SUSE

Getting started with SUSE Private Registry

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https://documentation.suse.com

Contents

Release notes

SUSE Private Registry is an on-premises container registry. It is designed for SUSE customers who need a container registry that works well with other SUSE services and products.

This document provides a high-level overview of the features, capabilities and limitations of SUSE Private Registry, and highlights important product updates.

1 Release 1.0.1

Security updates:

- CVE-2025-55198: Helm may panic due to incorrect YAML content.
- CVE-2025-55199: Helm charts with specific JSON schema values can cause memory exhaustion.
- CVE-2025-54410: Moby versions before 25.0.13, when firewall reloads, Docker fails to re-create iptables rules isolating bridge networks. This allows any container to access all ports on any other container across different bridge networks on the same host and breaks network segmentation in multi-tenant environments (only --internal networks remain protected).
- CVE-2025-29923: go-redis allows potential out of order responses when `CLIENT SETINFO` times out during connection establishment.
- CVE-2025-54388: Moby versions 28.2.0–28.3.2 fails to re-create iptables rules after a firewall reloads. This exposes containers with localhost-published ports (e.g., 127.0.0.1:8080) to remote access via the Docker bridge, while unpublished ports remain protected; fixed in version 28.3.3.
- GHSA-2464-8j7c-4cjm: go-viper's map structure may leak sensitive information in logs when processing malformed data.
- CVE-2025-8959: HashiCorp go-getter vulnerable to arbitrary read through symlink attack.
- CVE-2025-58058: github.com/ulikunitz/xz leaks memory when decoding a corrupted multiple LZMA archives.
- CVE-2025-53547: Helm chart dependency updating with malicious Chart.yaml content and symlink can lead to code execution.

Bugs fixed:

- Trivy: the correct version is shown when calling `trivy version`.

Container image updates:

- Valkey updated from 8.0.2 → 8.0.6.

Upgrade notes:

- No breaking changes in this release.

2 Release 1.0

Key features:

- SUSE Private Registry is based on Harbor 2.13.2
  - Integration with Model Spec (https://github.com/goharbor/community/blob/main/proposals/new/AI-model-processor.md) for first-class handling of AI models
  - Enhanced audit logging
- Predictable release cycle (https://www.suse.com/support/kb/doc/?id=000021405) aligned with SUSE Rancher Prime. SUSE Private Registry will be updated every 4 months
- Each release is supported by SUSE for 18 months from the date of release
  - 6 months of security and bug fix maintenance, followed by
  - 12 months of security-only maintenance
- Can be used to mirror SUSE Application Collection (https://docs.apps.rancher.io/how-to-guides/mirror-with-harbor/)
- Supports SUSE Security (https://documentation.suse.com/cloudnative/security/5.4/en/harbor.html) as an external scanner

SUSE Private Registry includes all the features of Harbor:

- On-premises private container image and OCI artifact registry
- Web interface for administration

- Role-based Access Control
- Fine-grained project configuration for image and artifact storage
- Mirroring and pull-through caching of upstream registries' artifacts
- Image retention and garbage collection controls
- Scanning images for security vulnerabilities with the Trivy scanner
- Generate SBOMs for stored images
- Content trust with Cosign (Notary is not included)

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1 Introduction

1.1 What is SUSE Private Registry?

SUSE Private Registry (Private Registry) is an on-premises container registry. Private Registry is designed for SUSE customers who need a container registry that works well with other SUSE services and products.

1.2 What are SUSE Private Registry benefits?

Private Registry is based on the Harbor project and includes all its core features as well as added benefits. For example:

- **On-premises container registry.** Private Registry is a locally hosted container registry with access to online SUSE registry services.
- **Security.** Private Registry offers security considerations for containerized environments. It includes authentication, authorization and vulnerability scanning.
- **Deployment flexibility.** You can install Private Registry on a Kubernetes environment such as SUSE Rancher Prime: RKE2. You can also deploy Private Registry with High Availability setup.
- **User management.** Private Registry provides authentication and authorization mechanism with role-based access control (RBAC).
- **User interface.** Besides a command-line interface, you can administer Private Registry via Web user interface.

1.3 How does SUSE Private Registry work?

Private Registry is delivered as *Open Container Initiative* (OCI) containers and is expected to be deployed on a Kubernetes cluster. Private Registry consists of the following containers:

- **harbor-core:** the main component of the Harbor registry, responsible for handling core functionalities such as managing projects, repositories and user interactions.
- **harbor-db:** the database container that stores all metadata related to images, users and configurations for the Harbor registry.
- **harbor-jobservice:** a service that manages background jobs, such as image replication and scheduled tasks, ensuring efficient processing of operations within the registry.
- **harbor-nginx:** the reverse proxy and load balancer that routes incoming requests to the appropriate Harbor services, providing a single entry point for users.
- **harbor-portal:** the Web-based user interface that allows users to interact with the Harbor registry, manage images, and configure settings through a graphical interface.
- **harbor-registry:** the container that serves as the actual image storage back-end, handling the storage and retrieval of container images.
- **harbor-registryctl:** a command-line tool for managing the Harbor registry, allowing users to perform administrative tasks and configurations directly from the terminal.
- **harbor-trivy-adapter:** a container that integrates the Trivy vulnerability scanner with Harbor, enabling automated security scanning of container images for vulnerabilities.
- **harbor-exporter:** the container that exports Harbor metrics in a format that can be collected by Prometheus for monitoring and observability.
- **harbor-valkey:** an in-memory key-value store.

After deployment, you can log in via Web user interface. After successful authentication and authorization, you can configure multiple aspects of the product, for example:

- Configure **global settings**, such as setting the registry to read-only mode or restricting who can create projects.
- Select an **authentication** method.
- Add users when in database authentication mode and assign the system **administrator role** to other users.

- Apply resource **quotas** to projects.
- Set up the **replication** of images between Private Registry instances.

1.4 For more information

Refer to the following sources to obtain more details:

- The Harbor project homepage is at https://goharbor.io/.
- Harbor usage is detailed in https://goharbor.io/docs.

