn UI to save the backups.
 - a) Enter the `nfs://...` URL in the **Backup Target** field if you are using NFS storage.
 - b) Enter the required values in the following fields if you are using Ozone S3 storage:
 - `s3://[***BUCKET***]@[***DUMMY REGION***]/` URL in the **Backup Target** field. For example, `s3://drs1-1@cdp/`.
 - `[***SECRET THAT YOU GENERATED IN STEP 3B***]` in the **Backup Target Credential Secret**. For example, `ozone-secret`.

The `s3://[***BUCKET***]@[***DUMMY REGION***]/` URL is a virtual S3 URL that you can create using the original Ozone S3 URL, where,

- `bucket` is the hostname. Longhorn prefixes the `AWS_ENDPOINTS` to the bucket value. For example, the sample snippet in Step 3 shows the hostname value as `drs1-1.drs1.root.hwx.site`. In this instance, `drs1-1` is the bucket name and the rest of the hostname `drs1.root.hwx.site` is the `AWS_ENDPOINTS` hostname.
- `dummyregion` can be any value and is not used.

Troubleshooting: To verify whether Longhorn successfully registered the Ozone S3 credential secret, click the Backup page. No errors must appear on the page.

If any error or message appears about the secret and the certificate having newlines or space, run the `kubectl edit lhs backup-target-credential-secret -n longhorn-system` command and set the value to the secret you created in Step 3b.

What to do next

Initiate the DRS automatic backups using the `updateAutoBackupPolicy` CDP CLI command. Alternatively, you can edit the “automatic-backup” (a Kubernetes cron job) to initiate the DRS automatic backups.

Initiating DRS automatic backups

After you configure the external storage in ECS, you can initiate the Data Recovery Service (DRS) automatic backups using the “`updateAutoBackupPolicy`” CDP CLI command. Alternatively, you can edit the “automatic-backup” (a Kubernetes cron job) to initiate the DRS automatic backups.

Before you begin

The preferred method to initiate the DRS automatic backups is to use the `updateAutoBackupPolicy` CDP CLI command in the CDP client. For more information about DRS CDP CLI commands, see [CLI reference for using DRS on Control Plane](#).

About this task

The following steps show an alternate method to initiate DRS automatic backups using `kubectl` commands.

Procedure

1. Run the `kubectl edit cj automatic-backup -n cdp-drs` command.
2. Configure the `ENABLED` environment variable to `true` to enable automatic backups, configure the namespaces (if they are not configured), and then configure the backup retain count to take backups on an hourly, daily, or weekly basis. You can also choose a combination of two or more periods to take backups. Save the cron job.

The backup retain count determines the number of backup instances to generate.



Important: If you do not want to set a backup for a particular period, ensure that the count is set to 0. This is because the retain count is set to 1 (minimum backup retain count) by default.

DRS generates `n+1` backups by default where `n` is the backup retain count. Therefore, the minimum number of backups at any point in time is 2 by default. For example, if you set the `HOURLY_COUNT` parameter to 2, three

instances are generated; therefore, two backups are taken every hour. If you set the WEEKLY_COUNT parameter to 0, no instances are created and no backups are generated.

The following sample snippet shows the environment variables required for DRS automatic backups:

```
env:
  - name: ENABLED
    value: "true"
  - name: HOURLY_COUNT
    value: "1"
  - name: DAILY_COUNT
    value: "1"
  - name: WEEKLY_COUNT
    value: "1"
```

Results

By default, Kubernetes initiates the first automatic backup within 30 minutes after the backup policy creation is complete.



Tip: You can configure the cron `schedule` environment variable (using `kubectl` commands or `updateAutoBackupPolicy` CDP CLI command) to control the next job run.

The cron schedule uses the `[**MINUTE FROM 0-59**] [**HOUR FROM 0-23**] [**DAY OF THE MONTH FROM 1-31**] [**MONTH FROM 1-12**] [**DAY OF THE WEEK FROM 0-7 WHERE 7 IS FOR SUNDAY**]` cron syntax.

For example, if you configure schedule: `*/40 * * * *`, the backup runs after 40 minutes.

What to do next

Backup instances, depending on the chosen schedules, are generated and appear on the CDP Private Cloud Data Services Management Console Dashboard Backup Overview View Details Backup and Restore Manager Backups tab. The instance name is auto-generated. Click the backup instance to view more details.

Backup and Restore Manager in Management Console

You can use the “Backup and Restore Manager” in the CDP Private Cloud Data Services Management Console to backup and restore Kubernetes namespaces and resources on Embedded Container Service (ECS) and OpenShift Container Platform (OCP).

The CDP Private Cloud Data Services Management Console Dashboard Backup Overview section shows the list of available backup entities. Click **View Details** to see the **Backup and Restore Manager** page. On the **Backups** tab, you can view existing backup entities, create backups, and perform actions on a backup. On the **Restores** tab, you can view the restore entities.



