Collibra

Collibra Data Intelligence Cloud

# Edge Infrastructure

Version 2023.07

Collibra

# Collibra Data Intelligence Cloud - Edge Infrastructure

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You can find the most up-to-date technical documentation on our Documentation Center at

https://productresources.collibra.com/docs/collibra/latest/Content/Edge/to_edge.htm

# Contents

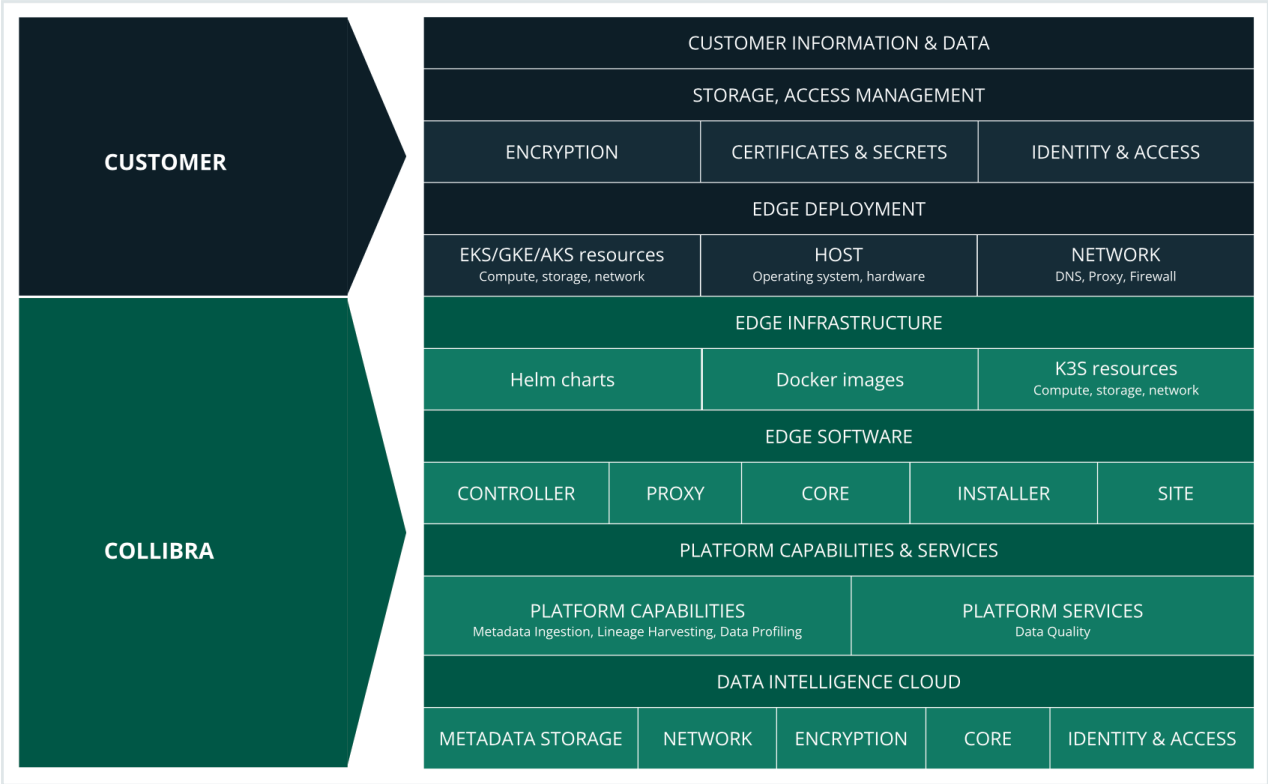
# Introducing Edge

Edge is a cluster of Linux servers for accessing and processing data close to where it resides. It helps to connect to data sources and process information within your data landscape.

Edge enables Collibra Data Intelligence Cloud to safely connect to your data sources hosted in an on-premise or cloud environment. It processes the data source information on the Edge site and sends the process results to Collibra Data Intelligence Cloud.

## Edge Responsibilities

The ownership of responsibility over the various Edge components is shared between you and Collibra. The diagram below illustrates which components you are responsible for and have control over, and those which belong to Collibra.




# Edge components

Edge consists of three main components:

- An Edge configuration page in Collibra Data Intelligence Cloud to create and install Edge sites.
- An Edge integration capability repository that resides on the Collibra Platform and contains all capabilities that can run on an Edge site.
- An Edge site that is installed close to a data source in the customer's environment, whether it's in the cloud or on the customer's premises.

# Integration steps

The following table shows which steps you have to take to set up Edge.

| Step | Description | Required permissions |
| --- | --- | --- |
| 1 | Create an Edge site via Collibra Data Intelligence Cloud Settings. | You have a global role with the Manage Edge sites global permission in Collibra Data Intelligence Cloud. |
| 2 | Install the Edge site close to the data source you want to access.<br>You can only install an Edge site on a Linux system that meets the necessary system requirements. | You have a global role with the Install Edge sites global permission in Collibra Data Intelligence Cloud. |
| 3 | Update the credentials of the Edge site user. | You have a global role with the Connect Edge sites to Collibra global permission in Collibra Data Intelligence Cloud. |

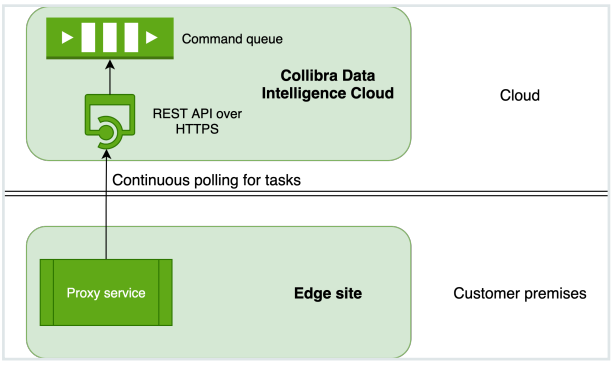
# Edge security

Edge is built with security first approach. All communication channels are secured by TLS 1.2 and all endpoints outside Edge are accessible only via authentication. Edge does not send or store any customer data, its purpose is to host capabilities that process the data in its own environment and to send only processing results to Collibra Data Intelligence Cloud.

> Note If you have any questions about data privacy and what information is sent via third part components, such as Datadog, please reach out to your Collibra representative.

# Communication between Edge and Collibra

Edge operates over an outbound-only model – it executes tasks as commands polled from your Collibra platform. Communication to Collibra uses basic authentication over TLS 1.2. A user account is generated for communicating to Collibra each time the Edge site installer is downloaded. This user account is unique to each Edge site. It is possible to change the password of this user account by following the steps outlined in our Update Edge user password article.

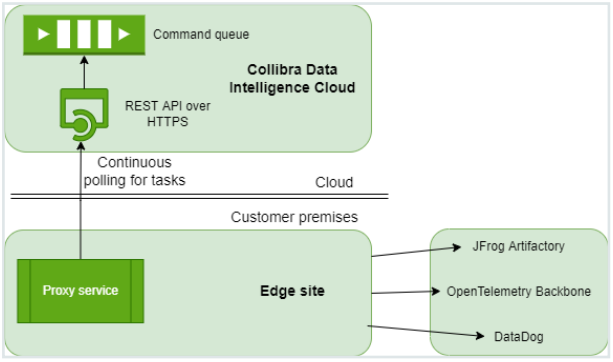



- Edge sites always use REST API endpoints to establish connections.
- Edge requires access to a Collibra server. It is needed for:
  - Reading a request queue, which is a queue with jobs that need to be run on Edge.
  - Returning the metadata results of Edge jobs.
- Edge manages Collibra Data Intelligence Cloud and data source credentials. This has the following consequences:
  - Credentials are not accessible outside of Edge.
  - Credentials used on an Edge site are encrypted with a key that is secured in Collibra.
  - Credentials of data sources and Collibra can be updated if necessary.
- All configuration parameters, files or strings marked as secret, are stored on the Edge site encrypted with a public key that resides in Collibra. The private part of that key is encrypted with a public key from the Edge site. As a result, secrets can only be decrypted with both key pairs, one residing on the Edge site and the other on Collibra.

- An Edge site communicates over a secure channel with your Collibra environment using certificates, issued by a Collibra-chosen Certificate Authority (CA). However, if there is a forward proxy server between the Edge site and Collibra, you have to use the proxy server's CA.

# Communication between Edge and other services

Edge communicates with other servers, such as JFrog, for maintenance purposes.




Edge requires access to the following servers:

| Server | Communication | Authentication |
|---|---|---|
| JFrog | This is needed in order to download Helm Charts and Docker Images that are running on Edge. | API Key Pair over HTTPS. |
| OpenTelemetry Backbone | This is needed in order to upload various Edge related metrics. | Basic Authentication. |
| DataDog | This is needed in order to upload logs from all Edge components:<br>• Core edge components<br>• Edge capabilities , for example, ingestion, profiling, lineage, classification, quality. | API Key Pair over HTTPS. |

# Authentication to data sources

Edge connections and capabilities use different ways to connect to data sources The required level of privileges or security greatly depends on the data source type and supported Catalog Connectors.

Collibra regularly adds and certifies Catalog connectors. To understand the authentication methods and the level of security, consult the Catalog connector documentation.

# Security scanning

Before Collibra composes an Edge installation package, XRay scans are performed on all images consumed by Edge to identify and mitigate vulnerabilities. Contrast scanning is performed post installation for runtime vulnerability detection. This strategy ensures that Edge remains secure.

You can also run your own security scans. We recommend that you run the following command in order to remove old containers and images from an Edge host before running your own scans:

```
sudo /usr/local/bin/k3s crictl rmi --prune.
```

This prune command is a native docker command to clean unused docker objects such as images, containers, volumes and networks. Running this command will avoid false positive vulnerabilities when performing scans as Kubernetes, which is responsible for the garbage control of old Edge images and containers, is not guaranteed to have cleaned up the files before the scan is run.

# Storing secrets

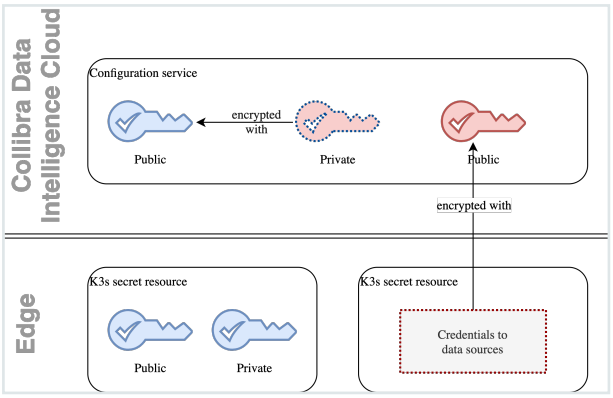
Secrets for connections and capabilities are stored solely on the Edge site. While at rest, secrets are using envelope encryption where the secret is encrypted by a key, which on its turn is encrypted by another key.

The Edge native encryption mechanism is based on two RSA key pairs. They are stored in the following places:

| Keys | DIC server | Edge server | Purpose |
|---|---|---|---|
| Red public key | Yes | No | Used to encrypt credentials. |
| Red private key | Yes (encrypted using public blue key) | No | Used to decrypt credentials |
| Blue public key | Yes | Yes | Used to encrypt red private keys. |
| Blue private key | No | Yes | Used to decrypt red private key. |

The blue key pair is stored as a Kubernetes secret on the Edgeserver so it undergoes a native K3S encryption as described here.

An Edge site owns the blue key pair, with the blue private key stored on Edge. Similar to that, Collibra Data Intelligence Cloud owns the red key pair. Every secret on Edge is encrypted with the red public key, which is sent to the Edge site for each capability execution, encrypted with the blue public key. Once on the Edge site, Edge can be decrypted with the red private key, and secrets needed to execute a connection or a capability are decrypted and injected into the capability container.




> **Note** Inside the k8s cluster, all other secrets, for example data source credentials and datadog credentials, are stored encrypted at rest.

# Customer Credentials

## Credentials storage

All sensitive data is stored on Edge and encrypted by the native K3S mechanism. Additionally, all user entered credentials are encrypted using the native Edge encryption mechanism.

## Secret encryption

In the case of Virtual Machine or Bare Metal installations (K3S based), all secrets are encrypted using the native Kubernetes mechanism. The whole state of the cluster, including secrets and ConfigMap, are subject to encryption. The encryption algorithm that is used is AES 256 in CBC mode and PKCS#7 padding, which can be checked by running the following command: `sudo /usr/local/bin/k3s secrets-encrypt status`

The entire database is stored in the **/var/lib/rancher/k3s/server/db/state.db** file which contains the SQLite data.

## Credential encryption

Every value that is marked as **To be encrypted by Edge management** is additionally encrypted by the Edge site specific red public key.

The algorithm for encryption is summarized below:

1. User enters sensitive text either via Web UI or REST API.
2. Text is sent to aCollibra server (Edgemanagement module).
3. The Edge management module retrieves the red public key for the specific site.
4. A new AES 128 symmetric key (encryption key) is generated.
5. The encryption key is used to encrypt the sensitive text.
6. The encryption key itself is encrypted using the red public key.
7. The encrypted encryption key and encrypted text are concatenated and encoded using Base64 encoding to form the Edgesecret.

8. The Edgesecret is then sent directly to the Edge site, where it is stored as a Kubernetes secret.

In short the algorithms used are:

- RSA 2048 in EBC mode and PKCS#1 padding
- AES 128 in EBC mode and PKCS#7 padding

> Note AES 128 was selected due to the restriction of the RSA algorithm which can only encrypt 245 bytes.

# Credentials transfer

When the Collibra server (Edge management module) has encrypted the credentials, they are sent to the Edge site using the HTTP TLS 1.2 protocol.

# Platform credentials

Apart from the credentials that users need to enter in order to connect to the data sources, there are also credentials which are needed to access the Collibraserver itself.

These credentials include:

- Collibraserver credentials (username and password, stored in dgc-secret Secret)
    - You can rotate these credentials by using the script: edge update-dgc-cred
- DataDog API key (stored in datadog-secret Secret)
    - Rotation is currently not possible. You have to reinstall Edge.
- JFrog credentials (stored in collibra-edge-repo-creds Secret)
    - Rotation is currently not possible. You have to reinstall Edge.

For K3S based installations, the JFrog credentials are also stored in file: **/etc/rancher/k3s/registries.yaml**

> Note This file is unencrypted, but it is only accessible by a root user.

# Data samples in Edge

By default, Edge by design, doesn't store any samples. To view sample data for data sources registered via Edge, you can activate a sampling capability. For all details, see Sample data.

Edge capabilities such as Profiling and Classification use data in memory, after which the data is discarded.

# Edge Cache

Any metadata, logs or metrics stored in the Edge cache are encrypted by default to improve the security of your data and the platform. You are not required to make any changes to this security policy, and there is no impact on the functionality of your Edge sites.

