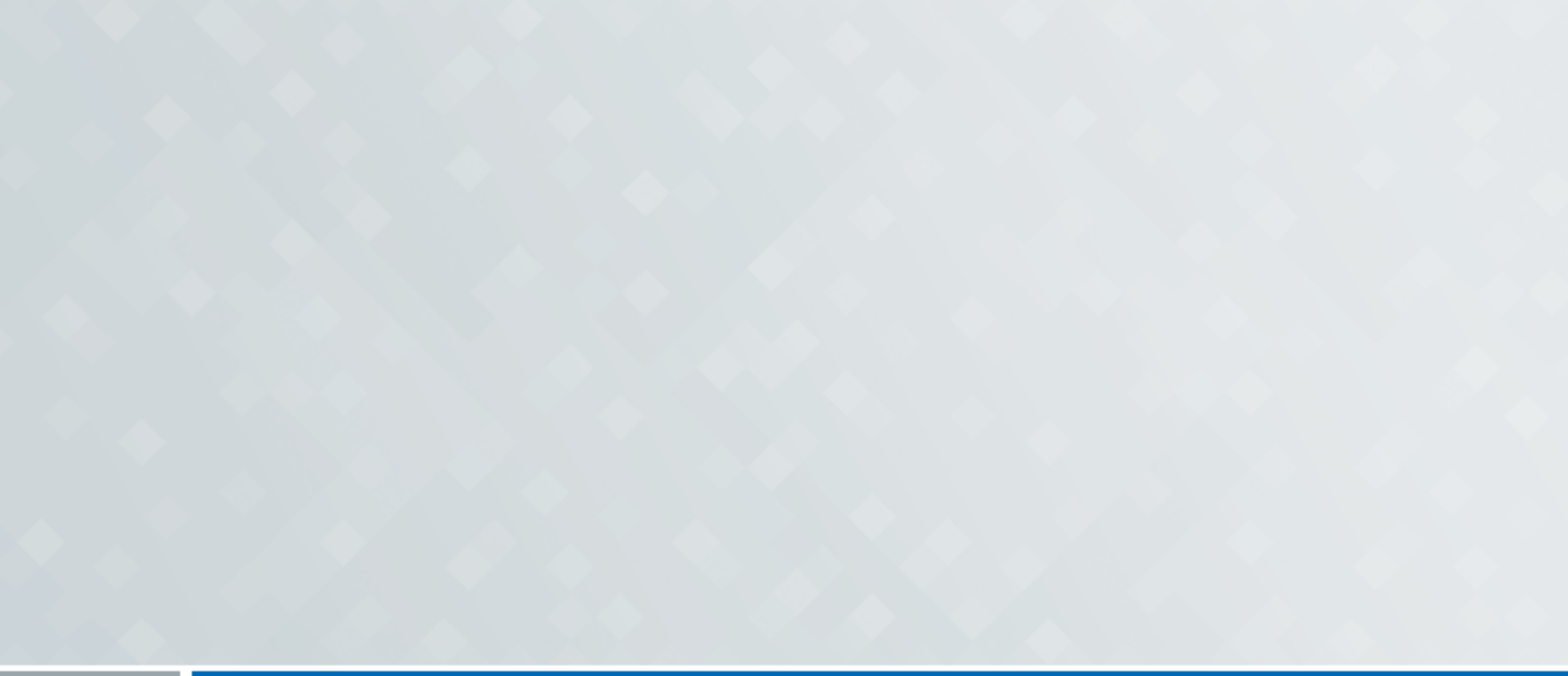




Microsoft
Azure BYOK

Integration Guide

ESKM

8.54.7

The logo for utimaco, featuring the word "utimaco" in a bold, black, sans-serif font. A small blue diamond is positioned above the letter 'i'. A registered trademark symbol (®) is located to the upper right of the word.

