Veeam Backup & Replication

Version 12

Veeam Kasten Integration Guide

August, 2024

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About This Document

This document describes the first steps you must perform after setting up an infrastructure for the Veeam Kasten for Kubernetes solution.

Intended Audience

This document is intended for administrators who has just set up an infrastructure for the Veeam Kasten for Kubernetes solution.

Overview

Veeam Kasten for Kubernetes is a solution that allows you to create and manage data protection and disaster recovery tasks for Kasten environments. Veeam Kasten for Kubernetes extends the Veeam Backup & Replication functionality and provides access to Veeam Kasten for Kubernetes in Veeam Backup & Replication console.

> **NOTE**
>
> Veeam Kasten for Kubernetes is built on top of Veeam Backup & Replication, and this guide assumes that you have a good understanding of the Veeam Backup & Replication solution and Kasten solutions.

With Veeam Kasten for Kubernetes, you can perform the following operations in Veeam Backup & Replication console:

- Add the Kasten instance to Veeam Backup & Replication infrastructure, manage and remove it.
- Manage Kasten policies from Veeam Backup & Replication infrastructure.
- View Kasten backups exported by Kasten policies.
- Restore from Kasten backups.
- Restore from Kasten snapshots.
- Monitor session statistics.

If you export Kasten backups to the Veeam backup repository, you can also perform the following operations:

- Remove backups exported by Kasten policies from the Veeam Backup & Replication infrastructure.
- Synthesize an independent full backup file using restore points that are located in your Veeam backup repositories.
- Export disks.
- Perform First Class Disk Recovery.
- Restore guest OS files and folders of backups.
- Export backup files.

> **NOTE**
>
> If you export Kasten backups to other than the Veeam backup repository, you will be able to view these backups in the Veeam Backup & Replication console. For all other operations you will be navigated to the Veeam Kasten for Kubernetes web console.

Backup Infrastructure Components

To export backups created by Kasten policies using Veeam Kasten for Kubernetes, you must configure the infrastructure that will consist of the following components:

1. **Kasten application**

   A platform where you configure and manage Kasten policies that will export backups of application disks to Veeam backup repositories. For more information on installing a Kasten application, see Kasten Docs.

2. **Veeam Backup & Replication server**

   A server that manages Kasten appliance and policies. It allows you to monitor and manage backups exported by Kasten, perform data protection scenarios, data recovery and restore operations. For more information, see the Backup Server section in the Veeam Backup & Replication User Guide.

3. **Veeam backup repository**

   This component is obligatory if you use Veeam backup repository to keep exports created by Kasten policies.

   A storage location where Veeam Backup & Replication keeps backups exported by Kasten policies. You can add multiple repositories to the Veeam Backup & Replication server and set the necessary repository within Kasten policies settings.

   To learn more about Veeam backup repositories and how to manage them, see the Backup Repositories section in the Veeam Backup & Replication User Guide.

   NOTE

   We recommend that you use Veeam backup repositories that support the following file systems:

   - ReFS for Microsoft Windows and SMB repositories.
   - XFS for Linux repositories.

   You can also use backup repositories that utilize deduplication:

   - Dell Data Domain with DD Boost.
   - HPE StoreOnce with Catalyst.

   TIP

   To prohibit data deletion or data loss due to malware activity, you can make data stored in Veeam backup repositories immutable. Note that this option is available only for hardened repositories. For more information, see the Hardened Repository section in the Veeam Backup & Replication User Guide. For more information on how to properly configure Kasten to make backups exported by Kasten policies immutable, see Veeam Kasten Docs.

4. **Additional data protection layers**

   Veeam Backup & Replication allows you to keep backups exported by Kasten in the following types of additional repositories:

   - Capacity tier: for more information, see the Capacity Tier section in the Veeam Backup & Replication User Guide.

- Archive tier: for more information, see the Archive Tier section in the Veeam Backup & Replication User Guide.
- Tape devices: for more information on how to back up to tapes, see the Backup to Tape section in the Veeam Backup & Replication User Guide.
- Cloud repositories of service providers that keep copies of backups exported by Kasten policies. For more information, see the Veeam Cloud Connect Guide.
- Secondary Veeam backup repositories that keep backup copies created by backup copy jobs. For more information on backup copy jobs, see the Backup Copy section in the Veeam Backup & Replication User Guide.

> **IMPORTANT**
>
> Before you deploy the Veeam backup infrastructure, see the following System Requirements.

What You Do Next

Deployment and Configuration

Planning and Preparation

Before you start using the Veeam Kasten for Kubernetes solution, make sure that the backup infrastructure components meet system requirements, all required ports are open, and Veeam backup repositories that you plan to use have the required access permissions.

System Requirements

Before you start using Veeam Kasten for Kubernetes, consider the following:

Backup Server

The machine where the Veeam Kasten Plug-in for Veeam Backup & Replication will run must meet the system requirements described in the System Requirements section in the Veeam Backup & Replication User Guide.

Additionally, the following software must be installed:

- Microsoft .NET Core Runtime 6.0
- Microsoft ASP.NET Core Shared Framework 6.0

IMPORTANT

Microsoft ASP.NET Core Shared Framework and Microsoft .NET Core Runtime must be of the same version (up to the minor version number).

For example, if the version of Microsoft ASP.NET Core Shared Framework is 6.0.29, then the version of Microsoft .NET Core Runtime must also be 6.0.29.

Starting from version 6.5.9, K10 no longer supports Veeam Backup & Replication installed on Microsoft Windows Server 2012 and 2012 R2.

Kubernetes Distribution Requirements

Veeam Kasten for Kubernetes supports only backup exports of Kubernetes persistent volumes to Veeam backup repositories. These persistent volumes must be provisioned with the vSphere CSI driver.

Kasten Application Version

A Kasten application must be the 5.5.3 version or higher.

Kasten Dashboard Access

An external access to the Kasten dashboard must be set up. For more information, see Veeam Kasten Docs.

Veeam Backup & Replication

The Veeam Kasten Plug-in for Veeam Backup & Replication version 12.0.0 supports integration with Veeam Backup & Replication version 12.0.0.

Veeam Backup Repositories Requirements

Veeam backup repositories, where you want to keep backups exported by Kasten policies, must meet the system requirements specified in the Backup Repository Server section in the Veeam Backup & Replication User Guide.

Limitations and Considerations

Limitations for Veeam Backup & Replication 12

Consider the following limitations for Veeam Backup & Replication 12:

- Veeam Kasten for Kubernetes does not support Kerberos for Kasten exports to Veeam backup repositories.
- Veeam Kasten for Kubernetes does not support IPv6.
- Veeam Kasten for Kubernetes does not sync Kasten retention (retire) sessions.
- A Kasten instance can operate with only one backup server. If you add it to another backup server, you will not be able to perform any operations with this Kasten instance on the first backup server.
- Veeam Kasten for Kubernetes does not support Kasten exports to direct backup object storage repositories.
- If you delete Kasten policies created by the Veeam Kasten Multi-Cluster console on Kasten secondary servers, they will be recreated by the Veeam Kasten Multi-Cluster console.
- Veeam Kasten for Kubernetes does not support Kasten export of Kasten instance that is not added to the Veeam Backup & Replication infrastructure.

Limitations for Veeam Backup & Replication 12 (build 12.0.0.1420)

Consider the following limitations for Veeam Backup & Replication 12 (build 12.0.0.1420):

- Veeam Kasten for Kubernetes does not sync Kasten restore sessions.
- Veeam Kasten for Kubernetes does not provide granular task progress of sessions.
- Veeam Kasten for Kubernetes does not support Kerberos for Kasten exports to Veeam backup repositories.
- Veeam Kasten for Kubernetes does not support IPv6.
- Veeam Kasten for Kubernetes does not sync Kasten retention (retire) sessions.
- If you have a Kasten instance added to the Veeam Backup & Replication infrastructure on one backup server, you cannot add it to another backup server.
- Veeam Kasten for Kubernetes does not support Kasten exports to direct backup object storage repositories.
- If you delete Kasten policies created by the Veeam Kasten Multi-Cluster console on Kasten secondary servers, they will be recreated by the Veeam Kasten Multi-Cluster console.
- Veeam Kasten for Kubernetes does not support Kasten export of Kasten instance that is not added to the Veeam Backup & Replication infrastructure.

Used Ports

Veeam Backup & Replication within the Veeam Kasten for Kubernetes solution is deployed on the machine that uses the same ports as those described in the Ports section in the Veeam Backup & Replication User Guide. In addition, Veeam Kasten for Kubernetes also uses ports listed in the table. For more information on Veeam Kasten network ports, see this Kasten article.

NOTE

During installation, Veeam Backup & Replication automatically creates firewall rules for the required ports to allow communication for the application components.

From	To	Protocol	Port	Notes
Veeam Kasten	Veeam Backup & Replication server	TCP	10006	Port used to connect to the Veeam Backup & Replication server.
	VBR RestAPI Service	HTTPS	9419	Port used to validate Veeam Backup & Replication Location Profile.
	Veeam backup repository	TCP	2500 to 3300	Default range of ports used as data transmission channels. For every TCP connection that a job uses, one port from this range is assigned.
Veeam Backup & Replication console and Veeam Backup & Replication and Veeam One server	Veeam Kasten Plug-in for Veeam Backup & Replication	TCP	9404	Port used by Veeam Backup & Replication to connect to Kasten Plug-in for Veeam Backup & Replication.
Backup server	Backup server	TCP/HTTPS	6172	Used by the Kasten Plug-in for Veeam Backup & Replication to enable communication with the Veeam Backup & Replication database.
	Veeam Kasten	TCP/HTTPS	443	Used by the Kasten Plug-in for Veeam Backup & Replication to connect to Kasten.
	FLR helper appliance	TCP	22	Used to connect to the helper appliance during the file-level restore.

Required Permissions

Make sure the user accounts that you plan to use have permissions described in the following sections.

Veeam Backup & Replication User Account Permissions

The user account you plan to use with Kasten while connecting to Veeam Backup & Replication must have the Veeam Backup Administrator role or must be added to the user group with this role. For more information, see Managing Users and Roles section in the Veeam Backup & Replication User Guide.

Veeam Backup Repositories

Make sure that either the **Allow to everyone** or **Allow to the following accounts or groups only** access permissions are granted on Veeam backup repositories where you want to keep backups exported by Kasten policies. For more information, see the Access Permissions (Step 4) section in the Veeam Backup & Replication User Guide.

> **IMPORTANT**
>
> Do not change access permissions of repositories that already contain backup exported from Kasten, otherwise the Kasten policy will fail.

Licensing

If you want to use the Veeam Kasten for Kubernetes solution, you must have the following types of product editions installed:

- Veeam Backup & Replication server requires either the Rental license or the Enterprise Plus product edition. For more information, see Veeam Licensing Policy.
- Kasten application requires Veeam Kasten Free or Enterprise editions. For more information, see the Veeam Kasten product page, section Veeam Kasten Editions.

> **NOTE**
>
> Veeam licenses Veeam Backup & Replication in two ways: per instance and per socket. However, backups exported by the Kasten policy do not consume any instances or sockets. For more information on licensing, see the Licensing section in the Veeam Backup & Replication User Guide.

Deployment and Configuration

To be able to protect data with the Veeam Kasten for Kubernetes solution, you must configure the Kasten instance and Veeam Backup & Replication infrastructure.

Configure Kasten Instance Infrastructure

A Kasten instance is a source environment that creates snapshots of applications running on Kubernetes persistent volumes. After that, Kasten makes exports of snapshot data to storage locations to keep this data. As a storage location, you can use Veeam backup repositories where the application persistent volumes are stored in a native Veeam format. While Kasten stores the persistent volume's images in the Veeam backup repository, it still requires a primary location to store any file based data and metadata. This location can be any additional storage type supported by Kasten, such as object storage or NFS.

The Kasten instance you plan to use in the Veeam Kasten for Kubernetes infrastructure must meet the system requirements. For more information on configuring the Kasten instance, see Veeam Kasten Docs.

Configure Veeam Backup & Replication Infrastructure

To configure Veeam Backup & Replication infrastructure, complete the following steps:

1. **Install or upgrade Veeam Backup & Replication.**

   After you install Veeam Backup & Replication, Veeam Kasten for Kubernetes will be automatically installed along with Veeam Backup & Replication.

2. **Add Kasten instance.**

   Add the Kasten instance to the Veeam Backup & Replication infrastructure to be able to create and manage Kasten policies. For more information, see Adding Kasten Instance.

3. **[Optional] Deploy Veeam backup repositories.**

   If you want to keep persistent volumes created by Kasten policies in Veeam backup repositories, you must add the Veeam backup repositories that will store backups exported by Kasten policies to Veeam Backup & Replication infrastructure. Make sure that you configured the required permissions. For more information, see the Backup Repositories and Adding Microsoft Windows Repositories sections in the Veeam Backup & Replication User Guide.

4. **[Optional] Configure capacity and archive tier.**

   Configure the capacity tier and archive tier to set an additional layer of storage. For more information, see Capacity Tier and Archive Tier sections in the Veeam Backup & Replication User Guide.

5. **[Optional] Configure Tape infrastructure.**

   If you want to use tape devices to store Kubernetes persistent volumes. For more information, see the Tape Devices Support section in the Veeam Backup & Replication User Guide.

6. **[Optional] Configure Cloud Connect infrastructure.**

   If you want to store copies of backed-up Kubernetes persistent volumes in cloud repositories of service providers, configure Cloud Connect infrastructure in a Veeam Backup & Replication console. For more information, see Veeam Cloud Connect User Guide.