2 Deployment

The following procedures describe how to deploy SUSE Private Registry (Private Registry) on a Kubernetes cluster.

2.1 Prerequisites

- A Kubernetes cluster version 1.20 or higher
- Helm version 3.2.0 or higher
- Persistent Volume (PV) provisioner support in your infrastructure
- An active subscription for SUSE Private Registry

2.2 Obtaining Kubernetes secrets from the SUSE Customer Center

To download and install the Private Registry images from SUSE Registry, you need a Kubernetes secret with SUSE Customer Center (SCC) mirroring credentials. To obtain the credentials from SCC, follow these steps:

1. Visit SUSE Customer Center at https://scc.suse.com and log in.
2. Select the organization with an active Private Registry subscription from the left sidebar.
3. Select `Proxies` in the top menu. The credentials are displayed in the top right corner.
4. To see the password, click the 'eye' icon.
5. Create a `password.txt` file containing the obtained password.

   ```
   $ head -1 ./password.txt | helm registry login registry.suse.com \
   --username <PRIVATE_REGISTRY_USERNAME> --password-stdin
   ```

6. Create a namespace for SUSE Registry.

   ```
   $ kubectl create namespace <PRIVATE_REGISTRY_NAMESPACE>
   ```

7. Store the mirroring credentials retrieved from SCC as Kubernetes secrets by running the following command:

```
$ kubectl create secret docker-registry suse-registry \
--namespace <PRIVATE_REGISTRY_NAMESPACE> \
--docker-server=registry.suse.com \
--docker-username=<PRIVATE_REGISTRY_USERNAME> \
--docker-password=$(head -1 ./password.txt)
```

8. Optionally, to use TLS encrypted communication, create a TLS secret from your private key and certificate files.

```
$ kubectl create secret tls suse-registry-tls \
--namespace <PRIVATE_REGISTRY_NAMESPACE> \
--cert=<CERTIFICATE>.pem \
--key=<PRIVATE_KEY>.pem
```

2.3 Installing and running Private Registry using Helm

The following procedure describes how to install Private Registry using Helm. Replace `<RELEASE_NAME>` with your custom release name for the Helm chart deployment.

1. Log in to SUSE Registry using the obtained SCC mirroring credentials.

```
$ head -1 ./password.txt | helm registry login registry.suse.com \
--username <SUSE_REGISTRY_USERNAME> --password-stdin
```

2. Install the latest version of the Private Registry Helm chart.

```
$ helm install <RELEASE_NAME> \
oci://registry.suse.com/private-registry/private-registry-helm \
--namespace <PRIVATE_REGISTRY_NAMESPACE>
```

To override the default installation with custom values from the `suse_registry_override.yaml` file, refer to *Appendix A, Overriding the SUSE Private Registry Helm chart*.

The command starts deploying several related containers and may take several minutes to complete. It also prints a message with the URL to the Private Registry Web portal and commands to obtain the administrator credentials.

2.4 Upgrading Private Registry

To upgrade the release of the Helm chart to a specific newer version, run the following command:

```
$ helm upgrade <RELEASE_NAME> \
oci://registry.suse.com/private-registry/private-registry-helm --version
 <NEW_VERSION_OF_HELM_CHART>
--namespace <PRIVATE_REGISTRY_NAMESPACE>
```

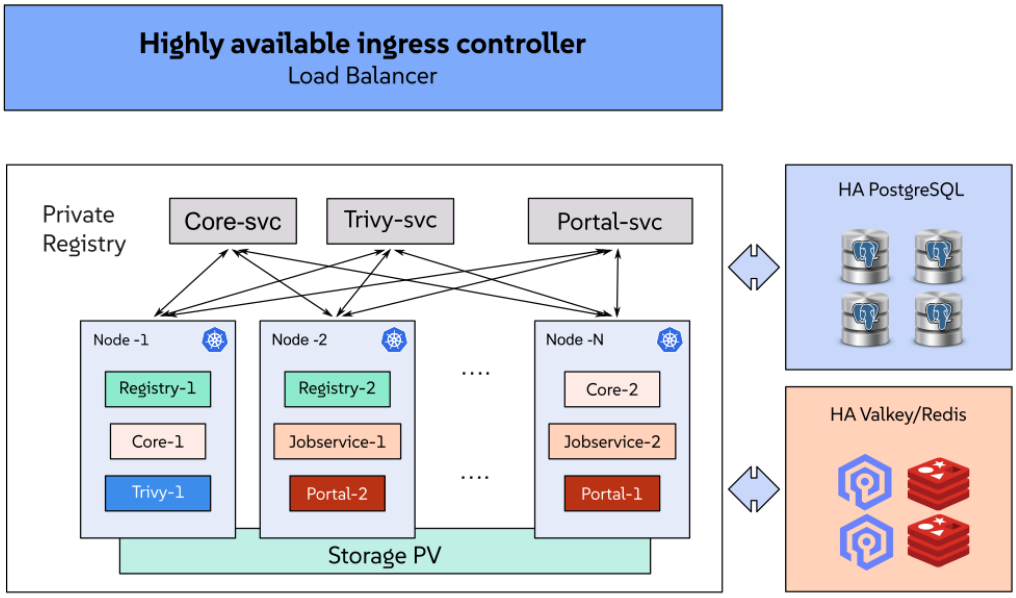
3 Deployment with High Availability

You can use Helm to deploy highly available (HA) Private Registry on a Kubernetes cluster. The HA setup ensures that users do not experience interruptions of service if one of the nodes on which Private Registry is running becomes unavailable.

3.1 Architecture of the HA setup

Most of the Private Registry components are now stateless. Therefore, we can scale them by increasing pod replicas, ensuring they run on multiple worker nodes. Kubernetes services ensure connectivity between pods.

For storage, users should provide an HA PostgreSQL and Valkey or Redis cluster for application data, along with PVCs or object storage for storing images and charts.



Private Registry HA setup. Kubernetes cluster with Ingress in HA setup using HA PostgreSQL and HA Valkey.

