

CDF Service Upgrade (Preview)

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Pre-upgrade information

Learn about tasks you need to perform and information you need to consider before starting a CDF service upgrade.

important

If you are upgrading on AWS to CDF-PC 2.3.0 or higher from release 2.2.0 or lower and you use a pre-created IAM policy, you need to update the `cdp-liftie-instance-profile` before the upgrade. For more information, see *Update cdp-liftie-instance-profile*.

Note:

In CDF-PC versions 2.4.0 and lower, ZooKeeper may lose component state information under certain conditions due to its previous configuration to use ephemeral storage. If a ZooKeeper pod fails, it retains component state information as long as it is rescheduled to the same Kubernetes (K8s) node, as it can reattach to storage already present there. If the ZooKeeper pod gets rescheduled to a different K8s node, existing storage is not moved with it, therefore state information is lost. If your use case requires that component state information is retained even during an upgrade, contact Cloudera Support to provide you with a patch that you need to apply to every deployment before starting the upgrade.

- You trigger an upgrade for a selected CDF environment. Upgrades move from an older version to the latest version available.
- Once you trigger the upgrade, the service enters **UPGRADING** state and is upgraded to the latest supported DataFlow and Kubernetes versions. Kubernetes upgrade can take up to an hour to complete. During the upgrade service actions are restricted, that is, you are not able to create or manage deployments in the given DataFlow service.
- As part of a DataFlow Service (Environment) upgrade, all existing deployments are also upgraded.
- If the upgrade fails, all components are rolled back to their original state.

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- To keep existing DataFlow deployments working, you may choose not to upgrade the NiFi version of existing deployments during the upgrade. This selection applies to all existing deployments.

Note:

The option to skip NiFi version upgrade is not always available: NiFi version upgrade is mandatory if the upgrade wizard determines that the new workload version is not compatible with the current NiFi version running in any deployment. The same automatism prevents you from accidentally downgrading NiFi below the minimum supported version later.

You can manually upgrade NiFi for individual deployments later.

- If upgrading a deployment fails, all components are rolled back to their original state and it causes the overall DataFlow service upgrade to be rolled back as well.

Update cdp-liftie-instance-profile

When upgrading to CDF-PC 2.3.0 or higher from release 2.2.0-h4 or lower on AWS and you use a pre-created IAM policy, you need to update the `cdp-liftie-instance-profile` before the upgrade. These updates are necessary because CDF-PC 2.3.0 has migrated to use EKS k8s 1.23 and CSI EBS provisioner. This storage provisioner requires updated policies to allow the creation and deletion of volumes from within the EKS cluster.

Without these policy changes, volumes provisioned by a pre-2.3.0 DataFlow version will be left behind if the corresponding deployment is terminated or the data flow is disabled after the upgrade.

About this task: Update the `cdp-liftie-instance-profile` using either the AWS UI or CLI.

1. Add the `ebs-csi` policy to the `cdp-liftie-instance-profile` IAM profile.

{

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```
"Version": "2012-10-17",

"Statement": [

{

"Action": [

"ec2:CreateSnapshot",

"ec2:AttachVolume",

"ec2:DetachVolume",

"ec2:ModifyVolume",

"ec2:DescribeAvailabilityZones",

"ec2:DescribeInstances",

"ec2:DescribeSnapshots",

"ec2:DescribeTags",

"ec2:DescribeVolumes",

"ec2:DescribeVolumesModifications"

],

"Resource": "*",

"Effect": "Allow"

},

{

"Condition": {

"StringEquals": {

"ec2:CreateAction": [

"CreateVolume",

"CreateSnapshot"

]


```

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```

}

},

"Action": [

"ec2:CreateTags"

],

"Resource": [

"arn:aws:ec2:*:*:volume/*",

"arn:aws:ec2:*:*:snapshot/*"

],

"Effect": "Allow"

},

{

"Action": [

"ec2>DeleteTags"

],

"Resource": [

"arn:aws:ec2:*:*:volume/*",

"arn:aws:ec2:*:*:snapshot/*"

],

"Effect": "Allow"

},

{

"Condition": {

"StringLike": {

"aws:RequestTag/ebs.csi.aws.com/cluster": "true"