# Edge service repository

To keep Edge synchronized with your Collibra Data Intelligence Cloud version, we deploy core Collibra services and business capabilities in the Collibra repository of your environment. An Edge site uses token-based authentication with read privileges to download services for each release. The authentication and endpoint to access the Collibra repository are stored in the **registries.yaml** file as part of the Edge site installer.

For 2-day vulnerability, you can edit **registries.yaml** and access the registry independently, and download images for Edge to scan them. Currently there is no SLA for vulnerabilities that you may find. The standard support SLAs are applied.

# Monitoring and logging

We monitor and log all interaction between an Edge site and Collibra Data Intelligence Cloud, as well as the Edge site infrastructure health. All logs are kept in the Collibra Datadog account.

> Note We don't send Catalog connector logs to your environment. These Catalog connector logs are by default turned off. If they are enabled, they are kept on the Edge site itself. If you are troubleshooting an issue, you have to extract these logs as soon as possible after the completion or failure of the capability, as these files will be removed after a day, and send them to Collibra Support via a support ticket.

# Additional information

For more information, go to the following resources:

- Edge logging
- Create Metadata connector log file

# Host hardening on K3S-based integration

Each time you start K3S, a KUBECONFIG file is created. This file contains the credentials to access the K3S cluster as an administrator. The KUBECONFIG file is created by default under **/etc/rancher/k3s/k3s.yaml**. For security reasons, we recommend host hardening by making the KUBECONFIG file inaccessible for other users. As long as the host hardening is applied to Edge, you cannot connect to the K3S cluster using kubectl or the Edge tools.

In this article, you will learn how to enable and disable the host hardening.

## Prerequisites

- Edge needs to be installed.
- You need root privileges on the server that hosts the Edge site.

## Enable host hardening

1. Sign into the server that hosts your Edge site with root privileges.
2. Open the file **/etc/systemd/system/k3s.service.env** for editing.
3. Add the following lines to the **k3s.service.env** file:
   - *K3S_KUBECONFIG_OUTPUT=/dev/null*.
   - *K3S_KUBECONFIG_MODE=666*

   > Note If there are other lines, setting other environment variables do not remove them.

4. Restart the K3S service: `systemctl restart k3s`
5. Check if the KUBECONFIG file is empty: `cat /etc/rancher/k3s/k3s.yaml`

   > Note K3S is actually making **/etc/rancher/k3s/k3s.yaml** a symlink to **/dev/null**.

To further increase the security of your server, you can prevent connections to K3S from other sources than localhost.

Limit the access to the following ports other than localhost:

| Protocol | Port | Description |
|---|---|---|
| TCP | 6443 | Kubernetes API Server |
| TCP | 10250 | Kubelet metrics |
| UDP | 4500 | strongSwan |
| UDP | 500 | strongSwan |

The following commands prevent access to the ports mentioned in the table. Please check with your security team for compliance and for the tools used to filter the traffic before applying these commands.

```
iptables -I INPUT -j DROP  -p tcp -m multiport --dports
6443,10250
iptables -I INPUT -j DROP  -p udp -m multiport --dports
4500,500
iptables -I INPUT -j ACCEPT -i lo -p tcp -m multiport --dports
6443,10250
iptables -I INPUT -j ACCEPT -i lo -p udp -m multiport --dports
4500,500
```

# Disable host hardening

1. Sign into the server that hosts your Edge site with root privileges.
2. Open the file **/etc/systemd/system/k3s.service.env** for editing.
3. Remove the following lines from the **k3s.service.env** file:
   - *K3S_KUBECONFIG_OUTPUT=/dev/null*.
   - *K3S_KUBECONFIG_MODE=666*
4. Restart the K3S service: `systemctl restart k3s`
5. Check if the KUBECONFIG file is empty: `cat /etc/rancher/k3s/k3s.yaml`

# Installing an Edge site

An Edge site is a component installed in a customer's environment. Each Edge site has a unique identifier and hosts an Edge capability that can access a data source.

This section contains the information that you need to know to install an Edge site.

# About an Edge site installation

After creating your Edge sites in Collibra Data Intelligence Cloud, you have to install the Edge software on either K3S or EKS. You typically install Edge sites within the same secure environment as the relevant data source. A customer usually has several Edge sites depending on their requirements, for example the number of networks and secure environments, as well as the technical and legal spread of data sources.

An Edge site can have:

- Zero or more predefined connections to data sources via a JDBC driver.
- One or more integration capabilities to process data on site and send the results to Collibra.

An Edge site is a compute runtime on K3S or EKS, that executes capabilities close to your data but that is configurable from the Collibra Data Intelligence Cloud settings. It has a dedicated unique identifier and handles data sources that it can reach within its network. You can have more than one Edge site, depending on the number of networks, security domains, regions or VPCs that you have.

## Properties

| Property | Description |
|---|---|
| Name | The name of the Edge site. Use a meaningful name, for example NetherlandsDataCentre1. Do not use spaces or special characters.<br><br>This field is mandatory and the name must be globally unique. |
| Status | The status of the Edge site.<br><br>The status is automatically shown when you create an Edge site. |
| ID | The unique ID of the Edge site, which is generated automatically when you create the Edge site. |

| Property | Description |
| --- | --- |
| Description | The description of the Edge site. We recommend to put at least basic location information of the Edge site.<br>This field is mandatory. |
| Installer and property files | A section where you can download the installer and property files to install an Edge site on a server.<br>This section is only visible when the Edge site has the status **To be installed**. |

# Statuses

The status of an Edge site indicates if the Edge site can be used or not. The status is shown on the **Edge** settings page of the Collibra settings. An Edge site can have one of the following statuses:

| Status | Description |
| --- | --- |
| To be installed | The Edge site is created, but not installed yet. |
| Offline | Collibra cannot reach the Edge site. This can be caused by an unsuccessful installation or a lost connection.<br>See the installation logs for more information. |
| Unhealthy | Collibra can connect to the Edge site, but some functions don't work correctly. This is typically caused by problems during the installation.<br>See the installation logs for more information. |
| Healthy | The Edge site installation was successful. |

# Installation directories on K3S

The Edge site installer installs files in the following directories on your host server:

- /var/lib/rancher/
- /var/log/

- /etc/
- /usr/local/bin/

# System requirements of an Edge site

To use Edge, you must ensure that the following system requirements are met.

## Software requirements

- You must be able to install the Edge software on the latest version of RedHat Enterprise Linux 8.
- The **sudo** package is installed on the Linux host.
- The user who installs Edge has full sudo access (`ALL=(ALL) ALL`).
- Optionally, if you want SE Linux enabled, install the following policy packages before installing Edge:
  Packages[1]

> Tip If you are an early adopter or you use Edge for beta testing purposes, we highly recommend that you disable SELinux.

## Hardware requirements

> Note The Virtual Machine (VM) must be dedicated to Edge when installing on k3s.

You need the following minimum hardware requirements:

- 64 GB memory.
- 16-core CPU with x86_64 architecture.

---

1
- yum install -y container-selinux selinux-policy-base
- yum install -y https://rpm.rancher.io/k3s/stable/common/centos/7/noarch/k3s-selinux-0.2-1.el7_8.noarch.rpm

These packages are not hosted by Collibra. If you have any questions, contact your internal teams.

- At least 60 GB of free storage for Edge application storage requirements:
  - You have at least 50 GB of free storage on the partition that contains **/var/lib/rancher/k3s**. The partition mountpoint should not have the noexec option.

```
mkdir -p /var/lib/rancher/k3s
mkfs.xfs /dev/<block-device-name>
mount /dev/<block-device-name> /var/lib/rancher/k3s
echo '/dev/<block-device-name> /var/lib/rancher/k3s
xfs defaults 0 0' >> /etc/fstab
```

> Note This is the default install path. If it is not created as a separate mount point after following the steps above, the install will use 50 GB of disk space from either /var, or if not present, the root level of the drive.

> Warning Any data in this location is fully managed by the Edge site. Do not save any other data in this location as the data can be removed by Edge without notification.

  - You have at least an additional 5 GB of space in /var/log for Edge components. Edge uses hardcoded /var/log to write logs:
    - Up to 1.1 GB of space for writing K3S audit logs.
    - Maximum of 60 MB per container for pod logs. The number of containers depends on the workload.
  - You have at least an additional 5 GB of space on the partition that holds /var/lib/kubelet. Edge uses hardcoded /var/lib/kubelet/pods/*/volumes/kubernetes.io~empty-dir/* to write ephemeral data related to kubernetes.
- At least 500 GB of dedicated storage for Edge data storage requirements:
  - You have mounted at least 500 GB of dedicated storage for the Edge site data on a freely chosen mountpoint, for example, **/var/edge/storage**.

```
mkdir -p /var/edge/storage
mkfs.xfs /dev/<block-device-name>
mount /dev/<block-device-name> /var/edge/storage
echo '/dev/<block-device-name> /var/edge/storage xfs
defaults 0 0' >> /etc/fstab
```

> Note Change `<block-device-name>` to the name of the device that contains the storage.

> Warning This dedicated storage must not be shared with other services because Edge can delete and overwrite files on this location without notice. Therefore, do not use **/home/<username>** or **/var**.

- If you run the Linux server on AWS or GCP, disable the services **nm-cloud-setup.service** and **nm-cloud-setup.timer**.

```
systemctl disable nm-cloud-setup.service nm-cloud-
setup.timer
reboot
```

> Warning When new capabilities are added in the future, the hardware requirements may change.

# Network requirements

# Commercial

- An Edge site needs outbound connections to all of the following:
  - The URL of your Collibra Data Intelligence Cloud environment.
  - **https://*.datadoghq.com**: This URL is used to collect some of the logs from Edge for issue diagnosis. We do not send driver logs to Edge from to Datadog.

    > Note If the allowlist does not accept wildcards:
    > - https://http-intake.logs.datadoghq.com
    > - https://7-42-0-app.agent.datadoghq.com
    > - https://agent-http-intake.logs.datadoghq.com
    > - https://api.datadoghq.com
    >
    > These Datadog sub-domains can be changed at any time by Datadog. In that case, you need to update the allowlist URLs. Review the release notes every release to keep up to date with changes to the Edge network requirements.

  - **https://*.repository.collibra.io**: This URL serves as the primary source for downloading the latest Edge docker images from Collibra's docker registry and helm-chart repository.

    > Note If the allowlist does not accept wildcards:
    > - https://repository.collibra.io
    > - https://edge-docker-delivery.repository.collibra.io
    > - https://mirror-docker.repository.collibra.io

  - **https://otlp-http.observability.collibra.dev/**: This URL is used to ingest metrics and traces for monitoring the health and usage of Edge sites.
- Access to all data sources you need to connect to your Edge sites.
- Your Edge site has to be able to connect to port 443.
- If you intend to use a man-in-the-middle (MITM) proxy, you need to add the specific truststores customization to the ca.pem, because Edge does not use

the host TLS trustsore. For more information, go to Configure a forward proxy.

- The resolve configuration file of your Linux host has maximum three search domains and two name servers.

> Note If a firewall is enabled, run the following commands to add the cni0 and loopback interfaces to a trusted zone, so that Kubernetes can use it between its services:
>
> ```
> firewall-cmd --zone=trusted --change-interface=cni0
> --permanent
> firewall-cmd --zone=trusted --change-interface=lo --
> permanent
> firewall-cmd --reload
> ```

# FedRAMP

- An Edge site needs outbound connections to all of the following:
  - The URL of your Collibra Data Intelligence Cloud environment.
  - https://*.ddog-gov.com

    > Note If the allowlist does not accept wildcards:
    > - https://http-intake.logs.ddog-gov.com
    > - https://7-42-0-app.agent.ddog-gov.com
    > - https://agent-http-intake.logs.ddog-gov.com
    > - https://api.ddog-gov.com
    >
    > These Datadog sub-domains can be changed at any time by Datadog. In that case, you need to update the allowlist URLs. Review the release notes every release to keep up to date with changes to the Edge network requirements.

    - https://*.artifactory-gov2prod.collibra.com/

      Note If the allowlist does not accept wildcards:
      - https://artifactory-gov2prod.collibra.com
      - https://edge-docker-delivery.artifactory-gov2prod.collibra.com

- Access to all data sources you need to connect to your Edge sites.
- Your Edge site has to be able to connect to port 443.
- If you intend to use a man-in-the-middle (MITM) proxy, you need to add the specific truststores customization to the ca.pem, because Edge does not use the host TLS trustsore. For more information, go to Configure a forward proxy.
- The resolve configuration file of your Linux host has maximum three search domains and two name servers.

Note If a firewall is enabled, run the following commands to add the cni0 and loopback interfaces to a trusted zone, so that Kubernetes can use it between its services:

```
firewall-cmd --zone=trusted --change-interface=cni0
--permanent
firewall-cmd --zone=trusted --change-interface=lo --
permanent
firewall-cmd --reload
```

# EKS requirements

You can install the Edge software on managed Kubernetes clusters.

> Important A managed Kubernetes cluster must be fully dedicated for Edge, do not use the cluster for other purposes.

- AWS EKS 1.22, 1.23 (both only with `--container-runtime containerd`), and 1.24 are supported.

  > Note EKS 1.21 is no longer supported for new Edge installations starting from the 2023.05 release.

  - We support EBS-CSI driver for 1.23.
- AWS EKS worker nodes use the EKS optimized Amazon Linux 2 AMI
- EKS cluster has IRSA enabled
- AWS EKS worker nodes need to be in the same (one) Availability Zone!
  This can be implemented by creating just one node group for the EKS cluster, which limits the subnets to just one subnet, that is one of the subnets of the EKS cluster.
- Set up security groups to ensure that worker nodes can communicate with each other on non-privileged ports.

```
module "eks" {
   source             = "terraform-aws-modules/eks/aws"
   version            = "17.24.0"
   cluster_name       = "${var.vpc_name}-${var.cluster_
name}-eks"
    cluster_version   = "1.21"
   vpc_id             = var.vpc_id
   subnets            = data.aws_subnet_ids.public_subnet_
ids.ids  # Subnets specified must be in at least two
different AZs
   worker_additional_security_group_ids = [aws_security_
group.worker_sg.id]
   enable_irsa        = true  # enable iam role for service
account, for later use
   worker_groups = [
       {
            name                 = "${var.vpc_name}-${var.cluster_
name}-eks-workers"
          instance_type        = var.worker_type
          asg_desired_capacity = var.instance_count_workers
```

```
            key_name              = aws_key_pair.cluster-ssh-
keypair.key_name
            bootstrap_extra_args = "--container-runtime
containerd"  # mandatory to run with containerd if on
1.21
            subnets               = [subnet1]
        # restriction for now to use only 1 subnet due to
EBS tied to AZ
          },
        ]
    map_accounts = [
        data.aws_caller_identity.current.account_id
        ]

    tags = {
        Name            = "${var.vpc_name}-${var.cluster_
name}-eks"
          }
}
```

# Software requirements

- A Linux server with bash available. This is the server from which you install the Edge software on EKS.