3.2 Prerequisites

- A Kubernetes cluster version 1.20 or higher
- Helm version 3.2.0 or higher
- HA Ingress controller (Private Registry does not manage the external endpoint)
- HA PostgreSQL 9.6+ (Private Registry does not handle the deployment of HA database)
- HA Valkey or Redis (Private Registry does not handle the deployment of HA Valkey or Redis)
- Persistent Volume Claim (PVC) that can be shared across nodes or external object storage
- An active subscription for SUSE Private Registry

3.3 Deploying Private Registry with HA

1. Download the Private Registry Helm chart.

   ```
   $ helm pull oci://registry.suse.com/private-registry/private-registry-helm --untar
   ```

2. Update the deployment parameters to match your requirements. Refer to *Appendix B, Example of a Private Registry HA setup Helm chart* for an example Helm chart for Private Registry HA setup. Refer to *Appendix A, Overriding the SUSE Private Registry Helm chart* for a complete list of values to specify or override.

3. Install the Private Registry Helm chart. Replace `<RELEASE_NAME>` with your custom release name for the Helm chart deployment.

   ```
   $ helm install <RELEASE_NAME> private-registry-helm/
   ```

A Overriding the SUSE Private Registry Helm chart

The SUSE Private Registry (Private Registry) Helm chart is delivered with default values. You can adjust the Helm chart installation in one of the following ways:

- Append specific parameters to the `--set` flags on the `helm install` command line, for example:

```
$ helm install <RELEASE_NAME> \
oci://registry.suse.com/private-registry/private-registry-helm \
--namespace <PRIVATE_REGISTRY_NAMESPACE> \
--set harborAdminPassword=<MY_PASSWORD> \
--set externalURL=https://<PRIVATE_REGISTRY_FQDN> \
--set expose.ingress.hosts.core=<PRIVATE_REGISTRY_FQDN>
```

- Create a SUSE custom `suse_registry_override.yaml` file and pass it to the `--f` flag, for example:

```
  $ helm install <RELEASE_NAME> \
  oci://registry.suse.com/private-registry/private-registry-helm \
  --namespace <PRIVATE_REGISTRY_NAMESPACE>
  -f suse_registry_override.yaml
```

A1 Examples of SUSE Registry Helm override files

EXAMPLE A1: MINIMAL DEPLOYMENT WITH INGRESS

```
expose:
  type: ingress ❶
  ingress:
    hosts:
      core: <PRIVATE_REGISTRY_FQDN> ❷

externalURL: https://<PRIVATE_REGISTRY_FQDN> ❸

harborAdminPassword: "<MY_PASSWORD>" ❹

database:
  internal:
    password: "<MY_PASSWORD_POSTGRESQL>"

redis:
  internal:
```

```
   password: "<MY_PASSWORD_REDIS>"
```

1. How SUSE Registry is exposed. Can be `ingress`, `loadBalancer`, `nodePort` or `clusterIPhis`. Default is `ingress`.
2. Host name for the Kubernetes internal networking configuration.
3. URL where the SUSE Registry application runs. It is used to generate links in the user interface, redirects and also for API responses.
4. The administrator password to the application.

EXAMPLE A2: TYPICAL DEPLOYMENT WITH `loadBalancer`

```
expose:
  type: loadBalancer (1)
  tls:
    enabled: true
    certSource: secret (2)
    secret:
      secretName: <SECRET_NAME>

    auto:
      commonName: <PRIVATE_REGISTRY_FQDN> (3)

externalURL: https://<PRIVATE_REGISTRY_FQDN> (4)

harborAdminPassword: "<MY_PASSWORD>" (5)

database:
  internal:
    password: "<MY_PASSWORD_POSTGRESQL>"

redis:
  internal:
   password: "<MY_PASSWORD_REDIS>"
```

1. How SUSE Registry is exposed. Can be `ingress`, `loadBalancer`, `nodePort` or `clusterIP`. Default is `ingress`.
2. Can be `auto`, `secret` or `none`. Depending on the option, you may have to include additional values.
3. When using TLS encryption, this field must match the `externalURL` value.
4. URL where the SUSE Registry application runs. It is used to generate links in the user interface, redirects and also for API responses.
5. The administrator password to the application.

A2 Overriding Helm chart parameters and values

The following tables list all parameters with descriptions that you can use to override the default installation values.

GLOBAL PARAMETERS

`global.imageRegistry`
: Sets a global override for the container image registry used for all images.

`global.imagePullSecrets`
: Sets global pull secrets for accessing the container image registry.

COMMON PARAMETERS

`harborAdminPassword`
: Sets the initial password for Harbor administrator. Change it from portal after deployment. Default is `Harbor12345`.

`externalURL`
: Specifies the external URL for `harbor-core` service. Default is `https://core.harbor.domain`.

`existingSecretAdminPasswordKey`
: Sets the key name in the secret containing Harbor administrator password. Default is `HARBOR_ADMIN_PASSWORD`.

`imagePullSecrets`
: Sets the `imagePullSecrets` names for all deployments.

`updateStrategy.type`
: Sets the update strategy for deployments with persistent volumes. Accepts `RollingUpdate` or `Recreate`. Use `Recreate` when RWM for volumes is not supported. Default is `RollingUpdate`.

`logLevel`
: Sets the log level for Harbor services. Accepts `fatal`, `error`, `warn`, `info`, `debug` or `trace`. Default is `debug`.

`enableMigratehelmHook`
: Runs database migration job via Helm hook. When `true`, separates migration job from `harbor-core`. Default is `false`.

`caSecretName`

Specifies the secret name containing the `ca.crt` key.

PROXY PARAMETERS

`proxy.httpProxy`

Specifies the HTTP proxy server URL. Default is `""`.

`proxy.httpsProxy`

Specifies the HTTPS proxy server URL. Default is `""`.

`proxy.noProxy`

Sets URLs that bypass the proxy configuration. Default is `127.0.0.1,localhost,.local,.internal`.

`proxy.components`

Sets components that use the proxy configuration. Default is `["core","jobservice","trivy"]`.

EXPOSE PARAMETERS

`expose.type`

Specifies service exposure type: `ingress`, `clusterIP`, `nodePort` or `loadBalancer`. Default is `ingress`.

