



ENTRUST



COMMVault™

Commvault and Entrust KeyControl KMIP Vault

Integration Guide

20 Oct 2023

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1. Introduction

This guide describes the integration of the Entrust KeyControl KMIP Vault Key Management Solution (KMS) with Commvault platform. Entrust KeyControl KMIP Vault can serve as a Key Management Server in Commvault using the Key Management Interoperability Protocol (KMIP) open standard.

1.1. Documents to read first

This guide describes how to configure the Entrust KeyControl KMIP Vault as a Key Management Server in Commvault.

To install and configure the Entrust KeyControl KMIP Vault as a KMIP server, see the following documents:

- *Entrust KeyControl Vault nShield HSM Integration Guide* in the Entrust Document Library.
- [Entrust KeyControl Vault nShield Online Help](#).

Also refer to the [Commvault Online Documentation](#).

1.2. Product configuration

Product	Version
Windows	Windows 2022
Commvault	2023E (11.32)
KeyControl Vault	10.11

1.3. Requirements

Entrust recommends that you allow only unprivileged connections unless you are performing administrative tasks.

2. Procedures

2.1. Prerequisites

Before you integrate the Entrust KeyControl KMIP Vault KMS with Commvault platform, complete the following tasks:

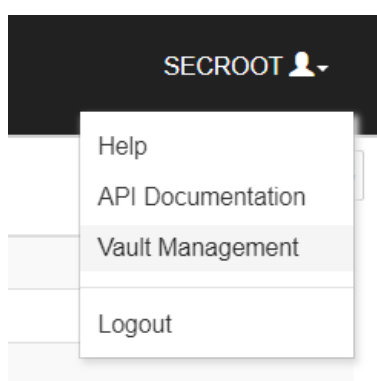
- Entrust KeyControl KMIP Vault is deployed and configured.
- Commvault Platform is deployed and configured.
- You have administrator rights to manage the KMS configuration in Commvault.

2.2. Create a KMIP Vault in the KeyControl Vault Server

The KeyControl Vault appliance supports different type of vaults that can be used by all type of applications. This section describes how to create a KMIP Vault in the KeyControl Vault Server.

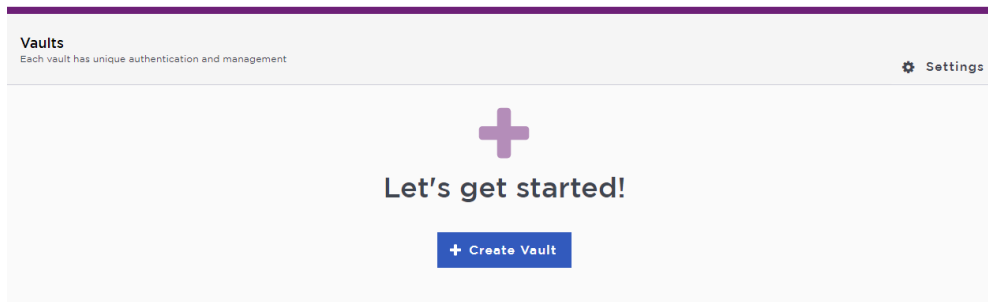
Refer to the [Creating a Vault](#) section of the admin guide for more details about it.

1. Log into the KeyControl Vault Server web user interface:
 - a. Use your browser to access the IP address of the server.
 - b. Sign in using the **secroot** credentials.
2. Select the user's dropdown menu and select **Vault Management**.



This action will take you to the KeyControl Vault Management interface.

3. In the KeyControl Vault Management interface, select **Create Vault**.



KeyControl Vault supports the following types of vaults:

- **Cloud Key Management** - Vault for cloud keys such as BYOK and HYOK.
- **KMIP** - Vault for KMIP Objects.
- **PASM** - Vault for objects such as passwords, files, SSH keys, and so on.
- **Database** - Vault for database keys.
- **Tokenization** - Vault for tokenization policies.
- **VM Encryption** - Vault for encrypting VMs.

4. In the **Create Vault** page, create a **KMIP** Vault:

- For **Type**, select **KMIP**.
- For **Name**, enter the name of the Vault.
- For **Description**, enter the description of the Vault.
- For **Admin Name**, enter the name of the administrator of the Vault.
- For **Admin Email**, enter a valid email for the administrator.

ENTRUST | KeyControl Vault Management

Vaults
Each vault has unique authentication and management

Create Vault
A vault will have unique authentication and management.