```

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```

}

},

"Action": [

"ec2:CreateVolume"

],

"Resource": "*",

"Effect": "Allow"

},

{

"Condition": {

"StringLike": {

"aws:RequestTag/CSIVolumeName": "*"

}

},

"Action": [

"ec2:CreateVolume"

],

"Resource": "*",

"Effect": "Allow"

},

{

"Condition": {

"StringLike": {

"aws:RequestTag/kubernetes.io/cluster/*": "owned"

}

},

```

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```

"Action": [
  "ec2:CreateVolume"
],
"Resource": "*",
"Effect": "Allow"
},
{
  "Condition": {
    "StringLike": {
      "ec2:ResourceTag/ebs.csi.aws.com/cluster": "true"
    }
  },
  "Action": [
    "ec2>DeleteVolume"
  ],
  "Resource": "*",
  "Effect": "Allow"
},
{
  "Condition": {
    "StringLike": {
      "ec2:ResourceTag/CSIVolumeName": "*"
    }
  },
  "Action": [

```

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```

"ec2:DeleteVolume"

],

"Resource": "*",

"Effect": "Allow"

},

{

"Condition": {

"StringLike": {

"ec2:ResourceTag/kubernetes.io/created-for/pvc/name": "*"

}

},

"Action": [

"ec2:DeleteVolume"

],

"Resource": "*",

"Effect": "Allow"

},

{

"Condition": {

"StringLike": {

"ec2:ResourceTag/CSIVolumeSnapshotName": "*"

}

},

"Action": [

"ec2:DeleteSnapshot"

```

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```

],
"Resource": "*",
"Effect": "Allow"
},
{
"Condition": {
"StringLike": {
"ec2:ResourceTag/ebs.csi.aws.com/cluster": "true"
}
},
"Action": [
"ec2:DeleteSnapshot"
],
"Resource": "*",
"Effect": "Allow"
}
]
}

```

2. Add the efs-csi policy to the `cdp-liftie-instance-profile` IAM profile.

```

{
"Version": "2012-10-17",
"Statement": [
{
"Action": [
"elasticfilesystem:DescribeAccessPoints",

```

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```

"elasticfilesystem:DescribeFileSystems",
"elasticfilesystem:DescribeMountTargets"
],
"Resource": "*",
"Effect": "Allow"
},
{
  "Condition": {
    "StringLike": {
      "aws:RequestTag/efs.csi.aws.com/cluster": "true"
    }
  },
  "Action": [
    "elasticfilesystem:CreateAccessPoint"
  ],
  "Resource": "*",
  "Effect": "Allow"
},
{
  "Condition": {
    "StringEquals": {
      "aws:ResourceTag/efs.csi.aws.com/cluster": "true"
    }
  },
  "Action": [

```

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```
"elasticfilesystem:DeleteAccessPoint"
],
"Resource": "*",
"Effect": "Allow"
}
]
}
```

Upgrade a DataFlow service

You can upgrade your Cloudera DataFlow (CDF) service together with all DataFlow deployments in that environment with the push of a button.

Steps

1. From the CDF left navigation pane select **Environments**.
2. Select the CDF service you want to upgrade and click **Manage DataFlow**.
3. Click **Actions**→**Upgrade DataFlow**.

Note: If the upgrade wizard determines that all NiFi versions of your DataFlow deployments will be compatible with the upgraded CDF service version, you have the option to skip upgrading NiFi in current deployments. In this case you can upgrade NiFi

manually later using the Change NiFi Version feature.

Upgrade DataFlow

i DataFlow will be upgraded to the latest supported DataFlow and Kubernetes versions. The upgrade requires performing a Kubernetes upgrade. Kubernetes upgrade can take up to an hour to complete. During the upgrade you won't be able to create or manage deployments in this DataFlow service.