> **NOTE**
>
> The additional level of protection (that is, capacity and archive tier, tape devices and cloud repositories of service providers) is available only if you export Kasten backups to the Veeam backup repository.

What You Do Next

After you configure the Kasten instance and add it to the Veeam Backup & Replication infrastructure, you are ready to create Kasten policies and perform data protection and data recovery options.

Installing Plug-In

Veeam Kasten for Kubernetes is automatically installed while you install or upgrade Veeam Backup & Replication to the required version. For more information, see the Installing Veeam Backup & Replication and Upgrading Veeam Backup & Replication sections in the Veeam Backup & Replication User Guide.

> **NOTE**
>
> Backups exported by Kasten to Veeam Backup & Replication 11 version will be available in your backup infrastructure after you upgrade to Veeam Backup & Replication version 12. However, you must add the Kasten instance to the backup infrastructure, otherwise the Veeam Kasten for Kubernetes data protection and data recovery functionality will not be available.

Adding Kasten Instance

Veeam Kasten for Kubernetes allows you to view and manage Kasten policies as well as perform data protection and data recovery operations with exports created by Kasten from the Veeam Backup & Replication console. To do it, you must add the Kasten instance to the Veeam Backup & Replication infrastructure.

After you add the Kasten instance to the Veeam Backup & Replication infrastructure, Veeam Kasten for Kubernetes accesses Veeam Kasten and synchronizes the following information:

- Kasten policies.
- Snapshots and exports created by Kasten policies.
- Snapshots and exports created manually.
- Sessions for the last 24 hours.

After synchronization is completed, Veeam Kasten for Kubernetes shows this information in the Veeam Backup & Replication console and performs incremental syncs every 5 seconds to get updates.

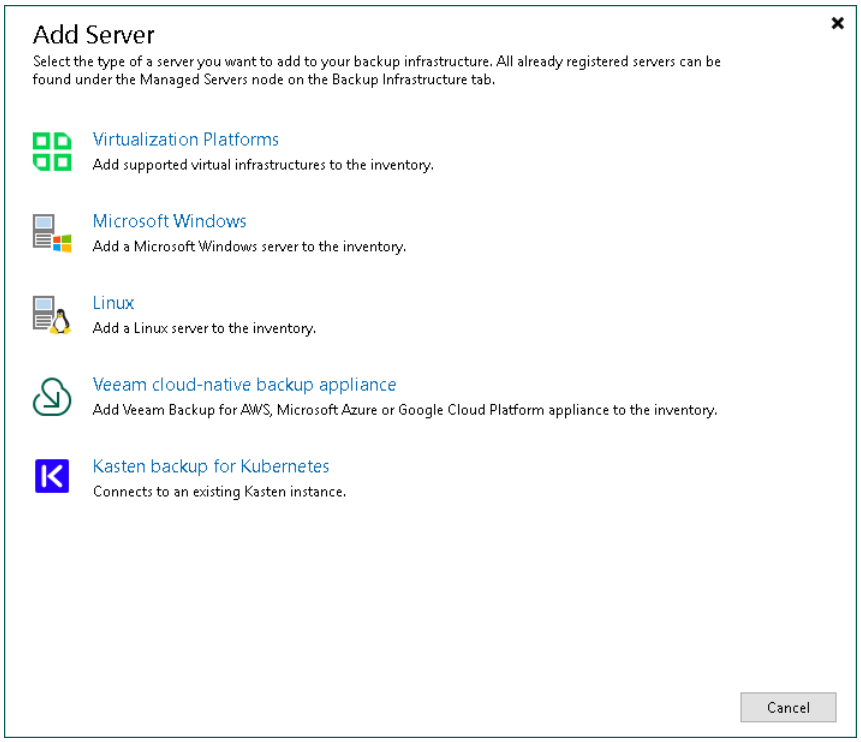
To add the Kasten instance to Veeam Backup & Replication infrastructure, do the following:

1. Launch the New Kasten Instance wizard.
2. Specify the Kasten instance name.
3. Specify credentials.
4. Apply Settings.
5. Finish working with the wizard.

Step 1. Launch New Kasten Instance Wizard

To launch the **New Kasten Instance** wizard, do one of the following:

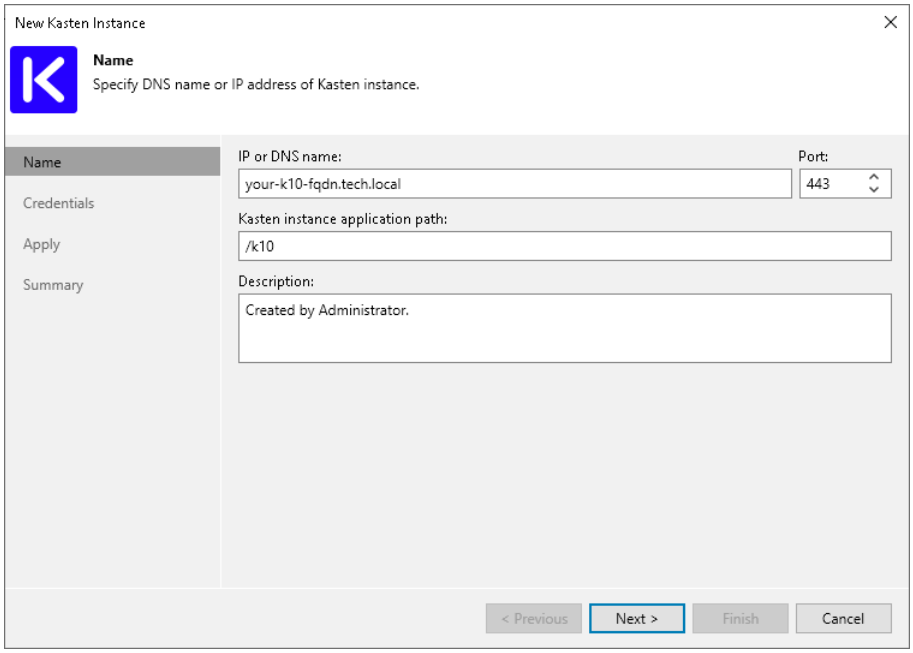
- Open the **Backup Infrastructure** view. Navigate to **Managed Servers** and click **Add Server** on the ribbon. In the **Add Server** window, select **Kasten backup for Kubernetes**.
- Open the **Backup Infrastructure** view. In the inventory pane, right-click the **Managed Servers** node and select **Add Server**. In the **Add Server** window, select **Kasten backup for Kubernetes**.



Step 2. Specify Kasten Instance Name

At the **Name** step of the wizard, specify an IP address or DNS name, a URL path and a description of the Kasten application.

1. In the **IP or DNS name** field, enter an IP address or DNS name. To specify the DNS name, use the following format: *your-k10-fqdn.tech.local*.
2. In the **Kasten instance application path**, provide a URL path to the Kasten dashboard.
3. In the **Description** field, provide a description of the Kasten application for future reference. The default description contains information about the user who created the Kasten instance, date and time when the instance was created.

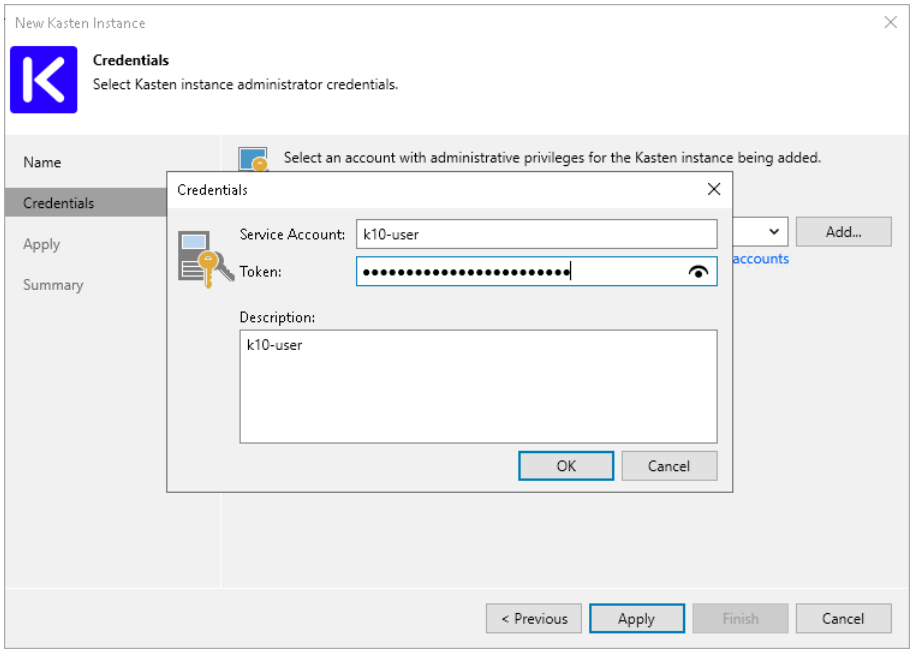


Step 3. Specify Credentials

At the **Credentials** step of the wizard, specify credentials for the Kasten application. If you have not added credentials beforehand, click **Manage accounts** or **Add** to add the necessary credentials and specify the following settings:

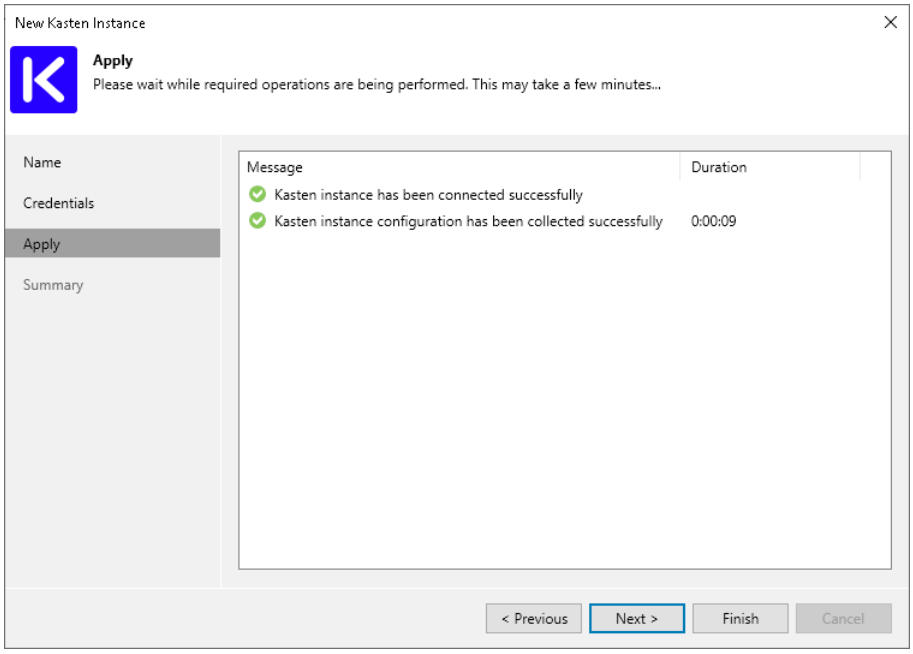
1. In the **Service Account** field, specify any symbols that you want to use for a service account.
2. In the **Token** field, specify the bearer token of a cluster service account that has the `k10-admin` ClusterRole. For more information on how to get the bearer token, see section Obtaining Tokens in Veeam Kasten Docs. For more information on K10 cluster roles, see section Default Veeam Kasten ClusterRoles in Veeam Kasten Docs.

> **NOTE**
>
> When you add the Veeam Kasten application, Veeam Backup & Replication checks the certificate that is used to access the Kasten dashboard. If the certificate is not trusted, Veeam Backup & Replication will display a certificate warning.
>
> In the warning window, you can do the following:
>
> - Click **View** for the detailed information about the certificate.
> - Click **Continue** to trust the certificate.
> - Click **Cancel** if you do not trust the certificate. However, in this case, you will not be able to connect to the Kasten instance.
>
> To avoid this warning, you must add the certificate to a list of trusted certificates on a Microsoft Windows machine where Veeam Backup & Replication is installed.



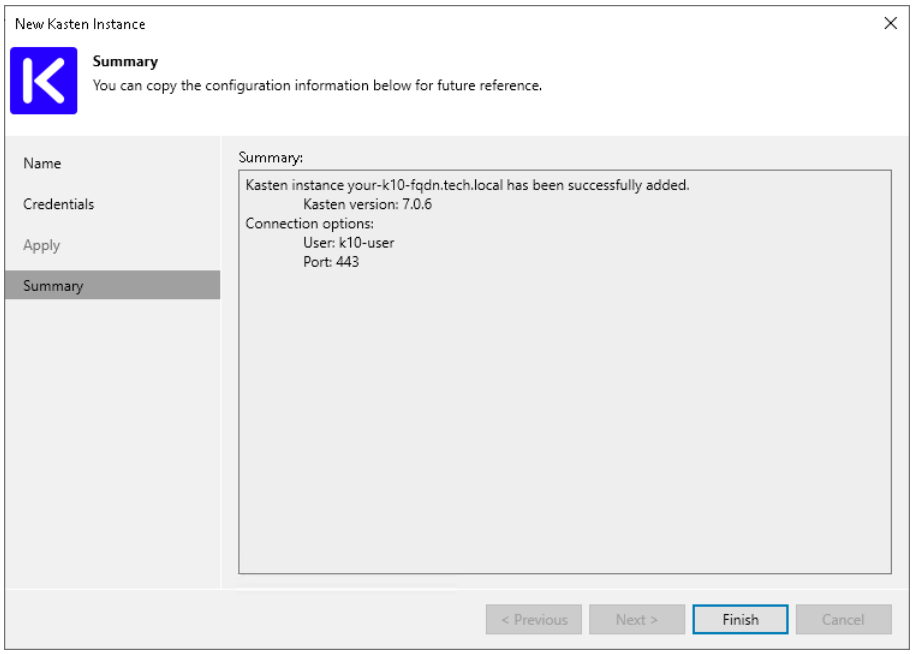
Step 4. Apply Settings

At the **Apply** step of the wizard, wait until Veeam Backup & Replication applies the settings. Click **Next** to complete the procedure of adding the Kasten application.