Type
Choose the type of vault to create
KMIP

Name *
commvault

Description
Test CommVault Key Management
Max: 300 characters

Administration
Invite an individual to have complete access and control over this vault. They will be responsible for inviting additional members.

Admin Name *
Administrator

Admin Email *

Create Vault Cancel



A temporary password will be emailed to the administrator's email address. This is the password that will be used to sign in for the first time to the KMIP Vaults space in KeyControl. In a closed gap environment where email is not available, the password for the user is displayed when you first create the vault. That can be copied and sent to the user.

5. Select **Create Vault**.
6. Select **Close** when the Vault creation completes.
7. The newly created Vault is added to the Vault dashboard.

ENTRUST | KeyControl Vault Management | secretroot

Vaults
Each vault has unique authentication and management

Total Vaults: 1

CommVault
Test CommVault Key Management.

KMIP

8. After the Vault has been created, the KMIP server settings on the appliance are

enabled.

2.2.1. KeyControl KMIP Vault server settings

The KMIP server settings are set at the KeyControl appliance level and apply to all the KMIP Vaults in the appliance. After a KMIP Vault is created, they are automatically set to **ENABLED**.

To use external key management and configure the KeyControl Vault KMIP settings, refer to the [KMIP Client and Server Configuration](#) section of the admin guide.



When using external key management, as is the case in this solution, the KeyControl server is the KMIP server and the Commvault Platform server is the KMIP client.

1. Select the **Settings** icon on the top right to view/change the KMIP settings.
 - a. The defaults settings are appropriate for most applications.
 - b. Make any changes necessary.

Settings

KMIP Vault Settings
Define the default setting for all KMIP vaults

ENABLED

Port *
5696

Auto Reconnect
 On Off

Verify
 Yes No

Non-blocking I/O
If set to yes, the client requires non-blocking I/O
 Yes No

Log Level *
CREATE-MODIFY

Restrict TLS
If set to yes, connection will use TLS 1.2
 Yes No

Timeout
 Yes No

SSL/TLS Ciphers
Enter comma separated cipher names
ECDHE-RSA-AES128-GCM-SHA256,ECDHE-RSA-AES256-GCM-SHA384,E
AES256-SHA,ECDHE-ECDSA-AES128-SHA256,ECDHE-ECDSA-AES256-S
SHA256,ECDHE-ECDSA-AES256-GCM-SHA384,DHE-RSA-AES128-GCM-S
SHA384,DHE-DSS-AES128-SHA256,DHE-DSS-AES256-SHA,DHE-DSS-AE

Certificate Types
 Default Custom

Apply **Cancel**

2. Select **Apply**.

2.2.2. View details for the Vault


To view the details on the Vault, select **View Details** when you hover over the Vault.


Vault Details ×

CommVault
Test CommVault Key Management.

Type
KMIP

Created
Sep 25, 2023 10:56:19 AM

Vault URL
[Redacted]
[Redacted]
 **Copy**

API URL
[Redacted]
[Redacted]
 **Copy**

Administrator
Administrator
[Redacted]

Close

2.2.3. Edit a vault

To edit the details of the Vault, select **Edit** when you hover over the Vault.

Vaults
Each vault has unique authentication and management

Edit Vault

Type
KMIP

Name*
CommVault

Description
Test CommVault Key Management.