Tip: Data Recovery Service (DRS) is a microservice in CDP Private Cloud Data Services that backs up and restores the Kubernetes namespaces and resources of supported services. Backup and Restore Manager leverages the DRS capabilities to backup and restore namespaces in Management Console.

View Backup Overview section on Management Console Dashboard

The “Backup Overview” section shows all the available backup entities for all the supported services, total number of backups available for each entity, and the status of each backup event. Click “View Details” to see the “Backup and Restore Manager” page. The “Backup Overview” section is on the "Dashboard" page in CDP Private Cloud Data Services Management Console.

The following columns appear in the Dashboard Backup Overview section:

Column name	Description
Backup Entity	Lists all the backup entities that are available for backup. For example, the CDP Control Plane: [***NAMESPACE***] is the Control Plane backup entity.
Total Backups	Total number of backups for the backup entity.
Colored dots	Each dot pertains to the current status of a backup event or job. Hover over a dot to view the backup event start timestamp and its current status. The yellow dot denotes NOT_STARTED or IN_PROGRESS backup event state, the green dot denotes COMPLETED event state, and the red dot denotes PARTIALLY_FAILED or FAILED event state.

When you click View Details, the **Backup and Restore Manager** appears.

The following sample image shows the **Backup Overview** section:



View Backup and Restore Manager

The “Backup and Restore Manager” appears after you click "View Details" in the CDP Private Cloud Data Services Management Console Dashboard Backup Overview section. The "Backups" tab lists all the backups and the "Restores" tab lists all the restore events.

Click New Backup on the **Backup and Restore Manager** page to initiate a backup event. The page shows the backup entity name and provides the following tabs:

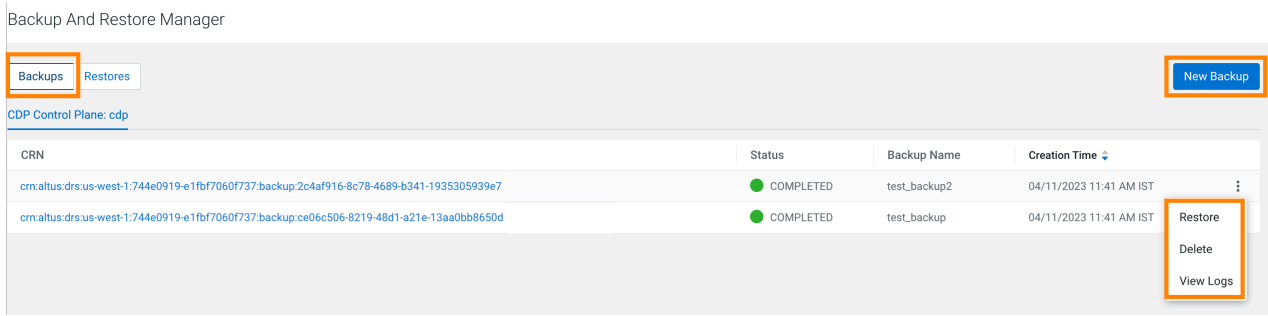
Backups tab

The "Backups" tab in "Backup and Restore Manager" on the CDP Private Cloud Data Services Management Console lists all the available backups. You can create backups, or perform actions such as restore, delete, or view logs for each back up as necessary.

The following table lists the columns that appear on the **Backups** tab:

Column name	Description
CRN	Automatically assigned ID or backupCrn for the backup event. Customer Resource Number (CRN) is the <i>Cloudera</i> -specific identifier provided for the event/job. Click the CRN to view more details about the event on the Backup [***NAME OF BACKUP***] modal window.
Status	Current backup event status. The event states include NOT_STARTED, IN_PROGRESS, COMPLETED, PARTIALLY_FAILED, and FAILED.
Backup Name	Unique name given to the backup event while initiating the backup event.
Creation Time	Timestamp when the backup event was initiated.

The following sample image shows the **Backups** tab on the **Backup and Restore Manager** page:



You can perform the following actions on each successful backup event:

- Restore the backup.
- Delete the backup. This deletes the backup permanently.
- View Logs opens the Backup [***NAME OF BACKUP***] modal window.

Backup [***NAME OF BACKUP***] modal window

On the Backup [***NAME OF BACKUP***] modal window, you can choose to Restore the backup, Delete the backup, or click Cancel to close the window. The window also shows the following tabs:

Tab	Description
Details	<ul style="list-style-type: none"> • CRN of the backup event • Creation Time and date • Completed or Updated Time and date • Current Status of the backup event • Backup Phase the event is running in (such as in-progress or finished) • Backup Name that was assigned to the backup event during creation • The Included Namespaces in the backup event
Logs	Provides the log details about the backup event.