INSTANCE TYPE	NAME	REGION
Standard_D16s_v3		West US 2

Current Version in Use	Version After Upgrade
CDF 2.0.0-b294	→ CDF 2.1.0-b117
Kubernetes 1.21	→ Kubernetes 1.22

☐ Preserve current deployment NiFi versions
 ☐ Skip Validation *?*

Cancel

Upgrade

4. Click **Upgrade**.

Result: The environment status changes to **Upgrading** and you see a similar message under **Events**:

i DataFlow Upgrade Initiated
 2022-06-22 11:32 CEST

ALERT DETAILS:


Initiated dataflow upgrade on cluster with ID liftie-12623bk9.




DURATION:























1 second

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- You can monitor the upgrade procedure in **Event History**. Click **Manage DataFlow** then **Select Alerts**.

Event History 

SHOW ONLY: ☒  Info ☐  Warning ☐  Error

 DataFlow Successfully Upgraded	2022-06-27 19:43 CEST	
 DataFlow Post Upgrade Cleanup Initiated	2022-06-27 19:41 CEST	
 NiFi Deployments Upgraded	2022-06-27 19:41 CEST	
 Upgrading NiFi Deployments	2022-06-27 19:30 CEST	
 NiFi Dependencies Upgraded	2022-06-27 19:30 CEST	
 Upgrading NiFi Dependencies	2022-06-27 19:25 CEST	
 FluxCD Helm Operators Are Upgraded	2022-06-27 19:25 CEST	
 Upgrading FluxCD Helm Operators	2022-06-27 19:25 CEST	
 Kubernetes Version Upgraded	2022-06-27 19:25 CEST	
 Upgrading Kubernetes Version	2022-06-27 18:58 CEST	
 DataFlow Upgrade Initiated	2022-06-27 18:57 CEST	

Results: The message **DataFlow Successfully Upgraded** in **Event History** and the **Status** of the service changing from **Upgrading** to **Good Health** on the **Environments** page signal that the upgrade has ended. Depending on the number of running nodes in the cluster, the upgrade can take more than an hour to complete.

Troubleshooting DataFlow upgrade errors

Short Description: Learn how to recognize and address common errors with your Cloudera DataFlow (CDF) service upgrades.

Setting up kubectl to connect to the DataFlow Kubernetes cluster

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It is helpful to have access to the DataFlow Kubernetes cluster using command line tools such as kubectl when you are troubleshooting deployment or upgrade failures. To set up kubectl access, follow these steps:

1. In DataFlow, from the **Environments** page, select the DataFlow service for which you want to add or remove user access.
2. Click **Manage DataFlow**.
3. From the **Actions** menu, click **Manage Kubernetes API Server User Access**.
4. Add the AWS IAM role that you will authenticate as to the list of authorized users for DataFlow by entering the ARN in the **Add User** dialog.
5. Use the *Download Kubeconfig* action to retrieve the kubeconfig file for connecting to your cluster.
6. Set up your kubectl to use the downloaded kubeconfig file:
`export KUBECONFIG=[***PATH/TO/DOWNLOADED/KUBECONFIG/FILE***]`
7. Run `kubectl get ns` and validate that your output looks similar to:

NAME	STATUS	AGE
cadence	Active	37h
cert-manager	Active	37h
cfm-operator-system	Active	37h
default	Active	38h
dfx-dev-environment-ns	Active	36h
dfx-idbrokers3-ns	Active	36h
dfx-kafkatos3-ns	Active	22h
dfx-local	Active	37h
dfx-ops	Active	37h
kube-node-lease	Active	38h
kube-public	Active	38h
kube-system	Active	38h
liftie	Active	37h
logging	Active	37h
monitoring	Active	37h
nfs-provisioner-system	Active	37h
nginx-ingress	Active	37h
prometheus-operator-system	Active	37h

With kubectl being set up correctly, you are able to access NiFi and other DataFlow logs directly through the CLI.

Upgrade failure scenarios

An upgrade may fail at various points, for different reasons. This document covers the following scenarios:

- The upgrade fails upon initiation.
- The upgrade starts but fails and rollback is not possible.

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- The upgrade starts but fails, and rollback is possible.