`expose.tls.enabled`

Enables TLS. Default is `true`.

`expose.tls.certSource`

Sets TLS certificate source as `auto`, `secret` or `none`. Default is `auto`.

`expose.tls.auto.commonName`

Sets certificate common name when type is not `ingress`.

`expose.tls.secret.secretName`

Specifies name of secret containing `tls.crt` (certificate) and `tls.key` (private key).

`expose.ingress.hosts.core`

Sets Harbor core service host in Ingress rule. Default is `core.harbor.domain`.

`expose.ingress.controller`

Sets Ingress controller type. Supports `default`, `gce`, `alb`, `f5-bigip` and `ncp`. Default is `default`.

`expose.ingress.kubeVersionOverride`
: Overrides Kubernetes version for Ingress templating.

`expose.ingress.annotations`
: Sets Ingress annotations.

`expose.ingress.labels`
: Sets Ingress-specific labels. Default is `{}`.

`expose.clusterIP.name`
: Sets ClusterIP service name. Default is `harbor`.

`expose.clusterIP.annotations`
: Sets ClusterIP service annotations. Default is `{}`.

`expose.clusterIP.ports.httpPort`
: Sets HTTP service port. Default is `80`.

`expose.clusterIP.ports.httpsPort`
: Sets HTTPS service port. Default is `443`.

`expose.clusterIP.labels`
: Sets ClusterIP-specific labels. Default is `{}`.

`expose.nodePort.name`
: Sets NodePort service name. Default is `harbor`.

`expose.nodePort.ports.http.port`
: Sets HTTP service port. Default is `80`.

`expose.nodePort.ports.http.nodePort`
: Sets HTTP node port. Default is `30002`.

`expose.nodePort.ports.https.port`
: Sets HTTPS service port. Default is `443`.

`expose.nodePort.ports.https.nodePort`
: Sets HTTPS node port. Default is `30003`.

`expose.nodePort.annotations`
: Sets NodePort annotations.

`expose.nodePort.labels`
: Sets NodePort-specific labels. Default is `{}`.

`expose.loadBalancer.name`

Sets service name. Default is `harbor`.

`expose.loadBalancer.IP`

Sets loadBalancer IP when IP assignment is supported. Default is `""`.

`expose.loadBalancer.ports.httpPort`

Sets HTTP service port. Default is `80`.

`expose.loadBalancer.ports.httpsPort`

Sets HTTPS service port. Default is `30002`.

`expose.loadBalancer.annotations`

Sets loadBalancer service annotations. Default is `{}`.

`expose.loadBalancer.labels`

Sets loadBalancer-specific labels. Default is `{}`.

`expose.loadBalancer.sourceRanges`

Specifies IP address ranges for loadBalancerSourceRanges. Default is `[]`.

PERSISTENCE PARAMETERS

`persistence.enabled`

Enables or disables data persistence. Default is `true`.

`persistence.resourcePolicy`

`keep` prevents removal of PVCs during a Helm delete operation. Empty value deletes PVCs after chart deletion. Default is `keep`.

`persistence.persistentVolumeClaim.registry.existingClaim`

The existing PVC that must be created manually before binding. Requires a subPath specification if the PVC is shared with other components.

`persistence.persistentVolumeClaim.registry.storageClass`

The `storageClass` that provisions the volume.

`persistence.persistentVolumeClaim.registry.subPath`

The subpath in the volume.

`persistence.persistentVolumeClaim.registry.accessMode`

The access mode of the volume. Default is `ReadWriteOnce`.

`persistence.persistentVolumeClaim.registry.size`
: The size of the volume. Default is `5Gi`.

`persistence.persistentVolumeClaim.registry.annotations`
: The annotations of the volume.

`persistence.persistentVolumeClaim.jobservice.jobLog.existingClaim`
: The existing PVC that must be created manually before binding. Requires a subPath specification if the PVC is shared with other components.

`persistence.persistentVolumeClaim.jobservice.jobLog.storageClass`
: The `storageClass` that provisions the volume.

`persistence.persistentVolumeClaim.jobservice.jobLog.subPath`
: The subpath in the volume.

`persistence.persistentVolumeClaim.jobservice.jobLog.accessMode`
: The access mode of the volume. Default is `ReadWriteOnce`.

`persistence.persistentVolumeClaim.jobservice.jobLog.size`
: The size of the volume. Default is `1Gi`.

`persistence.persistentVolumeClaim.jobservice.jobLog.annotations`
: The annotations of the volume.

`persistence.persistentVolumeClaim.database.existingClaim`
: The existing PVC that must be created manually before binding. Requires a subPath specification if the PVC is shared with other components.

`persistence.persistentVolumeClaim.database.storageClass`
: The `storageClass` that provisions the volume.

`persistence.persistentVolumeClaim.database.subPath`
: The subpath in the volume. Ignored when an external database is used.

`persistence.persistentVolumeClaim.database.accessMode`
: The access mode of the volume. Ignored when an external database is used. Default is `ReadWriteOnce`.

`persistence.persistentVolumeClaim.database.size`
: The size of the volume. Ignored when an external database is used. Default is `1Gi`.

`persistence.persistentVolumeClaim.database.annotations`
: The annotations of the volume.

`persistence.persistentVolumeClaim.redis.existingClaim`
: The existing PVC that must be created manually before binding. Requires a subPath specification if the PVC is shared with other components.

`persistence.persistentVolumeClaim.redis.storageClass`
: The `storageClass` that provisions the volume. Uses default StorageClass if not specified.

`persistence.persistentVolumeClaim.redis.subPath`
: The subpath in the volume. Ignored when an external Valkey is used.

`persistence.persistentVolumeClaim.redis.accessMode`
: The access mode of the volume. Ignored when an external Valkey is used. Default is `ReadWriteOnce`.

`persistence.persistentVolumeClaim.redis.size`
: The size of the volume. Ignored when an external Valkey is used. Default is `1Gi`.

`persistence.persistentVolumeClaim.redis.annotations`
: The annotations of the volume.

`persistence.persistentVolumeClaim.trivy.existingClaim`
: The existing PVC that must be created manually before binding. Requires a subPath specification if the PVC is shared with other components.