  > Tip This server will also contain the Edge tools.

- Plain cluster_admin kubectl access to the EKS cluster using its kubeconfig. With this kubeconfig, you must be able to use the kubectl command to communicate with the Kubernetes API server with full cluster access.
- Ensure your Kubectl client is compatible with the relevant EKS version.
- EBS volumes should be provisioned by the storage provider of the default `storageclass`.
- The default EBS-based `storageclass` should have the `delete` reclaim policy.

# Hardware requirements

You need an operational EKS cluster with at least 1 worker node. The cluster must meet the following requirements:

- The total cluster capacity has at least 16 core CPU and 64 GB memory, for example, 4 worker nodes each with 4 core CPU and 16 GB.
- Each worker node needs at least 100 GB free disk space to store Docker images.
- The ability to create EBS-based persistent volumes as a default storage class.
- We recommend you have at least 2 worker nodes in the EKS cluster. This provides you with about 46 available EBS volume attachments.

> Note The number of jobs that can run at the same time is limited by the available EBS volumes attached to the specific AWS EC2 instance type. On average, an AWS EC2 instance type has 20 EBS volumes available and Edge jobs consume 3 EBS volumes. In order to run more jobs at the same time, you need to increase the number of nodes in the cluster, which increases your available EBS volumes. If you have any questions, contact Collibra support.

# Network requirements

## Commercial

- An Edge site needs outbound connections to all of the following:
  - The URL of your Collibra Data Intelligence Cloud environment.
  - **https://*.datadoghq.com**: This URL is used to collect some of the logs from Edge for issue diagnosis. We do not send driver logs to Edge from to Datadog.

> Note If the allowlist does not accept wildcards:
> - https://http-intake.logs.datadoghq.com
> - https://7-42-0-app.agent.datadoghq.com
> - https://agent-http-intake.logs.datadoghq.com
> - https://api.datadoghq.com
>
> These Datadog sub-domains can be changed at any time by Datadog. In that case, you need to update the allowlist URLs. Review the release notes every release to keep up to date with changes to the Edge network requirements.

  - **https://*.repository.collibra.io**: This URL serves as the primary source for downloading the latest Edge docker images from Collibra's docker registry and helm-chart repository.

> Note If the allowlist does not accept wildcards:
> - https://repository.collibra.io
> - https://edge-docker-delivery.repository.collibra.io
> - https://mirror-docker.repository.collibra.io

  - **https://otlp-http.observability.collibra.dev/**: This URL is used to ingest metrics and traces for monitoring the health and usage of Edge sites.
- Access to all data sources you need to connect to your Edge sites.
- Your Edge site has to be able to connect to port 443.
- If you intend to use a man-in-the-middle (MITM) proxy, you need to add the specific truststores customization to the ca.pem, because Edge does not use the host TLS trustsore. For more information, go to Configure a forward proxy.
- The resolve configuration file of your Linux host has maximum three search domains and two name servers.

Note If a firewall is enabled, run the following commands to add the cni0 and loopback interfaces to a trusted zone, so that Kubernetes can use it between its services:

```
firewall-cmd --zone=trusted --change-interface=cni0
--permanent
firewall-cmd --zone=trusted --change-interface=lo --
permanent
firewall-cmd --reload
```

# FedRAMP

- An Edge site needs outbound connections to all of the following:
  - The URL of your Collibra Data Intelligence Cloud environment.
  - https://*.ddog-gov.com

    Note If the allowlist does not accept wildcards:
    - https://http-intake.logs.ddog-gov.com
    - https://7-42-0-app.agent.ddog-gov.com
    - https://agent-http-intake.logs.ddog-gov.com
    - https://api.ddog-gov.com

    These Datadog sub-domains can be changed at any time by Datadog. In that case, you need to update the allowlist URLs. Review the release notes every release to keep up to date with changes to the Edge network requirements.

    - https://*.artifactory-gov2prod.collibra.com/

      > Note If the allowlist does not accept wildcards:
      > - https://artifactory-gov2prod.collibra.com
      > - https://edge-docker-delivery.artifactory-gov2prod.collibra.com

- Access to all data sources you need to connect to your Edge sites.
- Your Edge site has to be able to connect to port 443.
- If you intend to use a man-in-the-middle (MITM) proxy, you need to add the specific truststores customization to the ca.pem, because Edge does not use the host TLS trustsore. For more information, go to Configure a forward proxy.
- The resolve configuration file of your Linux host has maximum three search domains and two name servers.

> Note If a firewall is enabled, run the following commands to add the cni0 and loopback interfaces to a trusted zone, so that Kubernetes can use it between its services:
>
> ```
> firewall-cmd --zone=trusted --change-interface=cni0
> --permanent
> firewall-cmd --zone=trusted --change-interface=lo --
> permanent
> firewall-cmd --reload
> ```

# Create an Edge site

As jobs are run on an Edge site, rather than on the Collibra platform, creating an Edge site allows you to have a processing runtime at your own premises.

## Prerequisites

- You have a global role that has the **System administration** global permission.
- You have a global role that has the Manage Edge sites global permission.
- You have enabled database registration via Edge in Collibra Console.
- Your server meets all system requirements.
- 
  > Note You must restart the Data Governance Center service when you have enabled this option.

## Steps

1. On the main menu, click , and then click **Settings**.
   » The Collibra settings page opens.
2. Click **Edge**.
   » The Edge sites overview appears.
3. Above the table, to the right, click **Create Edge site**.
   » The **Create Edge site** wizard starts.
4. Enter the required information.

| Field | Description |
|---|---|
| Name | The name of the Edge site. Use a meaningful name, for example NetherlandsDataCentre1. Do not use spaces or special characters.<br>This field is mandatory and the name must be globally unique. |
| Description | The description of the Edge site. We recommend to put at least basic location information of the Edge site.<br>This field is mandatory. |

5. Click **Create**.
   » The Edge sites overview appears, including the new Edge site with the status **To be installed**.

# What's next?

You can now install the Edge site, or if necessary, first configure a forward proxy.

# Install an Edge site

After you have created the Edge site in Collibra Data Intelligence Cloud, you have to install the Edge software on a server.

> Tip
> Every time you download an Edge site installer, the previously downloaded Edge site installer becomes outdated. If you use this outdated installer, the Edge site cannot communicate with Collibra.

## Prerequisites

- You have a global role with the Install Edge sites and the User Administration global permission, for example Edge site administrator.
- You have a global role that has the **System administration** global permission.
- You have created an Edge site.
- You have configured the forward proxy, if a forward proxy is required for Edge to connect to Collibra, Datadog, OpenTelemetry and jFrog. Contact your network administrator if this is applicable.
- Your server meets all system requirements.

## Steps

1. Download the installer:
    a. Open an Edge site.
        a. On the main menu, click , and then click **Settings**.
            » The Collibra settings page opens.
        b. Click **Edge**.
            » The Edge sites overview appears.
        c. Click the name of an Edge site in the Edge site overview.
            » The Edge site page appears.

b. Click **Download** in the **Installer and properties files** section.

> Tip When you download the installer, an Edge user is automatically created in Collibra.

c. Depending on your operating system and browser, follow the regular steps for downloading files.
» The installer file is a TGZ archive that contains the files **proxy.properties**, **properties.yaml** and **registries.yaml**.

> Warning If you download an installer, the previously downloaded Edge site installer becomes invalid.

2. Extract the TGZ archive on the server on which you want to install the Edge site software.

```
tar -xf <edge-site-id>-installer.tgz
```

> Note
> - Keep the installer or the contents of the extracted installer in a secure location on your server. These contents contain various tools that you may need later, for example to troubleshoot issues.
> - If you want to run a script or executable file from the extracted directory, ensure that the directory is not mounted as `noexec`. If a directory is mounted as `noexec`, scripts and executable files will be prevented from being run within the directory.

3. Run the installation. Use the correct path to the mounted storage as described in the prerequisites.

> Important
> - If the Edge site has to connect via a forward HTTP proxy, then first configure the forward proxy before executing the installation.

a. Clean installation:

```
sudo sh install-master.sh --storage-path
/path/mounted/storage properties.yaml -r
registries.yaml

for example:

sudo sh install-master.sh --storage-path
/var/edge/storage properties.yaml -r registries.yaml
```

b. Installation with classification enabled:

```
sudo sh install-master.sh --storage-path
/path/mounted/storage properties.yaml -r
registries.yaml --set collibra_
edge.collibra.classification.enabled=true

for example:

sudo sh install-master.sh --storage-path
/var/edge/storage properties.yaml -r registries.yaml --
set collibra_edge.collibra.classification.enabled=true
```

» In the Edge sites overview, you can see the status of the deployment.

4. Run the following commands to verify the status of the installation.
   - To ensure that Kubernetes is running and that there is an existing node:

```
sudo /usr/local/bin/kubectl get nodes
```

   - To ensure the state of all pods are installed and running:

```
sudo /usr/local/bin/kubectl get pods --all-namespaces
```

> Tip If you have already installed the Edge site and you want to enable classification afterwards, see this article.

1. Download the installer:
   a. Open an Edge site.
      a. On the main menu, click ⠿, and then click ⚙ **Settings**.
         » The Collibra settings page opens.
      b. Click **Edge**.
         » The Edge sites overview appears.
      c. Click the name of an Edge site in the Edge site overview.
         » The Edge site page appears.
   b. Click **Download** the **Installer and properties files** section.

      > Tip When you download the installer, an Edge user is automatically created in Collibra.

   c. Depending on your operating system and browser, follow the regular steps for downloading files.
      » The installer file is a TGZ archive that contains the files **proxy.properties**, **properties.yaml** and **registries.yaml**.

      > Warning If you download an installer, the previously downloaded Edge site installer becomes invalid.

2. Extract the TGZ archive on the server on which you want to install the Edge site.

```
tar -xf <edge-site-id>-installer.tgz
```

> Note
> - Keep the installer or the contents of the extracted installer in a secure location on your server. These contents contain various tools that you may need later, for example to troubleshoot issues.
> - If you want to run a script or executable file from the extracted directory, ensure that the directory is not mounted as `noexec`. If a directory is mounted as `noexec`, scripts and executable files will be prevented from being run within the directory.

3. Run the installation on the machine that has the Kubernetes connection.
   a. Clean installation:

```
./run-installer-job.sh properties.yaml
```

   b. Installation with classification enabled:

```
./run-installer-job.sh properties.yaml --set collibra_
edge.collibra.classification.enabled=true
```

   » In the Edge sites overview, you can see the status of the installation.
4. Run the following commands to verify the status of the installation.
   - To ensure that Kubernetes is running and that there is an existing node:

```
kubectl get nodes
```

   - To ensure the state of the installation is either running or finished:

```
kubectl get pods --all-namespaces
```

> Tip If you have already installed the Edge site and you want to enable classification afterwards, see this article.

# Configure a forward proxy

For security reasons, it is possible that an Edge site has to connect cloud services via a forward HTTP proxy. Complete steps 1-3 to update **proxy.properties** before installing the Edge site.

If you use a forward proxy that decrypts TLS traffic, a so-called man-in-the-middle (MITM) proxy, complete all 4 steps to configure the forward proxy and enable the MITM proxy.

> Warning MITM proxy is only supported for S3 integration.

## Steps

1. Download the Edge site installer:
   a. Open an Edge site.
      a. On the main menu, click ⠿, and then click ⚙ **Settings**.
         » The Collibra settings page opens.
      b. Click **Edge**.
         » The Edge sites overview appears.
      c. Click the name of an Edge site in the Edge site overview.
         » The Edge site page appears.
   b. In the **Installer and properties files** section, click **Download**.
   c. Depending on your operating system and browser, follow the regular steps for downloading files.
      » The installer file is a TGZ archive that contains the files **proxy.properties**, **properties.yaml** and **registries.yaml**.

      > Note If you download an installer, all previously downloaded installers become invalid.

2. Open the **proxy.properties** file.
3. Uncomment and update the outbound-proxy properties by removing "#" at the beginning of the following lines:

```
#noProxy=<host IP addresses>,<host DNS names>,<k8s-svc-ip-
addresses>,<k8s-pod-ip-addresses,<others>
#proxyHost=<proxy domain name or IP address>
#proxyPort=<proxy-port>
#proxyUsername=<proxy username>
#proxyPassword=<proxy password>
```

| Setting | Value |
|---|---|
| noProxy | A comma-separated list of IP or DNS addresses that can bypass the proxy server.<br><br>This list must include at least the Kubernetes cluster's internal IP addresses and the Kubernetes nodes' IP and DNS addresses.<br><br>The list may not contain spaces.<br><br>Tip To get the values for this setting, you can use the **edge-get-noproxy.sh** script, which you can find in the extracted installer directory under **/resources/tools**. However, make sure that your network administrator reviews these values.<br><br>where:<br><br>◦ <host-ip-addresses>: for example `172.20.0.0/16`.<br>◦ <host-dns-names>: for example `*.compute.internal`.<br>◦ <k8s-svc-ip-addresses>: is by default `10.43.0.0/16`, but this can differ for other k8s flavors or configurations.<br>◦ <k8s-pod-ip-addresses>: is by default `10.42.0.0/16`, but this can differ for other k8s flavors or configurations.<br>◦ <others>: other IP addresses that don't need to be proxied. Add at least `169.254.169.254`. for AWS.<br><br>Example<br>`noProxy=172.20.0.0/16,*.compute.internal,10.43.0.0/16,10.42.0.0/16,169.254.169.254` |

| Setting | Value |
| --- | --- |
| proxyHost | The IP or DNS address of the proxy server.<br>Example `proxyHost=site4-proxy.shared.edge.collibra.dev` |
| proxyPort | The TCP port of the proxy server. This value must be a quoted string and not an integer value.<br>Example `proxyPort=3128` |
| proxyUsername | The username to authenticate at the proxy server.<br>Example `proxyUsername=edge`<br>Note Usernames with single quotations ', double quotations ", and backslashes \ need to be escaped using an additional backslash. For example, if the username is ge'smith\, it would need to be entered into proxy.properties as username: ge\'smith\\. |
| proxyPassword | The password to authenticate at the proxy server.<br>Example `proxyPassword=la;fs90jpo4j3rR%`<br>Note Passwords with single quotations ', double quotations ", and backslashes \ need to be escaped using an additional backslash. For example, if the password is te"st\1234', it would need to be entered into proxy.properties as password: te\"st\\1234\'. |

```
#noProxy=<host IP addresses>,<host DNS names>,<k8s-svc-ip-addresses>,<k8s-pod-ip-addresses,<others>
```

```
#proxyHost=<proxy domain name or IP address>
#proxyPort=<proxy-port>
#proxyUsername=<proxy username>
#proxyPassword=<proxy password>
```

| Setting | Value |
|---|---|
| noProxy | A comma-separated list of IP or DNS addresses that can bypass the proxy server.<br><br>This list must include at least the Kubernetes cluster's internal IP addresses and the Kubernetes nodes' IP and DNS addresses.<br><br>The list may not contain spaces.<br><br>Tip To get the values for this setting, you can use the **edge-get-noproxy.sh** script. However, make sure that your network administrator reviews these values.<br><br>where:<br>◦ <host-ip-addresses>: for example `172.20.0.0/16`.<br>◦ <host-dns-names>: for example `*.compute.internal`.<br>◦ <k8s-svc-ip-addresses>: depends on your EKS installation. Typically this is `10.100.0.0/16` or `172.20.0.0/16`.<br>◦ <k8s-pod-ip-addresses>: depends on your EKS installation. Typically they are the same subnets as in the VPC, for example `172.20.0.0/16`.<br>◦ <others>: other IP addresses that don't need to be proxied, for EKS, always add `169.254.169.254`..<br><br>Example `noProxy=172.20.0.0/16,*.compute.internal,10.100.0.0/16,169.254.169.254` |
| proxyHost | The IP or DNS address of the proxy server.<br><br>Example `proxyHost=site4-proxy.shared.edge.collibra.dev` |

| Setting | Value |
| --- | --- |
| proxyPort | The TCP port of the proxy server. This value must be a quoted string and not an integer value.<br>Example `proxyPort=3128` |
| proxyUsername | The username to authenticate at the proxy server.<br>Example `proxyUsername=edge`<br>Note Usernames with single quotations ', double quotations ", and backslashes \ need to be escaped using an additional backslash. For example, if my username is ge'smith\, it would need to be entered into proxy.properties as username:ge\'smith\\. |
| proxyPassword | The password to authenticate at the proxy server.<br>Example `proxyPassword=la;fs90jpo4j3rR%`<br>Note Passwords with single quotations ', double quotations ", and backslashes \ need to be escaped using an additional backslash. For example, if my password is te"st\1234', it would need to be entered into proxy.properties as password: te\"st\\1234\'. |