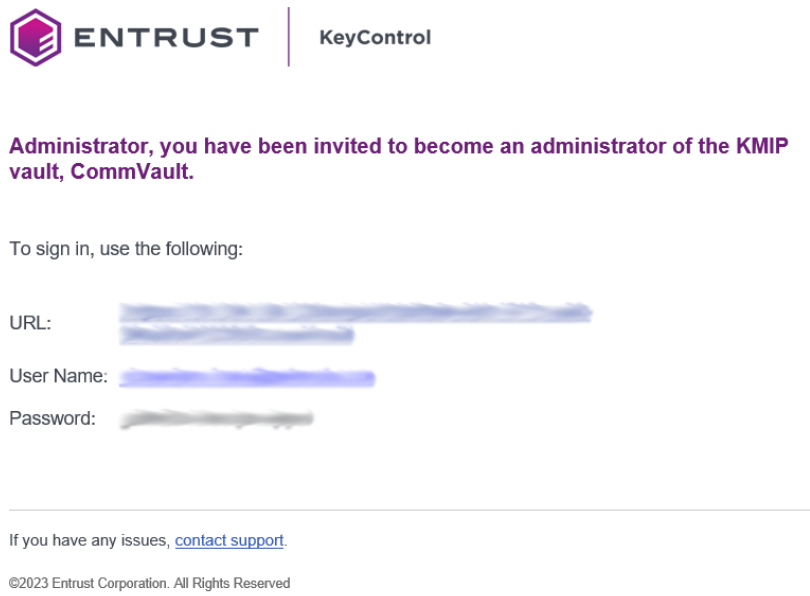
Max. 300 characters

Administrator
Administrator

Apply **Cancel** **Delete Vault**

2.2.4. Managing the Vault

After the Vault has been created, look for the email that was sent with the Vault’s URL and the login information for the Vault. For example:



Go to the URL and sign in with the credentials given. When you sign in for the first time, the system will ask the user to change the password.

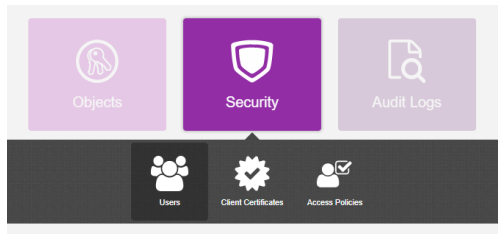


In a closed gap environment where email is not available, the password for the user is displayed when you first create the vault. That can be copied and sent to the user.

2.2.5. Setup other Administrators

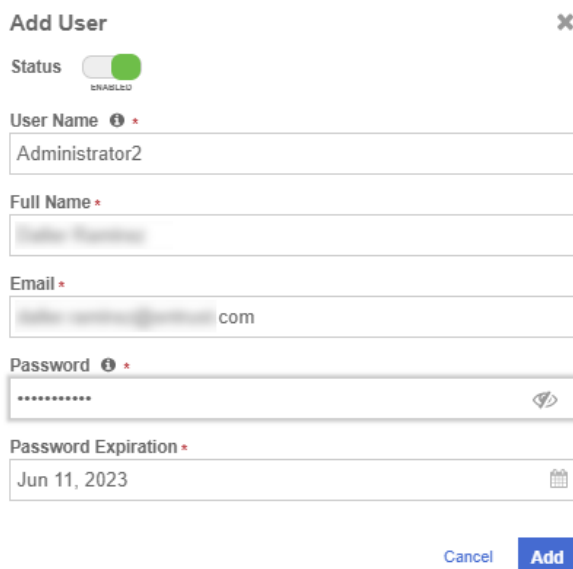
It is important to have other administrators set up on the Vault for recovery purposes. Add one or more admins to the Vault.

1. Select **Security > Users**.



2. In the **Manage Users** dashboard:

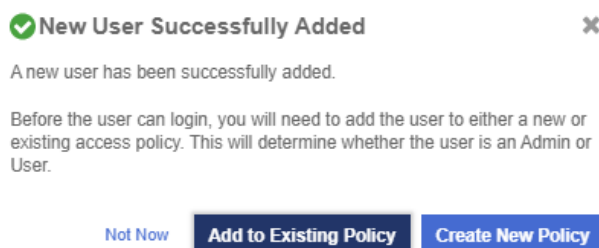
- a. Select the **+** icon to add one or more users.
- b. Add the user by providing the information requested in the **Add User** dialog.

A screenshot of the 'Add User' dialog box. The dialog has a title bar with 'Add User' and a close button (X). Below the title bar, there is a 'Status' toggle switch set to 'ENABLED'. The form contains several fields: 'User Name' with the value 'Administrator2', 'Full Name' (empty), 'Email' with the value 'admin@company.com', 'Password' (masked with dots), and 'Password Expiration' with the date 'Jun 11, 2023'. At the bottom right, there are two buttons: 'Cancel' and 'Add'.

- c. Select **Add**.

After the user is added, a window appears which requests selection of the policy to be used by this user.

3. Select **Add to Existing Policy**.



4. On the **Add User to Access Policy** dialog, select the **KMIP Admin Policy** and select **Apply**. The new user is added as an administrator to the Vault.

Add User to Access Policy ✕

User [blurred]

Assign this user to one of the following access policies.