`persistence.persistentVolumeClaim.trivy.storageClass`
: The `storageClass` that provisions the volume. Uses default StorageClass if not specified.

`persistence.persistentVolumeClaim.trivy.subPath`
: The subpath in the volume.

`persistence.persistentVolumeClaim.trivy.accessMode`
: The access mode of the volume. Default is `ReadWriteOnce`.

`persistence.persistentVolumeClaim.trivy.size`
: The size of the volume. Default is `1Gi`.

`persistence.persistentVolumeClaim.trivy.annotations`
: The annotations of the volume.

`persistence.imageChartStorage.disableredirect`
: Controls redirect management from content back-ends. Set to true to disable redirects for unsupported back-ends. Default is `false`.

`persistence.imageChartStorage.caBundleSecretName`

The name of secret containing CA bundle for self-signed storage service certificates.

`persistence.imageChartStorage.type`

The storage type for images and charts: `filesystem`, `azure`, `gcs`, `s3`, `swift`, or `oss`. Default is `filesystem`.

`persistence.imageChartStorage.gcs.existingSecret`

The name of existing secret containing the GCS service account JSON key. The key must be `gcs-key.json`. Default is `""`.

`persistence.imageChartStorage.gcs.useWorkloadIdentity`

Enables workload identity usage in a GKE cluster. Default is `false`.

NGINX PARAMETERS

`nginx.image.repository`

The image repository for nginx. Default is `private-registry/harbor-nginx`.

`nginx.image.tag`

The image tag for nginx.

`nginx.replicas`

The number of replicas to run. Default is `1`.

`nginx.revisionHistoryLimit`

The maximum number of old `ReplicaSet` revisions to retain. Default is `10`.

`nginx.resources`

The compute resources allocated for the container. Default is `undefined`.

`nginx.automountServiceAccountToken`

Controls automatic mounting of the service account token. Default is `false`.

`nginx.nodeSelector`

The node labels used for pod assignment. Default is `{}`.

`nginx.tolerations`

The pod assignment tolerations. Default is `[]`.

`nginx.affinity`

The node or pod affinity rules. Default is `{}`.

`nginx.topologySpreadConstraints`

The rules for spreading pods across failure-domains such as regions or availability zones. Default is `[]`.

`nginx.podAnnotations`

The annotations added to the nginx pod. Default is `{}`.

PORTAL PARAMETERS

`portal.image.repository`

Repository location for the portal image. Default is `private-registry/harbor-portal`.

`portal.image.tag`

Tag for the portal image. Default is `3.11`.

`portal.replicas`

Number of replicas to create. Default is `1`.

`portal.revisionHistoryLimit`

Maximum number of old `ReplicaSet` revisions to retain. Default is `10`.

`portal.resources`

Resources allocated to the container. Default is `undefined`.

`portal.automountServiceAccountToken`

Controls automatic mounting of the service account token. Default is `false`.

`portal.nodeSelector`

Node labels used for pod assignment. Default is `{}`.

`portal.tolerations`

Tolerations used for pod assignment. Default is `[]`.

`portal.affinity`

Node and pod affinity settings. Default is `{}`.

`portal.topologySpreadConstraints`

Defines pod distribution across failure-domains such as regions or availability zones. Default is `[]`.

`portal.podAnnotations`

Annotations added to the portal pod. Default is `{}`.

`portal.serviceAnnotations`

Annotations added to the portal service. Default is `{}`.

`portal.priorityClassName`

Priority class name for pod execution.

`portal.initContainers`

Init containers to be run before the controller container starts. Default is `[]`.

CORE PARAMETERS

`core.image.repository`

The repository for the Harbor core image. Default is `private-registry/harbor-core`.

`core.image.tag`

The tag for the Harbor core image. Default is `2.11`.

`core.replicas`

The number of replicas. Default is `1`.

`core.revisionHistoryLimit`

The revision history limit. Default is `10`.

`core.startupProbe.initialDelaySeconds`

The initial delay in seconds for the startup probe. Default is `10`.

`core.resources`

The resources to allocate for the container. Default is `undefined`.

`core.automountServiceAccountToken`

Mounts the service account token. Default is `false`.

`core.nodeSelector`

The node labels for pod assignment. Default is `{}`.

`core.tolerations`

The tolerations for pod assignment. Default is `[]`.

`core.affinity`

The node or pod affinities. Default is `{}`.

`core.topologySpreadConstraints`

The constraints that define how pods are spread across failure-domains like regions or availability zones. Default is `[]`.

`core.podAnnotations`
: The annotations to add to the core pod. Default is `{}`.

`core.serviceAnnotations`
: The annotations to add to the core service. Default is `{}`.

`core.configureUserSettings`
: A JSON string in the environment variable CONFIG_OVERWRITE_JSON to configure user settings.

`core.quotaUpdateProvider`
: The provider for updating project quota usage, options are `redis` or `db`. Default is `db`.

`core.secret`
: Used when core server communicates with other components.

`core.secretName`
: The name of a Kubernetes secret to use your own TLS certificate and private key for token encryption or decryption.

`core.tokenKey`
: The PEM-formatted RSA private key used to sign service tokens.

`core.tokenCert`
: The PEM-formatted certificate signed by `core.tokenKey` used to validate service tokens.

`core.xsrfKey`
: The XSRF key, automatically generated if not specified.

`core.priorityClassName`
: The priority class to run the pod as.

`core.artifactPullAsyncFlushDuration`
: The time duration for asynchronously updating artifact pull time and repository pull count.

`core.gdpr.deleteUser`
: Enables GDPR compliant user deletion. Default is `false`.

`core.gdpr.auditLogsCompliant`
: Enables GDPR compliance for audit logs by changing username to its CRC32 value if that user was deleted from the system. Default is `false`.

`core.initContainers`
: The init containers to run before the controller's container starts. Default is `[]`.

JOBSERVICE PARAMETERS

`jobservice.image.repository`
: The repository for the jobservice image. Default is `private-registry/harbor-jobservice`.

