

CDF Service Upgrade (Preview)

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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.

- When a new version of CDF is released, existing CDF services continue functioning without any intervention. If you choose to upgrade a CDF service, it will move it from the current version to the latest version available.
- Most upgrades only impact the CDF service itself and complete in a matter of minutes. If an upgrade also indicates a new workload cluster Kubernetes (K8s) version is needed, the upgrade will take much longer. Depending on the number of running nodes in the cluster, a K8s version update can add more than an hour to an upgrade.
- When you trigger the upgrade, the service enters **UPGRADING** state and is upgraded to the latest supported DataFlow and K8s versions. During the upgrade, service actions are restricted, that is, you are not able to create or manage deployments in the given DataFlow service. Additionally, an upgrade cannot be initiated if one or more deployments are busy performing any other requested action.
- As part of a DataFlow Service upgrade, all existing deployments are also upgraded. To keep existing DataFlow deployments running and preserve the version of NiFi in use, 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 preserve current deployment NiFi versions is not always possible: 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.
- Whether existing deployment NiFi versions are preserved or upgraded, you can always manually upgrade or downgrade NiFi for individual deployments after upgrade using the Change NiFi Version feature. The same NiFi version compatibility validation exists when changing NiFi version at a later time to ensure you use only NiFi versions supported by the latest workload.
- If an upgrade fails, CDF makes an attempt to roll back all changes, including deployments. This is not always possible. If the upgrade required a new K8s version, the upgrade cannot be rolled back and will reflect a FAILED_TO_UPGRADE state.
- Failed upgrades, whether rolled back or not, can always be retried.

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

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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**

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

Learn how to recognize and address common errors with your Cludera 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**.