Imprint

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1 Introduction

The Azure Bring Your Own Key (BYOK) and Utimaco Enterprise Secure Key Manager (ESKM) integration enables customers to generate and manage encryption keys outside Microsoft Azure and securely import them into Azure Key Vault. This integration helps maintain customer control over encryption keys while using Azure services for data protection.

1.1 About This Guide

This document provides information on integrating Azure Bring Your Own Key (BYOK) with Utimaco Enterprise Secure Key Manager (ESKM). It explains the key concepts, prerequisites, and configuration steps required to manage encryption keys outside Azure using ESKM and securely import them into Azure Key Vault for use with Azure services.

1.2 Target Audience

This document is intended for Utimaco ESKM and Azure BYOK administrators.

1.3 Purpose of the Integration

The purpose of the Azure-BYOK and Utimaco ESKM integration is to enable customers to generate and manage encryption keys outside Microsoft Azure while securely using those keys with Azure Key Vault. This integration helps customers retain control over key ownership and lifecycle management while meeting security and compliance requirements for protecting data in Azure.

1.4 Abbreviations

Abbreviation	Meaning
HSM	Hardware Security Module
Azure	Microsoft Azure
BYOK	Bring Your Own Key

Abbreviation	Meaning
ESKM	Enterprise Secure Key Manager
Key Vault	Azure Key Vault
API	Application Programming Interface
CMK	Customer-Manager-Key

Table 1: Abbreviations

1.5 Document Conventions

The following conventions are used in this guide:

Convention	Use	Example
Bold	Items of the Graphical User Interface (GUI), e.g., menu options	Select Details and click on Properties button
<code>Monospaced</code>	Code that is given for explanation or as an example, file paths	<code>certreq.exe -new request.inf IISCertRequest.csr</code>
<i>Italic</i>	References and important terms	Operating system listed in <i>Tested Versions</i>

Table 2: Document conventions

We use special icons to highlight the most important notes and information.



Here you will find important safety information that should be followed.



Here you will find additional notes or supplementary information.



This message marks the result expected after the successful execution of an instruction.

2 Product Overview

2.1 Overview of Azure-BYOK

Azure Bring Your Own Key (BYOK) is a capability of Azure Key Vault that allows customers to use encryption keys generated and managed outside Microsoft Azure. Using BYOK, customers can import externally created keys into Azure Key Vault and use them for encrypting Azure resources while retaining ownership and control of the key material.

2.2 Overview of Utimaco ESKM

Utimaco Enterprise Secure Key Manager (ESKM) is a centralized key management solution used to generate, store, and manage encryption keys in the customer environment. It provides secure control over key lifecycle operations such as key creation, usage, rotation, and deletion, helping organizations maintain strong security governance and compliance.

2.3 Joint Value Proposition

The Azure BYOK and Utimaco ESKM integration enables organizations to keep full ownership and control of encryption keys while protecting data in Azure. By managing keys in ESKM outside Azure, customers strengthen security governance and meet compliance requirements, while still using Azure Key Vault for cloud encryption operations.

3 Integration Requirements and Prerequisites

3.1 Tested Versions

Azure Version	Utimaco ESKM
Azure BYOK	ESKM 8.54.7

Table 3: Tested versions

3.2 Supported Platforms

- Utimaco ESKM hardware appliance.
- Utimaco ESKM virtual/cloud appliance.

3.3 Prerequisites

- ESKM version must be ESKM 8.54.7 or higher.
- ESKM must have internet connectivity.
- If ESKM has direct internet access without a proxy, a DNS server must be configured on the ESKM appliance. This can be configured from the ESKM Management Console (**Device > Network > Hostname & DNS**).
- Microsoft Azure Key Vault, Client ID, Tenant ID and Secret ID are required to integrate Utimaco ESKM keys with Microsoft Azure Cloud Service Provider. Ensure that the Key Vault and its credentials are created in Microsoft Azure portal and keep them readily available.