The following sample image shows the Backup [***NAME OF BACKUP***] modal window:

Backup test_backup

[Details](#)[Logs](#)**CRN**

crn:altus:drs:us-west-1:744e0919-e1fbf7060f737:backup:ce06c506-8219-48d1-a21e-13aa0bb8650d

Creation Time

04/11/2023 11:41 AM IST

Updated Time

04/11/2023 11:42 AM IST

Status● COMPLETED**Backup Phase**

FINISHED

Backup Name

test_backup

Included Namespaces

vault-system, cdp

Restore

Delete

Cancel

Restores tab

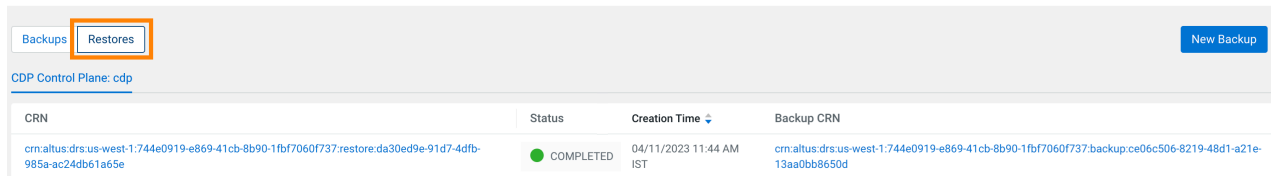
The "Restores" tab in "Backup and Restore Manager" on the CDP Private Cloud Data Services Management Console lists all the available restore events.

The following table lists the columns that appear on the **Restores** tab:

Column name	Description
CRN	Automatically assigned ID or restoreCrn for the restore event. When you click the CRN, the Restore Details modal window appears.
Status	Current restore event status as COMPLETED or FAILED.
Creation Time	Timestamp when the restore event is initiated.
Backup CRN	CRN of the backup event that is being restored. When you click the Backup CRN , the Backup [***NAME OF BACKUP***] modal window appears.

The following sample image shows the **Restores** tab on the **Backup and Restore Manager** page:

Backup And Restore Manager



Restore Details modal window

When you click the CRN of a restore event, the following tabs appear on the **Restore Details** modal window:

Column name	Description
Details	<ul style="list-style-type: none"> • CRN of the restore event • Creation Time and date of the restore event • Completed or Updated Time and date of the restore event • Current Status of the restore event • The Restore Phase the event is running in (such as in-progress, pending, failed, or finished) • Associated Backup CRN of the backup event that was restored • The Included Namespaces in the restore event • Warnings or Errors. <p>When a warning appears, you can continue to use the backup or restore event. However, it is advisable to scrutinize the warning to avoid any potential issues. Errors appear if the restore event has failed.</p>
Logs	Provides the log details about the backup event.

The following sample image shows the Restore Details modal window:

Restore Details

[Details](#)[Logs](#)

CRN

crn:altus:drs:us-west-1:017a9c10-d8e7-472f-88ed-158946a2fe84:restore:a6668773-defb-4f45-b65d-c2160055205a

Creation Time

04/27/2023 5:40 PM IST

Updated Time

04/27/2023 5:45 PM IST

Status

● COMPLETED

Restore Phase

FINISHED

Associated Backup CRN

crn:altus:drs:us-west-1:017a9c10-d8e7-472f-88ed-158946a2fe84:backup:a9bde036-5071-4f8f-afd7-141edffb7f9f

Included Namespaces

vault-system, cdp

Create, restore, and manage backups of Control Plane

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 view logs to troubleshoot an issue, and delete the backups if necessary. Alternatively, you can use CDP CLI to accomplish these tasks.

The following sections 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 how to use CDP CLI commands to create and restore a backup.

Creating backup of Control Plane

The Backup and Restore Manager in the CDP Private Cloud Data Services Management Console helps you to back up Kubernetes namespaces and resources on Embedded Container Service (ECS) and OpenShift Container Platform (OCP). This topic shows how to create a backup of the Kubernetes namespaces and resources in the Control Plane.

Before you begin

Ensure that the following prerequisites are complete:

