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# Genesys Customer Experience Insights Deployment Guide

Installing Genesys CX Insights - Kubernetes using Helm

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# Installing Genesys CX Insights - Kubernetes using Helm

Beginning with release 9.0.016, Genesys CX Insights supports deployment using [Helm Charts](#) on Kubernetes clusters. Helm Charts provide an alternative to Kubernetes descriptors. This deployment method is suitable for production environments; for other deployment options, see [Choose a deployment type](#) and [Prerequisites](#).

**This is an example scenario** — This page provides a high-level outline, illustrating one scenario to help you visualize the overall process. Genesys does not provide support for Helm or other third-party products, so you must have knowledge of Helm and other products to complete this type of installation. This example is suitable for a small deployment using Kubernetes clusters on RedHat Enterprise Linux; the steps for CentOS are similar. GCXI is known to work with Helm-3, which is described on this page.

## Prerequisites for deploying using Helm

Before you begin, ensure that:

- Your Kubernetes cluster is configured and running in a [suitable environment](#), with nodes in the **Ready** state, as described in [Kubernetes documentation](#).
- Helm-3 is installed on the Control plane node, as described in the [Helm documentation](#).
- The images **gcxi** and **gcxi\_control** are loaded and tagged on each worker node.
- On each worker node, values are set for `kernel.sem`, `vm.max_map_count`, as required by MicroStrategy. For example:

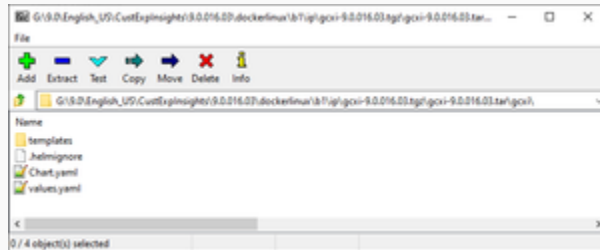
```
echo "kernel.sem = 250 1024000 250 4096" >> /etc/sysctl.conf
echo "vm.max_map_count = 5242880" >> /etc/sysctl.conf
sysctl -p
```

## Deploying GCXI with Helm-3

The following procedures describe example steps to deploy GCXI with Helm. The exact steps required will vary for your environment.

### Procedure: 1. Preparing for installation

**Purpose:** Prepare the environment, and gather files needed for deployment.



Contents of the Helm IP

## Prerequisites

Within the the Genesys Customer Experience Insights package for the Docker Linux OS, look for the Helm installation package (IP) — a small TGZ file (for example **gcxi-9.0.018.00.tgz**) that contains the Helm files. You require these files to complete this procedure.

## Steps

1. On the Control plane node, create a folder: **helm**.
2. Copy the Helm installation package (for example **gcxi-9.0.018.00.tgz**) into the **helm** folder, and extract the archive into a subfolder called **helm/gcxi**.
3. View the file **helm/gcxi/Chart.yaml**, and ensure that the appVersion is set to the desired GCXI version.
4. Open the file **helm/gcxi/values.yaml**, and follow the instructions it provides to guide you in creating a new file, **values-test.yaml** with appropriate settings. Save the new file in the **helm** folder.

For example, the following content in the **values-test.yaml** file is appropriate for a simple deployment using PostgreSQL inside the container, and PersistentVolumes of the type **local**. Create appropriate content in the **values-test.yaml** file for your environment:

```
gcxi:
  env:
    GCXI_GIM_DB:
      DSNDDEF:
        DSN_NAME=GCXI_GIM_DB;DB_TYPE=POSTGRESQL;DB_TYPE_EX=PostgreSQL;HOST=gim_db_host;PORT=5432;DB_NAME=gim_db
        LOGIN: gim_login
        PASSWORD: gim_password

    IWD_DB:
      DSNDDEF:
        DSN_NAME=IWD_DB;DB_TYPE=POSTGRESQL;DB_TYPE_EX=PostgreSQL;HOST=iwd_db_host;PORT=5432;DB_NAME=dm_gcxi
        LOGIN: iwd_login
        PASSWORD: iwd_password

  deployment:
    deployPostgres: true
    deployLocalPV: true
    useDynamicLogPV: false
```

```

imagePullPolicy:
  worker: IfNotPresent
  control: IfNotPresent

images:
  postgres: postgres:11