Important When you add a new node to a cluster, review and update, if necessary, the noProxy and implicitly forward proxy settings, unless the subnet used for nodes and their DNS suffix are added to noProxy.

4. To enable Edge via a MITM proxy (a forward proxy that decrypts TLS traffic), follow the steps below:

   Note On-the-fly TLS certificates that are generated by the MITM proxy must use the subjectAltName (SAN) extension.

a. Export your proxy server's CA certificate in PEM format.
   - When using your own ca.pem file be sure to only include the certificate or certificate chain of the MITM proxy. A custom ca.pem file cannot exceed 100kb.
b. Save this certificate as **ca.pem** in the same directory as the Edge site installer.

> Note If you save the certificate in another directory, use the `--ca` argument in the Edge site installation command.

# What's next?

Install the Edge site.

If you want to update the forward proxy afterwards, you can use the update script.

# Enable or disable classification on an Edge site

If you have an existing Edge site installation without classification, you can enable it afterwards. Similarly, you can disable classification on installation where it is enabled.

> Note Enabling or disabling classification can take a few minutes before the changes are in effect.

> Note The following commands have been updated with the 2023.02 release. While these commands will work for all previous and new Edge site versions, the old commands will not work for any newly installed sites with version 2023.02 or later.

## Enable classification

To enable classification on an existing Edge site, deployed on K3S, run this command:

```
POD_NAME=$(sudo /usr/local/bin/kubectl get pod -n collibra-
edge -l app.kubernetes.io/component=application-controller -
o name)

sudo /usr/local/bin/kubectl  -n collibra-edge exec -it
${POD_NAME} \
-- bash -c 'argocd admin cluster kubeconfig
https://kubernetes.default.svc \
 /tmp/config --namespace collibra-edge ; env
KUBECONFIG=/tmp/config  argocd app  set collibra-edge   --
core  -p collibra.classification.enabled=true'
```

To enable classification on an existing Edge site, deployed on EKS, run this command:

```
POD_NAME=$(kubectl get pod -n collibra-edge -l
app.kubernetes.io/component=application-controller -o name)
```

```
kubectl  -n collibra-edge exec -it ${POD_NAME}  \
 --  bash -c 'argocd admin cluster kubeconfig
https://kubernetes.default.svc \
 /tmp/config --namespace collibra-edge ; env
KUBECONFIG=/tmp/config  argocd app  set collibra-edge   --
core  -p collibra.classification.enabled=true'
```

# Disable classification

To disable classification on an existing Edge site, deployed on K3S, run this command:

```
POD_NAME=$(sudo /usr/local/bin/kubectl get pod -n collibra-
edge -l app.kubernetes.io/component=application-controller -
o name)

sudo /usr/local/bin/kubectl  -n collibra-edge exec -it
${POD_NAME} \
-- bash -c 'argocd admin cluster kubeconfig
https://kubernetes.default.svc \
 /tmp/config --namespace collibra-edge ; env
KUBECONFIG=/tmp/config  argocd app  set collibra-edge   --
core  -p collibra.classification.enabled=false'
```

> Tip The only difference between disabling classification and enabling classification is that the last argument is false instead of true.

To disable classification on an existing Edge site, deployed on EKS, run this command:

```
POD_NAME=$(kubectl get pod -n collibra-edge -l
app.kubernetes.io/component=application-controller -o name)

kubectl  -n collibra-edge exec -it ${POD_NAME}  \
 --  bash -c 'argocd admin cluster kubeconfig
https://kubernetes.default.svc \
```

```
 /tmp/config --namespace collibra-edge ; env
KUBECONFIG=/tmp/config  argocd app  set collibra-edge   --
core  -p collibra.classification.enabled=false'
```

> Tip The only difference between disabling classification and enabling classification is that the last argument is false instead of true.

Successful execution of either command returns the following output:

```
INFO[0000] Starting configmap/secret informers
INFO[0000] Configmap/secret informer synced
```

> Note You do not need to restart Edge when you have enabled or disabled classification.

# Reinstall an Edge site using backup and restore

You can reinstall an Edge site by keeping the previous Edge site data.

> Note This process is certified for restoring an Edge site to the Collibra environment on which the site was originally created, for example, restoring Development to Development or Production to Production. The process is not certified or tested for promoting an Edge site migration from one environment to another, for example, from Production to Development. These types of migrations require re-installation of the Edge application each time the migration is promoted.

1. Back up your current Edge site (recommended): `edge backup -o backup.yaml`

   > Warning If you have any existing connections, we highly recommend backing up your site and reinstalling the site from the backup. If you do not use a backup, you will need to manually re-enter passwords, encrypted text parameters, and any file parameters in each connection to restore full functionality.

2. If you are reusing the same server as your current Edge site:
   a. Uninstall the current installation: `uninstall-edge.sh`
   b. Recreate the Linux disk mount for the directory `/var/lib/rancher/k3s`
3. Re-download the installer for your Edge site and save it on your server.

   > Note This is a new installer for your Edge site. The previous installer no longer works.

4. Extract the installer and ensure that your custom setup, for example, **proxy.properties** and **ca.pem**, is available as in the previous setup.
5. Re-install using the new installer, optionally with backup and/or classification:

```
./install-master.sh --storage-path <storagepath> -b backup.yaml
--set collibra_edge.collibra.classification.enabled=true
```

1. Back up your current Edge site (recommended): `edge backup -o backup.yaml>`

   > Warning If you have any existing connections, we highly recommend backing up your site and reinstalling the site from the backup. If you do not use a backup, you will need to manually re-enter passwords, encrypted text parameters, and any file parameters in each connection to restore full functionality.

2. Re-download the installer for your Edge site and save it on your Linux server that has kubectl access to the k8s cluster.

   > Note This is a new installer for your Edge site. The previous installer no longer works.

3. Extract the installer.
4. Uninstall the current Edge site installation: `<extracted installer>/resources/installer-job/tools/uninstall-edge-on-managed-k8s.sh`
5. If you are using a forward proxy, update the **proxy.properties** or include a **ca.pem** file before you install the Edge site.
6. Re-install using the new installer: `./run-installer-job.sh properties.yaml`
   - Optionally, install with:
     - Backup: `-b backup.yaml`
     - Backup with classification: `-b backup.yaml --set collibra_edge.collibra.classification.enabled=true`

# Upgrade the operating system of an Edge site

When you have a running Edge site, you can safely upgrade the operating system by following the procedure in this article.

## Steps

1. Back up the Edge site.

   > Note The backup is not mandatory, but highly recommended in case the upgrade of your OS would fail.

2. Upgrade your OS.
3. Restart the OS.
4. Wait until the Edge site becomes healthy in the Collibra Data Intelligence Cloud user interface.

## Troubleshooting

If the Edge site does not become healthy after the OS upgrade, then reinstall the Edge site with a new Edge installer and the backup that you created before the OS upgrade.

1. In Collibra, go to the Edge site you want to reinstall.
   a. On the main menu, click ⠿, and then click ⚙ **Settings**.
      » The Collibra settings page opens.
   b. Click **Edge**.
      » The Edge sites overview appears.
   c. In the Edge site overview, click the name of an Edge site.
      » The Edge site page appears.
2. In the top right corner, click **Actions** → **Redownload installer**.
   » A new Edge installer is downloaded.

3. Install the Edge site with the backup that you created earlier.

```
install-master.sh properties.yaml --storage-path
/var/edge/storage properties.yaml -r registries.yaml -b
/<path to backup file>/edge-backup.yaml
```

4. Wait until the Edge site becomes healthy in the Collibra Data Intelligence Cloud user interface.

# Edge connections

Edge connections define how an Edge capability communicates with a data source in order to collect and send metadata to Collibra.

# Available Edge connections

To collect metadata from a data source and add it into Collibra via Edge, Edge needs to be able to communicate with the data source. This is managed via an Edge connection. Once an Edge connection is established, the connection can be used by some of the Collibra capabilities to, for example, register the metadata or collect sample data.

> Example
> You want to add the metadata of a Snowflake data source in Collibra and create technical lineage for it. By defining a JDBC connection between Edge and your Snowflake data source, you establish a secure line of communication between Collibra and your data source. This line of communication is then used to register the metadata and create technical lineage for it in your Collibra platform.

Multiple connection types are available. The connection type that you need to use depends on what you want to achieve. The following table contains the available Edge connection types and the associated capabilities.

| Connection type | Description |
|---|---|
| Azure | Used for the integration Azure Data Lake Storage (ADLS) data sources.<br>Show associated capabilities<br>• ADLS synchronization |
| AWS (Amazon Web Services) | Used for the integration and protection of Amazon S3 data sources.<br>Show associated capabilities<br>• S3 synchronization<br>• Protect for AWS Lake Formation |
| Databricks | Used for the integration of Databricks Unity Catalog.<br>Show associated capability<br>• Data Unity Catalog |

| Connection type | Description |
| --- | --- |
| GCP (Google Cloud Platform) | Used for the integration and protection of Google Cloud Storage and Dataplex data sources.<br>Show associated capabilities<br>• GCS synchronization<br>• Protect for Google BigQuery |
| Informatica Intelligent Cloud Services | Used to connect to Informatica Intelligent Cloud Services.<br>Show associated capability<br>• Technical lineage for Informatica Intelligent Cloud Services (IICS) |

| Connection type | Description |
| --- | --- |
| JDBC | Used to connect to JDBC data sources, for example, Snowflake, Salesforce, and PostgreSQL.<br>Show associated capabilities<br>• Catalog JDBC ingestion<br>• Catalog JDBC Sampling<br>• JDBC Profiling<br>• Protect for Snowflake<br>• Technical lineage capabilities for data sources that use the JDBC connection<br>◦ Technical Lineage for Azure<br>◦ Technical Lineage for BigQuery<br>◦ Technical Lineage for DataStage<br>◦ Technical Lineage for Db2<br>◦ Technical Lineage for Greenplum<br>◦ Technical Lineage for SAP HANA<br>◦ Technical Lineage for Hive<br>◦ Technical Lineage for Informatica PowerCenter<br>◦ Technical Lineage for MySQL<br>◦ Technical Lineage for SQL Server<br>◦ Technical Lineage for Netezza<br>◦ Technical Lineage for Oracle<br>◦ Technical Lineage for PostgreSQL<br>◦ Technical Lineage for Amazon Redshift<br>◦ Technical Lineage for Snowflake<br>◦ Technical Lineage for Spark SQL<br>◦ Technical Lineage for SQL Server Integration Services (SSIS)<br>◦ Technical Lineage for Sybase<br>◦ Technical Lineage for Teradata |
| Matillion | Used to connect to Matillion.<br>Show associated capability<br>• Technical Lineage for Matillion |
| Power BI | Used to connect to Power BI.<br>Show associated capabilities<br>• Technical Lineage for Power BI |

| Connection type | Description |
| --- | --- |
| Shared Storage connection | Used to access files from a shared folder.<br>Show associated capability<br>• Technical Lineage for SqlDirectory<br>• Technical Lineage for Custom Technical Lineage |
| Tableau | Used to connect to Tableau Server or Tableau Online.<br>Show associated capability<br>• Technical Lineage for Tableau |

# Edit a connection

You can update the details of a data source by editing the connection. This topic will discuss how you can generally edit a connection. For more specific information, review the requirements for your data source, such as Technical lineage and Sample data.

> Note Refer to the JDBC connections documentation for how to edit JDBC connections.

## Prerequisites

- You have a global role that has the **System administration** global permission.
- You have a global role that has the Manage Edge sites global permission.
- You have created and installed an Edge site.

> Note It is possible there are extra requirements for your specific data source. Review the requirements and permissions of your data source before making any changes.

## Steps

1. Open an Edge site.
   a. On the main menu, click , and then click **Settings**.
      » The Collibra settings page opens.
   b. Click **Edge**.
      » The Edge sites overview appears.
   c. Click the name of an Edge site in the Edge site overview.
      » The Edge site page appears.
2. Locate and click the connection you want to edit.
3. At the bottom of the page, click **Edit**.
4. Edit the connection information.
5. Click **Save**.

# Delete a connection

You can delete a connection from an Edge site to a data source if you no longer need it. This topic will discuss how you can generally delete a connection. For more specific information, review the requirements for your data source, such as Technical lineage and Sample data.

> Note Refer to the JDBC connections documentation for how to edit JDBC connections.

## Prerequisites

- You have a global role that has the **System administration** global permission.
- You have a global role that has the Manage Edge sites global permission.
- You have created and installed an Edge site.

