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# MySQL NDB Operator 8.0 Release Notes

## Abstract

This document contains release notes for the changes in each release of MySQL NDB Operator 8.0 for Kubernetes.

For additional NDB Operator documentation, see <https://dev.mysql.com/doc/ndb-operator/8.0/en/>.

Updates to these notes occur as new product features are added, so that everybody can follow the development process. If a recent version is listed here that you cannot find on the download page (<https://dev.mysql.com/downloads/>), the version has not yet been released.

The documentation included in source and binary distributions may not be fully up to date with respect to release note entries because integration of the documentation occurs at release build time. For the most up-to-date release notes, please refer to the online documentation instead.

For legal information, see the [Legal Notices](#).

For help with using MySQL, please visit the [MySQL Forums](#), where you can discuss your issues with other MySQL users.

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## Preface and Legal Notices

This document contains release notes for the changes in each release of MySQL NDB Operator for Kubernetes.

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## Changes in NDB Operator 8.0.37-1.0.6 (2024-04-30, General Availability)

This is MySQL NDB Operator 8.0.37-1.0.6, a GA release of NDB Operator, a Kubernetes Operator for MySQL NDB Cluster.

For additional downloads and the source of MySQL NDB Operator visit <https://dev.mysql.com/downloads/ndb-operator/> and <https://github.com/mysql/mysql-ndb-operator>.

For more information on MySQL NDB Operator see the online documentation at <https://dev.mysql.com/doc/ndb-operator/en/>.

For more information about MySQL NDB Cluster, see <https://dev.mysql.com/doc/refman/8.0/en/mysql-cluster.html>.

This release contains no functional changes.

## Changes in NDB Operator 8.0.36-1.0.5 (2024-01-16, General Availability)

This is MySQL NDB Operator 8.0.36-1.0.5, a GA release of NDB Operator, a Kubernetes Operator for MySQL NDB Cluster.

For additional downloads and the source of MySQL NDB Operator visit <https://dev.mysql.com/downloads/ndb-operator/> and <https://github.com/mysql/mysql-ndb-operator>.

For more information on MySQL NDB Operator see the online documentation at <https://dev.mysql.com/doc/ndb-operator/en/>.

For more information about MySQL NDB Cluster, see <https://dev.mysql.com/doc/refman/8.0/en/mysql-cluster.html>.

Version 8.0.36-1.0.5 has no release notes, or they have not been published because the product version has not been released.

## Changes in NDB Operator 8.0.35-1.0.4 (2023-10-25, General Availability)

This is MySQL NDB Operator 8.0.35-1.0.4, a GA release of NDB Operator, a Kubernetes Operator for MySQL NDB Cluster.

For additional downloads and the source of MySQL NDB Operator visit <https://dev.mysql.com/downloads/ndb-operator/> and <https://github.com/mysql/mysql-ndb-operator>.

For more information on MySQL NDB Operator see the online documentation at <https://dev.mysql.com/doc/ndb-operator/en/>.

For more information about MySQL NDB Cluster, see <https://dev.mysql.com/doc/refman/8.0/en/mysql-cluster.html>.

### Bugs Fixed

- This fix addresses the following issues:
  1. The `check_version()` shell script function, responsible for checking the MySQL Cluster version and whether it meets the minimum required, contained errors.
  2. The Java SDK included in the Docker file `mysql-cluster-builder:ol8` was updated to version 17.(Bug #35691446)
- NDB Operator did not detect initiation script failures, causing it to start the `mysqld` container even when there were errors in the `init` container.
- In a multi-node Kubernetes environment, an issue arose when the user opted to use an image secret to retrieve the NDB Operator image while deploying it, leading to a situation where one or more pods encounter failures due to image pull failures. This problem emerged because all NDB Cluster pods spawned by NDB Operator include an initialization container that necessitates the presence of the `ndb-operator` image.

The root of the issue was that the necessary image pull secret was not included in the pod specifications. Consequently, when a pod was instantiated on any node other than the one where NDB Operator was deployed, it lacked the essential image pull secret, which meant that, since the required image could not be fetched from the repository, pod initialization could not take place.

## Changes in NDB Operator 8.0.34-1.0.3 (2023-07-26, General Availability)

This is MySQL NDB Operator 8.0.34-1.0.3, a GA release of NDB Operator, a Kubernetes Operator for MySQL NDB Cluster.

For additional downloads and the source of MySQL NDB Operator visit <https://dev.mysql.com/downloads/ndb-operator/> and <https://github.com/mysql/mysql-ndb-operator>.

For more information on MySQL NDB Operator see the online documentation at <https://dev.mysql.com/doc/ndb-operator/en/>.

For more information about MySQL NDB Cluster, see <https://dev.mysql.com/doc/refman/8.0/en/mysql-cluster.html>.

## Bugs Fixed

- The NDB Operator initialization script contains multiple SQL statements and is executed as an `init` container in the `mysqld` pod. An issue in MySQL Server 8.1.0 meant that, when a space was present before the leading `#` character in a comment preceding a `delimiter` command included in the script (see [mysql Client Commands](#)), the command was skipped. This led to discrepancies when executing later statements, preventing the `mysqld` pod from starting up successfully. (Bug #35619717)
- NDB Operator utilizes Kubernetes `validatingwebhookconfiguration` and `mutatingwebhookconfiguration` objects to validate CRD requests before forwarding them to the Kubernetes API server. These webhook configurations generate an HTTP message and send it to a separate pod running an HTTP server alongside the `ndb-operator` pod. The responsibility of the HTTP server is to validate the user-specified specifications and provide an appropriate response to the webhook configurations. The Kubernetes webhook configurations object determines whether to accept or to reject the user's CRD request based on the response.