Step 5. Finish Working with Wizard

At the **Summary** step of the wizard, review details of the Kasten application and click **Finish**.



Managing Kasten Instance

After you add a Kasten instance to the Veeam Backup & Replication infrastructure, you can edit instance settings, remove it from the Veeam Backup & Replication infrastructure, or open the instance Web UI right in the Veeam Backup & Replication console.

Viewing Snapshots and Backups

In the Veeam Backup & Replication console, you can view information about snapshots and backups exported by Kasten policies or manually. Veeam Backup & Replication displays the backups and snapshots located in both Veeam backup repositories and other location profiles, such as object storage repositories.

Available backups and snapshots are displayed in the **Home** view:

- The **Backups** node shows exports created by Kasten policies.
- The **Snapshots** subnode shows snapshots created by Kasten policies.

When you expand a node in the working area, you can see the following icons:

Icon	State
	Kasten snapshot or export
	Kasten application

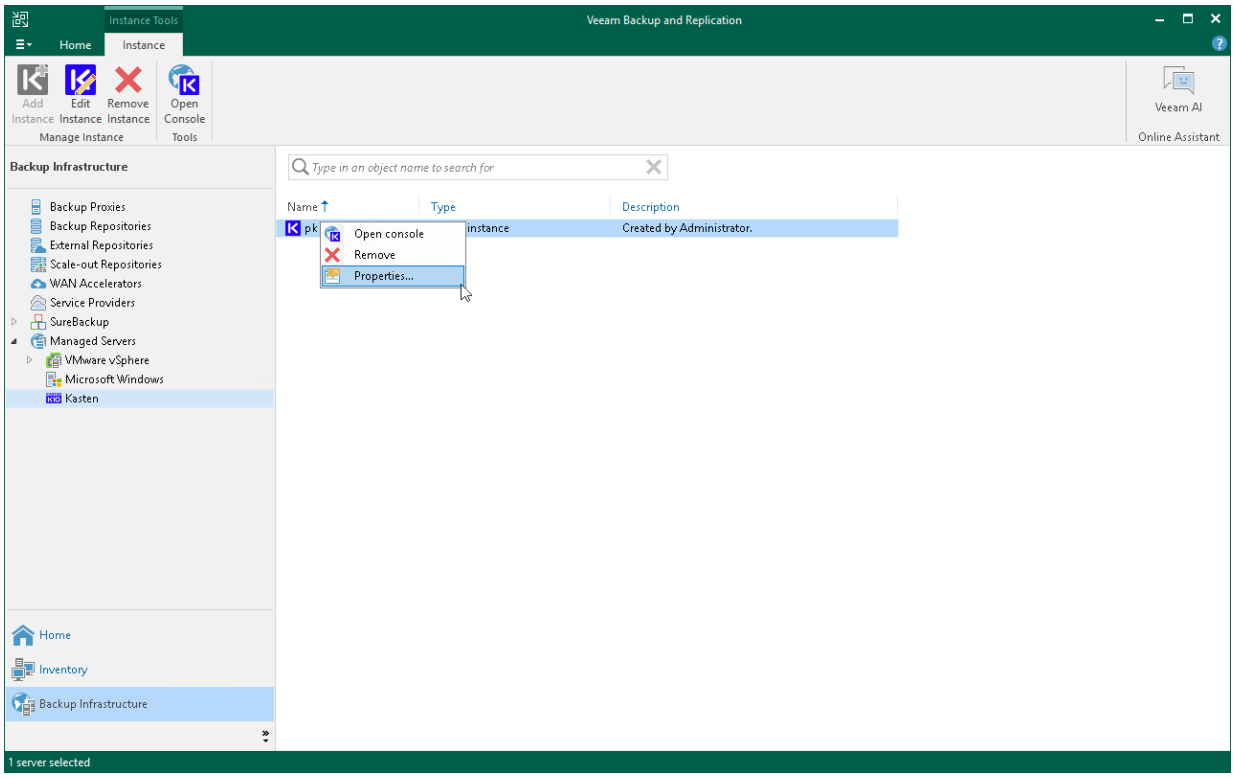
This information in the working area provides the following data:

- Veeam backup repository and folder on this repository where the backup is stored.
- Available restore points.
- Date of restore points creation.
- Data size and backup file size.
- A type of platform service where backups are created.

Editing Instance Settings

To edit the settings of a Kasten instance, do the following:

1. Open the **Backup Infrastructure** view.
2. In the inventory pane, select **Managed Servers**.
3. In the working area, select the Kasten instance and click **Edit Instance** on the ribbon. Alternatively, right-click the appliance and select **Properties**.
4. Complete the wizard as described in the Adding Kasten Instance section.



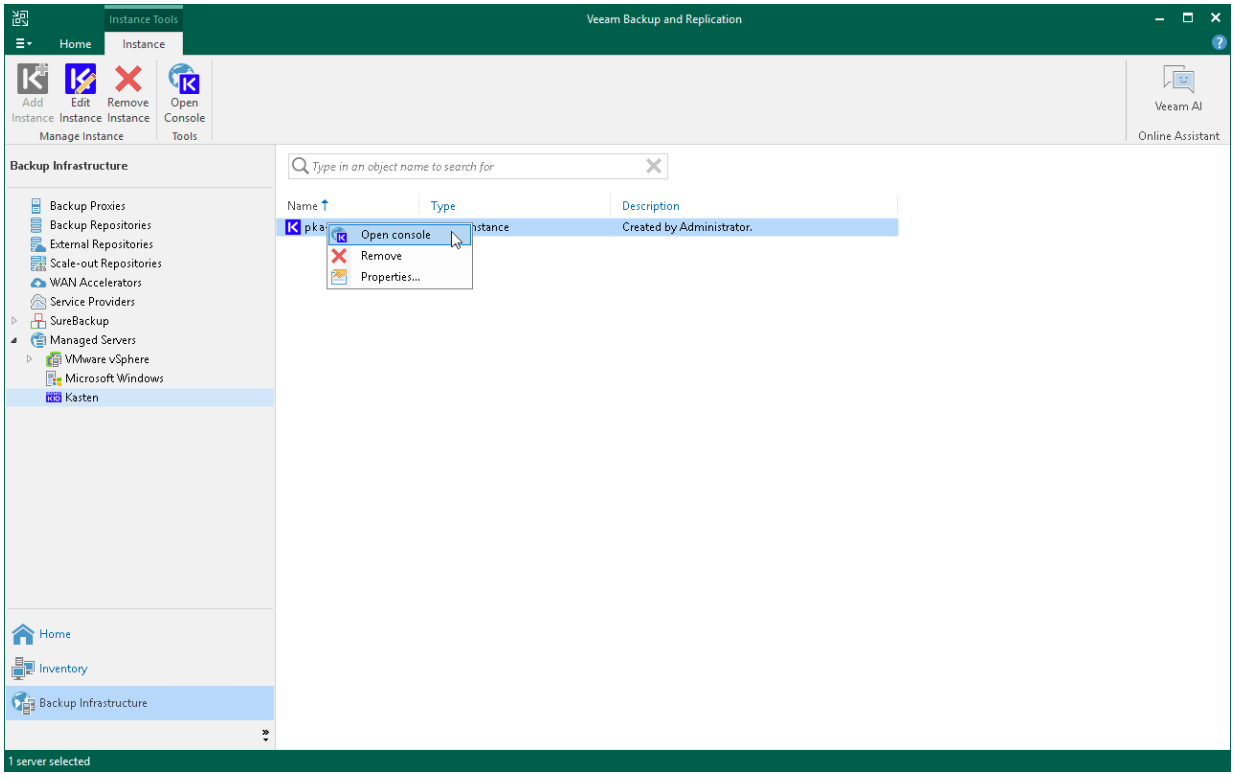
Opening Instance Web UI

If you want to access Veeam Kasten and configure options not available in the Veeam Backup & Replication console, you can perform the necessary actions using the Veeam Kasten Web UI.

To open the Veeam Kasten Web UI, do the following:

1. Open the **Backup Infrastructure** view.
2. In the inventory pane, select **Managed Servers**.
3. In the working area, select the Kasten instance and click **Open Console** on the ribbon. Alternatively, right-click the instance and select **Open console**.

Veeam Backup & Replication will open a web browser and navigate you to the Veeam Kasten URL. For more information on what you can do in the Web UI, see the Veeam Kasten Docs.



Removing Instance

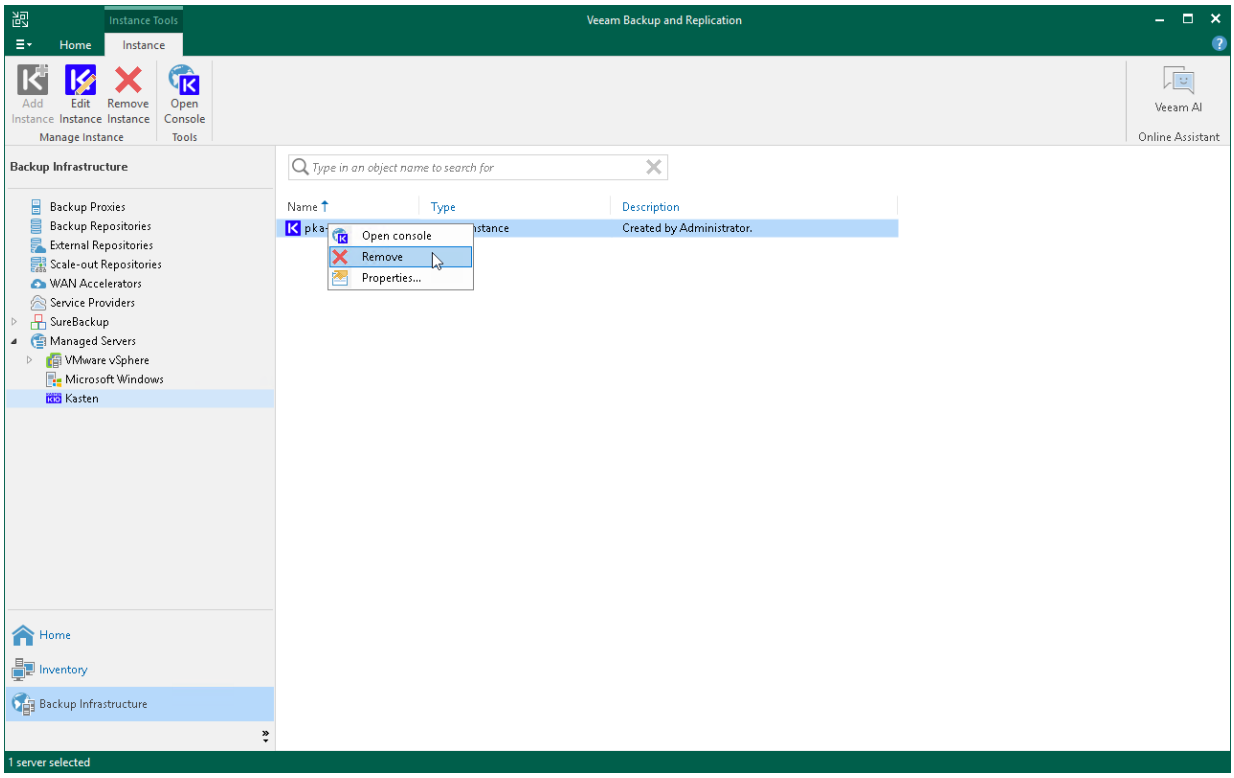
If you do not plan to manage a Kasten instance from the Veeam Backup & Replication console, you can remove it from the Veeam Backup & Replication infrastructure.

> **NOTE**
>
> After you remove the Kasten instance, the changes will take place on the Veeam Backup & Replication side and it will result in the following limitations:
>
> - Kasten policies belonging to the instance will not be available in the Veeam Backup & Replication console.
> - All restore points are no longer available in the **Snapshot** node.
> - You will not be able to restore to Kubernetes from Kasten exports located in a Veeam backup repository. Veeam Backup & Replication will move them to the **Disk (orphaned) node**.

Removing Instance

To remove an instance, do the following:

1. Open the **Backup Infrastructure** view.
2. In the inventory pane, select **Managed Servers**.
3. In the working area, select the appliance that you want to remove and click **Remove Instance** on the ribbon. Alternatively, right-click the instance and select **Remove**.
4. In the Veeam Backup & Replication window, click **Yes**.