## Steps

1. Open an Edge site.
   a. On the main menu, click , and then click **Settings**.
      » The Collibra settings page opens.
   b. Click **Edge**.
      » The Edge sites overview appears.
   c. Click the name of an Edge site in the Edge site overview.
      » The Edge site page appears.
2. Locate and select the connection you want to delete.
3. At the bottom of the page, click **Delete**.
   » The **Delete confirmation** dialog box appears.
4. Click **Delete Connection**.

# JDBC connections

JDBC connections define how an Edge capability accesses a data source.

To create a connection to your data source, you need to select a connection provider, which determines the available properties of the connection, such as the authentication method and connection string and driver.

> Example If you want to ingest data from an Amazon Redshift data source, you need a specific JDBC driver for Amazon Redshift. You use that driver to create a connection between your Edge site and your Amazon Redshift data source.

> Tip Collibra provides a selection of certified JDBC drivers on Collibra Marketplace. We highly recommend to only use JDBC drivers that are certified for Edge.

Copy the URL of this page.

# ources supported by Edge

You can register, profile and classify several data sources via Edge. Depending on your data source, you can use a Collibra-provided Catalog connector, or your own JDBC driver when you create a JDBC connection.

The following data sources have been tested for registering, profiling and classifying via Edge.

## Create a JDBC connection

You can create a JDBC connection from an Edge site to a data source. You can then register the data source via Edge.

### Available Catalog connectors

## Edit a JDBC connection

You can edit a JDBC connection, for example if you want to change one of its connection properties. You can then register the data source via Edge.

### Available Catalog connectors

# Delete a JDBC connection

You can delete a JDBC connection from an Edge site to a data source if you no longer need it.

## Prerequisites

- You have a global role that has the **System administration** global permission.
- You have a global role that has the Manage connections and capabilities global permission.
- You have created and installed an Edge site.
- You have created a JDBC connection.

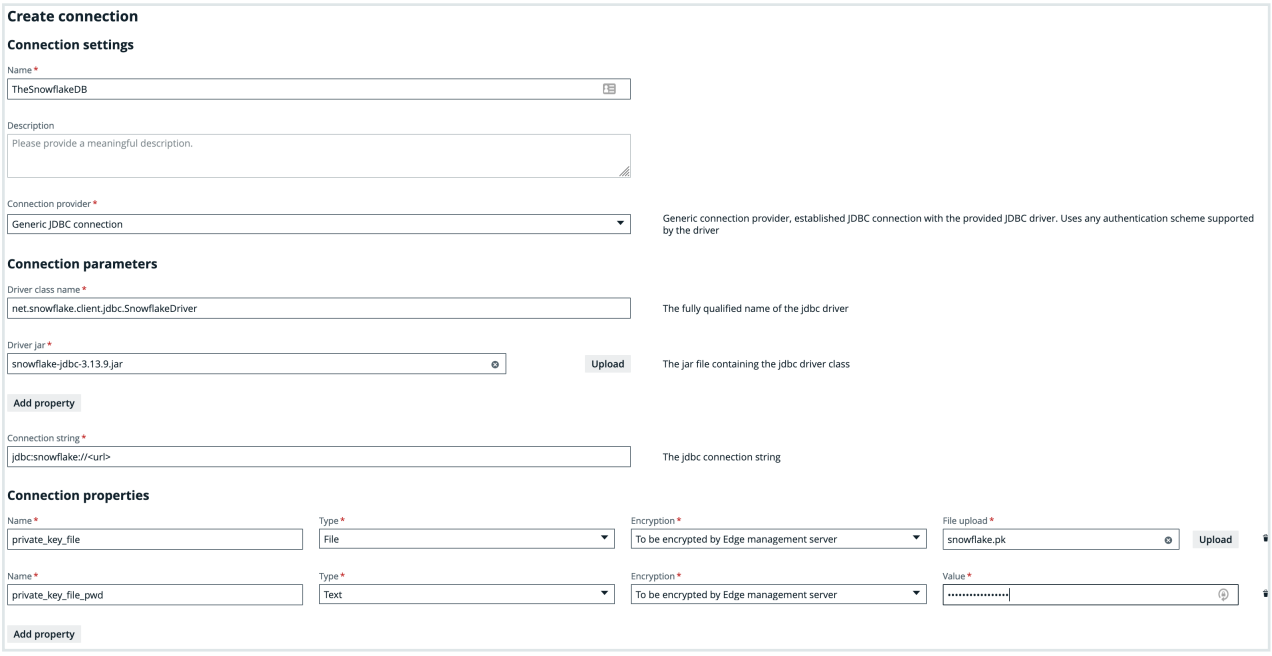
## Steps

1. Open an Edge site.
   a. On the main menu, click , and then click **Settings**.
      » The Collibra settings page opens.
   b. Click **Edge**.
      » The Edge sites overview appears.
   c. Click the name of an Edge site in the Edge site overview.
      » The Edge site page appears.
2. In the **JDBC Connections** section, click the name of a JDBC connection.
   » The **Connection settings** page appears.
3. At the bottom of the page, click **Delete**.
   » The **Delete confirmation** dialog box appears.
4. Click **Delete Connection**.

# Use keys to access a database

It is possible that, to access a database, the JDBC driver requires a private key. In this case, you have to manually add extra connection properties when you create a JDBC connection.

For example, the Snowflake driver exposes **private_key_file** and **private_key_file-pwd** properties. You can use these connection properties for the connection with Snowflake as shown in the following image.



# Edge capabilities

An Edge capability is an application that runs on an Edge site to extract and process data. It delivers the results to Collibra Data Intelligence Cloud.

# About Edge capabilities

An Edge capability, like Sampling or S3 synchronization, is an application that can run on an Edge site. It can access a data source to extract and process data as needed. This data can be stored in an encrypted cache to improve the security of your data and platform. An Edge capability for a specific data source runs as a job and delivers the output to Collibra Data Intelligence Cloud in a secure and reliable way.

An Edge capability has a capability template that defines a specific use case, for example, data source ingestion.

# Capability templates

A capability template is developed for a specific task on a specific data source type. The capability template also determines which properties are available to configure the Edge capability.

Currently, the following capability templates are available:

- ADLS synchronization: A capability template you use to connect to Azure Data Lake Storage (ADLS).
- Catalog JDBC ingestion: A capability template you use to register a data source and synchronize schemas from a data source via a JDBC connection.
- Catalog JDBC Sampling: A capability template you use to collect and cache sample data from a data source in the Edge site via a JDBC connection.
- Collibra Protect for AWS Lake Formation: A capability template you use to set up Protect for AWS Lake Formation.
- Collibra Protect for Google BigQuery: A capability template you use to set up Protect for BigQuery.
- Collibra Protect for Snowflake: A capability template you use to set up Protect for Snowflake.
- DQ Connector: A capability template you use to ingest Collibra Data Quality & Observability user-defined rules, metrics, and dimensions into Collibra Data Catalog.
- GCS synchronization: A capability template you use to connect to Google Cloud Storage.

- JDBC Profiling: A capability template you use to profile and classify data from a registered data source.
- S3 synchronization: A capability template you use to connect to Amazon S3.
- Databricks Unity Catalog synchronization: A capability template you use to connect to Databricks Unity Catalog.
- Technical lineage capabilities: Capability templates you use to create technical lineage for different data sources. For details, go to:
  - Add a technical lineage capability to an Edge site for JDBC data sources and ETL tools.
  - Add the Technical Lineage for Power BI capability to the Edge site.
  - Add the Technical Lineage for Tableau capability to the Edge site.

> Important While these capability templates are available for all customers, the features that you use them for might still be in beta.

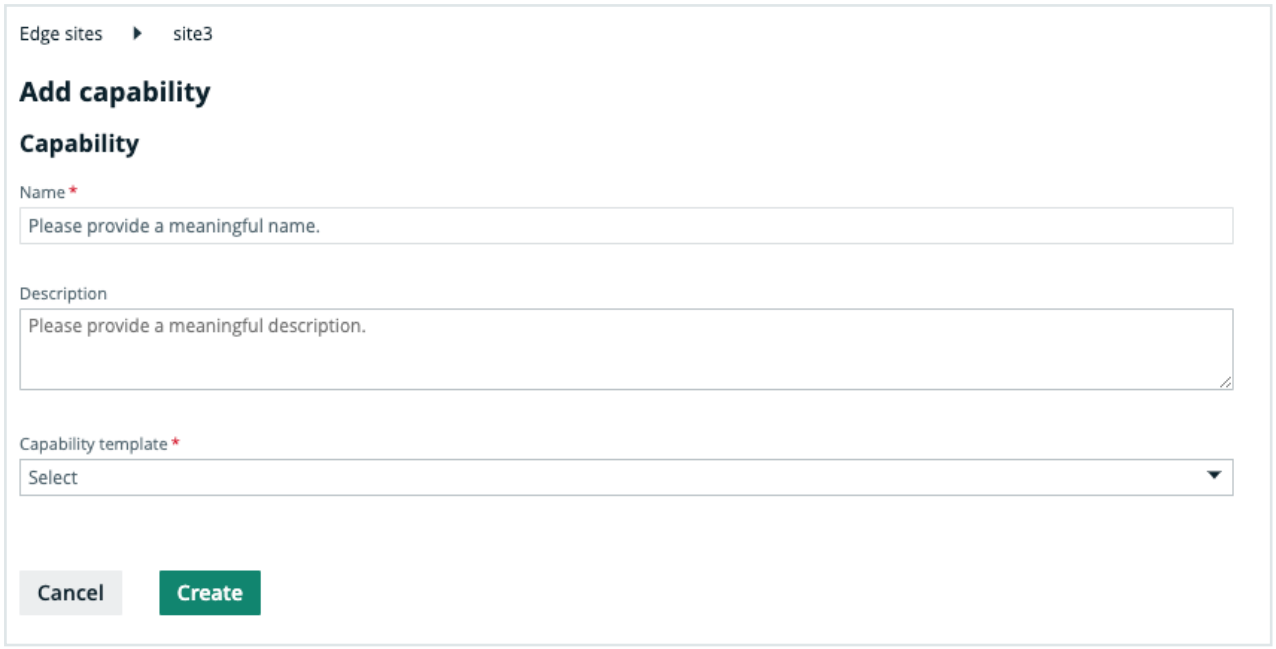
# Capability template structure

Each Edge capability template contains the following:

| File | Description |
|---|---|
| A manifest file (YAML) | This file contains the capability metadata and input parameter requirements. |
| A workflow file (YAML) | This file defines the workflow and binds the parameters to capability containers. |
| Docker images | One or more Docker images that implement the business logic. |

# Page layout

The following image shows the page for adding an edge capability.

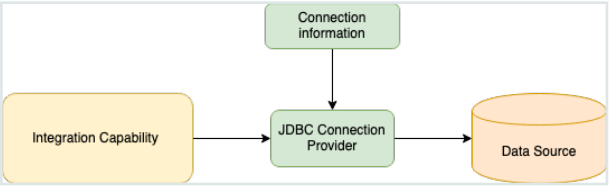



> Note Each type of capability has its own required custom properties. These properties appear after you select a capability template from the dropdown menu.

# About Edge capabilities connecting to data sources

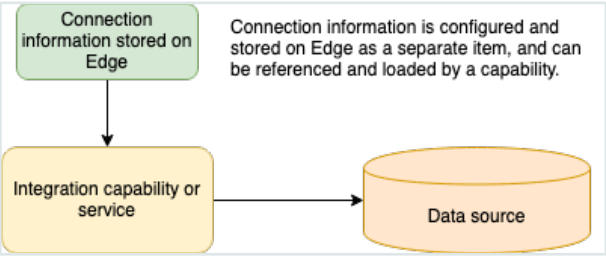
A connection on an Edge site identifies a unique system, whether it's a database, a file share or a REST service.

For JDBC (Java Database Connectivity), you can connect directly from the Edge user interface. When you create a JDBC connection, you will enter your login credentials, which will then be stored for authentication. This means that you will not need to enter these credentials again for any capability that uses this JDBC connection.




If an integration capability does not connect to a JDBC data source, it has to connect on its own by using the information provided by Edge. The connection information is defined and stored as a Connection instance. The connection properties are shown on the Connections configuration page within Edge user interface.

Below is an example of a capability that does not use JDBC to connect:




:

# Connection types

All supported connection types are bundled in Edge. You cannot add new connection types, for example Tableau or S3.

# Add an Edge capability to an Edge site

After you have created and installed an Edge site, you can add an Edge capability to perform specific tasks on a data source. For example, you can register a data source by using a JDBC connection that belongs to an Edge capability.

## Prerequisites

- You have a global role that has the **System administration** global permission.
- You have a global role that has the **Manage connections and capabilities** global permission, for example, Edge integration engineer.
- Optional: You have a global role that has the **Register profiling information** global permission.
- You have created and installed an Edge site.
- You have created a JDBC connection.
- Ensure the max cardinality of the asset attributes is at least 1.

## Steps

> Tip For more information about all fields in the capability, go to the online version of the documentation.

## More information

ADLS integration

Catalog JDBC ingestion

JDBC Profiling

Catalog JDBC Sampling

S3 synchronization

GCS synchronization

# Edit an Edge capability of an Edge site

You can edit an Edge capability of an Edge site, for example to change the custom properties.

## Prerequisites

- You have a global role that has the **System administration** global permission.
- You have a global role that has the **Manage connections and capabilities** global permission, for example, Edge integration engineer.
- You have a global role that has the **Register profiling information** global permission. (optional)
- You have created and installed an Edge site.
- You have added an Edge capability to the Edge site.

## Steps

> Tip For information about the various capabilities, go to the online version of the documentation.

# Delete an Edge capability from an Edge site

You can remove an Edge capability from an Edge site if you no longer need it.

> Warning If you delete a JDBC Profiling capability and synchronize previously profiled and classified schemas again, the profiling and classification results are removed.

## Prerequisites

- You have a global role that has the **System administration** global permission.
- You have a global role that has the **Manage connections and capabilities** global permission, for example, Edge integration engineer.
- You have created and installed an Edge site.
- You have added an Edge capability to the Edge site.

## Steps

1. Open an Edge site.
   a. On the main menu, click , and then click **Settings**.
      » The Collibra settings page opens.
   b. Click **Edge**.
      » The Edge sites overview appears.
   c. Click the name of an Edge site in the Edge site overview.
      » The Edge site page appears.
2. In the **Capabilities** section, click the name of a capability.
   » The **Capability** page appears and shows a read-only overview of the capability.
3. Click **Delete**.
4. Click **Delete Capability**.
   » The capability is deleted from the Edge site.