To establish secure communication, the HTTP server requires a valid certificate, which makes it essential for both the HTTP server and webhook configurations to have valid certificates before initiating communication. During startup, the HTTP server generates a certificate and key, and then updates all the webhook configurations by adding this certificate to them. Subsequently, when creating the HTTP request, the webhook configurations use these certificates, and these same certificates are employed on the server side for validation.

When installing NDB Operator using the Operator Package Manager (OPM), the ownership of the webhook configurations resided with the CSV (`ClusterServiceVersion`). As a result, any modifications made to the webhook configurations were not reflected since the CSV has control over the Kubernetes objects created by it. Consequently, the authentication step failed for the HTTP requests sent by the webhook configurations.

Since OPM already possesses a Certificate Authority (CA) and creates certificates for all components, we resolve this issue by making sure that the server detects the installation mode, and if the mode is OPM, that it makes use of the certificates given by the CA rather than creating its own. (Bug #35408957)

## Changes in NDB Operator 8.0.33-1.0.2 (2023-04-18, General Availability)

This is MySQL NDB Operator 8.0.33-1.0.2, a GA release of NDB Operator, a Kubernetes Operator for MySQL NDB Cluster.

For additional downloads and the source of MySQL NDB Operator visit <https://dev.mysql.com/downloads/ndb-operator/> and <https://github.com/mysql/mysql-ndb-operator>.

For more information on MySQL NDB Operator see the online documentation at <https://dev.mysql.com/doc/ndb-operator/en/>.

For more information about MySQL NDB Cluster, see <https://dev.mysql.com/doc/refman/8.0/en/mysql-cluster.html>.

- [Functionality Added or Changed](#)
- [Bugs Fixed](#)

## Functionality Added or Changed

- NDB Operator now supports installation with an Operator Lifecycle Manager (OLM), using the packaging structure described at <https://k8s-operatorhub.github.io/community-operators/packaging-operator/>. This package should be compatible with all providers requiring an OLM package, such as OperatorHub.io, OKD, and OpenShift. (WL #15565)
- The sources for the GoLang MySQL driver used with NDB Operator are now included with the distribution. (WL #15565)
- The following third-party libraries used with NDB Operator have been updated to the versions indicated:
  - Go-MySQL-Driver v1.7.0
  - Go-YAML: Updated to version 3.0.1
  - Kubernetes API: Updated to version 0.26.1
  - Kubernetes `apimachinery`: Updated to version 0.26.1
  - `client-go`: Updated to version 0.26.1
  - `klog`: Updated to version 2.90.0

(WL #15565)

## Bugs Fixed

- **Packaging:** The default container registry has changed from DockerHub to the [Oracle Container Registry](#) (OCR). This change includes both the prefix and image naming scheme, so that `mysql/ndb-operator` becomes `container-registry.oracle.com/mysql/community-ndb-operator`.

This also means that local registry mirrors must change image names to use the `community-ndb-operator` format instead of `mysql-ndb-operator`. (WL #15579)

## Changes in NDB Operator 8.0.32-1.0.1 (2023-01-18, General Availability)

This is MySQL NDB Operator 8.0.32-1.0.1, a GA release of NDB Operator, a Kubernetes Operator for MySQL NDB Cluster.

For additional downloads and the source of MySQL NDB Operator visit <https://dev.mysql.com/downloads/ndb-operator/> and <https://github.com/mysql/mysql-ndb-operator>.

For more information on MySQL NDB Operator see the online documentation at <https://dev.mysql.com/doc/ndb-operator/en/>.

For more information about MySQL NDB Cluster, see <https://dev.mysql.com/doc/refman/8.0/en/mysql-cluster.html>.

## Functionality Added or Changed

- It is now possible to detect and overcome failures in a deployment or `StatefulSet` when encountering errors in configuration of the cluster.

Previously, when an update to an `NdbCluster` Custom Resource Definition was rejected due to a configuration error, NDB Operator continued to try the invalid configuration, hanging while in the reconciliation state. Because the Operator's web hook did not allow any new updates to the CRD due to the one ongoing, the user could not correct the configuration error made in the previous update without deleting and then re-creating the `NdbCluster` CRD. Situations of this type could occur when there were errors in the specified Docker image, as well as in the configuration of one or more data nodes, SQL nodes, or both.

We now provide for handling of such scenarios in two ways:

- We now display any configuration errors raised in the status of an update to the CRD, which helps the user identify the problem, fix the specification, and propose a new `NdbCluster` CRD update with the correct configuration.
- The NDB Operator web hook now allows a new `NdbCluster` CRD update when an error is found resulting from the previous change to the CRD (creation of a new `NdbCluster` CRD, or modification of an existing one).

(WL #15555)

## Changes in NDB Operator 8.0.31-1.0.0 (2022-10-11, General Availability)

Functionality available in this initial GA release includes the following:

- Support for MySQL NDB Cluster 8.0.26 and later.
- Support for Kubernetes clusters using Kubernetes 1.19.0 and later.
- Installation with Helm, using the provided Helm chart, or with `kubect1`, using the included `ndb-operator.yaml` file.
- Support for persistent volume claims (PVCs) for MySQL Server data directories using an `NdbCluster` custom resource definition (CRD).

For additional downloads and the source of MySQL NDB Operator visit <https://dev.mysql.com/downloads/ndb-operator/> and <https://github.com/mysql/mysql-ndb-operator>.

For more information on MySQL NDB Operator, see the online documentation at <https://dev.mysql.com/doc/ndb-operator/en/>.