`jobservice.image.tag`
: The tag for the jobservice image. Default is `2.11`.

`jobservice.replicas`
: The number of replicas. Default is `1`.

`jobservice.revisionHistoryLimit`
: The revision history limit. Default is `10`.

`jobservice.maxJobWorkers`
: The maximum number of job workers. Default is `10`.

`jobservice.jobLoggers`
: The loggers for jobs: `file`, `database` or `stdout`. Default is `[file]`.

`jobservice.loggerSweeperDuration`
: The duration in days to keep job logs (ignored if `jobLoggers` is set to `stdout`). Default is `14`.

`jobservice.notification.webhook_job_max_retry`
: The maximum number of retries for webhook notification sending. Default is `3`.

`jobservice.notification.webhook_job_http_client_timeout`
: The HTTP client timeout in seconds for webhook notification sending. Default is `3`.

`jobservice.reaper.max_update_hours`
: The maximum time in hours to wait for a task to finish. If the task is not finished after the specified hours, it is marked as an error but continues to run. Default is `24`.

`jobservice.reaper.max_dangling_hours`
: The maximum time in hours for execution in running state without a new task created. Default is `168`.

`jobservice.resources`
: The [resources] to allocate for container. Default is `undefined`.

`jobservice.automountServiceAccountToken`
: Mounts the service account token. Default is `false`.

`jobservice.nodeSelector`

The node labels for pod assignment. Default is `{}`.

`jobservice.tolerations`

The tolerations for pod assignment. Default is `[]`.

`jobservice.affinity`

The node or pod affinities. Default is `{}`.

`jobservice.topologySpreadConstraints`

The constraints that define how pods are spread across failure-domains like regions or availability zones. Default is `[]`.

`jobservice.podAnnotations`

The annotations to add to the jobservice pod. Default is `{}`.

`jobservice.priorityClassName`

The priority class to run the pod as.

`jobservice.secret`

The secret used when job service communicates with other components. If a secret key is not specified, Helm generates it. Must be a string of 16 characters.

`jobservice.initContainers`

The init containers to run before the controller's container starts. Default is `[]`.

REGISTRY PARAMETERS

`registry.registry.image.repository`

The repository location for the registry image. Default is `private-registry/harbor-registry`.

`registry.registry.image.tag`

The tag for the registry image. Default is `2.11`.

`registry.registry.resources`

The [resources] to allocate for container. Default is `undefined`.

`registry.controller.image.repository`

The repository location for the registry controller image. Default is `private-registry/harbor-registryctl`.

`registry.controller.image.tag`

The tag for the registry controller image. Default is `2.11`.

`registry.controller.resources`
: The [resources] to allocate for container. Default is `undefined`.

`registry.replicas`
: The number of replica instances. Default is `1`.

`registry.revisionHistoryLimit`
: The maximum number of revisions to maintain in history. Default is `10`.

`registry.nodeSelector`
: The node labels for pod assignment. Default is `{}`.

`registry.automountServiceAccountToken`
: Controls whether to mount the service account token. Default is `false`.

`registry.tolerations`
: The tolerations for pod assignment. Default is `[]`.

`registry.affinity`
: The node or pod affinities. Default is `{}`.

`registry.topologySpreadConstraints`
: The constraints that define pod distribution across failure-domains such as regions or availability zones. Default is `[]`.

`registry.middleware`
: Middleware support for a CDN between back-end storage and Docker pull recipient.

`registry.podAnnotations`
: The annotations to add to the registry pod. Default is `{}`.

`registry.priorityClassName`
: The priority class for pod execution.

`registry.secret`
: The secret that secures the upload state between client and registry storage back-end.

`registry.credentials.username`
: The username for Harbor core's internal registry access. Default is `harbor_registry_user`.

`registry.credentials.password`
: The password for Harbor core's internal registry access. Default is `harbor_registry_password`.

`registry.credentials.existingSecret`

An existing secret containing the password for registry instance access in htpasswd auth mode. Default is `""`.

`registry.credentials.htpasswdString`

The login and password in htpasswd string format. Excludes `registry.credentials.username` and `registry.credentials.password`. Default is `undefined`.

`registry.relativeurls`

Returns relative URLs in Location headers when true. Required if Harbor is behind a reverse proxy. Default is `false`.

`registry.upload_purging.enabled`

Enables purging of upload directories. Default is `true`.

`registry.upload_purging.age`

The time period after which files in upload directories are removed, default is one week. Default is `168h`.

`registry.upload_purging.interval`

The time interval between purge operations. Default is `24h`.

`registry.upload_purging.dryrun`

Enables dryrun mode for upload purging. Default is `false`.

`registry.initContainers`

The init containers that run before the controller's container starts. Default is `[]`.

TRIVY PARAMETERS

`trivy.enabled`

Enables or disables the Trivy scanner. Default is `true`.

`trivy.image.repository`

The repository for the Trivy adapter image. Default is `private-registry/harbor-trivy-adapter`.

`trivy.image.tag`

The tag for the Trivy adapter image. Default is `2.11`.

`trivy.resources`

The resources to allocate for the Trivy adapter container. Default is `undefined`.

`trivy.automountServiceAccountToken`
: Whether to mount the service account token. Default is `false`.

`trivy.replicas`
: The number of Pod replicas. Default is `1`.

`trivy.debugMode`
: Enables Trivy debug mode for troubleshooting. Default is `false`.

`trivy.vulnType`
: Comma-separated list of vulnerability types (`os` and `library`). Default is `os,library`.

`trivy.severity`
: Comma-separated list of vulnerability severities to check. Default is `UNKNOWN,LOW,MEDIUM,HIGH,CRITICAL`.

`trivy.ignoreUnfixed`
: Displays only fixed vulnerabilities. Default is `false`.

`trivy.insecure`
: Skips registry certificate verification. Default is `false`.

`trivy.skipUpdate`
: Disables Trivy database downloads from GitHub. Default is `false`.

`trivy.skipJavaDBUpdate`
: Requires manual download of the `trivy-java.db` file when enabled. Default is `false`.

`trivy.offlineScan`
: Prevents Trivy from sending API requests to identify dependencies. Default is `false`.