4 Installation and Configuration

4.1 Setting Up ESKM

Cloud Integration Web Console can be accessed using the following methods:

- Log in to the **ESKM Management Console** as an administrator and navigate to **Security > Cloud Integration** to access the Cloud Integration Web Console.

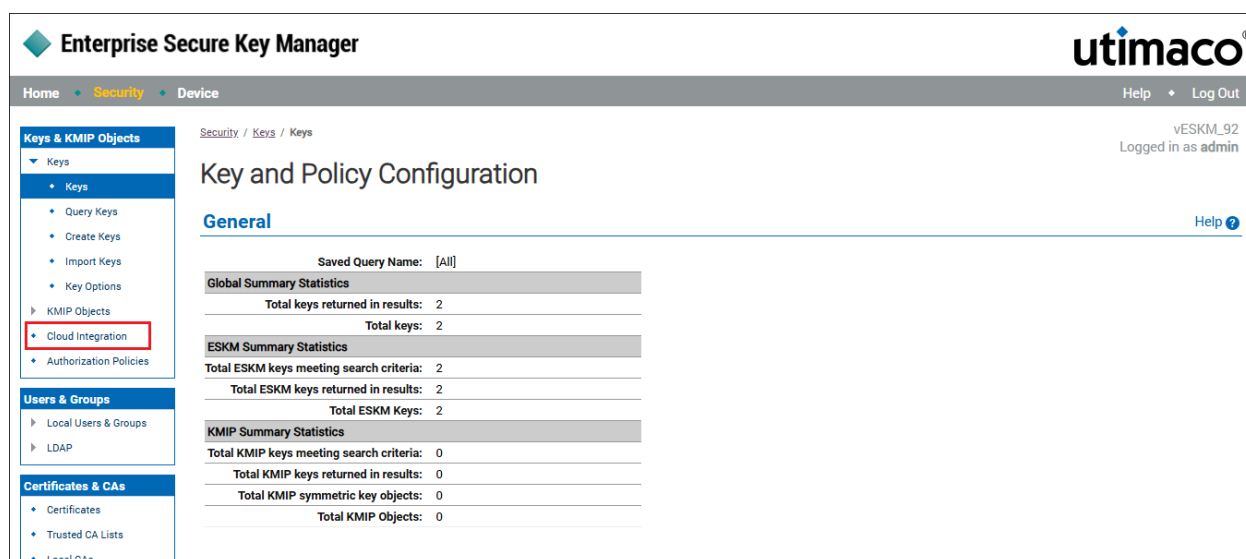


Figure 1 : Cloud integration

- The **Cloud Integration Web Console** is opened in a new browser window and auto logged in to the cloud ESKM.

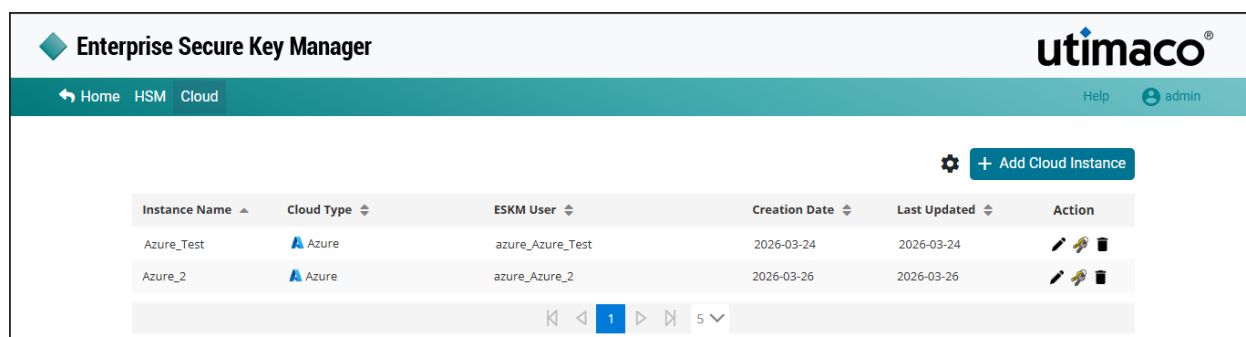


Figure 2 : Cloud integration dashboard

- Directly access through a web browser: using IP and port; for example, `https://<ESKM IP>:8443/cloud/dashboard`.
- The following screen appears.

