Rolling upgrade in Cloudera Operational Database (Preview)

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Performing a Cloudera Runtime upgrade

Learn how to perform a rolling and a non-rolling Cloudera Runtime upgrade for your existing Cloudera Operational Database in the CDP environment.

About this task

- You must use the CDP beta CLI and run the `upgrade-database` command to upgrade your database.
- The Cloudera Runtime rolling upgrade is currently supported for the operational database clusters whose storage is selected as HDFS or cloud without ephemeral storage.
- Zero downtime upgrade or rolling upgrade is not supported on the Micro operational database clusters.
- It is recommended not to perform backups or run YARN jobs during the operational database upgrade operations.

Note:
Cloudera Runtime upgrade is supported from the CDP Runtime version 7.2.16 onwards.

Before you begin

- You must have the ODAdmin rights to make changes to the operational database database.
- In the Cloudera Manager, increase the **Region Mover Threads** property for the HBase service to 30 for a faster rolling upgrade.
- In the Cloudera Manager, increase the **Omid Max Heapsize** property for the Omid service to at least 3GB.
- You must download and install the latest CDP CLI beta version.

Steps

1. Launch the CDP CLI tool.
2. Run the following command to check the available Cloudera Runtime upgrades.

   Important:
   Ensure that a Cloudera Runtime upgrade is available from the specified target.

```
cdp datahub upgrade-cluster --cluster-name <cod-internal-name>
--show-latest-available-image-per-runtime
```

Following is a sample output where a runtime upgrade is possible from 7.2.17 to 7.2.17.x (hotfix upgrade).

Validate the output that `upgradeCandidates` contains, which highlights a different upgrade target compared to the current one.


```
  {
"current": {
    "imageName": "ami-0b9adbe77c66a2277",
    "imageId": "0df7887b-a841-4569-aab5-269041a015eb",
    "imageCatalogName": "cdp-default",
    "created": 1694041314,
    "componentVersions": {
        "cm": "7.11.0",
        "cmGBN": "42373020",
        "cdp": "7.2.17",
        "cdpGBN": "42350016",
        "os": "centos7",
        "osPatchLevel": "2023-09-06"
    }
},
"upgradeCandidates": [
    {
        "imageName": "ami-0ac26feaf1ae4f9e8",
        "imageId": "42e762f0-9731-4056-83b0-b9e7bbe7c5fb",
        "imageCatalogName": "cdp-default",
        "created": 1694777926,
        "componentVersions": {
            "cm": "7.11.0",
            "cmGBN": "44461729",
            "cdp": "7.2.17",
            "cdpGBN": "44441663",
            "os": "centos7",
            "osPatchLevel": "2023-09-15"
        }
    }
],
"reason": ""

}
```

3. Run the following command to perform a rolling Cloudera Runtime upgrade for the database.

   The following command upgrades the Cloudera Runtime for the operational database using the rolling restart mode that ensures continuous service availability.

```
cdp opdb upgrade-database --environment <environment-name>
--database <database-name> [--runtime <runtime-version> |
--image <imageId>] --rolling-upgrade
```

Option	Description
--environment (string)	The name or CRN of the environment.
--database <value>	The name or CRN of the database.
--runtime <value>	The 3-digit runtime version to upgrade to. Alternatively, specify the `--image` option.
--image <value>	The image ID to upgrade to. Alternatively, specify the `--runtime` option.
--rolling-upgrade	Controls whether to perform a rolling upgrade for the operational database.

Run the following command to perform a non-rolling Cloudera Runtime upgrade for the database.

```
cdp opdb upgrade-database --environment <environment-name>
--database <database-name> [--runtime <runtime-version> | --image
<imageId>]
```

Result

The Cloudera Operational Database is upgraded to the provided runtime version in a rolling mode.

Related information

- Upgrading Cloudera Operational Database clusters
- COD User Management
- CDP Environments
- COD CLI command reference GitHub repository
- CDP CLI BETA command reference GitHub repository

Performing a Cloudera operating system upgrade

Learn how to perform a rolling and non-rolling Operating System (OS) upgrade for your existing Cloudera Operational Database in the CDP environment.

About this task

- You must use the CDP Beta CLI and run the `upgrade-database` command to upgrade your database.
- The operating system rolling upgrade is currently supported for the operational database clusters whose storage is selected as HDFS or cloud without ephemeral storage.
- Zero downtime upgrade or rolling upgrade is not supported on the Micro operational database clusters.
- It is recommended not to perform backups or run YARN jobs during the operational database upgrade operations.

Note:
Cloudera operating system upgrade is supported from the CDP Runtime version 7.2.16 onwards.

Before you begin

- You must have the ODAdmin rights to make changes to the operational database database.
- In the Cloudera Manager, increase the Region Mover Threads property for the HBase service to 30 for a faster rolling upgrade.

- In the Cloudera Manager, increase the Omid Max Heapsize property for the Omid service to at least 3GB.
- You must download and install the latest CDP CLI beta version.

Steps

1. Launch the CDP CLI tool.
2. Run the following command to perform a rolling OS upgrade for the database.
   This command upgrades the OS for the operational database using the rolling restart mode that ensures continuous service availability.
   ```
   cdp opdb upgrade-database --environment <environment-name>
   --database <database-name> [--runtime <runtime-version> |
   --image <imageId>] --os-upgrade-only --rolling-upgrade
   ```

Option	Description
--environment (string)	The name or CRN of the environment.
--database <value>	The name or CRN of the database.
--os-upgrade-only	Requests OS upgrade.
--runtime <value>	The 3-digit runtime version to upgrade to. Alternatively, specify the --image option.
--image <value>	The image ID to upgrade to. Alternatively, specify the --runtime option.
--rolling-upgrade	Controls whether to perform a rolling upgrade for the operational database.
--edge-upgrade-strategy <type>	Controls the upgrade strategy for the edge nodes in the cluster. Following are the supported values: • ALL: Upgrades all the edge nodes together. • ONE_BY_ONE: Upgrades the edge nodes, one by one.

Run the following command to perform a non-rolling OS upgrade for the database.

```
cdp opdb upgrade-database --environment <environment-name> --database <database-name> [--runtime <runtime-version> | --image <imageId>] --os-upgrade-only
```

Result

The Cloudera Operational Database is upgraded to the provided operating system version in a rolling mode.

Related information

- Upgrading Cloudera Operational Database clusters
- COD User Management
- CDP Environments
- COD CLI command reference GitHub repository
- CDP CLI BETA command reference GitHub repository

Rolling upgrade limitations

Consider the following points while performing a rolling runtime and an operating system upgrade of an operational database cluster.

Operating system upgrade limitations

- An unwanted rolling OS upgrade can be triggered if a runtime upgrade is not available, resulting in operational database downtime. Ensure that the runtime upgrade is available for the selected runtime using the cdp opdb describe-upgrade-database command before using the following command.
  ```
  cdp opdb upgrade-database --environment <environment-name> --database <database-name> --runtime <runtime-version> --rolling-upgrade
  ```
- The operational database rolling upgrade is focused on HBase and Phoenix thick clients excluding Phoenix Query Servers (PQS) because PQS connectivity depends on Knox which is not deployed in HA mode. When Knox is unavailable during the upgrade, PQS, HBase REST and other endpoints connected through Knox can be interrupted.

- The Cloudera Runtime and operating system rolling upgrades are currently supported for the operational database clusters whose storage is selected as HDFS or cloud without ephemeral storage.