`trivy.securityCheck`
: Comma-separated list of security issues to detect. Default is `vuln`.

`trivy.timeout`
: The duration to wait for scan completion. Default is `5m0s`.

`trivy.gitHubToken`
: The GitHub access token required for database downloads. Default is `undefined`.

`trivy.priorityClassName`
: The priority class for running the pod. Default is `undefined`.

`trivy.topologySpreadConstraints`
: Defines pod distribution constraints across failure domains. Default is `undefined`.

`trivy.initContainers`

List of init containers to run before the main container starts. Default is `[]`.

DATABASE PARAMETERS

`database.type`

The database type. Set to `external` when using an external database. Default is `internal`.

`database.internal.image.repository`

The repository for the database image. Default is `private-registry/harbor-db`.

`database.internal.image.tag`

The tag for the database image. Default is `2.11`.

`database.internal.password`

The password for the internal database. Default is `changeit`.

`database.internal.shmSizeLimit`

The shared memory size limit for PostgreSQL (typically 50% of the container memory limit). Default is `512Mi`.

`database.internal.resources`

The resources allocated for the database container. Default is `undefined`.

`database.internal.automountServiceAccountToken`

Controls whether the service account token is mounted. Default is `false`.

`database.internal.initContainer.migrator.resources`

The resources allocated for the database migrator init container. Default is `undefined`.

`database.internal.initContainer.permissions.resources`

The resources allocated for the database permissions init container. Default is `undefined`.

`database.internal.nodeSelector`

The node labels for pod assignment. Default is `{}`.

`database.internal.tolerations`

The tolerations for pod assignment. Default is `[]`.

`database.internal.affinity`

The node or pod affinity settings. Default is `{}`.

`database.internal.priorityClassName`

The priority class for running the pod. Default is `undefined`.

`database.internal.livenessProbe.timeoutSeconds`
: The timeout in seconds for the liveness probe (range: 1-5s). Default is `1`.

`database.internal.readinessProbe.timeoutSeconds`
: The timeout in seconds for the readiness probe (range: 1-5s). Default is `1`.

`database.internal.extrInitContainers`
: Additional init containers that run before the database container starts. Default is `[]`.

`database.external.host`
: The host name of the external database. Default is `192.168.0.1`.

`database.external.port`
: The port number of the external database. Default is `5432`.

`database.external.username`
: The username for the external database. Default is `user`.

`database.external.password`
: The password for the external database. Default is `password`.

`database.external.coreDatabase`
: The database name used by the core service. Default is `registry`.

`database.external.existingSecret`
: The existing secret containing the database password. The key must be `password`. Default is `""`.

`database.external.sslmode`
: The connection method for the external database. Options: `require`, `verify-full`, `verify-ca`, `disable`. Default is `disable`.

`database.maxIdleConns`
: The maximum number of idle connections in the pool (0 or less means no idle connections are retained). Default is `50`.

`database.maxOpenConns`
: The maximum number of open connections to the database (0 or less means unlimited). Default is `100`.

`database.podAnnotations`
: The annotations to add to the database pod. Default is `{}`.

`redis.type`
: The Redis deployment type. Set to `external` for external Redis. Default is `internal`.

`redis.internal.image.repository`
: The repository for the Redis image. Default is `private-registry/harbor-redis`.

`redis.internal.image.tag`
: The tag for the Redis image. Default is `7.2`.

`redis.internal.resources`
: The resources allocated for the Redis container. Default is `undefined`.

`redis.internal.automountServiceAccountToken`
: Controls whether the service account token is mounted. Default is `false`.

`redis.internal.nodeSelector`
: The node labels for pod assignment. Default is `{}`.

`redis.internal.tolerations`
: The tolerations for pod assignment. Default is `[]`.

`redis.internal.affinity`
: The node or pod affinity settings. Default is `{}`.

`redis.internal.priorityClassName`
: The priority class for running the Redis pod. Default is `undefined`.

`redis.internal.jobserviceDatabaseIndex`
: The database index for jobservice. Default is `1`.

`redis.internal.registryDatabaseIndex`
: The database index for registry. Default is `2`.

`redis.internal.trivyAdapterIndex`
: The database index for Trivy adapter. Default is `5`.

`redis.internal.harborDatabaseIndex`
: The database index for miscellaneous Harbor business logic. Default is `0`.

`redis.internal.cacheLayerDatabaseIndex`
: The database index for Harbor's cache layer. Default is `0`.

`redis.internal.initContainers`

The init containers that run before the Redis container starts. Default is `[]`.

`redis.external.addr`

The address of the external Redis instance. Default is `192.168.0.2:6379`.

`redis.external.sentinelMasterSet`

The name of the Redis Sentinel master set (if applicable). Default is `undefined`.

`redis.external.coreDatabaseIndex`

The database index for core. Default is `0`.

`redis.external.jobserviceDatabaseIndex`

The database index for jobservice. Default is `1`.

`redis.external.registryDatabaseIndex`

The database index for registry. Default is `2`.

`redis.external.trivyAdapterIndex`

The database index for Trivy adapter. Default is `5`.

`redis.external.harborDatabaseIndex`

The database index for miscellaneous Harbor business logic. Default is `0`.

`redis.external.cacheLayerDatabaseIndex`

The database index for Harbor's cache layer. Default is `0`.

`redis.external.username`

The username for external Redis authentication. Default is `undefined`.

`redis.external.password`

The password for external Redis authentication. Default is `undefined`.

`redis.external.existingSecret`

The existing secret containing the Redis password. The key must be `REDIS_PASSWORD`. Default is `""`.

`redis.podAnnotations`

The annotations to add to the Redis pod. Default is `{}`.

EXPORTER PARAMETERS

`exporter.replicas`

The number of replicas to run. Default is `1`.

`exporter.revisionHistoryLimit`

The revision history limit. Default is `10`.

`exporter.podAnnotations`

Annotations to add to the exporter pod. Default is `{}`.

`exporter.image.repository`

The repository for the exporter image. Default is `private-registry/harbor-exporter`.