Filter

	Name	Description	Role
<input checked="" type="checkbox"/>	Knip Admin Policy	Default Knip Admin Policy	Knip Admin Role

Showing 1 to 1 of 1 records (1 Selected)

Cancel Apply

2.3. Establishing trust between the KeyControl KMIP Vault and the Commvault platform

Certificates are required to facilitate the KMIP communications from the KeyControl KMIP Vault and the Commvault Platform application and conversely. The built-in capabilities in the KeyControl KMIP Vault are used to create and publish the certificates.

The process below will show how to integrate Commvault platform with KeyControl KMIP Vault.

1. Sign in to the KMIP Vault created earlier. Use the login URL and credentials provided to the administrator of the Vault.
2. Select **Security**, then **Client Certificates**.



3. In the **Manage Client Certificate** page, select the **+** icon on the right to create a new certificate.
 - a. The **Create Client Certificate** dialog box appears.
4. In the **Create Client Certificate** dialog box:
 - a. Select **Add Authentication for Certificate**.
 - b. Enter the username.
 - c. Enter the password.
 - d. In the **Certificate Expiration** field, set the date on which you want the certificate

to expire.

- e. Select **Create**.

These settings will be used later when the certificates are used in Commvault.

The new certificates are added to the **Manage Client Certificate** pane.

5. Select the certificate and select the **Download** icon to download the certificate.

The webGUI downloads `certname_datetimestamp.zip`, which contains a user certification/key file called `certname.pem` and a server certification file called `cacert.pem`.

6. Unzip the file so that you have the `certname.pem` and `cacert.pem` file available in the Commvault server for reference.
7. The download zip file contains the following:

- A `certname.pem` file that includes both the client certificate and private key. In this example, this file is called `commvault.pem`.

The client certificate section of the `certname.pem` file includes the lines “-----BEGIN CERTIFICATE-----” and “-----END CERTIFICATE-----” and all text between them.

The private key section of the `certname.pem` file includes the lines “-----BEGIN PRIVATE KEY-----” and “-----END PRIVATE KEY-----” and all text in between them.

- A `cacert.pem` file which is the root certificate for the KMS cluster. It is always named `cacert.pem`.

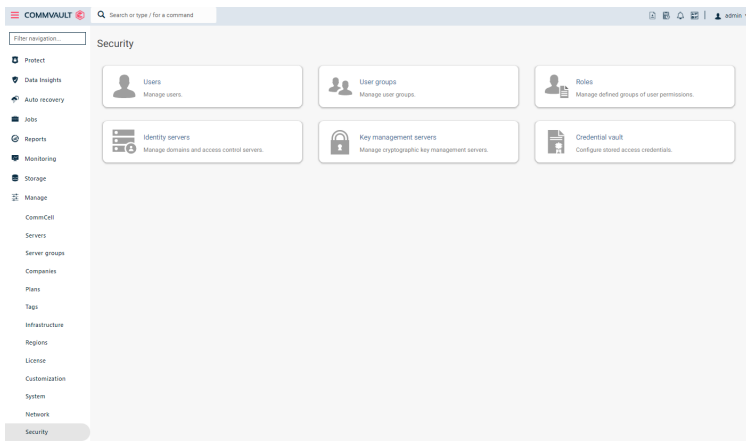
These files will be used in the Commvault Key Management Server configuration later.

2.4. Adding a Key Management Interoperability Protocol Server - KeyControl to Commvault

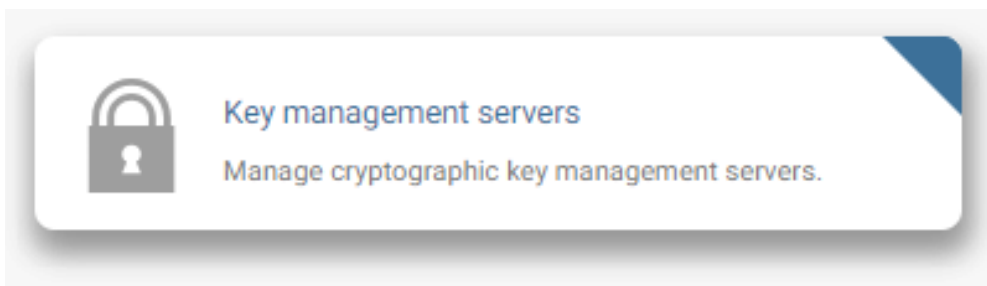
For more detail on how to do this, see [Adding a Key Management Interoperability Protocol Server](#) in the Commvault online documentation.