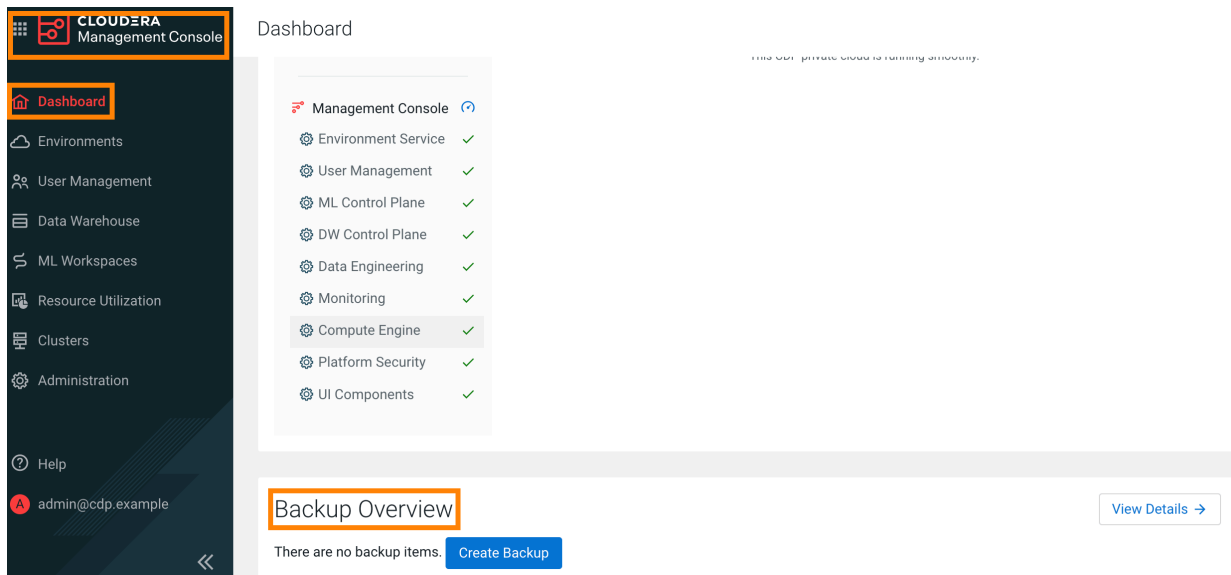
- You must have the *PowerUser* role.
- For OCP, ensure that a VolumeSnapshotClass is installed with a CSI driver that matches the CSI driver for the storage class used.

About this task

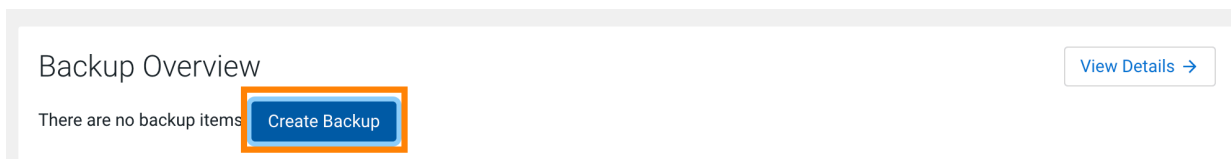
When you create a backup of the Control Plane, Data Recovery Service (DRS) initiates the backup event or job for the chosen backup entity, assigns an ID called backupCrn to the backup event, and creates a backup of the persistent volume claim (PVC) snapshots of the Control Plane namespaces and the backup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

Procedure

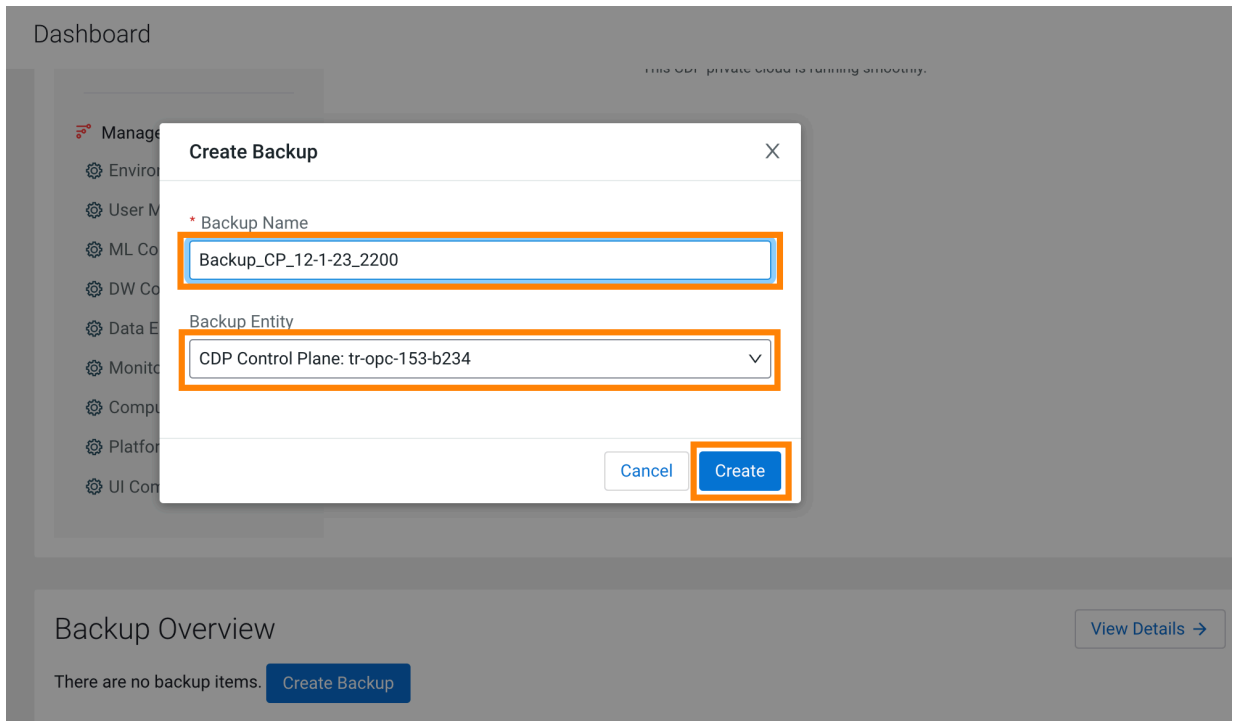
1. Go to the CDP Private Cloud Data Services Management Console Dashboard Backup Overview section.