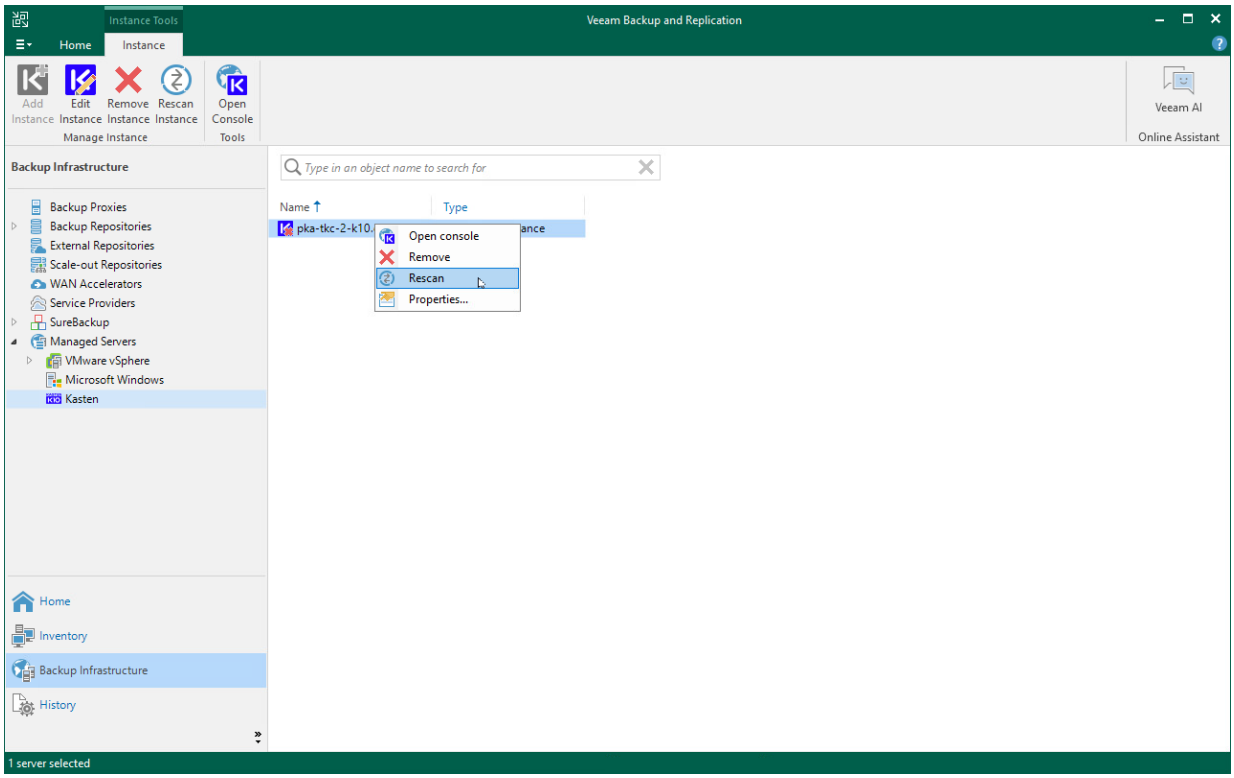


Rescanning Instance

You can rescan the Kasten instance configured in the backup infrastructure. It may be necessary when the Kasten instance becomes unavailable, or there is a mismatch between data in the backup console and on the actual appliance. Veeam Backup & Replication will erase and re-download Kasten instance settings and some statistics during the rescan operation.

To rescan the Kasten instance, do the following:

1. Open the **Backup Infrastructure** view.
2. In the inventory pane, select **Managed Servers**.
3. In the working area, select the Kasten instance and click **Rescan Instance** on the ribbon. Alternatively, right-click the instance and select **Rescan**.
4. In the Veeam Backup & Replication window, click **Yes**.



Data Protection

This section provides instructions on how to export backups of applications running in your Kasten environment to Veeam backup repositories. Before you export backups, you need to create Kasten policies. For more information, see Veeam Kasten Docs. After you create the policies and export backups, you can view the backed-up applications, check statistics on Kasten policies, and remove these policies from the Veeam Backup & Replication infrastructure. It is also possible to export backups to other location profiles. For more information, see Veeam Kasten Docs.

Additional Data Protection Options

With Veeam Backup & Replication, you can also add an additional layer of protection for your infrastructure by creating the following types of backups to secondary destinations:

- **Backup copy jobs**

  Backup copy jobs allow you to create and keep multiple instances of the same backed-up data in different locations. Storing data in different locations increases its availability and ensures that data can be recovered in case a disaster strikes and a primary Veeam backup repository is unavailable. For more information, see Creating Backup Copy Jobs.

- **Backup copy to Cloud Connect**

  The backup copy to cloud option allows you to create and keep multiple instances of the same backed-up data in the cloud repositories. For more information, see Copying Data to Cloud Repositories.

- **Backup to tape jobs**

  Backup to tape jobs allows you to keep backed-up data on tape devices. For more information, see Creating Backups to Tapes.

> **NOTE**
>
> Consider the following:
>
> - The additional data protection options are available only if you export Kasten backups to the Veeam backup repository.
> - Restore points created by backup copy jobs or tape jobs can be recovered only by using operations available in the Veeam Backup & Replication console. You cannot use Kasten recovery options.

How Kasten Policy Works

To move backups exported by Kasten policies to Veeam backup repositories, a Kasten cluster and a Veeam Backup & Replication server use Veeam Data Movers. Veeam Data Mover is a non-persistent runtime component that allows you to export application disks from the Kasten cluster to backup repositories. When you start a Kasten policy, the following Veeam Data Movers are created:

- Source Veeam Data Mover — the Veeam Data Mover that runs in the Kanister Pod added to the Kasten cluster.
- Target Veeam Data Mover — the Veeam Data Mover that runs in the Veeam backup repository added to the Veeam Backup & Replication server.

After the Kasten policy is completed, Veeam Data Movers are removed from both the Kasten and Veeam Backup & Replication infrastructure. For more information, see the Veeam Data Mover Service section in the Veeam Backup & Replication User Guide.

When you launch a Kasten policy, the following happens:

1. Kasten takes a snapshot of applications and uses these snapshots to make exports.
2. Kasten copies configuration files of applications to the cloud storage of a public or private cloud provider.
3. Source Veeam Data Mover retrieves application data, compresses and deduplicates it.
4. Source Veeam Data Mover exports application data to the target Veeam Data Mover.
5. Target Veeam Data Mover forwards exported application data to the Veeam backup repository in the Veeam proprietary format.

Working with Kasten Policies

This section explains how to create Kasten policies and manage them using the Veeam Backup & Replication console.

Creating Kasten Policies

To export backups of applications to Veeam backup repositories, you must create Kasten policies and define the necessary settings in the Veeam Kasten dashboard associated with your Kasten cluster.

To create a Kasten policy, open the Veeam Kasten dashboard and perform the following steps:

1. **Configure Veeam Backup repository location.**

   At the location profile settings, specify the Veeam Backup & Replication server and the Veeam backup repository that will keep backups exported by Kasten policies. For more information, see Veeam Kasten Docs.

2. **Configure Kasten policy.**

   In the Veeam Kasten dashboard, configure a policy and select the necessary Veeam backup location profile. Kasten will export backups of applications from the Kasten cluster to the Veeam backup repository according to these settings. For more information, see Kasten Docs.

After you configure the Kasten policy, it appears in the Veeam Backup & Replication infrastructure.

Managing Kasten Policies

After you install Veeam Kasten for Kubernetes, you can use the Veeam Backup & Replication console to manage Kasten policies. You can start, stop, edit, disable and delete backup policies directly in Veeam Backup & Replication console.

Starting and Stopping Policies

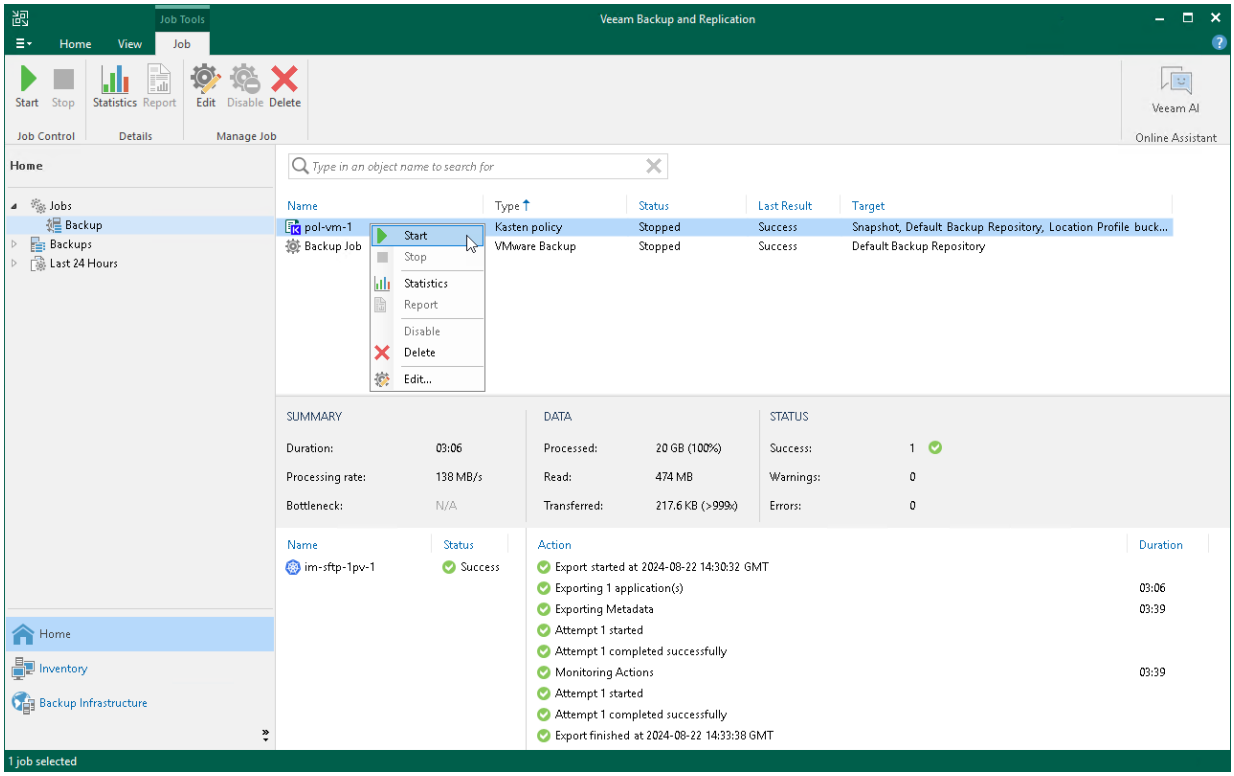
Veeam Kasten for Kubernetes allows you to start a Kasten policy manually from the Veeam Backup & Replication console. It can be helpful if you want to create an additional snapshot or export without modifying the configured backup policy schedule. Additionally, you can stop a Kasten backup policy if the processing of applications is about to take too long and you do not want the policy to produce a heavy load on the production environment during business hours.

Starting Kasten Policies

To start a Kasten policy:

1. Open the **Home** view.
2. In the inventory pane, select **Jobs**.
3. In the working area, select the necessary Kasten policy and click **Start** on the ribbon. Alternatively, right-click the selected policy and click **Start**.

> **TIP**
>
> To select several Kasten policies, click the first policy, press and hold the [SHIFT] key and select the other policies.

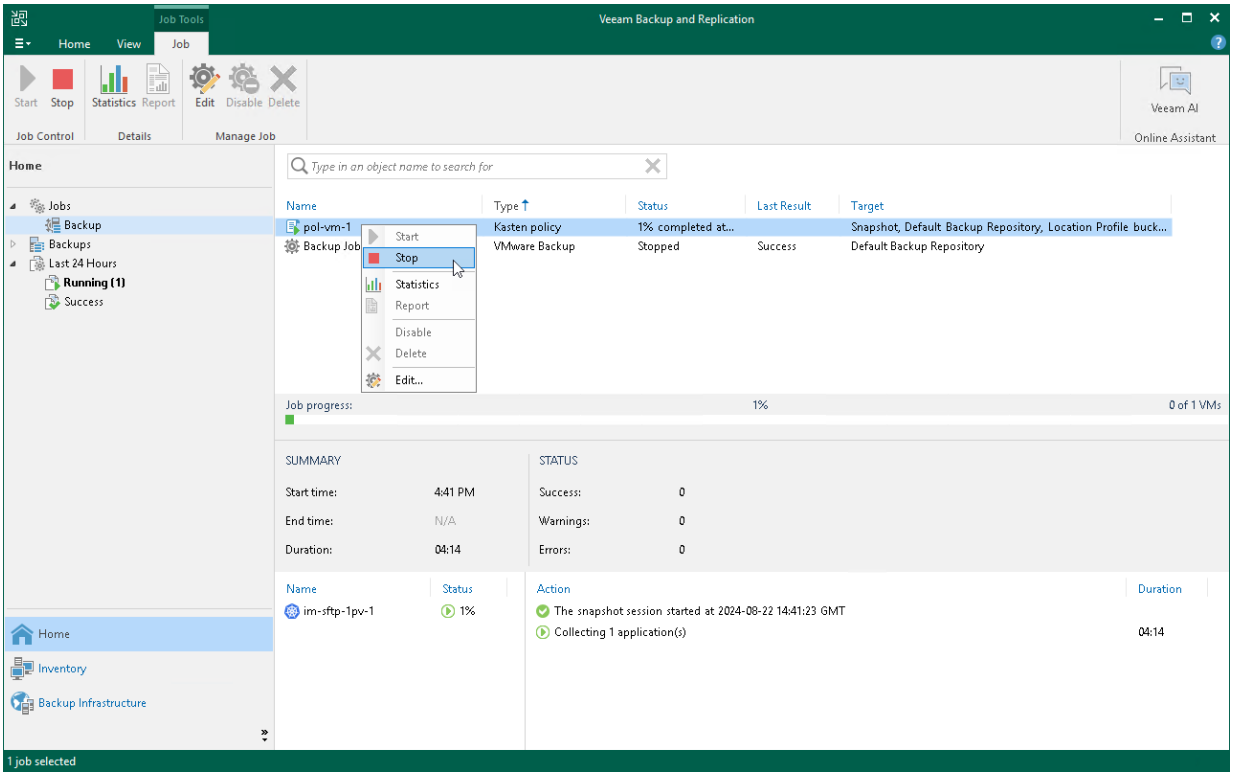


Stopping Kasten Policies

To stop a Kasten policy:

1. Open the **Home** view.
2. In the inventory pane, select **Jobs**.
3. In the working area, select the necessary Kasten policy and click **Stop** on the ribbon. Alternatively, right-click the selected policy and click **Stop**. In the displayed window, click **Yes**.