1. Launch the Commvault Web Client and log into to Commvault.
2. From the navigation pane, go to **Manage > Security**.

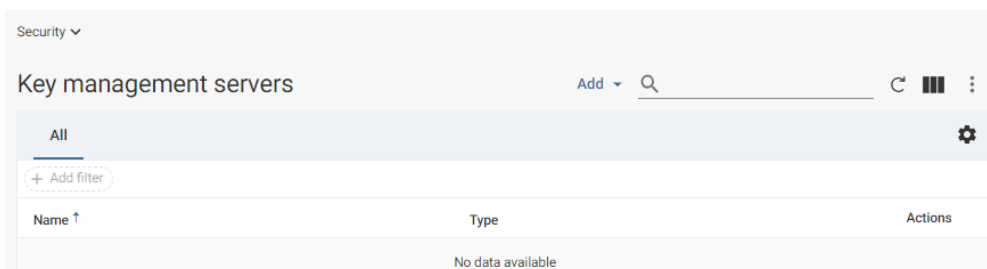
The **Security** page appears.



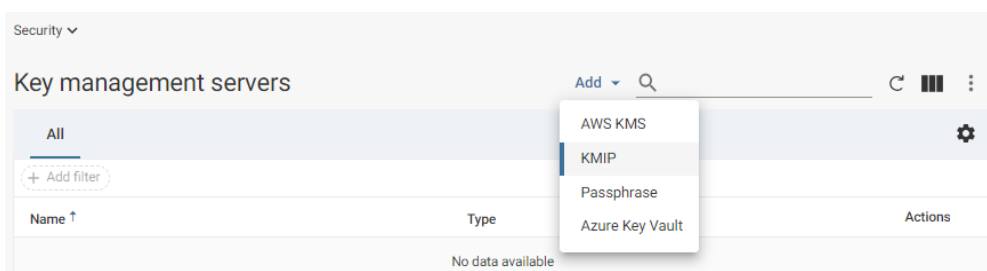
3. Select the **Key management servers** tile.



The **Key management servers** page appears.



4. Select **Add** at the top right, and then select **KMIP**.



The **Add KMIP** dialog box appears.

5. Complete the following steps:

- a. **Name:** Enter the name of the key provider (**keycontrol**).
- b. **Key length:** Select the key length to use with the Advanced Encryption Standard (AES) Rijndael cipher.

- c. **Server:** Enter the IP address or the hostname of the third-party key management server.
 - i. If the server is a cluster server, then specify the IP addresses or the hostnames of all the servers in the cluster, separated by a comma.
 - ii. **Note:** If you use third-party key management servers, and you decide to migrate clients from one CommCell environment to another CommCell environment, then both the source CommCell environment and the destination CommCell environment must use the same third-party key management server.
- d. **Port:** Enter the port that is used by the key management server.
 - i. If the server is a cluster server, then all the servers in the cluster must use the same port.
- e. **Passphrase:** If you set a passphrase when you generated the certificate, then enter the passphrase.
- f. **Certificate:** Select the location of the client certificate file. It is in the certificate download zip file from KeyControl. Unzip the file, place in a location and use the location of the file. This file is the `certname.pem` file in the zip file. In our example `commvault.pem`
- g. **Certificate key:** Select the location of the client certificate key. This is the same file as the file used for **Certificate** field above.
- h. **CA Certificate:** Select the location of the key management server certificate authority (CA) certificate. This file is the `cacert.pem` file located in the same location as the certificate file used above.

6. Select **Submit**.

Key management servers ▾

Add KMIP

Name *
keycontrol

Encryption Type *
AES (Rijndael)

Key length *
256

Server *
[Redacted]

Port *
5696

Certificate *
[Redacted]

Certificate key *
[Redacted]

Certificate password *
[Redacted]

CA Certificate *
[Redacted]

EQUIVALENT API

CANCEL SUBMIT

The KMIP server pane gets displayed with the name of the KMIP server and its configuration.