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

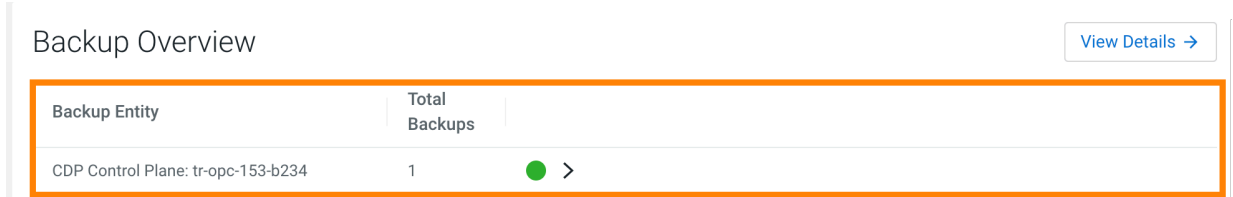


3. Enter a unique Backup Name and choose the Backup Entity that you want to back up in the **Create Backup** modal window, and then click Create.



4. DRS initiates the backup event and generates a backupCRN which is an automatically assigned ID for the backup event.

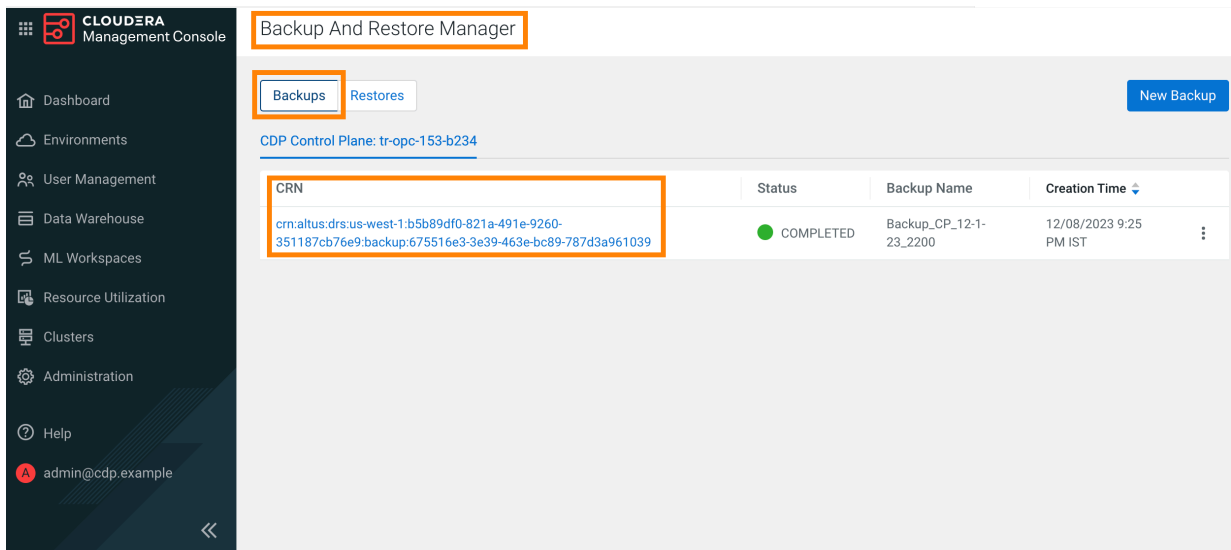
The backup event appears in the **Backup Overview** section.



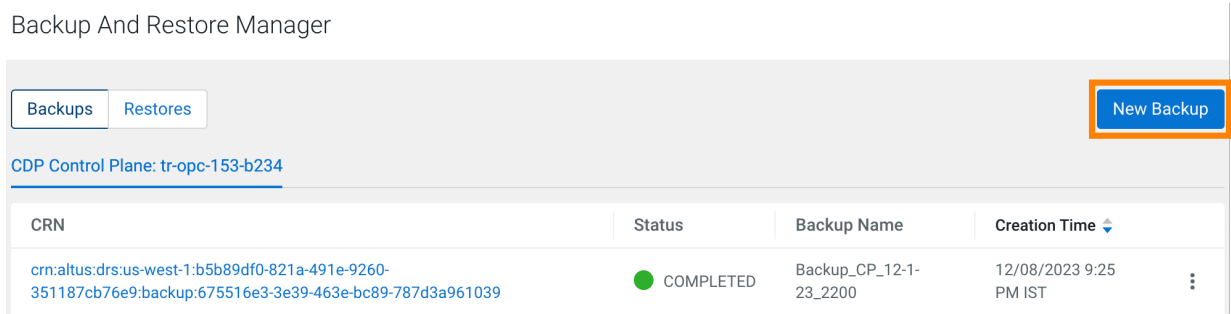
5. Click View Details. The **Backup and Restore Manager** page appears.