# Edge Jobs dashboard

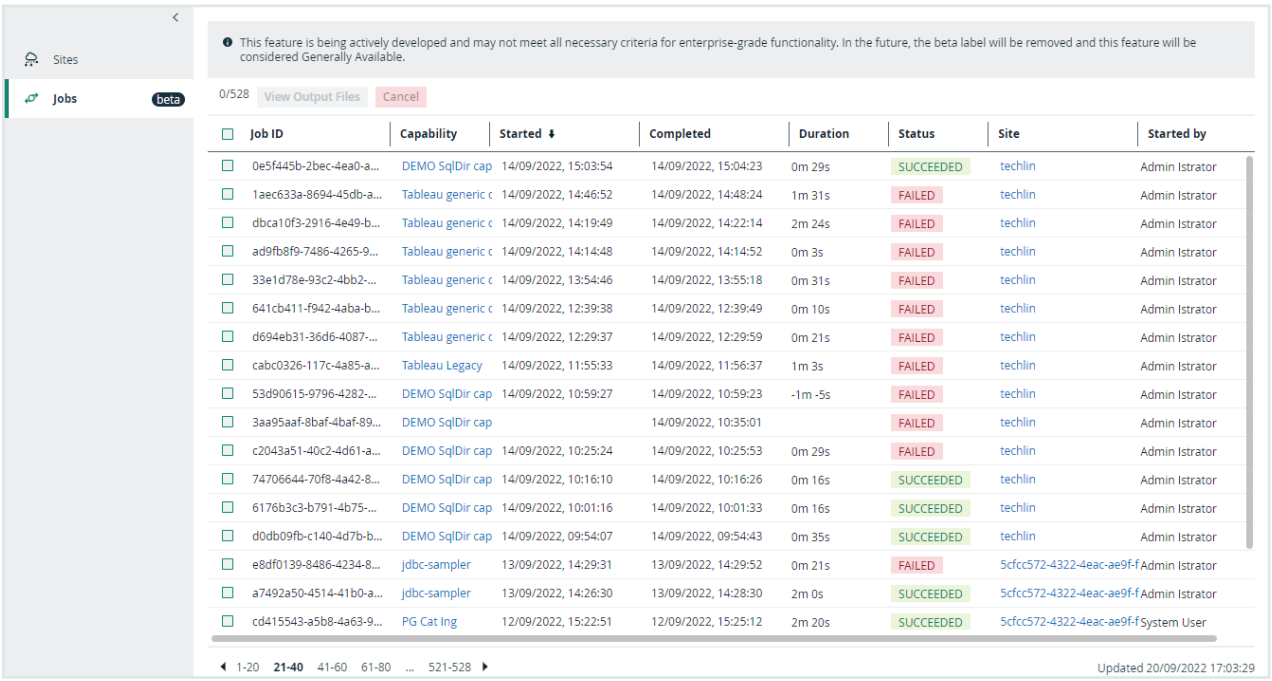
The Edge Jobs dashboard gives you an overview of all jobs that are executed by an Edge site.

When you enable the Edge Jobs feature (beta) in Collibra Console, the Edge Jobs dashboard becomes available in the Collibra Data Intelligence Cloud settings.

> **Note** Only users with the Admin role can enable this feature.

> **Important** This is a beta feature.

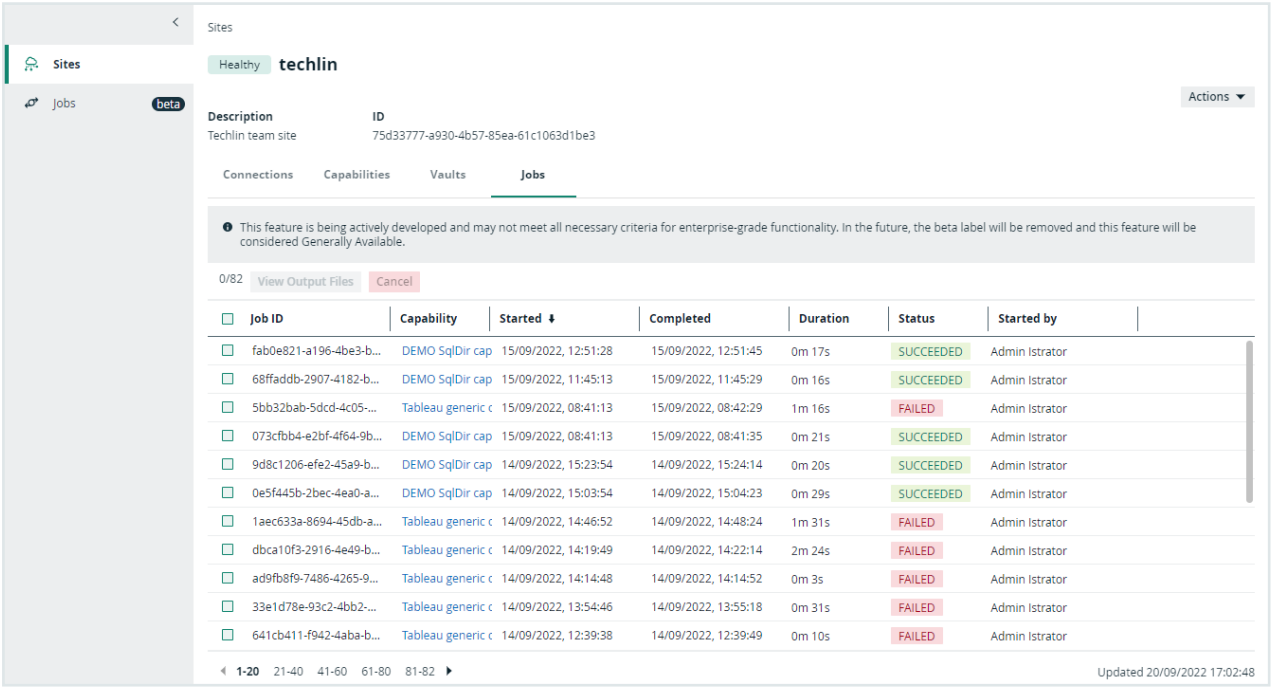

On the Edge Jobs dashboard, you find an overview of all jobs that have either been scheduled or completed in your Edge sites. Each job is a row in the table and contains basic information such as start and completion date, status, Edge site, capability and so on. You can also open the log files of a job and cancel a scheduled job from this dashboard.



# View Edge site jobs

You can also view the jobs associated to a specific Edge site by going to the **Jobs** tab of that site.

1. Click **Sites**.
2. Select your site from the list.
3. Click **Jobs** in the tab menu.




# Additional resources

You can also download the output file of a JDBC job from the Job dashboard. You can provide this file to our support team if a job fails.

# Download job output files

You can download the output file of a JDBC job, which contains logs you can provide to support if a job has failed. Only completed jobs are available for download.

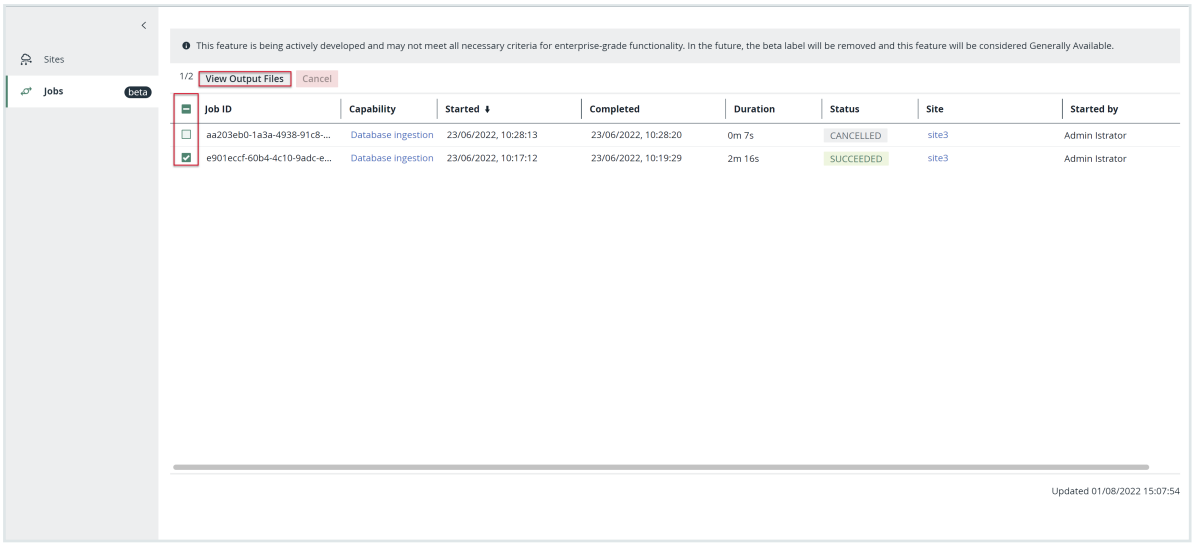
## Prerequisites

- You have Edge View Log permission.
- You have jobs which have been completed.

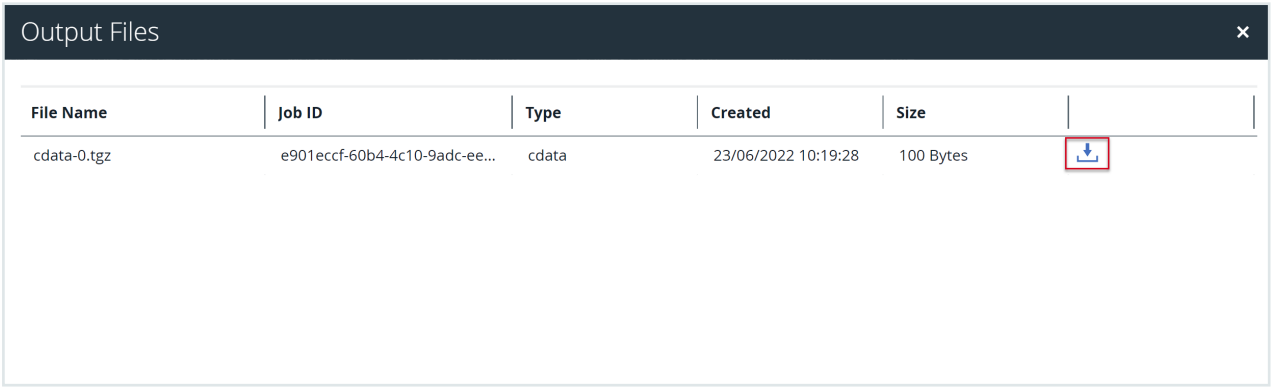
## Steps

1. Open an Edge site.
   a. On the main menu, click , and then click **Settings**.
      » The Collibra settings page opens.
   b. In the tab pane, click **Edge**.
      » The **Sites** tab opens and shows a table with an overview of the Edge sites.
   c. In the table, click the name of the Edge site whose status is **Healthy**.
      » The Edge site page opens.
2. Click **Jobs**.
3. Select the checkboxes next to the jobs you want to download the output file for.
4. Click **View Output Files.**
   » The View Output Files window appears.

> Tip If you select the checkbox next to a job which has been canceled or has not been completed, the **View Output Files** window is empty.




5. Click ⬇ to download the job output file.




Your downloaded job output file is now available to review from your local drive.

# Cancel jobs

You can cancel an Edge site job which is either running or queued to run.

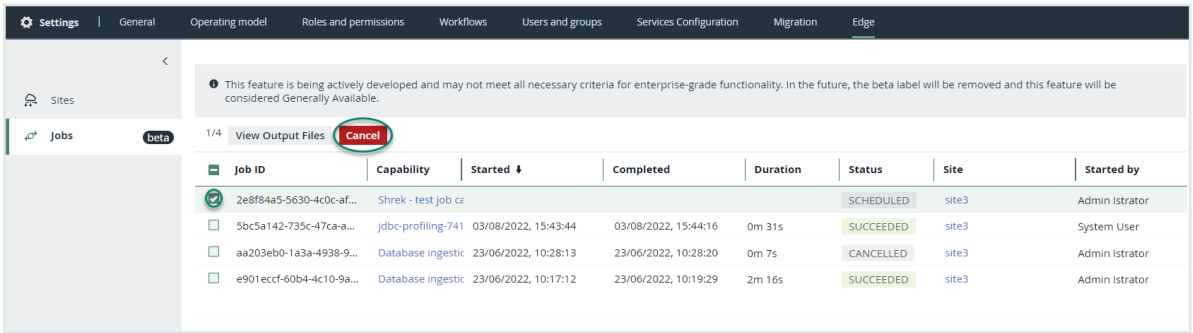
# Prerequisites

- You have a global role that has the Manage connections and capabilities global permission.
- You have jobs currently running or queued .

# Steps

1. Open an Edge site.
   a. On the main menu, click , and then click **Settings**.
      » The Collibra settings page opens.
   b. In the tab pane, click **Edge**.
      » The **Sites** tab opens and shows a table with an overview of the Edge sites.
   c. In the table, click the name of the Edge site whose status is **Healthy**.
      » The Edge site page opens.
2. Click **Jobs**.
3. Select the checkbox next to the job you would like to cancel.

   > Tip You can select more than one job at a time.




4. In the action toolbar, click **Cancel**.
   » The job is canceled, and the status of this job is CANCELED.

Chapter 6

# Maintaining Edge sites

In this section, you will learn how you can maintain your Edge site installations, such as performing backups or updating credentials.

# Running Edge tools

This section contains an overview on how to use the Edge tools, for example to create a backup of your Edge site.

## Prepare the Edge tools on K3S

On K3S, the Edge tool is downloaded at the end of a successful installation.

Alternatively, you can download it from the cluster:

```
TOOLS_POD=$(sudo /usr/local/bin/kubectl -n collibra-edge get
pod -l edge.collibra.com/contains=tools -o jsonpath='{.items
[0].metadata.name}')

sudo /usr/local/bin/kubectl cp collibra-edge/$TOOLS_POD:edge
/usr/local/bin/edge

sudo chmod +x /usr/local/bin/edge
```

The Edge command is in **/usr/local/bin** on the host. This is your first worker node, so you run the Edge command on the actual host where K3S runs.

## Overview Edge commands on K3S

| Edge tool | Command for K3S |
|---|---|
| Uninstall Edge | `/usr/local/bin/uninstall-edge.sh`<br>Note If you intend to reinstall Edge, you need to recreate the Linux disk mount for the directory `/var/lib/rancher/k3s` |

| Edge tool | Command for K3S |
|---|---|
| Create Edge diagnostics file | • Edge site is not yet installed:<br>`<extracted installer directory>/resources/tools/edge-diagnostics.sh -d <file name>.tgz`<br>• Edge site is up and running:<br>`edge diagnostics -d <file name>.tgz` |
| Create an Edge site backup | `edge backup -o /<path to folder>/<backup-name>.yaml` |
| Set Edge storage cache ttl | `edge cachettl --ttl <value in days>` |
| Retrieve logs from a catalog connector | `edge catalog-connector --jobid <Edge job ID> \ --dst <path to destination>` |
| Update Collibra credentials | • Interactive way:<br>`edge update-dgc-creds -i`<br>• Explicit update:<br>`edge update-dgc-creds <username> <password> <url collibra environment>` |
| Update forward proxy settings | `edge update-outbound-proxy --update-outbound-proxy /path/to/proxy.properties` |
| Get help to set up no_proxy configuration | • Edge site is not yet installed:<br>`<extracted installer directory>/resources/tools/edge-get-noproxy.sh k3s`<br>• Edge site is up and running:<br>`edge get-noproxy k3s` |

# Prepare Edge tools on EKS

Edge is installed from a Linux machine that has access to the actual K8S cluster.