Key management servers ▾

keycontrol Delete

Overview Associations

General

Type	KMIP
Encryption Type	AES (Rijndael)
Key length	256
Server	[Redacted]
Port	5696

Security

No associations defined on this object

Show inherited association

Certificate

Certificate	[Redacted]
Certificate key	[Redacted]
CA Certificate	[Redacted]

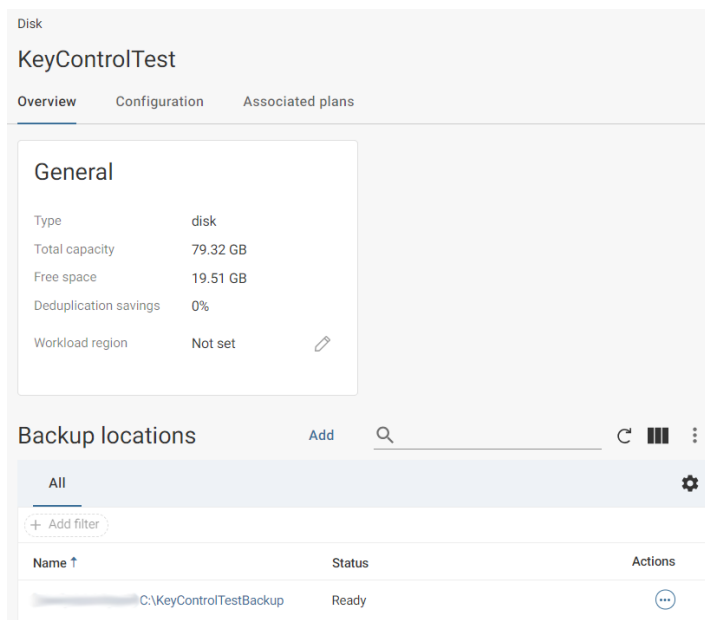
2.5. Test the Key Management server

You can test if Commvault is able to use KeyControl as the Key Management server by Configuring Software Encryption on Disk Storage: [Configuring Software Encryption on Disk Storage](#).

First, [Create a Disk Storage pool](#) as outlined in the online documentation.

Now, let's change it so it uses the Key Management Server (KeyControl) to encrypt it.

1. From the navigation pane, go to **Storage > Disk > disk_storage**. (The disk storage just created)
 - a. The Disk page appears.
2. Select the disk storage to add software encryption.
 - a. The disk storage page appears.



3. On the **Configuration** tab, in the **Encryption** section, move the **Encrypt** toggle key to the right.
 - a. The **Add encryption** dialog box appears.
4. Enter the encryption details:
 - a. From the **Cipher** list, select an encryption method.
 - b. From the **Keylength** list, select an encryption key length.

Add encryption
✕

Cipher
AES

Keylength
256

EQUIVALENT API
CANCEL
SAVE

c. Click Save.

5. In the **Encryption Title**, edit the **Key Management Server**.

- a. Change it from **Built-in** to the Key management server used during the Key Management server configuration. Select an existing server or add a new server.