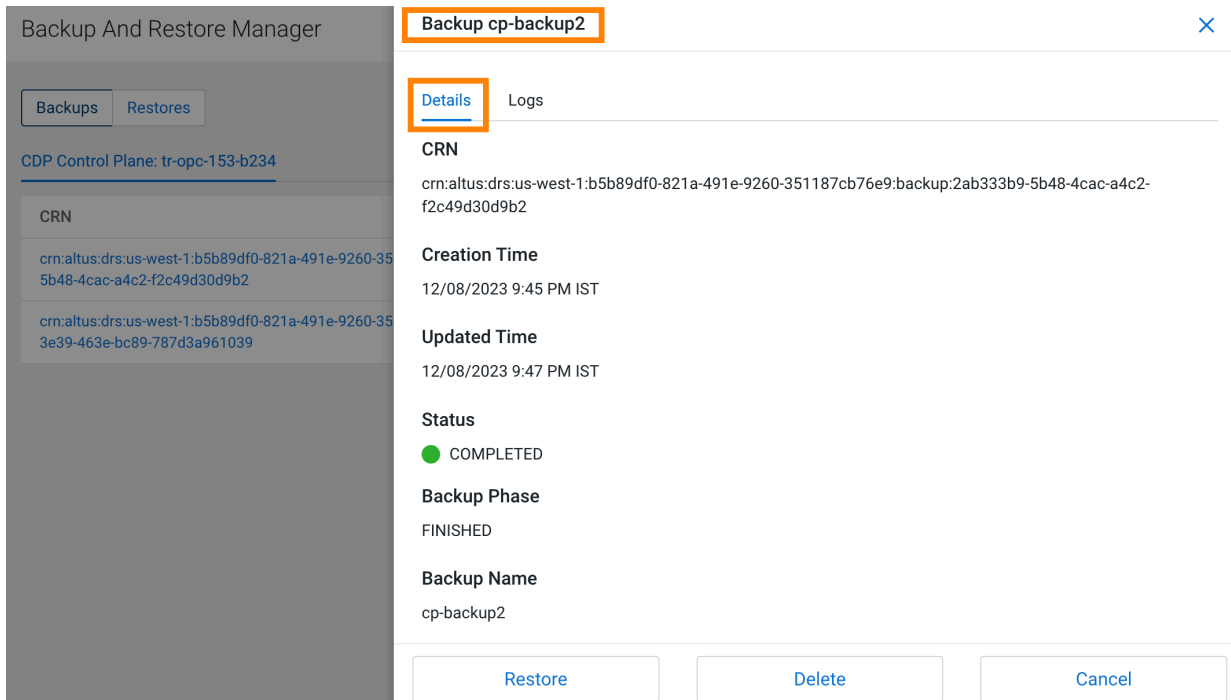
- The backupCRN appears as a CRN on the **Backup and Restore Manager** page that you can click to view the backup event details.



- For subsequent backups, click **New Backup** on the Backup and Restore Manager page.



- 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.



Restoring a backup of Control Plane

The Backup and Restore Manager in the CDP Private Cloud Data Services Management Console helps you to restore Kubernetes namespaces and resources on Embedded Container Service (ECS) and OpenShift Container Platform (OCP). When you start the restore a backup, Data Recovery Service (DRS) 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.

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.



Important: 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.

Procedure

1. Go to the **CDP Private Cloud Data Services Management Console Dashboard Backup Overview** section.
2. Click **View Details**.

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

3. Go to the **Backup and Restore Manager Backups** tab.

- 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 drs namespace is automatically named cdp-drs.

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 9:45 PM IST



Restore

Are you sure you want to restore this record?

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

- 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
✕

Details
Logs

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

Restore

Delete

Cancel

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

Backup And Restore Manager

Backups
Restores

New Backup

CDP Control Plane: cdp

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

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

The screenshot shows the 'Backup And Restore Manager' interface. On the left, there are tabs for 'Backups' and 'Restores'. Below these, the 'CDP Control Plane: tr-opc-153-b234' is identified. A list of CRNs is shown, with one highlighted in orange: `crn:altus:drs:us-west-1:b5b89df0-821a-491e-9260-351187cb76e9:restore:c19d8c1d-c47a-4fb5-845e-553947e0b86a`. On the right, the 'Restore Details' modal is open, showing the following information:

- 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 (indicated by a green dot)
- 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



Note: If you are using the **Restores** option, ensure that you manually delete the Persistent Volume (PV), as auto-deletion is not supported.

Deleting a backup of Control Plane

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 delete the backups, if necessary.

Before you begin

You must have the *PowerUser* role.

Procedure

- Go to the CDP Private Cloud Data Services Management Console Dashboard **Backup Overview** section.
- Click **View Details**.