There is no automatic download of the Edge tool after installation because we don't want to enforce it in some location. Therefore, you have to download the Edge tool to your Linux machine, for example in your current folder:

```
TOOLS_POD=$(kubectl -n collibra-edge get pod -l
edge.collibra.com/contains=tools -o jsonpath='{.items
[0].metadata.name}')

kubectl cp collibra-edge/$TOOLS_POD:edge edge

chmod +x edge
```

You can now run Edge commands from your current folder.

> Note As you are not on the worker node itself, you cannot collect worker node diagnostics. If you need these diagnostics, create a support ticket.

# Overview Edge commands on EKS

| Edge tool | Command for EKS |
|---|---|
| Uninstall Edge | `<extracted installer>/resources/installer-job/tools/uninstall-edge-on-managed-k8s.sh` |
| Create Edge diagnostics file | • Edge site is not yet installed: `<extracted installer directory>/resources/tools/edge-diagnostics.sh -d <file name>.tgz`<br>• Edge site is up and running: `edge diagnostics -d <file name>.tgz` |

| Edge tool | Command for EKS |
|---|---|
| Create an Edge site backup | `edge backup -o /<path to folder>/<backup-name>.yaml` |
| Set Edge storage cache ttl | `edge cachettl <value in seconds>` |
| Retrieve logs from a catalog connector | `edge catalog-connector --jobid <Edge job ID> \ --dst <path to destination>/<file name>.txt` |
| Update Collibra credentials | • Interactive way: `edge update-dgc-creds -i` • Explicit update: `edge update-dgc-creds <username> <password> <url collibra environment>` |
| Update forward proxy settings | `edge update-outbound-proxy --update-outbound-proxy /path/to/proxy.properties` |
| Get help to set up no_proxy configuration | • Edge site is not yet installed: `<extracted installer directory>/resources/tools/edge-get-noproxy.sh eks <clustername>` • Edge site is up and running: `edge get-noproxy eks <clustername>` |

# Edit an Edge site

You can edit a Edge site to give it another name or description.

## Prerequisites

- You have created an Edge site.
- You have a global role that has the **System administration** global permission.
- You have a global role that has the Manage Edge sites global permission.

## Steps

1. Open an Edge site.
   a. On the main menu, click , and then click **Settings**.
      » The Collibra settings page opens.
   b. Click **Edge**.
      » The Edge sites overview appears.
   c. Click the name of an Edge site in the Edge site overview.
      » The Edge site page appears.
2. In the top right corner, click **Actions** → **Edit**.
   » The Edit Edge site wizard starts.
3. Enter the required information.

| Field | Description |
|---|---|
| Name | The name of the Edge site. Use a meaningful name, for example NetherlandsDataCentre1. Do not use spaces or special characters.<br>This field is mandatory and the name must be globally unique. |
| Description | The description of the Edge site. We recommend to put at least basic location information of the Edge site.<br>This field is mandatory. |

4. Click **Save**.
   » The Edge sites overview appears with the new name and description.

# Update Edge user password

When you download the Edge site installer, a dedicated user account is created in Collibra Data Intelligence Cloud. This user always has "Edge" as the first name and the "Edge's site name" as the last name.

A user will be created for each Edge site. This user is deleted when you delete the Edge site.

> Note The Edge user account must have the Connect Edge to Collibra global permission.

## Steps

1. Reset the password of the Edge user in Collibra by following the steps in our Set or reset a user password article.
   > Note Review the default password requirements here.
2. Connect to the Edge master node via SSH.
3. Run the following script: `/usr/local/bin/edge update-dgc-creds -i`
4. Enter the username and new password of the Edge user.

# Update the outbound proxy configuration

If you have to change the outbound proxy configuration of a running Edge site, you can use Collibra's outbound proxy update script.

## Steps

1. Find the **proxy.properties** file on the server that you used during the configuration of the outbound proxy.
2. Update the file with the new property values and save the file.
3. Go to **/usr/local/bin** and run the following command:

```
./edge update-outbound-proxy -u /path/to/proxy.properties
```

## Help file of the script

```
$ /usr/local/bin/edge update-outbound-proxy --help
  Collibra Edge Utility for updating Outbound Proxy settings.
  Usage:
         edge update-outbound-proxy.sh -h|--help
         edge update-outbound-proxy.sh -g|--generate-template
<filename>
         edge update-outbound-proxy.sh -u|--update-outbound-
proxy <filename>


  -h|--help                   - Show help
  -g|--generate-template      - generate template file for
proxy properties in <filename>
  -u|--update-outbound-proxy  - update outbound-proxy secret
based on proxy properties <filename>
```

# Back up an Edge site

To avoid losing your Edge site configurations, you can back up an Edge site. You can use this backup to restore it later, for example when you want to reinstall an Edge site with a new installer.

The following will be included in the backup:

- The public/private key of the site used for sending and encrypting secrets.
- The secrets used in connections, capabilities and vaults.

> Note For privacy reasons, Edge site backups remain in your personal environment and are not sent to the cloud.

On the server that runs your Edge site, execute the following command:

```
~$ edge backup -o /<path to folder where you want to save the
backup file>/<backup-name>.yaml
```

» Edge creates a backup of your Edge site in the selected folder of the command.

> Tip If the Edge command is not available, you will need to download the Edge tool.

On the server from which you manage your EKS cluster, execute the following command:

```
~$ edge backup -o /<path to folder where you want to save the
backup file>/<backup-name>.yaml
```

» Edge creates a backup of your Edge site in the defined folder of the last command.

> Tip If the Edge command is not available, you will need to download the Edge tool.

# Restore an Edge site

This article walks through how to restore your Edge site. You may want to restore it if you've previously created a backup or want to reinstall an Edge site with a new installer.

Restoring an Edge site is the same command as installing an Edge site but with an extra argument to use a backup.

1. Optionally, download a new Edge installer.
1. Open an Edge site.
   a. On the main menu, click ⠿, and then click ⚙ **Settings**.
      » The Collibra settings page opens.
   b. Click **Edge**.
      » The Edge sites overview appears.
   c. Click the name of an Edge site in the Edge site overview.
      » The Edge site page appears.
2. In the top right corner, click **Actions** → **Redownload installer**.
   » A new Edge installer is downloaded.
2. Run the Edge installer and add the backup file as a parameter:

```
install-master.sh properties.yaml --storage-path
/var/edge/storage -r registries.yaml -b /<path to backup
file>/edge-backup.yaml
```

1. Optionally, download a new Edge installer.
1. Open an Edge site.
   a. On the main menu, click ⠿, and then click ⚙ **Settings**.
      » The Collibra settings page opens.
   b. Click **Edge**.
      » The Edge sites overview appears.
   c. Click the name of an Edge site in the Edge site overview.
      » The Edge site page appears.
2. In the top right corner, click **Actions** → **Redownload installer**.
   » A new Edge installer is downloaded.
2. Run the Edge installer and add the backup file as a parameter:

```
./run-installer-job.sh properties.yaml
```

# Delete an Edge site

You can delete an Edge site if you no longer need it.

## Prerequisites

- You have created an Edge site.
- You have a global role that has the **System administration** global permission.
- You have a global role that has the Manage Edge sites global permission.

## Steps

1. Open an Edge site.
   a. On the main menu, click , and then click **Settings**.
      » The Collibra settings page opens.
   b. Click **Edge**.
      » The Edge sites overview appears.
   c. Click the name of an Edge site in the Edge site overview.
      » The Edge site page appears.
2. In the top right corner, click **Actions** → **Delete Edge site**.
   » The Delete Edge site wizard starts.
3. Click **Delete Edge site**.
   » The Edge sites overview appears, without the deleted Edge site.
4. On the server that hosts the Edge site, go to **/usr/local/bin** where you can find the uninstall script **uninstall-edge.sh**, then run one of the following commands:

> Note If you intend to reinstall the Edge site after performing an uninstall command, you need to recreate the Linux disk mount for the directory `/var/lib/rancher/k3s`

| Command | Description |
| --- | --- |
| `/usr/local/bin/uninstall-edge.sh` | Delete Edge site, but keep its data.<br><br>The data consists of drivers, required files for capabilities, and data that was saved by Edge capabilities |
| `/usr/local/bin/uninstall-edge.sh --remove-local-data` | Delete Edge site and its data. |
| `/usr/local/bin/uninstall-edge.sh --remove-local-data --force` | Delete Edge site without confirmation request, for example if you want to delete the site via a script.<br><br>You can use this in combination with removing the site data. |

Warning When you delete an Edge site, the Elastic Block Store (EBS) volumes containing the data are also removed. If you like to keep your data, first back up these EBS volumes.

1. Open an Edge site.
   a. On the main menu, click ⠿, and then click ⚙ **Settings**.
      » The Collibra settings page opens.
   b. Click **Edge**.
      » The Edge sites overview appears.
   c. Click the name of an Edge site in the Edge site overview.
      » The Edge site page appears.
2. In the top right corner, click **Actions** → **Delete Edge site**.
   » The Delete Edge site wizard starts.
3. Click **Delete Edge site**.
   » The Edge sites overview appears, without the deleted Edge site.

4. On the server from which you manage your EKS cluster, run this command:

```
<extracted installer>/resources/installer-
job/tools/uninstall-edge-on-managed-k8s.sh
```

# Troubleshooting Edge

In this section, you find some articles that help you to troubleshoot Edge issues.

# General troubleshooting Edge

The following table shows how to solve issues you may encounter while working with Edge. Select the tab of your installation type, K3S or EKS.

| Issue | Proposed solution |
| --- | --- |
| You get the following error message:<br>`Out of disk space` | You have to restart the Kubernetes pod in Edge.<br>Run the following command:<br>`sudo /usr/local/bin/kubectl delete pod <pod_name> --namespace <pod_namespace>`<br>Tip For more information about Pods and namespaces, see the Kubernetes documentation. |
| You get one of the following error message:<br>• `Cannot allocate memory`<br>• `Error syncing pod` | You have to restart Edge.<br>Do the following:<br>1. Run the following commands to remove all workflows:<br>`sudo /usr/local/bin/kubectl delete --all workflows --namespace=collibra-edge`<br>`sudo /usr/local/bin/kubectl delete --all workflows --namespace=collibra-fast`<br>2. Run the following command to reboot Edge:<br>`sudo reboot` |

| Issue | Proposed solution |
| --- | --- |
| You get the following error message:<br>`Out of disk space` | You have to restart the Kubernetes pod in Edge.<br>Run the following command:<br>`kubectl delete pod <pod_name> --namespace <pod_namespace>`<br>Tip For more information about Pods and namespaces, see the Kubernetes documentation. |
| You get one of the following error message:<br>• `Cannot allocate memory`<br>• `Error syncing pod` | You have to restart Edge.<br>Do the following:<br>1. Run the following commands to remove all workflows:<br>`kubectl delete --all workflows --namespace=collibra-edge`<br>`kubectl delete --all workflows --namespace=collibra-fast`<br>2. Run the following command to reboot Edge:<br>`sudo reboot` |

# Use an explicit resolv.conf file for Edge

> Important This is only applicable for K3S installations.

The default resolver configuration file **/etc/resolv.conf** is in most cases picked-up by K3S and used successfully, but on Google Cloud Platform, where the default nameserver is 169.254.169.254, K3S generates another file with a nameserver pointing to 8.8.8.8.

Your firewall or network configuration may be filtering connections to 8.8.8.8, in which case the resolver file has to be explicitly configured with a reachable nameserver. If the default file **/etc/resolv.conf** is explicitly configured even on GCP nodes having nameserver 169.254.169.254, then K3S will successfully use it.

You can also explicitly indicate in **install-master.sh** to use **/etc/resolv.conf** by adding the argument `--resolv-conf </path/to/resolv.conf>`.

Example

```
sudo sh install-master.sh --storage-path /var/edge/storage
properties.yaml -r registries.yaml --resolv-conf
/etc/resolv.conf
```

# Edge logging

When you encounter an issue in Edge, you can use diagnostic and log files in Datadog which provide data about the issue. If you want to report a problem to Collibra support, you can include these files in the support ticket. As a result, Collibra support will be able to determine what went wrong and find a solution to your issue.

You can create a diagnostics ZIP file with logs and information about the server or EKS environment on which you installed the Edge site. Edge also generates two types of log files that are not included in the diagnostics file:

- Edge infrastructure log files, which are immediately sent to Collibra Data Intelligence Cloud once the file is created.
- Metadata connector log files, which can only be stored locally.

## Edge diagnostics file

The Edge diagnostics file is a ZIP file that is created by running the diagnostics script in the Edge site installer folder. The diagnostics script checks amongst others:

- Your operating system setup
- Your firewall settings
- Connectivity information
- Edge cluster logs.

You can send the diagnostics file to Collibra support when you have an issue with the Edge site installation.

## Edge infrastructure log files

Edge infrastructure logs contain Edge infrastructure information, for example Edge status updates and capability information. The logs from Datadog can be used by Collibra

Support to help solve general Edge issues. The log files do not contain any database content or private information.

By default, the Edge infrastructure log files are always enabled on an information level. You can enable debug level logging per specific capability when you add or edit an Edge capability. As a result, Edge sends infrastructure logs with more information about that capability to Collibra Data Intelligence Cloud. Edge infrastructure log files can contain the following information:

- Job execution phases
- The Edge status
- Service updates
- System upgrades

These log files can only be accessed by Collibra Support.

> Note By default, **Debug** logging for an Edge capability is set to `False`. We highly recommend only enabling the **Debug** logging for an Edge capability if an issue arises.

# Metadata connector log files

Metadata connector log files contain the logs of the JDBC connections between the Edge capability and your data source.

These log files are generated when you:

- Register a database.
- Synchronize a schema.
- Trigger data sampling.
- Run profiling and classification.
- Synchronize technical lineage.
- Synchronize data quality.

> Note Metadata connector log files are not created when "Test Connection" is performed on an Edge.

These log files can be used by Collibra Support to help solve issues with processing or accessing data. The log files may contain information about your data source.

For security reasons, these log files are not automatically sent to your Collibra Data Intelligence Cloud environment. You can, however, create the log files, save, and review them locally and then attach them to a Collibra support ticket.