Encryption

Encrypt

Cipher AES - 256 ✎

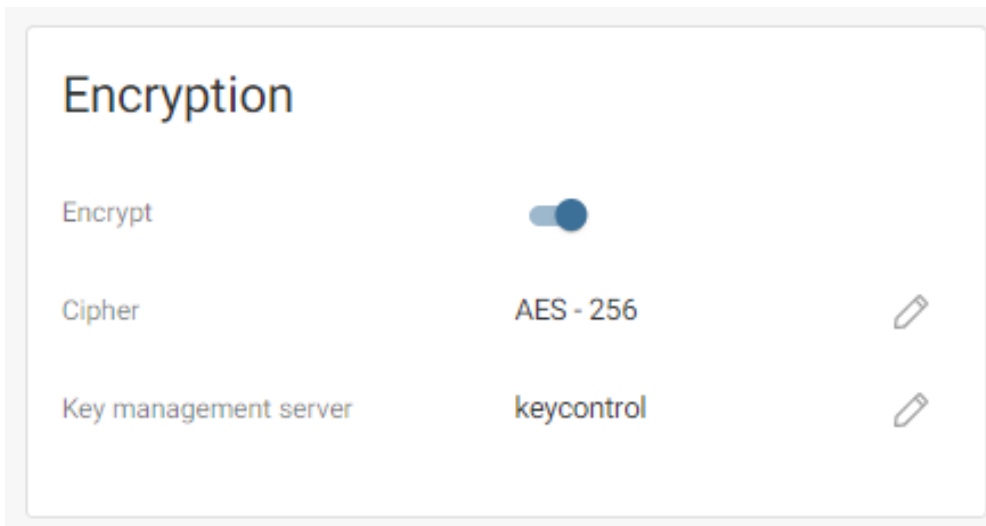
Key management server Built-in ▲ +

Built-in

keycontrol

keycontrol

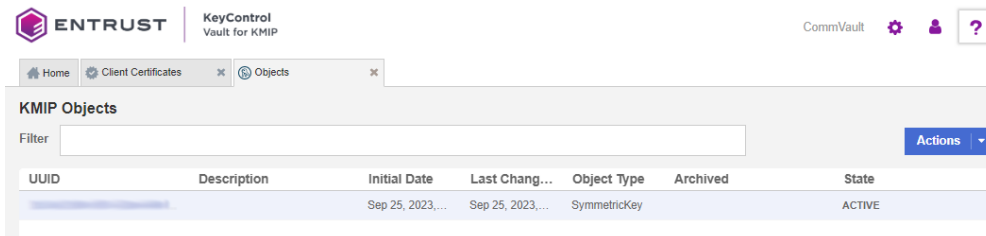
6. Select Save.



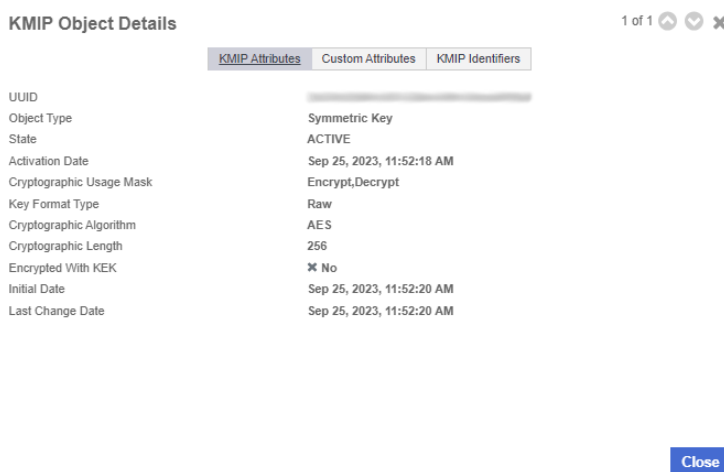
2.5.1. Check KeyControl by looking for the Commvault Keys in the Entrust KeyControl KMIP Vault

Check the disk storage encryption Commvault by looking for keys created in KeyControl:

1. Log into the KMIP Vault using the login URL.
2. Select the **Objects** tab to view a list of **KMIP Objects**. This will include the newly created keys. For example:



3. Select one of the keys to display its **KMIP Object Details**. For example:



4. Select the **Custom Attributes** tab to make sure it is the key used by VMware vSphere.

KMIP Object Details

1 of 1

KMIP Attributes	Custom Attributes	KMIP Identifiers
x-CommVaultCommCell		
x-CommVaultCommCellGUID		
x-CommVaultStoragePolicy	My Disk Storage	
x-CommVaultStoragePolicyCopy	My Disk Storage_Primary	
x-CommVaultStoragePolicyCopyIdStr	2	
x-FirstRetrieveTimestampStr	1695657138	
x-LastRetrieveTimestampStr	1695657138	

Close

5. In the main screen, select the **Audit Logs** tab to view the log records related to the key creation process. For example:

The screenshot shows the Entrust KeyControl interface. The top navigation bar includes the Entrust logo, 'KeyControl Vault for KMIP', and 'CommVault' with settings, user, and help icons. Below the navigation is a breadcrumb trail: Home > Audit Logs. The main content area is titled 'Audit Logs' and features a 'Filter' input field and a 'Download' button. A table displays the following log entries:

Time	Type	User	Message
Sep 25, 2023, 11:52:20 AM	Information	commvault	KMIP Response - Operation: Create, Object: SymmetricKey, UUID: 834c2580-e8c3-437e-948c-96ca0915a210, Result: ...
Sep 25, 2023, 11:35:52 AM	Information	[Redacted]	KMIP Response - Operation: Create, Object: SymmetricKey, UUID: [Redacted], Result: Success, logged in successfully.
Sep 25, 2023, 11:24:02 AM	Information	[Redacted]	[Redacted] from KMIP Client - commvault (IP: [Redacted]), Result: Success, logged in successfully.
Sep 25, 2023, 10:59:50 AM	Information	[Redacted]	[Redacted] created
Sep 25, 2023, 10:57:57 AM	Information	[Redacted]	User [Redacted] logged in successfully.
Sep 25, 2023, 10:57:44 AM	Information	[Redacted]	Successfully updated password for user: [Redacted]