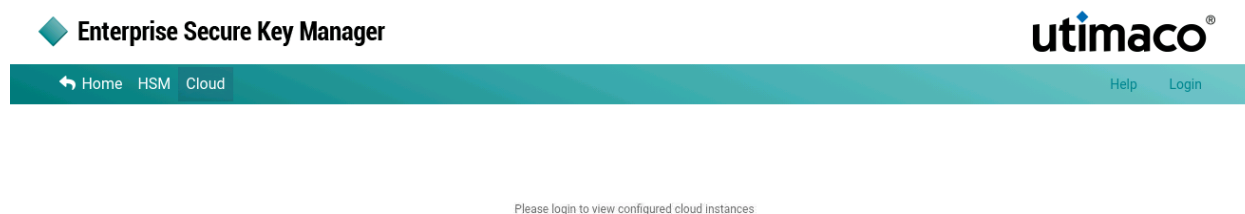


Figure 3 : Cloud integration login

- Click **Login** at the top right corner of the page.

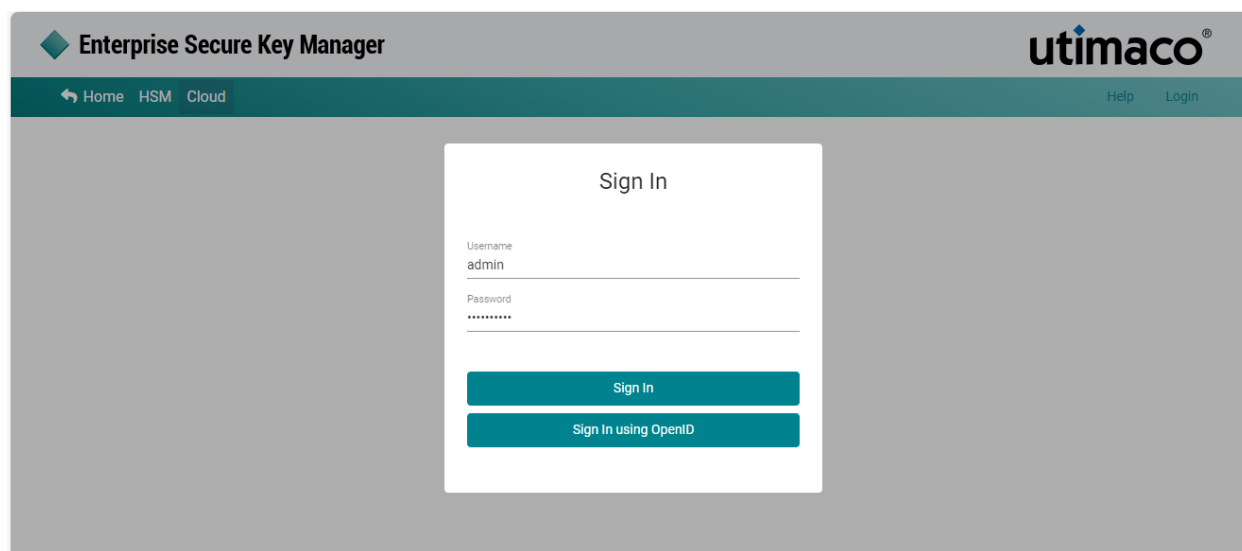


Figure 4 : Cloud integration sign in

- Enter the **Administrator Username** and **Password**, and then click **Sign In**.