```

**PVCs required by GCXI**

Mount Name	Mount Path (inside container)	Description	Access Type	Default Mount Point on Host (may be changed thru values) These directories MUST pre-exist on your host to accommodate the local provisioner.	Must be Shared across Nodes?	Required Node Label (applies to default Local PVs setup)
gcxi-backup	/genesys/gcxi_shared/backup	Backups Used by control container / jobs.	RWX	/genesys/gcxi/backup Can be overwritten by: Values.gcxi.local.pv.backup.path	Not necessarily.	gcxi/local-pv-gcxi-backup = "true"
gcxi-log	/mnt/log	MSTR logs Used by main container. The Chart allows log volumes of legacy hostPath type. This scenario is the default.	RWX	/mnt/log/gcxi  subPathExpr: \$(POD_NAME) Can be overwritten by: Values.gcxi.local.pv.log.path	Not necessarily.	gcxi/local-pv-gcxi-log = "true" Node label is not required if you are using hostPath volumes for logs.
gcxi-postgres	/var/lib/postgresql/data	Meta DB volume Used by Postgres container, if deployed.	RWO	/genesys/gcxi/shared Can be overwritten by: Values.gcxi.local.pv.postgres.path	Yes, unless you tie PostgreSQL container to a particular node.	gcxi/local-pv-postgres-data = "true"
gcxi-share	/genesys/gcxi_share	MSTR shared caches and cubes.	RWX	/genesys/gcxi/data subPathExpr:	Yes	gcxi/local-pv-gcxi-share =

		Used by main container.		\$(POD_NAME)		
				Can be overwritten by: Values.gcxi.local.pv.share.path		"true"

## Procedure: 2. Label Nodes

**Purpose:** Label nodes to allocate PersistentVolumes (PVs). GCXI deployment requires three PVs, plus one for PostgreSQL deployment; see the table **PVCs required by GCXI**. All four PVs are linked to GCXI pods by means of PersistentVolumeClaims (PVCs). You can create PVs in advance (set **deployLocalPV: false**) or during GCXI installation (set **deployLocalPV: true**). In this example, we allow PVs to be created on all nodes.

### Steps

1. Prepare nodes to keep backups — label all worker nodes and create the folder **/genesys/gcxi/backup** on each one:

1. From the Kubernetes Control plane node, execute the following command for each worker node:

```
kubectrl label nodes <<worker node>> gcxi/local-pv-gcxi-backup=true
```

2. On each Kubernetes worker node, execute the following command:

```
mkdir /genesys/gcxi/backup/
```

2. Prepare nodes to keep logs — label all worker nodes and create the folder **/mnt/log/gcxi** on each one:

1. From the Kubernetes Control plane node, execute the following command for each worker node:

```
kubectrl label nodes <<worker node>> gcxi/local-pv-gcxi-log=true
```

2. On each Kubernetes worker node, execute the following command:

```
mkdir /mnt/log/gcxi
```

3. Prepare nodes to keep MicroStrategy's cache, cubes, and so on — label all worker nodes, and create the folder **/genesys/gcxi/shared**. This folder must be shared across worker nodes:

1. From the Kubernetes Control plane node, execute the following command for each worker node:

```
kubectrl label nodes <<worker node>> gcxi/local-pv-gcxi-share=true
```

2. On each Kubernetes worker node, execute the following command:

```
mkdir /genesys/gcxi/shared/
```

4. Prepare nodes to keep PostgreSQL database files — either label all worker nodes and create shared folder **/genesys/gcxi/data**, or label one node (to allow PostgreSQL to run only on it) and create the folder on it:
  1. From the Kubernetes Control plane node, execute the following command for the worker node where PostgreSQL will run:

```
kubectll label nodes <<worker node>> gcxi/local-pv-postgres-data=true
```

2. On the Kubernetes worker node where PostgreSQL will run, execute the following command:

```
mkdir /genesys/gcxi/data
```

### Procedure: 3. Deploying GCXI

**Purpose:** Deploy GCXI. This procedure provides steps for environments without LDAP — for environments that include LDAP (or other features not supported in **values.yaml**) you can pass container environment variables such `MSTR_WEB_LDAP_ON=true` using the **gcxi.envvars** file (for example: `--set-file gcxi.envext=gcxi.envvars`).

#### Steps

1. For debug purposes, execute the following commands to render templates without installing:

```
helm template --debug -f values-test.yaml gcxi-helm gcxi/
```

Kubernetes descriptors are displayed. The values you see are generated from Helm templates, and based on settings from **values.yaml** and **values-test.yaml**. Ensure that no errors are displayed; you will later apply this configuration to your Kubernetes cluster.

2. To deploy GCXI, execute the following command:

```
helm install --debug --namespace gcxi --create-namespace -f values-test.yaml gcxi-helm gcxi/
```

This process takes several minutes. Wait until all objects are created and allocated, and the Kubernetes descriptors applied to the environment appear.

Genesys recommends that you avoid using `helm install` with the `--wait` option when deploying GCXI. If you use `--wait`, the Helm architecture post-install hook (which in this case is the `gcxi_init` job) won't be triggered properly. For more information, see the [Helm documentation](#).