> **TIP**
>
> To select several Kasten policies, click the first policy, press and hold the [SHIFT] key and select the other policies.



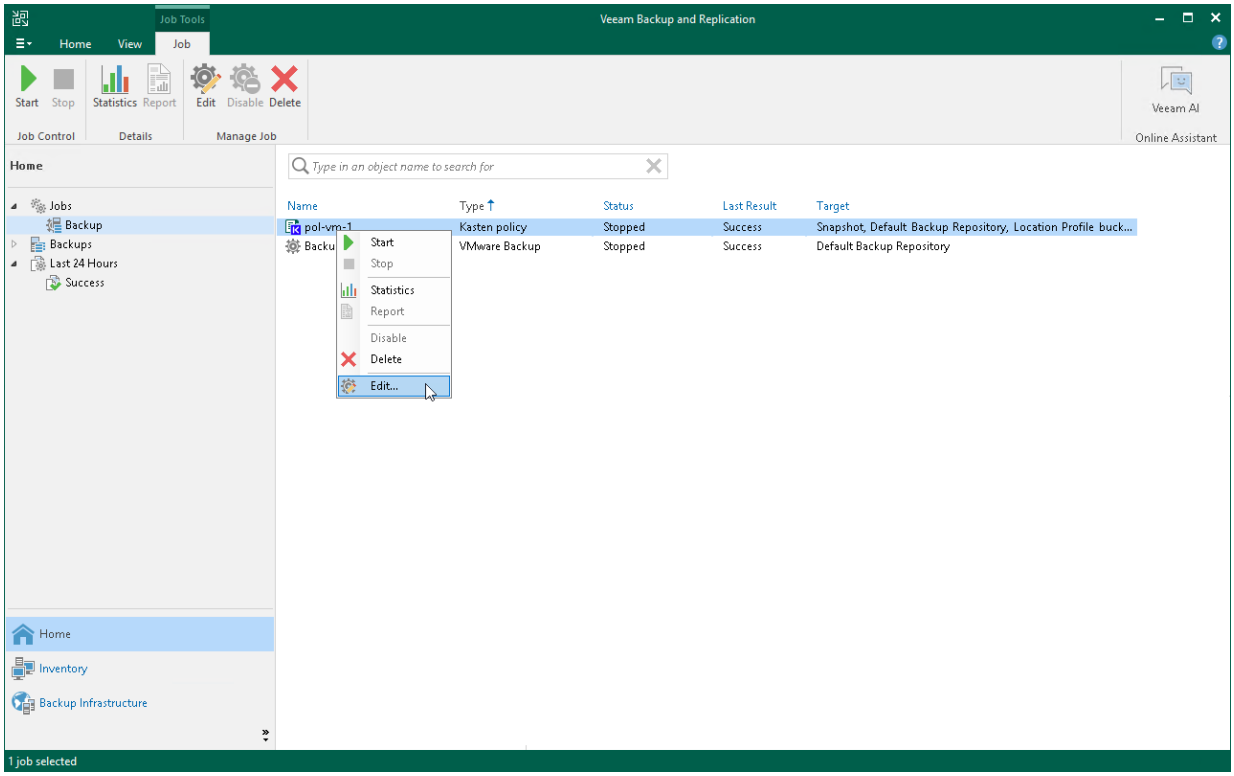
Editing Policies Settings

Veeam Kasten for Kubernetes allows you to edit the settings of Kasten policies from the Veeam Backup & Replication console using redirection to the Veeam Kasten web UI. For example, you can add more applications to the Kasten policy or change the Kasten policy description.

To edit a backup policy:

1. Open the **Home** view.
2. In the inventory pane, select **Jobs**.

3. In the working area, select the necessary backup policy and click **Edit** on the ribbon. Alternatively, right-click the policy and select **Edit**. The **Edit Policy** wizard will open in your browser.



Disabling and Removing Policies

Veeam Kasten for Kubernetes allows you to temporarily disable or permanently delete Kasten policies from both Veeam Backup & Replication and Kasten infrastructures. When you disable a backup policy, Veeam Kasten for Kubernetes disables the schedule configured for the backup policy. It means that the Kasten policy will no longer start automatically. You can enable and start the disabled policy manually any time you need.

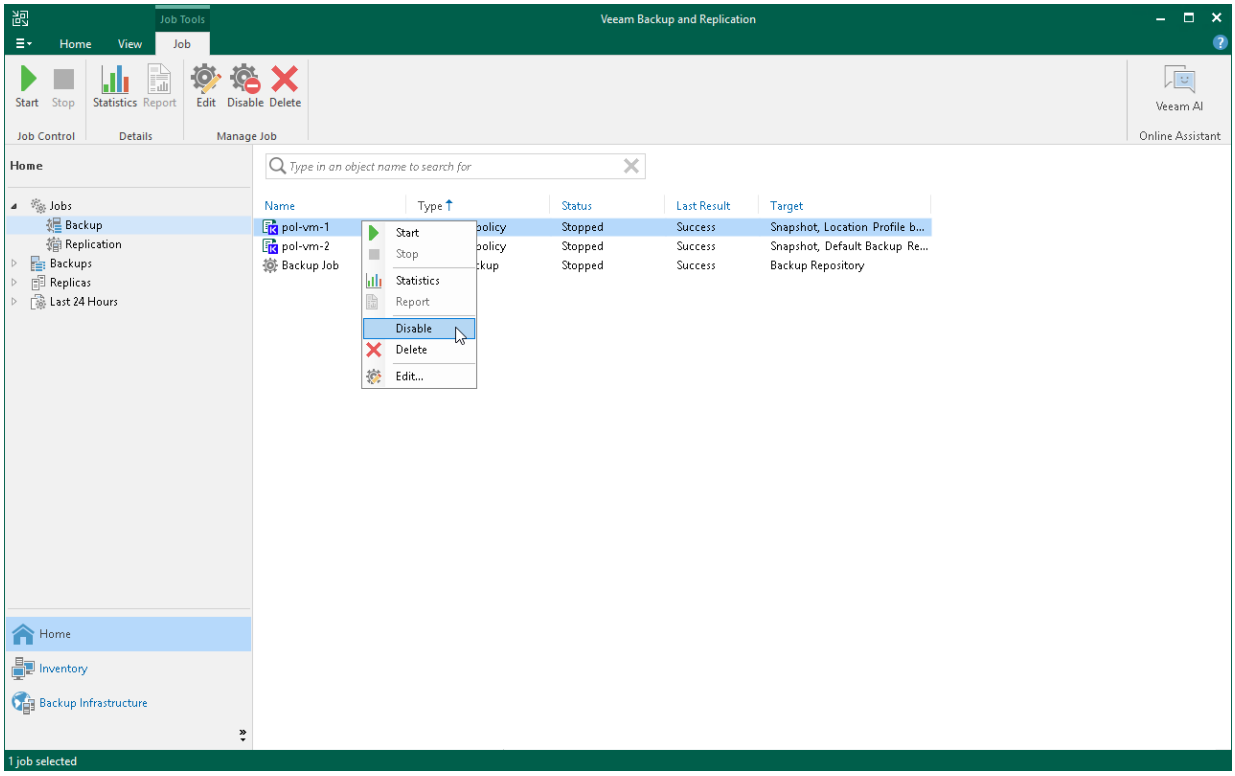
Disabling Kasten Policies

You can disable a Kasten policy only if it has a schedule configured beforehand. For more information on configuring a Kasten policy schedule, see Veeam Kasten Docs.

To disable a Kasten policy:

1. Open the **Home** view.
2. In the inventory pane, select **Jobs**.
3. In the working area, select the necessary backup policy and click **Disable** on the ribbon. Alternatively, right-click the necessary backup policy and select **Disable**.

> **TIP**
>
> Consider the following:
>
> - To select several Kasten policies, click the first policy, press and hold the [SHIFT] key and select the other policies.
> - To enable a disabled policy, select it and click **Disable** once again.



Removing Kasten Policies

To delete a Kasten policy from the Veeam Backup & Replication infrastructure:

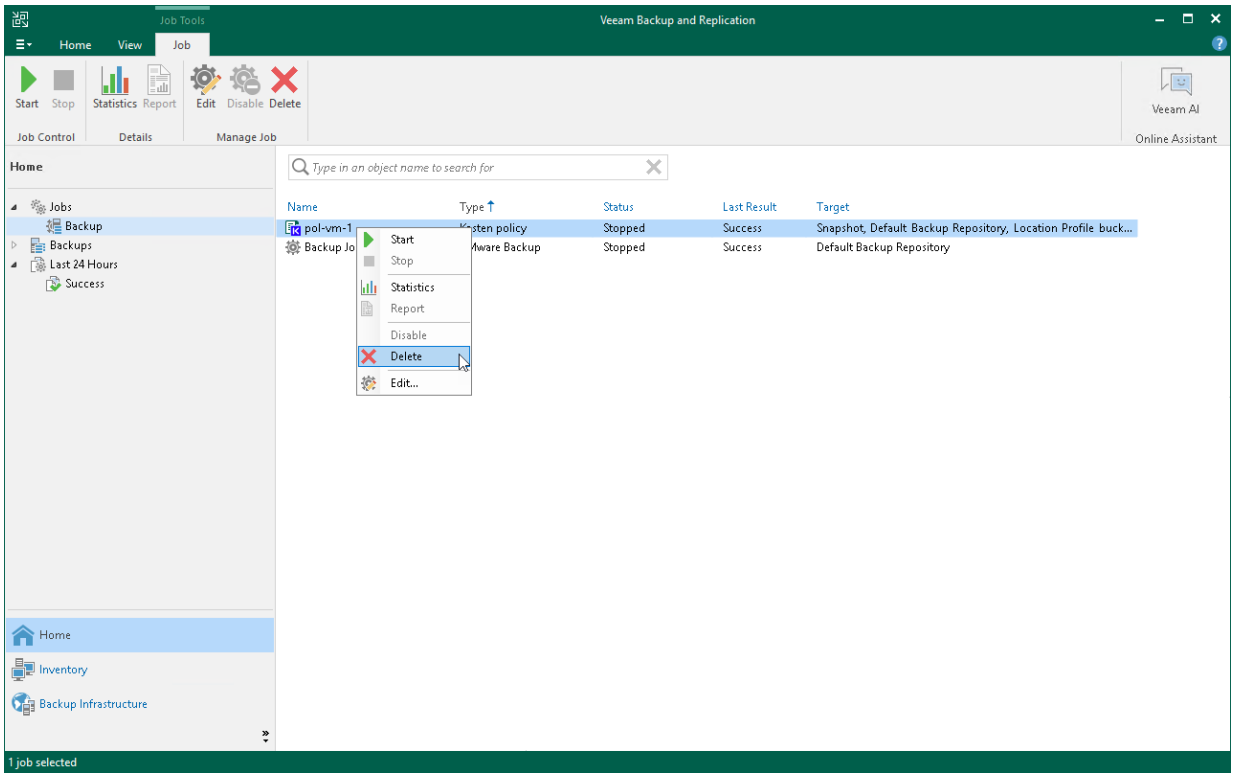
1. Open the **Home** view.
2. In the inventory pane, select **Jobs**.
3. In the working area, select the necessary Kasten policy and click **Delete** on the ribbon. Alternatively, right-click the necessary backup policy and select **Delete**.

> **TIP**
>
> To select several Kasten policies, click the first policy, press and hold the [SHIFT] key and select the other policies.

After the policy is deleted, the backups exported by this policy are displayed under the **Backups > Disk (Orphaned)** node. If the backups exported by the policy were also stored in the capacity tier, they will also be displayed under the **Backups > Capacity Tier (Orphaned)** node.

IMPORTANT

Veeam Kasten for Kubernetes deletes a Kasten policy from both Veeam Backup & Replication infrastructure and the Kasten instance.



Backup Chain and Retention Policy

This section covers information on how Veeam Backup & Replication stores backups exported by Kasten policies and how Veeam Backup & Replication applies a backup retention policy to these backups.

Backup Chain

Veeam Backup & Replication keeps backups exported by Kasten policies in Veeam backup repositories in the following backup files.

- VBK — full backup files that store copies of full VM images.
- VBM — backup metadata files that store information about the policy, applications processed by this policy, a number and a structure of backup files, restore points, and so on.

Backup files reside in a dedicated job folder in the backup repository. A set of backup files form a backup chain. For more information, see the Backup Chain section in the Veeam Backup & Replication User Guide.