`exporter.image.tag`

The tag for the exporter image. Default is `2.11`.

`exporter.nodeSelector`

Node labels for pod assignment. Default is `{}`.

`exporter.tolerations`

Tolerations for pod assignment. Default is `[]`.

`exporter.affinity`

Node or Pod affinities. Default is `{}`.

`exporter.topologySpreadConstraints`

Constraints that define how Pods spread across failure-domains like regions or availability zones. Default is `[]`.

`exporter.automountServiceAccountToken`

Controls whether to mount the serviceAccountToken. Default is `false`.

`exporter.cacheDuration`

The cache duration for information collected by the exporter. Default is `30`.

`exporter.cacheCleanInterval`

The cache clean interval for information collected by the exporter. Default is `14400`.

`exporter.priorityClassName`

The priority class to run the pod as. Default is `undefined`.

METRICS PARAMETERS

`metrics.enabled`

Enables Harbor metrics. Default is `false`.

`metrics.core.path`

The URL path for core metrics. Default is `/metrics`.

`metrics.core.port`

The port for core metrics. Default is `8001`.

`metrics.registry.path`

The URL path for registry metrics. Default is `/metrics`.

`metrics.registry.port`

The port for registry metrics. Default is `8001`.

`metrics.exporter.path`

The URL path for exporter metrics. Default is `/metrics`.

`metrics.exporter.port`

The port for exporter metrics. Default is `8001`.

`metrics.serviceMonitor.enabled`

Enables creation of a Prometheus ServiceMonitor (requirePrometheusus CRDs). Default is `false`.

`metrics.serviceMonitor.additionalLabels`

Additional labels to apply to the ServiceMonitor manifest. Default is `""`.

`metrics.serviceMonitor.interval`

The scrape interval for Harbor metrics. Default is `""`.

`metrics.serviceMonitor.metricRelabelings`

The relabeling rules for metrics before ingestion. Default is `[]`.

`metrics.serviceMonitor.relabelings`

The relabeling rules for metrics before scraping. Default is `[]`.

TRACE PARAMETERS

`trace.enabled`

Enables tracing functionality. Default is `false`.

`trace.provider`

The tracing provider (`jaeger` or `otel`). Jaeger version should be 1.26+. Default is `jaeger`.

`trace.sample_rate`

The sampling rate for trace data. `1` samples 100%, `0.5` samples 50%. Default is `1`.

`trace.namespace`

The namespace to differentiate different Harbor services.

`trace.attributes`

A key-value dictionary for user-defined attributes in trace provider initialization.

`trace.jaeger.endpoint`

The endpoint for Jaeger tracing. Default is `http://hostname:14268/api/traces`.

`trace.jaeger.username`

The username for Jaeger authentication.

`trace.jaeger.password`

The password for Jaeger authentication.

`trace.jaeger.agent_host`

The agent host for Jaeger.

`trace.jaeger.agent_port`

The agent port for Jaeger. Default is `6831`.

`trace.otel.endpoint`

The endpoint for OpenTelemetry tracing. Default is `hostname:4318`.

`trace.otel.url_path`

The URL path for OpenTelemetry. Default is `/v1/traces`.

`trace.otel.compression`

Enables compression for OpenTelemetry. Default is `false`.

`trace.otel.insecure`

Establishes an insecure connection for OpenTelemetry. Default is `true`.

`trace.otel.timeout`

The timeout in seconds for OpenTelemetry. Default is `10`.

CACHE PARAMETERS

`cache.enabled`

Enables the cache layer. Default is `false`.

`cache.expireHours`

The expiration time in hours for the cache layer. Default is `24`.

B Example of a Private Registry HA setup Helm chart

The following example values file illustrates parameters that are required for the minimal Private Registry HA setup.

```
expose:
  ingress:
    hosts:
      core: core.harbor.domain ❶

externalURL: https://core.harbor.domain ❷

portal:
  replicas: 2 ❸

core:
  replicas: 2 ❹

jobservice:
  replicas: 2 ❺

registry:
  replicas: 2 ❻

database:
  type: external
  external: ❼
    host: "192.168.0.1"
    port: "5432"
    username: "user"
    password: "password"
    coreDatabase: "registry"
    existingSecret: "" ❽
    sslmode: "disable" ❾

redis:
  type: external
  external: ❿
    addr: "192.168.0.2:6379" ⓫
    sentinelMasterSet: "" ⓬
    coreDatabaseIndex: "0" ⓭
    jobserviceDatabaseIndex: "1"
    registryDatabaseIndex: "2"
    trivyAdapterIndex: "5"
    harborDatabaseIndex: "6" ⓮
    cacheLayerDatabaseIndex: "7" ⓯
```

```
    username: "" 16
    password: ""
    existingSecret: "" 17

persistence:
  enabled: true 18
```

1. Core service host name in Ingress rule.
2. The external URL for the harbor-core service.
3. 4 5 6 Number of replicas to create. Specify two or more.
7. Fill the database connection details in the `external` section.
8. If using an existing secret, the value must be `password`.
9. Accepts one of the following values:

   disable
   : Do not use SSL.

   require
   : Always use SSL and skip verification.

   verify-ca
   : Always use SSL. Verify that the certificate presented by the server was signed by a trusted CA.

   verify-full
   : Always use SSL. Verify that the certificate presented by the server was signed by a trusted CA and the server host name matches the one in the certificate.
10. Fill the connection information in the `external` section.
11. Supports redis + sentinel.
    Address for redis is `<redis_host>:<redis_port>`.
    Address for redis + sentinel is `<sentinel1_host>:<sentinel1_port>,<sentinel2_host>:<sentinel2_port>`...
12. The name of the set of Valkey instances to monitor. It must be set to support redis + sentinel.
13. Must be `0` as the library that Harbor uses does not support configurations.
14. Optional. Defaults to `0` but can be configured to `6`.
15. Optional. Defaults to `0` but can be configured to `7`.
16. If empty, it is authenticated against the default user.

17 If used, the key must be <REDIS_PASSWORD>.

18 To store all the images, metadata and scans, ensure that the persistence-related settings (*Persistence parameters*) are properly configured.

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