Upgrade fails on initiation

Symptom: When the upgrade fails to start, the status of the environment does not change to **Upgrading** and you receive an error message stating the cause of the failure.

Possible causes:

- Any of the deployments is in one of the following states:
 - FAILED_TO_UPDATE
 - FAILED_TO_UPDATE_NIFI_VERSION

How to fix it: Address the deployment(s) in failure state by re-attempting the previously failed update. A deployment in FAILED_TO_UPDATE has changes that were not successfully applied. A deployment in FAILED_TO_UPDATE_NIFI_VERSION was unable to successfully complete a Change NiFi Version request. If unable to resolve the deployment issues, you may terminate them instead. Once the issues are addressed, retry the upgrade.

Possible causes:

- Any of the deployments is in one of the following states:
 - Any transitional / in progress state

How to fix it: Wait for the deployment(s) that are actively performing another requested action to complete. Retry the upgrade.

Upgrade fails and rollback is not possible

Symptom: The status of the service, and shortly after, the deployments, changes to **Failed to Upgrade**. The status icon on the service changes to **Bad Health**.

How to fix it:

1. Check the **Event History** if there is anything obvious in there. For example, did the upgrade fail during or after the K8s upgrade?
2. If K8s upgrade failed, check on the cloud provider side whether there is anything obvious as a reason for the failure. For example, check activity logs and node pools on Azure, or EKS cluster on AWS.
3. If the K8s upgrade succeeded, but the upgrade failed during FluxCD Helm Operators upgrade, check pods and Flux deployments in `flux-system` namespace.
4. If the K8s and FluxCD Helm Operators upgrades succeeded, but the upgrade failed during NiFi Dependencies upgrade, check pods and Helm releases (the label

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`com.cloudera.dfx.workload/component=environment` identifies environment-related Helm releases).

5. If the K8s upgrade, FluxCD Helm Operators, and NiFi Dependencies upgrades were successful but NiFi Deployments upgrade failed, check deployment pods and Helm releases with label `com.cloudera.dfx.workload/component=deployment`
6. If you managed to pinpoint and fix the possible cause of the failure, retry the upgrade.
7. If you did not find the cause of the failure, or the upgrade still fails upon retry, contact Cloudera Support.

Upgrade fails and rollback is possible

Symptom: Upgrade fails and rollback process starts. If the rollback is successful, the Status of the service returns to **Good Health**, CDF and NiFi versions return to their pre-upgrade values. If the rollback fails, the Status of both the CDF service and running deployments becomes **Failed to Upgrade**. The order in which this transition happens depends on where the rollback actually failed.

How to fix it: In the event of an upgrade failure, DataFlow determines if rollback is possible and automatically initiates it. No user intervention is required.

If the rollback is successful:

1. After the rollback ends, from the **Environments** page, select the DataFlow service you were trying to upgrade and click the **Alerts** tab. Check **Event History** to see if there is anything obvious in there or something that narrows down the possible cause of the failure.
2. From the **Dashboard** page select running deployments that failed to upgrade and check **Alerts**→**Event History** to see if there is anything obvious in there or something that narrows down the possible cause of the failure.
3. Check the K8s cluster using CLI and try to fix errors based on the information you obtained from **Event History** in the previous steps.
4. Retry the upgrade.
5. If the upgrade still fails contact Cloudera Support.

If the rollback fails:

The status of both the service and the running deployments changes to **Failed to Upgrade**. The order in which they transition depends on where the rollback actually failed.

1. Retry the upgrade. During the retry, it is useful to monitor the status of the upgrade on the K8s cluster to better pinpoint the cause of a possible failure.
2. If the upgrade still fails upon retry, Contact Cloudera Support.

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Note: A DataFlow upgrade can only be rolled back if the upgrade did not require a new Kubernetes (K8s) version.

Retrying an upgrade

1. On the DataFlow **Dashboard** select **Environments** from the left navigation pane.
2. Select the service where you want to retry the upgrade and click **Manage DataFlow**.
3. Click **Actions**→**Retry Upgrade DataFlow**.