To create and keep backup chains in backup repositories, Veeam Backup & Replication uses different backup methods. To keep data exported from Veeam Kasten, Veeam Backup & Replication uses the synthetic full backup method and implements it the following way.

When Kasten exports application disks to backup repositories for the first time, a Veeam Data Mover creates a VBK file. When a Kasten policy starts again, the Veeam Data Mover creates a temporary incremental backup file (VIB). This temporary VIB keeps incremental changes of Kasten backup exports and Veeam Data Mover uses this VIB to create a new VBK file. Once a new full backup file is created and the Kasten policy session finishes, the temporary incremental backup is removed from the Veeam backup repository. Therefore, a backup chain of data exported from Kasten consists of VBK and VBM backup files.

Retention Policy

To store and manage backups exported by a Kasten policy, Veeam Backup & Replication applies the retention policy that you have specified in the Kasten policy settings. For more information, see Veeam Kasten Docs.

Managing Backed-Up Data

Veeam Kasten for Kubernetes allows you to perform the following operations from the Veeam Backup & Replication console with backups exported by Kasten policies or manually.

Viewing Backup Properties

In the Veeam Backup & Replication console, you can view information about backups exported by Kasten policies or manually to Veeam backup repositories. This information provides the following data:

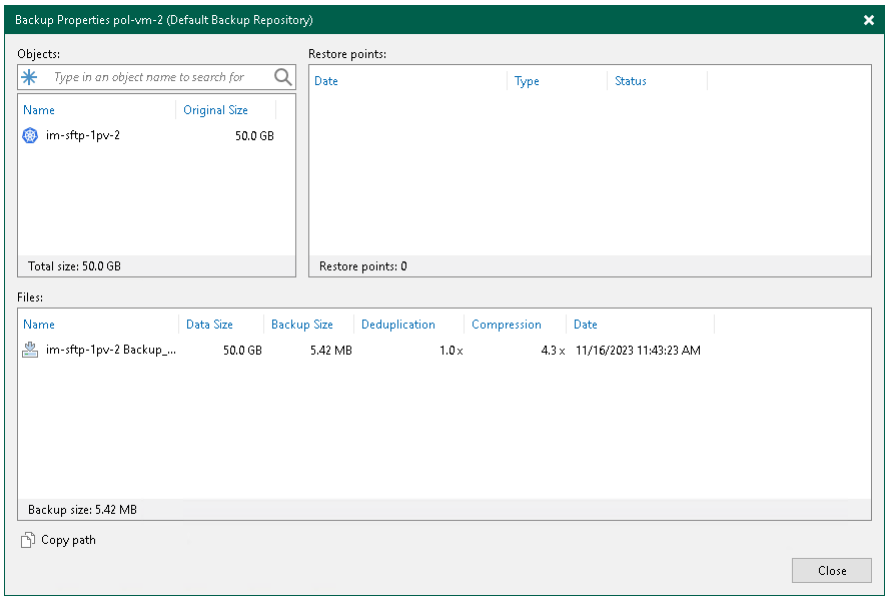
- Veeam backup repository and folder on this repository where the backup is stored
- Available restore points
- Date of restore points creation
- Data size and backup file size

In the **Backup Properties** window, you can see the following icons:

Icon	State
	Full restore point
	Missing full restore point

To view summary information for backup files:

1. In the Veeam Backup & Replication console, open the **Home** view.
2. In the inventory pane, select **Backups > Disk**.
3. In the working area, right-click the backup and select **Properties**.
4. To see the list of available restore points, select the necessary application from the **Objects** list.



Deleting Backups

Veeam Kasten for Kubernetes allows you to permanently delete backups exported by Kasten policies.

If you want to remove records about backups from both Veeam Backup & Replication infrastructure and configuration database, you can use **Delete from disk** operation. When you delete backup files from a disk, Veeam Backup & Replication deletes the whole chain from the Veeam backup repository. Thus, on the next run of the Kasten policy, Veeam Kasten for Kubernetes will create full backups for applications included and added to the job.

> **IMPORTANT**
>
> Do not delete backup files from the Veeam backup repository manually. If you delete backup files manually, subsequent backup or replication job sessions will fail.

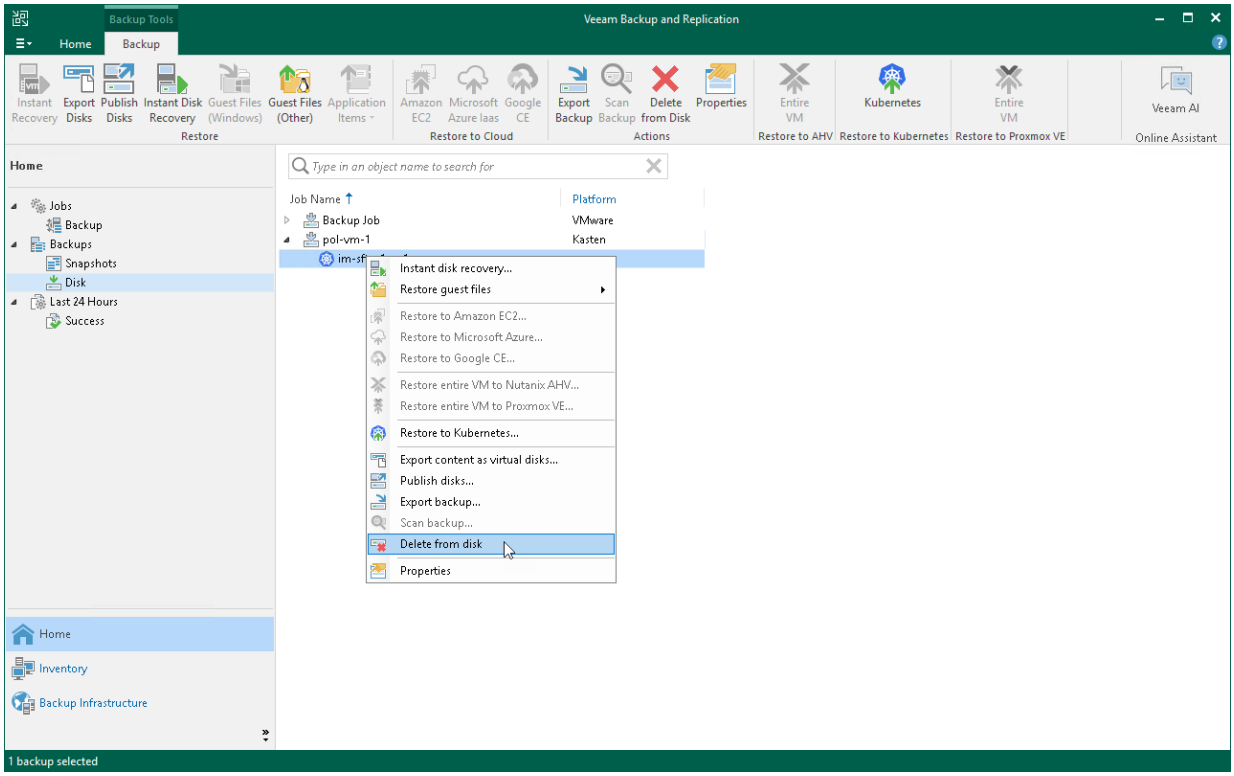
This option allows you to delete the following type of data:

- Backup files from the Veeam backup repository
- Specific applications from backups

To delete backup files or applications from the Veeam backup repository, do the following:

1. In the Veeam Backup & Replication console, open the **Home** view.
2. In the inventory pane of the **Home** view, select **Backups**.
3. In the working area, do one of the following:
    - [To delete a backup] In the working area, select the backup and click **Delete from disk** on the ribbon. You can also right-click the backup and select **Delete from disk**.

- [To delete an application from a backup] In the working area, expand the necessary backup, select the application you want to delete and click **Remove from > Disk** on the ribbon. You can also right-click the backup and select **Delete from disk**.



Exporting Kasten Backups Manually

You can manually export backups of Kasten applications to Veeam backup repositories.

To export application backups, you must perform the following steps:

1. **Configure Veeam Backup repository location.**

   At the location profile settings, specify the Veeam Backup & Replication server and the Veeam backup repository that will keep application backups. For more information, see Veeam Kasten Docs.

2. **Export application restore point**.

   In the Veeam Kasten dashboard, select the restore point of an application which backup you want to export and select the necessary Veeam backup location profile. Kasten will export application backups to the Veeam backup repository according to these settings. For more information on the manual export of application backups, see Veeam Kasten Docs.

After you start the manual export, it appears in the Veeam Backup & Replication infrastructure under the **Backups > Disk (Exported)** node.

Creating Backup Copy Jobs

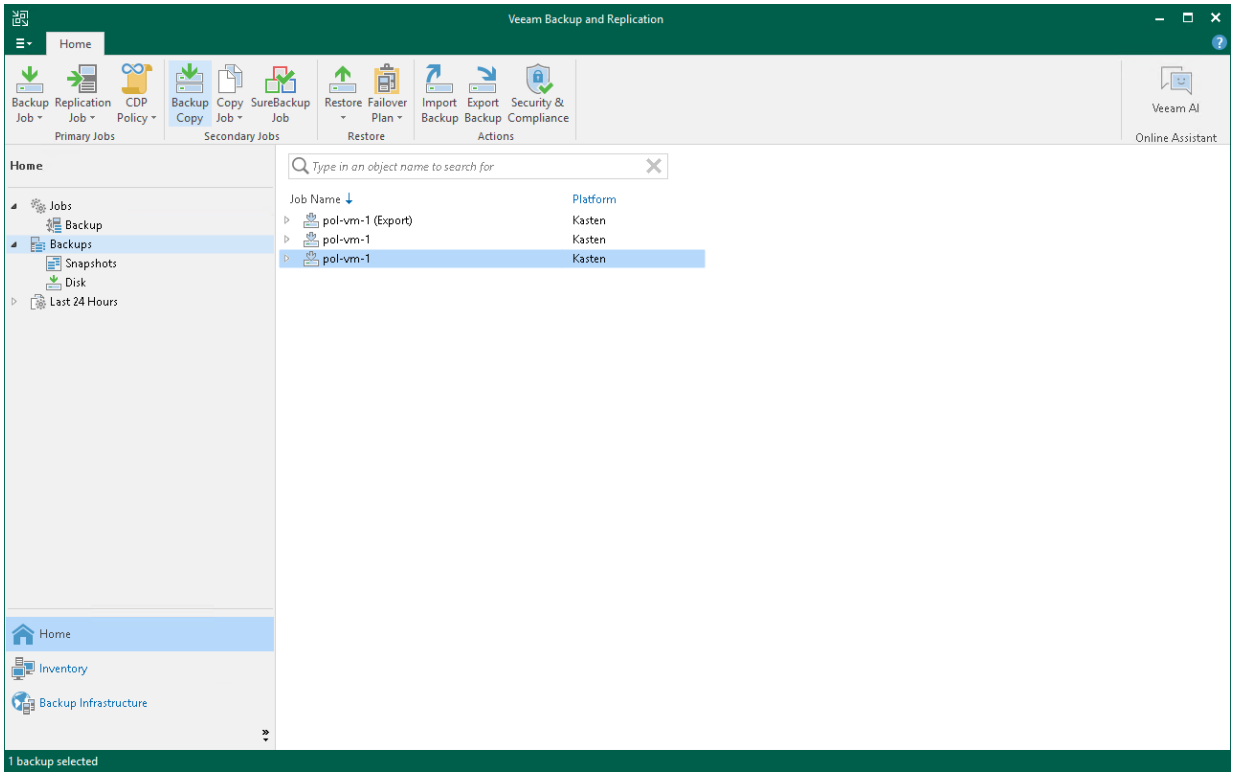
Backup copy is a technology that helps you create and store backup data in different locations. Storing data in different locations increases its availability and ensures that data can be recovered in case a disaster strikes.

The backup copy is a job-driven process. Veeam Backup & Replication fully automates the backup copy process and lets you specify retention settings to maintain the desired number of restore points, as well as full backups for archival purposes. To create a backup copy job, Veeam Backup & Replication uses the Kasten policy as a source and copies backed-up data created by this policy. For more information on the backup copy functionality, see the Backup Copy section in the Veeam Backup & Replication User Guide.

> **IMPORTANT**
>
> As a source, you can use only Kasten policies that export backups to Veeam backup repositories.

To create a backup copy job, do the following:

1. Check limitations and prerequisites listed in the Veeam Backup & Replication User Guide.
2. Open the **Home** view, navigate to **Backups** and select the necessary Kasten policy.
3. Complete the **New Backup Copy Job** wizard as described in the Creating Backup Copy Jobs for VMs and Physical Machines section in the Veeam Backup & Replication User Guide.



Copying Data to Cloud Repositories

If you want to store copies of backups exported from Kasten in cloud repositories, you can connect to a service provider (SP) and store copies of these backups in cloud repositories. For more information, see the see the Veeam Cloud Connect Guide.