# Edge system monitoring

The system monitoring, executed via OpenTelemetry, sends the following information to your Collibra environment:

- CPU usage
- Memory usage
- Network statistics

Collibra Support can then analyze this information to troubleshoot potential anomalies. This data is only available to Collibra personnel.

# Verbosity log levels

The verbosity log levels indicate how much information you want to see in the Catalog Connector log files. You can change the verbosity log levels in the Edge capability for which you want to create logs. The following verbosity log levels are available:

| Verbosity log level | Description |
|---|---|
| No logging | The Catalog Connector logs are not created.<br>This is the default. |
| Low | The Catalog Connector logs contain the following:<br>• All connection query logs<br>• Any errors |
| Middle | The Catalog Connector logs include the Low logs and:<br>• All cache queries<br>• Additional information about the request |

| Verbosity log level | Description |
| --- | --- |
| High | The Catalog Connector logs include the Middle logs and:<br>• The body of the request<br>• The response |

# Create an Edge diagnostics file

You can create an Edge diagnostics file to check issues with the Edge site installation in your environment.

## Prerequisites

- You have created an Edge site.
- You have downloaded the Edge installer.

## Steps

### Edge site is not yet installed

You can run the diagnostics script without an Edge site installed to check if your system meets all requirements to install the Edge site.

1. Extract the Edge installer.

   ```
   tar -xf <edge-site-id>-installer.tgz
   ```

2. On the command line, go to the folder with the extracted files.
3. In this folder, go to **resources/tools**.
4. Run the following command to create the diagnostics file:

   ```
   edge-diagnostics.sh --diag-file <file name>.tgz
   ```

   » A TGZ file with the given file name is created and contains all Edge diagnostics file.

### Edge site is already installed

On the command line, run the following command to create the diagnostics file:

```
edge diagnostics --diag-file <file name>.tgz
```

» A TGZ file with the given file name is created and contains all Edge diagnostics file.

> Tip If the Edge command is not available, you will need to download the Edge tool.

# What's next?

You can send the diagnostics file to Collibra support to help you resolve your installation issues.

# Create Metadata connector log files

If you have an issue with a JDBC connection, for example, while registering a data source via Edge, you can create the Metadata connector log files and then save and review them locally. If you create a support ticket, attach the reviewed Metadata connector log files to your ticket so that Collibra Support can help you with your issue.

Job logs are only kept for 15 days after the job is created. Job logs that are older than 15 days are removed from the platform, however, you can find records of these jobs on the **Jobs** tab of an Edge site or the **Jobs (beta)** dashboard of Edge.

> Tip You can also download the output file of a JDBC job from the Job dashboard.

## Prerequisites

- You have a global role that has the **System administration** global permission.
- You have a global role that has the **Manage connections and capabilities** global permission, for example, Edge integration engineer.
- You have created and installed an Edge site.
- You have created a JDBC connection and an Edge capability.

## Steps

1. Edit the Edge capability that contains the JDBC connection for which you want to create a log file.
   a. Click the name of the Edge capability to open it.
   b. Click **Edit**.
   c. In the **General** section, click the **Log level** drop-down menu.
   d. Select the log verbosity level.

      > Tip The level must be at least *low*.

   e. Click **Save**.
      » The fields become read-only.

2. Click **Run** to rerun the Edge capability.
3. Contact Collibra support to request the Edge job ID of the Edge capability.
4. Run the following command:

```
./edge catalog-connector --jobid <Edge job ID> --dst <path to
destination>
```

» The log file is created and stored in the predefined destination.

> Tip If the Edge command is not available, you will need to download the Edge tool.

# Prerequisites

- You have a Linux host with kubectl access to your EKS installation.
- You have mc (minio client) installed in /usr/local/bin:

```
sudo curl -L "https://dl.min.io/client/mc/release/linux-
amd64/mc" -o /usr/local/bin/mc
sudo chmod +x /usr/local/bin/mc
```

# Steps

Execute the following commands:

```
kubectl -n collibra-edge port-forward service/minio 9000:9000 &

MC_ACCESSKEY="$(kubectl get secrets edge-minio -n collibra-edge
-o jsonpath="{.data.accesskey}" | base64 --decode)"

MC_SECRETKEY="$(kubectl get secrets edge-minio -n collibra-edge
-o jsonpath="{.data.secretkey}" | base64 --decode)"

export MC_HOST_edge="http://${MC_ACCESSKEY}:${MC_
SECRETKEY}@localhost:9000"

mc cp --quiet --recursive edge/cdata/<jobId> <destination_
```

```
directory>
pkill -f "port-forward"
```

# Enable debug logging for Edge infrastructure logs

By default, the Edge infrastructure logs are always enabled on an information level. If you have an issue with Edge in general, you can enable Edge to create Edge infrastructure debug log files and send them to Collibra Data Intelligence Cloud. Collibra support uses these log files to solve Edge issues.

## Prerequisites

- You have a global role that has the **System administration** global permission.
- You have a global role that has the **Manage connections and capabilities** global permission, for example, Edge integration engineer.
- You have created and installed an Edge site.
- You have created a JDBC connection and an Edge capability.

## Steps

1. On the main menu, click , and then click **Settings**.
   » The Collibra settings page opens.
2. On the **Settings** page, click **Edge**.
   » The Edge sites overview appears.
3. Click the site that runs the capability with issues.
   » The site details page appears.
4. On the **Capabilities** tab, click the name of the Edge capability.
5. Click **Edit**.
6. In the **General** section, click the **Debug** drop-down menu and select *true*.

   > Note This field is by default set to *false*. If you set it to *true*, it will automatically revert to *false* after 24 hours.

7. Click **Save**.
   » The fields become read-only.

8. Click **Run** to rerun the Edge capability.
   » The log files are automatically sent to Collibra Data Intelligence Cloud.

# Disable OpenTelemetry

If you reinstalled an Edge site with a new version it is possible that the new setup is not working due to a missing network connectivity. You would have to request for OpenTelemetry to be added again. If this request takes days to be completed, you may want to disable OpenTelemetry to still have a running Edge site.

## Disable OpenTelemetry at installation time

Add the flag `--disable-otel` when you run the installation script.

```
sudo sh install-master.sh --storage-path /var/edge/storage
properties.yaml \
 --disable-otel \
 -r registries.yaml
```

```
./run-installer-job.sh properties.yaml --repositories
repositories.json \
 --set collibra_edge.collibra.minio.persistence.size=120Gi \
 --disable-otel
```

# Edge FAQ

The following table contains the most frequently asked questions about Edge that were not answered anywhere else in the Edge documentation.

| Question | Answer |
| --- | --- |
| Who benefits from using Edge? | All customers who want to ingest data into Collibra Data Intelligence Cloud benefit from Edge.<br><br>Some of the benefits for using Edge are:<br><br>• Data is processed in the customer's secure environment and only the process results are sent to Collibra Data Intelligence Cloud.<br>• Edge can automatically anonymize sensitive profiling data before sending it to Collibra Data Intelligence Cloud.<br>• Edge can automatically classify the metadata and send the classification results together with the profiling results to Collibra Data Intelligence Cloud.<br>• Edge enables better profiling performance, because data no longer has to be copied or moved.<br>• Edge can execute capabilities in parallel, considering this is dependent of available resources. Jobserver only executes capability jobs sequentially. |

| Question | Answer |
| --- | --- |
| Does Edge replace the Jobserver? | Customers can choose between Edge and Jobserver.<br><br>The main differences between Edge and Jobserver are the following:<br><br>• Edge is based on Kubernetes, a distributed runtime, which means:<br>  ◦ It offers built in resource management.<br>  ◦ It has reliable delivery of results to Collibra Data Intelligence Cloud.<br>• Edge is a Collibra service compatible with on-premises as well as cloud environments.<br>• Edge offers continuous delivery of capability types and updates will be installed on a regular basis.<br>• Edge updates are included in Collibra Data Intelligence Cloud releases.<br><br>Jobserver features correspond to Edge capabilities, each one is developed and deployed independently of one another. New capabilities will not be developed for Jobserver and it will be gradually phased out until early 2024. In the future, we will provide a script for migrating features from Jobserver to Edge where applicable. |
| Can Edge run alongside Jobserver? | Yes. Both can even be installed on the same server as long as the server has enough resources to support both, though we recommend not to run both services on a single server. |
| What does the Edge architecture look like? | You can see how Edge interacts with other components in this architecture and components overview. |

| Question | Answer |
| --- | --- |
| Can Edge use Kubernetes provided by a Cloud vendor, for example Google Kubernetes Engine (GKE), Azure Kubernetes Services (AKS) or Amazon Elastic Kubernetes Service (EKS)? | When the Edge site is installed in a Cloud environment, it does not use a managed Kubernetes provided by the Cloud vendor, because Kubernetes is already included in the Edge site installation process.<br><br>You can install Edge on Amazon EKS. In the first releases, we cannot benefit from seamless integration of various Cloud services offered by those platforms, for example, embedded authentication, auto-scaling and databases. Edge on AKS and GKE are not part of the short term road map at this time. Please contact your Customer Success Manager if you have any questions. |
| Can Edge be installed on Windows servers? | No, you cannot install an Edge site on Windows servers. Support for K8S, K3S in particular, and container technology is underserved on Windows without the equivalent of a Linux sub-system. We will continue to prioritize your experience on Linux-based operating systems, and as such, will not support Edge installation on Windows servers until the support is seamless. |
| What are the supported data sources on Edge? | You can find the list of supported data sources in the Data sources supported by Edge section. |
| How does authentication from Edge to the customer's data sources work? | Authentication to data sources depends on the source type that the capability is connecting to. JDBC sources are covered via Edge connection providers. Other sources are accessed in different ways by capabilities themselves. |
| Can you connect using a cloud provider key manager such as AWS Secrets Manager, GCP Secret Manager or Azure Key Vault? | Not at this time. |
| Is CentOS Linux 8 supported for Edge installations? | Not for any versions of the Edge installation later than and including 2022.11. These later versions will require RedHat 8 in order to receive support. If you have an existing site, everything will work as before unless you need to reinstall a new site with a later version. |

| Question | Answer |
| --- | --- |
| Why are you removing support for CentOS Linux 8? | CentOS Linux 8 has been made end-of-life. We are committed to using the latest technologies to ensure the best performance of our software, and as such RedHat 8 is required in order to receive support for Edge installations after the 2022.11 release. |
| How does Edge connect to Collibra Data Intelligence Cloud? | An Edge site is installed in the customer's environment, close to the data source. The Edge site communicates to Collibra Data Intelligence Cloud using an outbound HTTPS connection via port 443. |
| Is Edge on premises or in the Cloud? | Edge is always close to your data, and therefore can be on your premises or in a private or public Cloud setup. |
| Who controls Edge? | Edge is controlled by the customer through local access via the Collibra Data Intelligence Cloud user interface. You can also use local access via the Linux shell for advanced troubleshooting when Edge is unable to connect. |
| How is Edge updated? | Edge is updated automatically based on your Collibra Data Governance Center platform. The ability to disable automatic updates is currently on our road map, but is not currently supported with the available Edge installer. |
| Can an Edge site connect to more than one Collibra environment? | No. Every Edge site belongs and authenticates to only one Collibra Data Intelligence Cloud environment. |

| Question | Answer |
| --- | --- |
| Do you need multiple instances of Edge for Data Quality to run? | It depends on your current setup. While you can technically run Collibra Data Quality & Observability and capabilities in the same Edge instance, you will need to ensure resources and space are available if you have a large Edge site.<br>• If have an existing Edge site that runs capabilities without Data Quality, you can update Edge Config to enable/disable any service or configuration during any run time, in order to provide space to run Data Quality.<br>• If you have an existing Edge site and are open to reinstalling, then you can enable the Data Quality flags during the reinstallation process in order to keep one instance of Edge.<br>> Note It is not recommended to run Classification and Data Quality in the same Edge instance, as they will compete for resources. Best practice is to have separate Edge sites for Classification and Data Quality. |
| Can Edge use customer-provided certificates to connect to Collibra Data Intelligence Cloud? | Currently, we do not support this.<br>Edge is a Collibra product that can run on the customer's on-premises or cloud environment. The authentication between the Edge site and Collibra Data Intelligence Cloud is controlled and secured by Collibra. The keys and credentials are generated when you install the Edge site. |
| When do internal K3S certificates expire? | The internal K3S certificates expire 12 months after the initial installation. You should restart the K3S-based Edge site in the last 3 months to ensure the internal certificates are rotated. If not, restart K3S or reinstall the Edge site. |
| Does Edge implement Cross-Site Request Forgery (CSRF) tokens? | Yes, the Edge management user interface can now implement CSRF tokens.<br>> Note The CSRF token needs to be unique per user session and should be a large, random value. |

| Question | Answer |
| --- | --- |
| Does Edge support mTLS when connecting to Collibra Data Intelligence Cloud? | Currently, we do not support this. |
| Is Edge horizontally scalable? | Currently, Edge is not horizontally scalable. You cannot add more nodes. |
| Does Edge support High Availability and disaster recovery? | Edge does not support High Availability, but core Edge services can be replicated if Edge is installed on a multi-node cluster, and Edge capabilities can be restarted in the event of a failure.<br><br>Disaster recovery is supported through regular backups. More information about our disaster recovery process can be found in this overview. |
| What troubleshooting information is collected and where is it stored? | When Edge is operational and has deployed running capabilities, jobs or services, it can collect information on multiple levels:<br><br>• Infrastructure logs - default level info is collected, sent to the Cloud and accessible by Collibra.<br>• Edge system monitoring - sent to the Cloud and accessible by Collibra.<br>• Metadata connector logs - off by default and accessible by the customer .<br>• Edge diagnostics - information is collected on demand by the customer on site and sent to Collibra as part of the support ticket. |
| Edge Sample Data capability:<br><br>1. Can everybody see sample data?<br>2. How is sample data queried from the database?<br>3. Which user account pulls the sample data from the database? | The Sample Data capability for Edge is a beta feature and needs to be activated.<br><br>1. Only users with the permission will be able to view the sample data.<br>2. Samples are queried from the data source upon request.<br>3. The samples will be pulled from the database using the ID of the account specified in the Edge connection. |

| Question | Answer |
| --- | --- |
| Can metrics data from an Edge site be sent to Collibra through a private link instead of over the Internet? | No, this data can only be sent over the Internet. |
| What are Edge security considerations? | Edge is designed around security first principles. Several highlights:<br>1. No inbound connectivity - Edge site is always polling the platform via a REST endpoint.<br>2. Data is not stored on Edge after a job has finished.<br>3. Credentials are managed by Edge and not accessible outside of it.<br>4. Credentials on Edge site are encrypted with the key secured in the Collibra Data Governance Center.<br>5. Credentials can be updated both for data sources and Collibra Data Governance Center. |
| How are secrets stored on an Edge site? | You can find the details of how Edge stores secrets in this Storing secrets overview. |