3. To check the installed Helm release, execute the following command:

```
helm list --all-namespaces
```

or alternatively, execute the following command:

```
helm list -n gcxi
```

4. To check GCXI Kubernetes objects created by Helm in gcxi release, execute the following command:

```
kubectl get all -n gcxi
```

## Procedure: 4. Configuring Ingress

**Purpose:** To make GCXI accessible from outside the cluster, a special entity called Ingress must be configured. You can find detailed instructions to deploy NGINX Ingress Controller [here](#). The following steps provide an example only.

### Steps

1. Log in to the control plane node.
2. Execute the following commands to add the Helm repository:

```
helm repo add ingress-nginx https://kubernetes.github.io/ingress-nginx
helm repo add stable https://charts.helm.sh/stable
helm repo update
```

3. Execute the following commands to install the NGINX chart:

```
helm install --debug --set controller.kind=DaemonSet --set
controller.hostNetwork=true --set tcp.34952=gcxi/gcxi:mstr --set tcp.8180=gcxi/
gcxi:metrics gcxi-nginx ingress-nginx/ingress-nginx --create-namespace -n
ingress-nginx
```

4. Execute the following commands to verify that the NGINX chart is successfully installed:

```
helm list -n ingress-nginx
```

5. Execute the following commands to verify that NGINX pods are successfully deployed on all cluster nodes:

```
kubectl get pod -n ingress-nginx
```

## Maintenance Procedures

This section provides additional procedures, such as troubleshooting steps.

## Procedure: Troubleshooting

**Purpose:** Use the instructions in this section only if you encounter errors or other difficulties. Problems with the deployment are most often associated with the following three kinds of objects:

- PVs
- PVCs
- pods

### Steps

1. To list the objects that might cause problems, execute the following commands:

```
kubectl get pv -o wide
kubectl get pvc -n gcxi -o wide
kubectl get po -n gcxi -o wide
```

2. Examine the output from each **get** command.
3. If any of the objects have a non-ready state (for example, **Unbound** (PVCs only), **Pending**, or **CrashLoop**) execute the following command to inspect the object more closely using **describe**:

```
kubectl describe <type> <name>
```

For example:

```
kubectl describe po gcxi-0
```

4. In the **describe** output, inspect the section **Events**.

## Procedure: Upgrade GCXI using Helm

**Purpose:** In scenarios where you have previously deployed Genesys CX Insights using Helm, use the instructions in this procedure to upgrade to a newer Genesys CX Insights release.

### Prerequisites

Obtain the Helm installation package (IP) before you begin. The Helm IP has a file name in the

format `gcxi-<release>.tgz`, for example **gcxi-018.00.tgz**. If SAML is enabled in your environment, before you update GCXI, see the instructions in the *Genesys CX Insights User's Guide* pertaining to updating Genesys CX Insights when SAML is enabled.

### Steps

1. On the Control Plane node, set the current directory to the helm folder, and execute the following command to create a subfolder to differentiate this release from others:

```
mkdir helm_<folder>
```

where `<folder>` is the folder in which to extract the Helm package. For example **018.00**.

2. Execute the following command to extract the Helm package:

```
tar xvzf <helm IP file name> -C helm_<folder>
```

where `<folder>` is the folder you created in the previous step, and `<helm IP file name>` is the name of the gcxi Helm package you are installing.

For example:

```
mkdir helm_018.00; tar xvzf gcxi-9.0.018.00.tgz -C helm_018.00
```

3. Execute the following command to remove Ingress:

```
helm delete gcxi-nginx -n ingress-nginx
```

4. From the folder where you deployed the previous release of GCXI using Helm, copy the file **values-test.yaml** into the new folder.

5. Navigate to the new folder (for example, using the `CD` command), and execute the following command:

```
helm upgrade --debug gcxi-helm gcxi/ --namespace gcxi --create-namespace -f values-test.yaml
```

6. Execute the following command to configure Ingress:

```
helm install --debug --set controller.kind=DaemonSet --set controller.hostNetwork=true --set tcp.34952=gcxi/gcxi:mstr --set tcp.8180=gcxi/gcxi:metrics gcxi-nginx ingress-nginx/ingress-nginx --create-namespace -n ingress-nginx
```

## Procedure: Uninstall GCXI

**Purpose:** To remove GCXI

### Steps

1. Execute the following command to remove Ingress:

```
helm delete gcxi-nginx -n ingress-nginx
```

2. Execute the following command to remove GCXI:

```
helm uninstall gcxi-helm -n gcxi
```

Keep in mind that, after deploying Genesys CX Insights, you must perform additional post-installation setup steps before actively using the reports and projects. After completing the deployment steps on this page, complete the following:

- [Installing report editing software](#)
- [Post-Installation steps](#)