To copy backups exported from Kasten to cloud repositories, do the following:

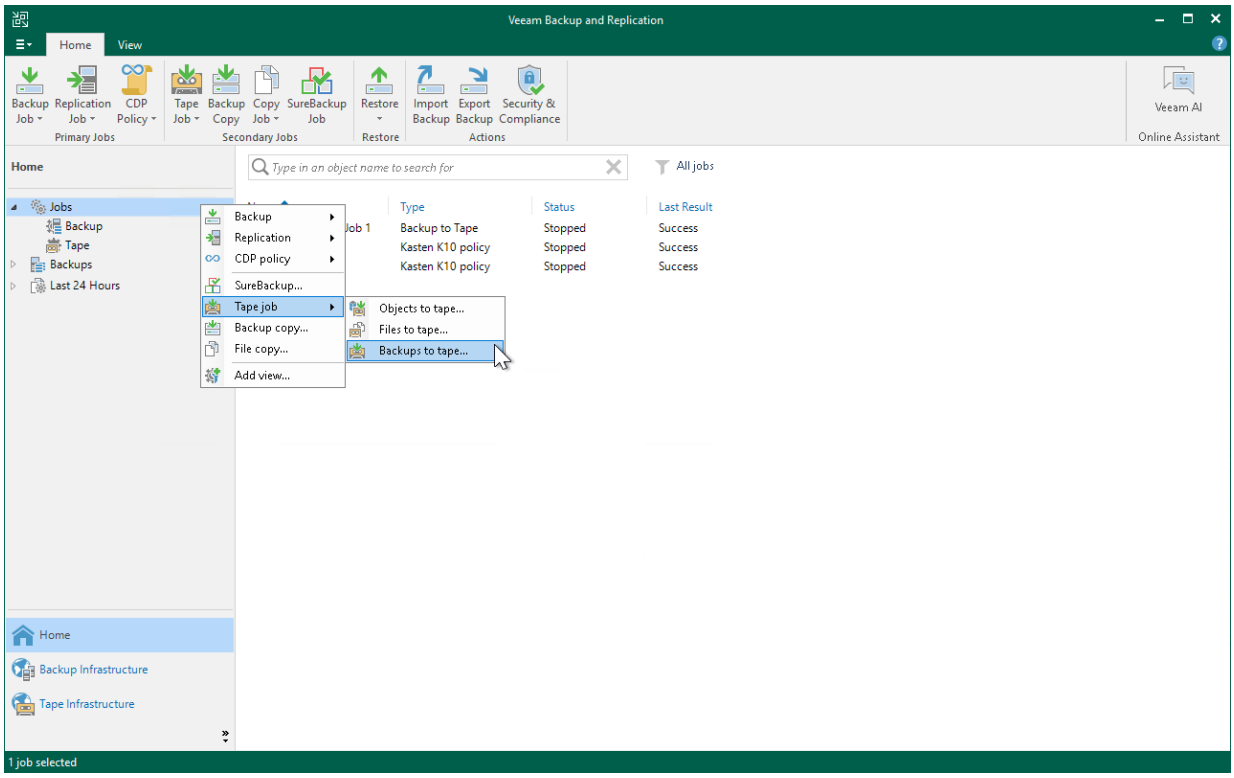
1. Depending on your environment, configure one of the following Cloud Connect Infrastructure types:
   - [For service providers] Follow the steps described in the Setting Up SP Veeam Cloud Connect Infrastructure section in the Veeam Cloud Connect User Guide.
   - [For tenants] Follow the steps described in the Setting Up Tenant Veeam Cloud Connect Infrastructure section in the Veeam Cloud Connect User Guide.
2. Run a Kasten policy.
3. Configure a backup copy job for backups exported from Kasten. Follow the instructions provided in Creating Backup Copy Jobs.

Creating Backups to Tapes

Storing data on tape devices helps you improve the level of safety and implement the 3-2-1 rule (3 copies, 2 types of media, 1 offsite location). To administer all operations on tapes in your Veeam Backup & Replication console, Veeam Backup & Replication allows you to automate the copying of image-level backups to tape devices. It lets you specify scheduling, archiving and media automation options. For more information on the supported tapes and operations you can perform with tapes, see the Tape Devices Support section in the Veeam Backup & Replication User Guide.

To copy backups exported by Kasten policies to tapes, do the following:

1. Configure the tape infrastructure:
    a. Connect tape devices as described in the Tape Devices Deployment section in the Veeam Backup & Replication User Guide.
    b. Perform the initial configuration as described in steps 1–3 of the Getting Started with Tapes section in the Veeam Backup & Replication User Guide.
2. Create a backup to tape job as described in the Creating Backup to Tape Jobs section in the Veeam Backup & Replication User Guide.



Viewing Statistics

You can use the Veeam Backup & Replication console to view real-time statistics for any backup policy. For more information on how to review statistics, see Reporting section in the Veeam Backup & Replication User Guide.

Data Recovery

Veeam Kasten for Kubernetes offers the following recovery options for various disaster recovery scenarios:

- Restoring to Kubernetes

  Restores applications to the Kubernetes cluster (using the Veeam Kasten web console).

- Exporting Disks

  Restore persistent disks from backups and convert them to disks in the VMDK, VHD or VHDX format.

- Instant First Class Disk (FCD) Recovery

  Recover persistent disks from backup files and register them as First Class Disks (FCDs).

- Restoring Guest OS Files

  Recover individual guest OS files from Linux file systems.

- Exporting Backup Files

  Synthesize an independent full backup file using restore points that are located in your Veeam backup repositories.

IMPORTANT

Consider the following:

- Veeam Kasten for Kubernetes does not allow you to restore Kubernetes containers from a Veeam Backup & Replication server to a Kasten cluster or any other location. To perform the restore operations with Kubernetes containers, use Kasten recovery options. For more information, see Veeam Kasten Docs.
- You can perform the recovery options (except restore to the Kubernetes cluster) only for restore points exported to the Veeam backup repository.
- Restore points created by backup copy jobs or tape jobs can be recovered only by using operations available in the Veeam Backup & Replication console. You cannot use Kasten recovery options.

Restoring to Kubernetes

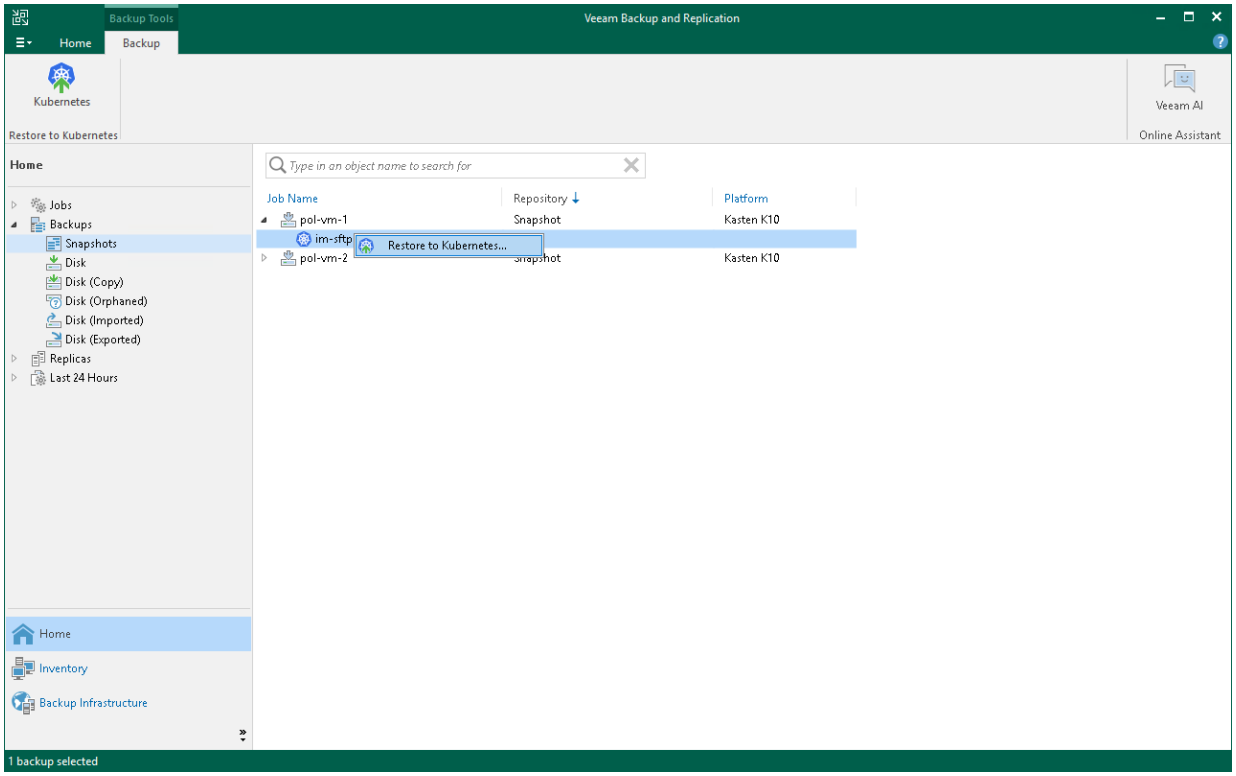
Veeam Backup & Replication allows you to restore applications to the Kubernetes cluster. When you restore applications, Veeam Backup & Replication redirects you to the Veeam Kasten Web UI to proceed with the restore.

To restore applications, do the following:

1. Open the **Home** view. In the inventory pane, navigate to **Backups** > **Disk** if you want to restore from Kasten exports or to **Backups** > **Snapshots** if you want to restore from snapshots. In the working area, select an application whose snapshot you want to restore. On the ribbon, click **Kubernetes**. Alternatively, right-click the application and select **Restore to Kubernetes**.

2. Follow the instructions provided in the Veeam Kasten docs.

You can view restore sessions under the **Home** > **Last 24 Hours** node or under **History** > **Restore** node.

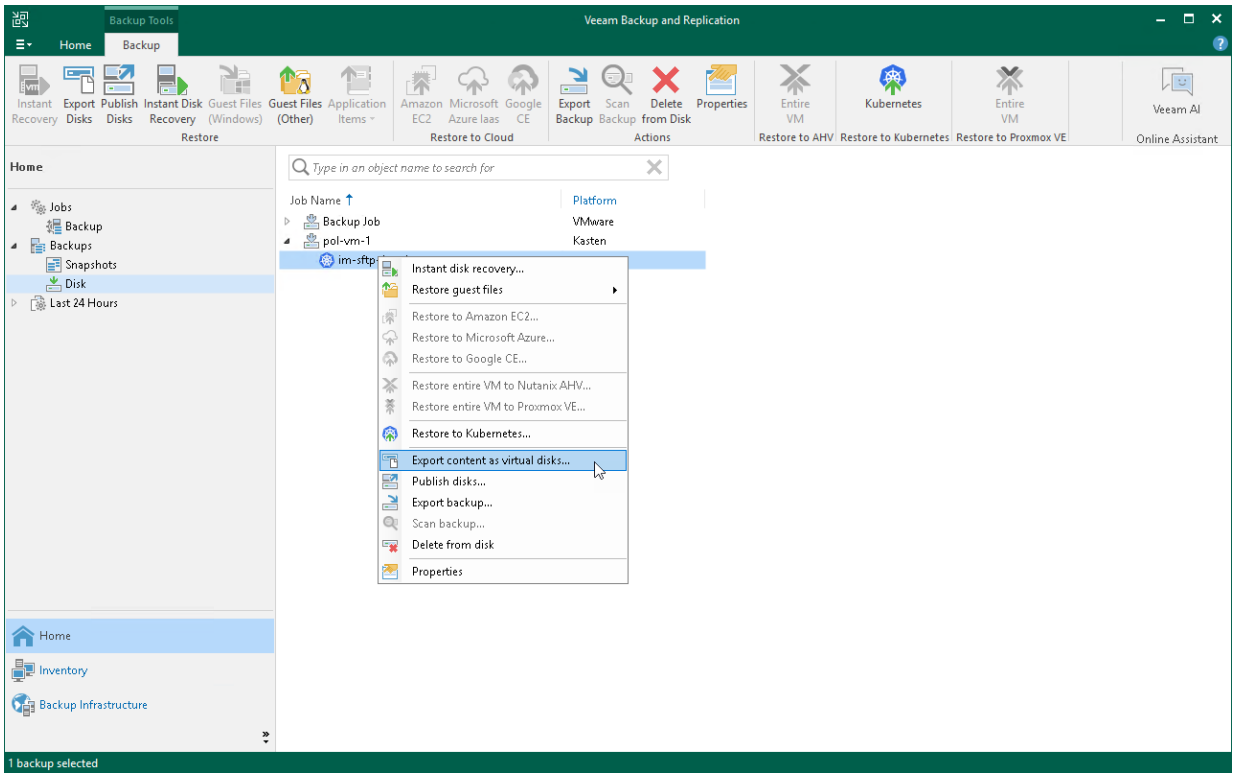


Exporting Disks

Veeam Backup & Replication allows you to restore disks of backups exported from Kasten. You can restore disks in the VMDK, VHD or VHDX format. For more information on disk export, see the Disk Export section in the Veeam Backup & Replication User Guide.

To restore disks of backups exported from Kasten and convert them to the VMDK, VHD or VHDX format:

1. Launch the **Export Disk** wizard. To do that, open the **Home** view. In the inventory pane, navigate to **Backups** > **Disk**. In the working area, select applications whose disk you want to export. On the ribbon, click **Export Disks**. Alternatively, right-click the application and select **Export content as virtual disks**.
2. Complete the wizard as described in the Exporting Disks section in the Veeam Backup & Replication User Guide.