The screenshot shows the 'Backup Overview' section. It features a table with the following data:

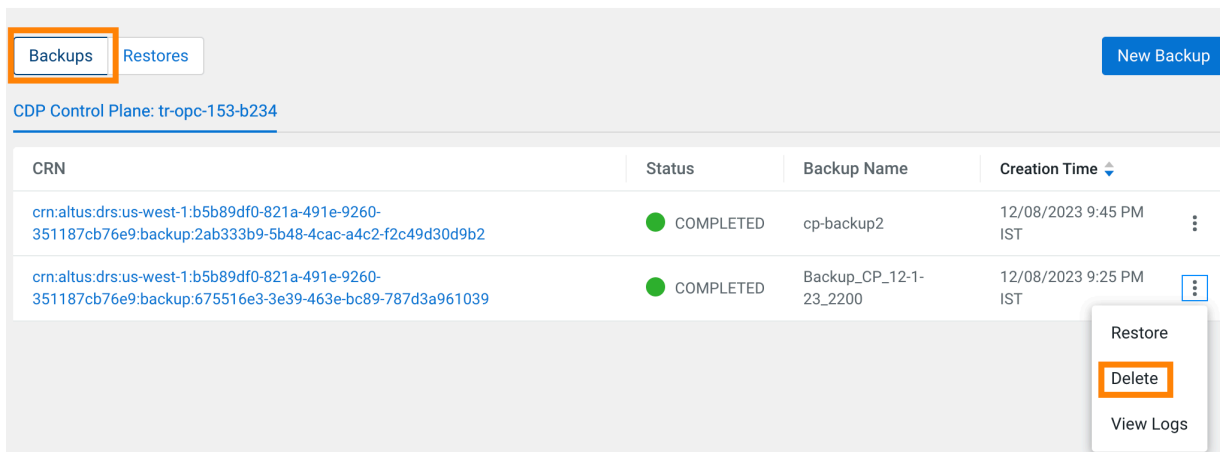
Backup Entity	Total Backups
CDP Control Plane: tr-opc-153-b234	2

Below the table, there are two green dots and a right-pointing arrow. A 'View Details' button with a right-pointing arrow is highlighted in orange in the top right corner.

- Go to the **Backup and Restore Manager Backups** tab.

- 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



The screenshot shows the Backup And Restore Manager interface. At the top, there are two tabs: 'Backups' (highlighted with an orange box) and 'Restores'. A 'New Backup' button is located in the top right corner. Below the tabs, the text 'CDP Control Plane: tr-opc-153-b234' is displayed. The main area contains a table with the following columns: CRN, Status, Backup Name, and Creation Time. Two backup records are listed, both with a status of 'COMPLETED'. A context menu is open over the second record, showing options: 'Restore', 'Delete' (highlighted with an orange box), and 'View Logs'.

CRN	Status	Backup Name	Creation Time
crn:altus:dms: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:dms: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.

Cancel

OK

- 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 ✕

[Details](#) [Logs](#)

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

Restore

Delete

Cancel

Viewing logs of a backup of Control Plane

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 view the logs of backups to use during troubleshooting issues.

Before you begin

You must have the *PowerUser* role.

Procedure

- Go to the [CDP Private Cloud Data Services Management Console Dashboard Backup Overview](#) section.

2. Click **View Details**.

Backup Overview View Details →

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

3. Go to the **Backup and Restore Manager Backups** tab.

4. Click **Actions Logs** for the required backup.

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: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 9:23:22 AM IST

Restore

Delete

View Logs

- Click the Logs tab on the modal window.

Backup cp-backup2
✕

Details
Logs

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

Restore

Delete

Cancel

- 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.

Using CDP CLI to back up Control Plane and restoring it

You can use CDP CLI commands to back up and restore Control Plane.

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.

To set up a CDP client to run the CDP CLI commands, see [CDP Private Cloud CLI](#).

About this task

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

Procedure

1. Login to the CDP CLI setup.
2. Create a backup of Control Plane 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.shared-os-01.kcloud.cloudera.com drscp create-backup --backup-name "Backup 2"
```

3. 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.vpc.cloudera.com --no-verify-tls --form-factor private drscp describe-backup --backup-crn crn:altus:drs:us-west-1:18be-4c75-8c7f-f32e697dba4a:backup:91193c4f-45f0-949c-13e232f14c9e
```

4. 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
```

5. 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://console-ocp1.apps.shared-os-01.kcloud.cloudera.com drscp restore-backup --backup-crn crn:altus:drs:us-west-1:88d84e3c-4c3e-9903-6c388a689690:backup:aebe-96d7-b79d10b64183
```