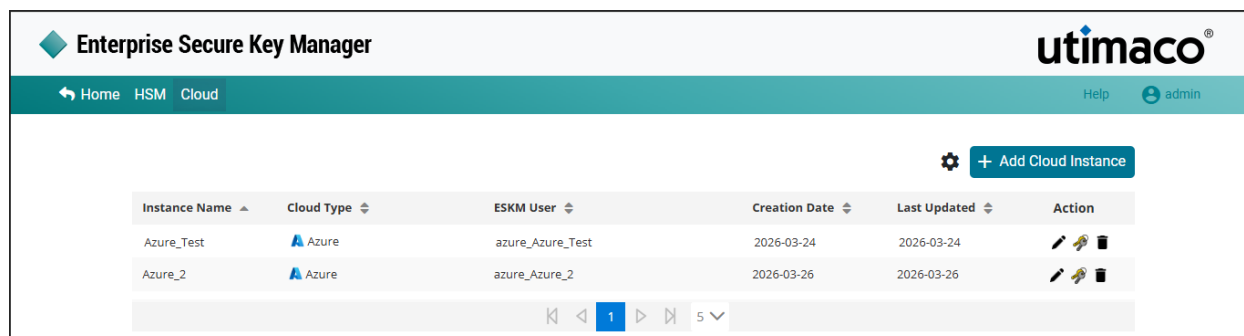


Figure 5 : Cloud ESKM logged in page

- Cloud integration dashboard enables the user to add cloud instance and view information about the existing instances.

Sign in using OpenID

To log in to the cloud integration dashboard as OpenID administrator, the OpenID server must be configured in ESKM and OpenID administrator accounts must be created in ESKM. OpenID administrators are users managed by an OpenID provider.



For more information on the OpenID configuration, please refer to *ESKM_User_Guide_8.54.7*.

To sign in using OpenID

- In the login page, enter **User Name** and **Password** and click on **Sign In using OpenID**. (OR) Click **Sign In using OpenID** without user credentials.

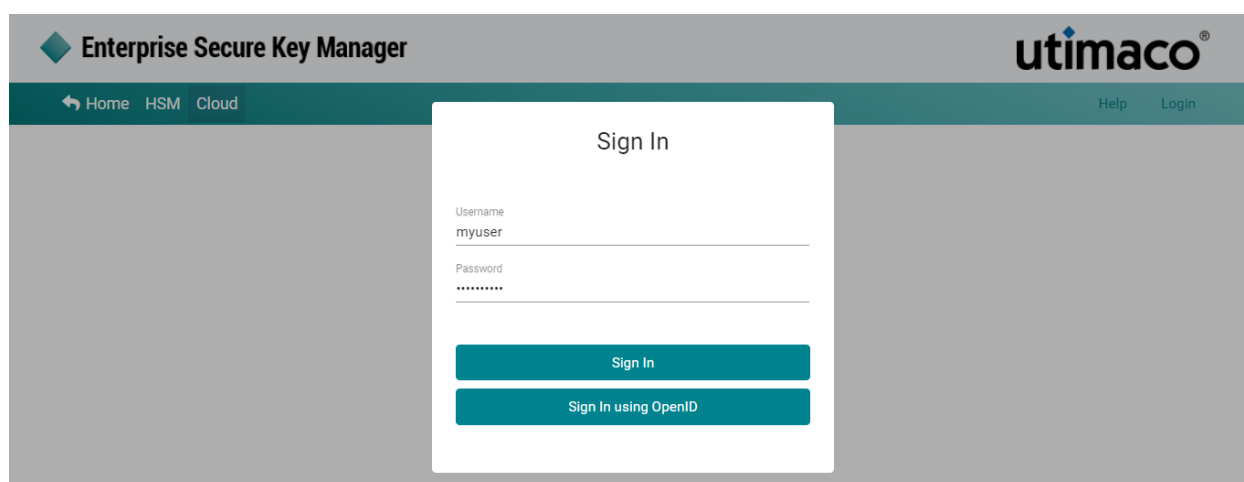


Figure 6 : Sign in using OpenID

- Enter **User Name** and **Password**. Click **Sign In** or **Sign In using OpenID**.
- The **Cloud Integration Dashboard** is displayed.
- Log out of the **Cloud Integration Web Console** at any time using the **Logout** link in the upper right corner.