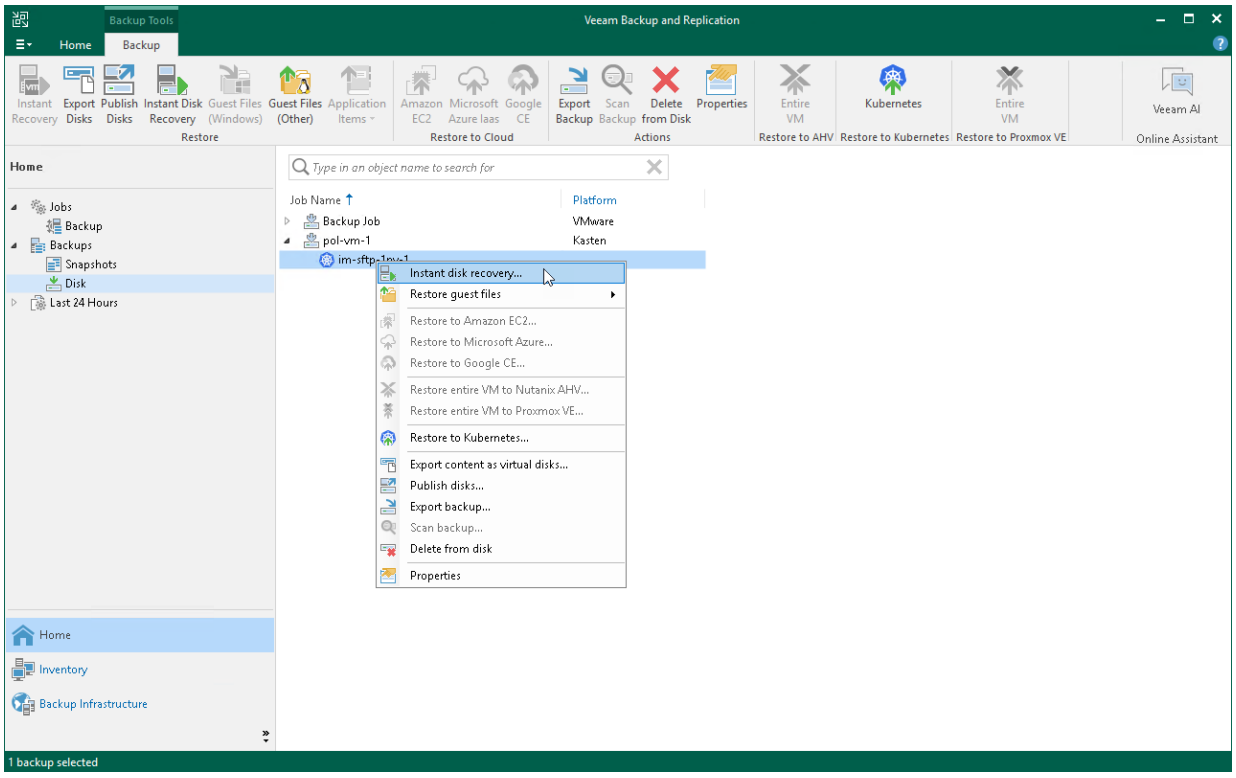


Instant First Class Disk (FCD) Recovery

With Instant First Class Disk (FCD) Recovery, you can immediately restore disks of backups exported from Kasten and register them as FCDs in a VMware cluster. Instant FCD Recovery allows you to instantly restore FCDs without attaching them to the production environment. For more information on First Class Disk (FCD) Recovery, see the Instant First Class Disk (FCD) Recovery section in the Veeam Backup & Replication User Guide.

To perform FCD recovery of backups exported from Kasten:

1. Check limitations and prerequisites listed in the Veeam Backup & Replication User Guide.
2. Launch the **Instant Disk Recovery** wizard. To do that, open the **Home** view. In the inventory pane, navigate to **Backups** > **Disk**. In the working area, select an application whose disk you want to export. On the ribbon, click **Instant Disk Recovery**. Alternatively, right-click the application and select **Instant disk recovery**.
3. Complete the wizard as described in the Instant FCD Recovery section in the Veeam Backup & Replication User Guide.



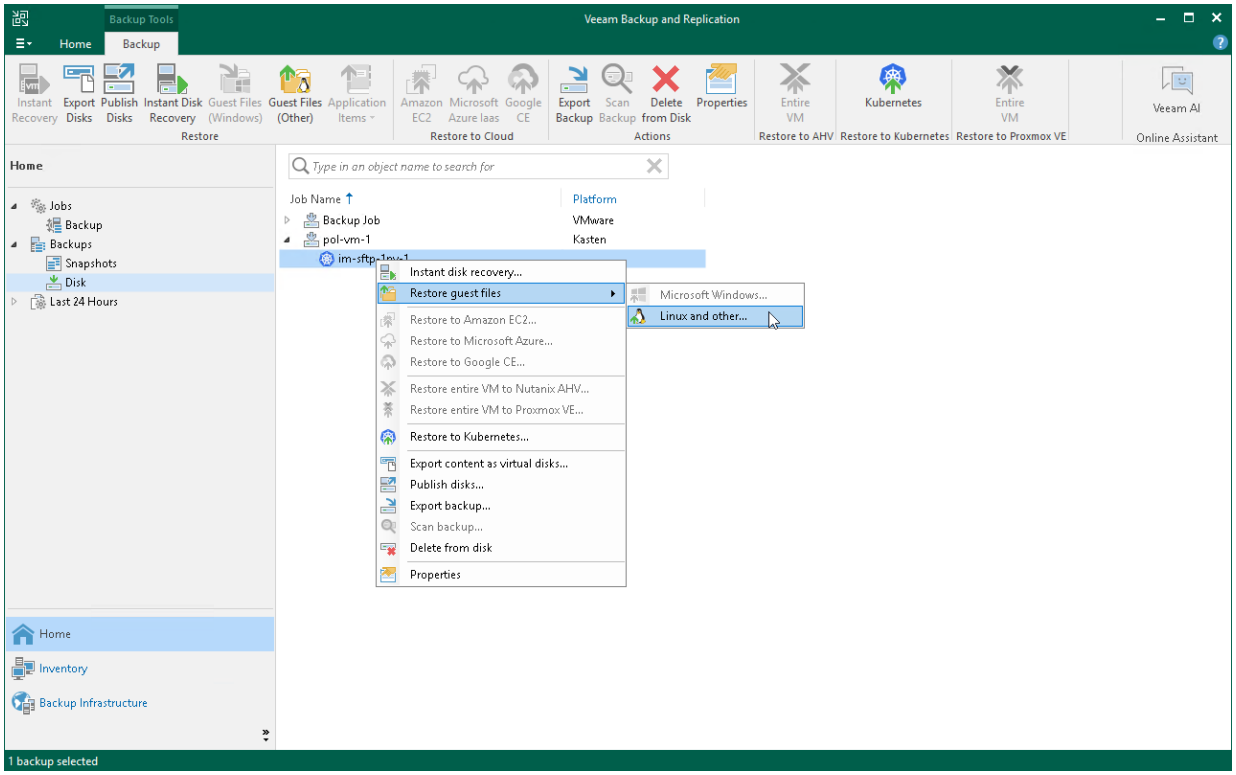
Restoring Guest OS Files

You can restore individual guest OS files and folders from backups exported from Kasten. You can restore files and folders directly from image-level backups. For more information, see the Guest OS File Recovery section in the Veeam Backup & Replication User Guide.

> **NOTE**
>
> Consider the following:
>
> - Veeam Kasten for Kubernetes supports only restore from Linux, Unix and other non-Microsoft Windows OSes.
> - Veeam Kasten for Kubernetes does not support restore of individual guest OS files and folders to the original location (applications added to a Kasten cluster). You can only save files and folders to a new location. For more information, see the Saving Files to New Location section in the Veeam Backup & Replication User Guide.

To restore guest OS files from Linux, Unix and other file systems, do the following:

1. Check considerations and limitations listed in the Veeam Backup & Replication User Guide.
2. Launch and complete the **Guest File Restore** wizard. To do that, open the **Home** view and navigate to **Backups** > **Disk**. In the working area, select an application whose files you want to restore. On the ribbon, click **Guest Files (Other)**. Alternatively, right-click the application and select **Restore guest files** > **Linux and other**.
3. Complete the wizard as described in the Restoring VM Guest OS Files (Multi-OS) section in the Veeam Backup & Replication User Guide.



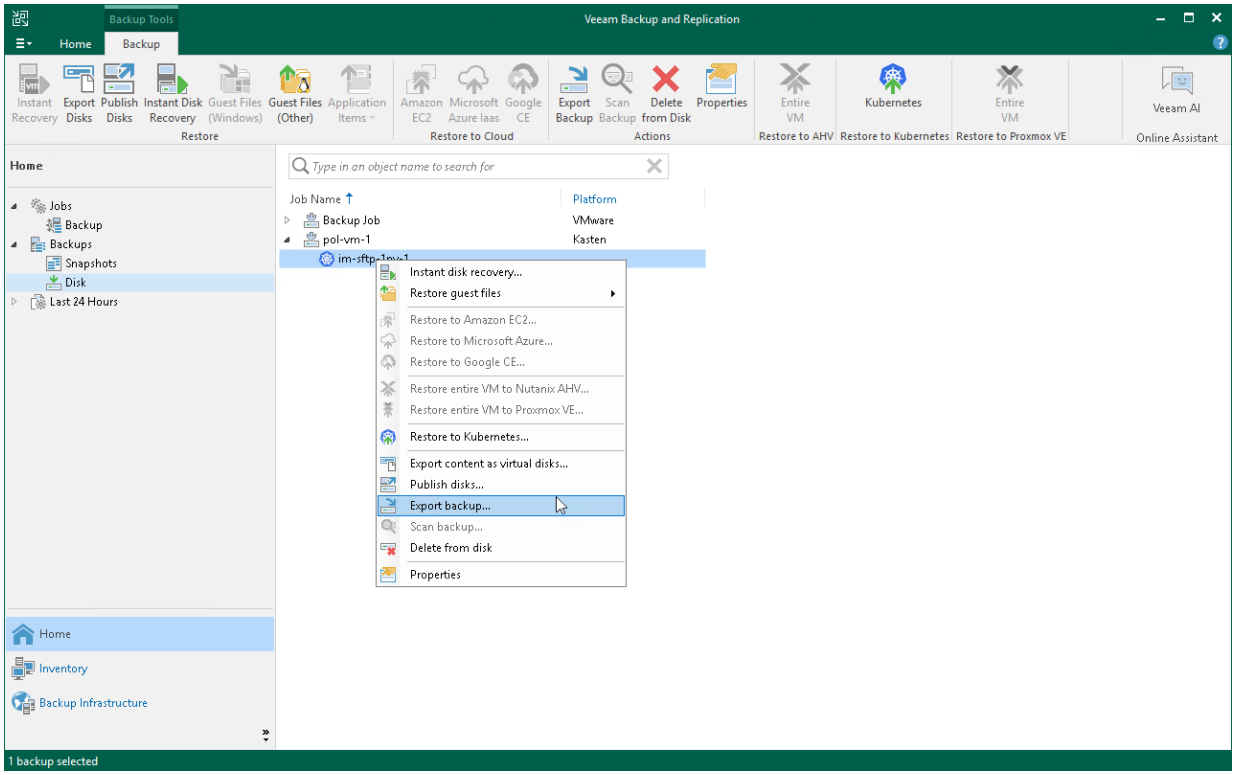
Exporting Backup Files

You can export full backup files of applications backed up by Kasten policies. Exporting full backup files allows you to produce a full backup file (VBK) that acts as an independent restore point. By default, this backup file is stored in a separate folder in a Veeam backup repository used by the Kasten policy. You can move this backup file to a different location without affecting a backup chain of backup files exported by the Kasten policy. For more information on exporting full backups, see the Exporting Backups section in the Veeam Backup & Replication User Guide.

To export full backup files of applications backed up by Kasten:

1. Launch the **Export Backup** wizard. To do that, open the **Home** view. In the inventory pane, navigate to **Backups** > **Disk**. In the working area, select applications whose restore points you want to export. On the ribbon, click **Export Backup**. Alternatively, right-click the application and select **Export backup**.
2. Complete the wizard as described in the Performing Export section in the Veeam Backup & Replication User Guide.

After backup files are exported, they are displayed under the **Backups > Disk (Exported)** node.



Viewing Statistics

Veeam Kasten for Kubernetes allows you to view statistics on data recovery operations. You can view the information on the restore reason, the parameters of the restored instance, the logs of the restore session, and so on. For more information on how to review statistics, see the Viewing Real-Time Statistics section in the Veeam Backup & Replication User Guide.

Support Information

If you have any questions or issues with Veeam Kasten Plug-in for Veeam Backup & Replication, you can search for a resolution on Veeam R&D Forums or submit a support case in the Veeam Customer Support Portal.

> **IMPORTANT**
>
> Veeam Customer Support does not assist with issues related to the Kasten platform, management of Kubernetes containers and Kasten policies. You have to contact Veeam Kasten support.

When you submit a support case, we recommend you provide information on the installed products to the Veeam Customer Support Team. Product logs contain this information.

To export logs, do the following:

1. From the main menu of the Veeam Backup & Replication console, select **Help** > **Support Information**.
2. At the **Scope** step of the **Export Logs** wizard, select **Export all logs for selected components**.
3. In the **Managed servers** list, select the Veeam Backup & Replication server and other components for which you want to export logs.
4. Complete the wizard as described in the Exporting Logs section in the Veeam Backup & Replication User Guide.

> **IMPORTANT**
>
> In the **Export Logs** wizard, you can not export logs for separate Kasten policies and backup files.