6. 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://console-cp1.apps.shared-os-01.kcloud.cloudera.com drscp describe-restore --restore-crn crn:altus:drs:us-west-1:a70c917a-4be8-927c-d36f3f7db2de:restore:c3b34532-4391-b62d-3f471fae5a40
```


What to do next

Explore all the available CDP CLI options to backup and restore Control Plane and CDW in [CDP CLI options for Control Plane namespaces](#) and [CDP CLI options for Cloudera Data Warehouse \(CDW\)](#).

CLI reference for using DRS on Control Plane

You can use the Data Recovery Service (DRS) CDP CLI commands to backup and restore resources and data in the Control Plane of CDP Private Cloud Data Services.

The following table provides the CDP CLI options to backup and restore the Control Plane:

CDP CLI options	Description
create-backup	Creates a backup and archives it as a ZIP file on the same cluster. The item-name is optional for Control Plane data recovery service. You can provide a unique backup name, so that you can identify the backup easily during restore. When you run this command, the service initiates the backup process and returns the assigned ID or <code>backupCrn</code> for the backup.
delete-backup	Deletes the specified backup (<code>backupCrn</code>) permanently.  Important: Alerts are not generated when you run this command.
describeAutoBackupPolicy	Describes the automatic backup policy. You can view the DRS automatic backup and the selected periods (hourly, daily, weekly) and its backup retain count. For each control plane, only one automatic-backup cron job can be scheduled in the <code>drs</code> namespace.
describe-backup	Shows the progress of the current status of the specified <code>backupCrn</code> (backup event).
describe-restore	Shows the progress of the current status of the specified <code>restoreCrn</code> (restore event).
get-logs	Returns logs about the specified backup, restore, or delete job and automatically creates a diagnostic bundle. You can download the bundle to your machine to analyze an issue or share it with Cloudera Support for further troubleshooting.
list-backup-entities	Lists the entities that you can backup, which includes the Control Plane namespace and its corresponding vault namespace (if embedded).
list-backups	Lists the successful backup jobs of <code>backupCrn</code> . You can filter the backup jobs using the NOT_STARTED; IN_PROGRESS; COMPLETED; PARTIALLY_FAILED; and FAILED job states.
list-restores	Lists the past restore events.
restore-backup	Restores the backup of the specified <code>backupCrn</code> . During the restore event, the existing Kubernetes resources and data are deleted and then recreated using the information in the backup. When you run the command, the service initiates the restore event and returns a <code>restoreCrn</code> value.
updateAutoBackupPolicy	Creates or updates the current existing automatic backup policy. The automatic backup cron job starts with the default backup policy first. You can enable or disable DRS automatic backups. You can also add, delete, and update the period (hourly, daily, weekly), and its backup retain count.

For more information about the DRS CDP CLI options for Control Plane, see [CDP CLI drscp](#).

Related Information

[CDP CLI drscp](#)

Troubleshooting DRS

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 (DRS) 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?

Problem

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

Problem

A timeout error appears in the Backup and Restore Manager or in CDP CLI (drscp) setup 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 `[***CDP_INSTALLATION_NAMESPACE***]-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.

Timeout error during backup of OCP clusters

Problem

"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.

Stale configurations in Cloudera Manager 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.

Using DRS with CDW

You can back up and restore Kubernetes namespaces behind Cloudera Data Warehouse (CDW) entities (for example, Database Catalogs, Virtual Warehouses) on demand using the Data Recovery Service (DRS). CDW leverages DRS and provides CDP CLI endpoints which you can use to create and restore backups for CDW namespaces to back up CDW metadata and configurations such as Kubernetes objects, persistent volumes, autoscaling configuration, and so on.

The following limitations apply for CDW data service if you are on Embedded Container Service (ECS) or using an embedded database on Red Hat OpenShift Container Platform:

- The embedded database that CDW uses is part of the Control Plane. You cannot back up only CDW-related entities from the embedded database using the `dw create-backup` command. You must take a backup of the Control Plane service.
- You must restore the entire Control Plane configurations to restore configurations stored in the CDW database. This recreates the Control Plane namespace.

List of data recovery sub-commands for CDW

The following table lists the commands and CLI endpoints for backing up and restoring Kubernetes namespaces behind CDW entities:

DRS sub-commands for CDW	Description
<code>create-backup</code>	Creates an on-demand backup for the Data Warehouse including Kubernetes objects, persistent volumes, and so on. Backup requests are processed asynchronously and instantaneously.
<code>delete-backup</code>	Deletes an existing Data Warehouse backup. The call returns immediately. It returns a delete CRN, which is the deletion process identifier.
<code>describe-backup</code>	Returns the description of an existing Data Warehouse backup.

DRS sub-commands for CDW	Description
restore-backup	Restores the state of the Data Warehouse from an existing backup. It returns a restore CRN, which is the identifier of the restoration process.
describe-restore	Returns the description of the Data Warehouse restore operation.
list-backup-entities	Lists potential backup entities associated with the Data Warehouse.
list-backups	Lists backups associated with the Data Warehouse.
list-restores	Lists restores associated with the Data Warehouse.
get-logs	Returns the job logs corresponding to the specified CRN.

Related Information

[CDP CLI reference of DRS commands for CDW](#)