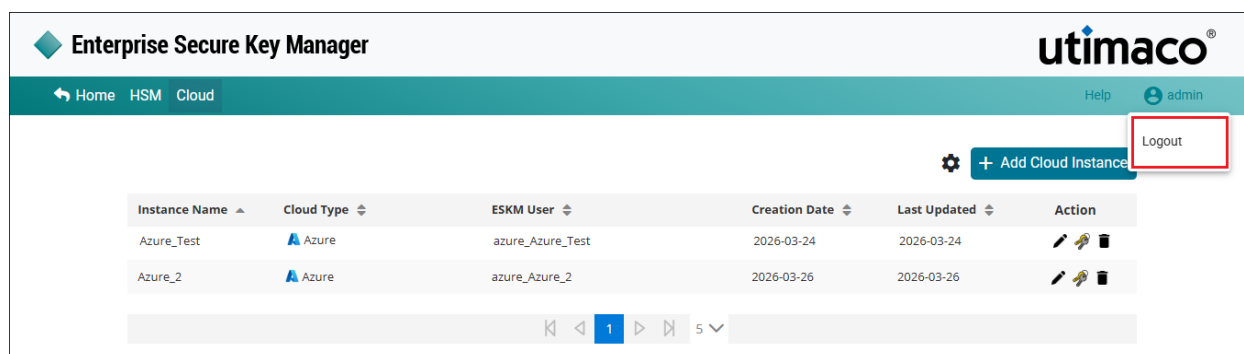


Figure 7 : Logout

- When you **Signed In with Open ID Cloud Integration Web Console**, the **Logout** pop-up window is displayed. Click **Logout**.
- In the Cloud Integration dashboard, click the **Left** arrow at the left upper corner of the page to navigate to the ESKM application.

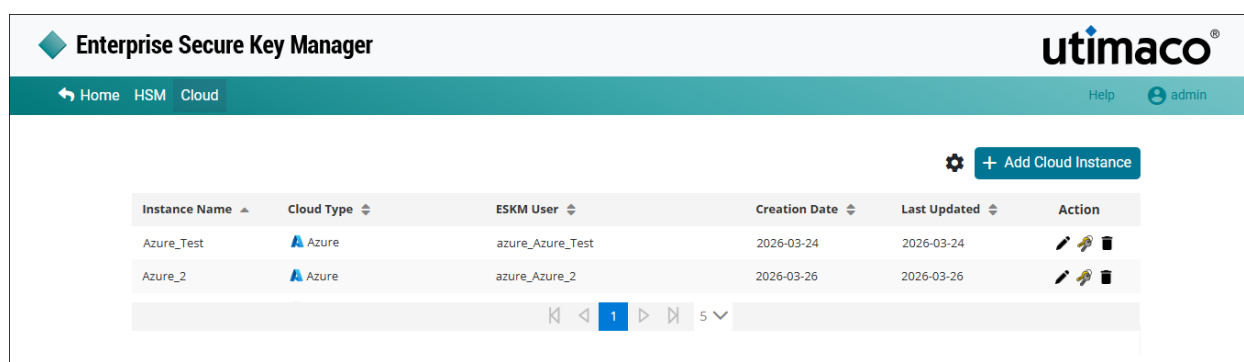


Figure 8 : Cloud integration dashboard

4.2 Cloud Settings

The ESKM BYOK service is enabled by default and therefore not displayed in the UI. To access external services, ESKM requires internet connectivity. In environments where direct internet access is restricted, a proxy server can be configured to provide the required connectivity.

To configure the proxy server in ESKM, enable the Proxy Server option, enter the proxy server address and port number, and then click **Update** to apply the changes.

This section describes the procedure to configure ESKM cloud settings.

To configure cloud settings

- Click the **Settings** icon on the **Cloud** dashboard.

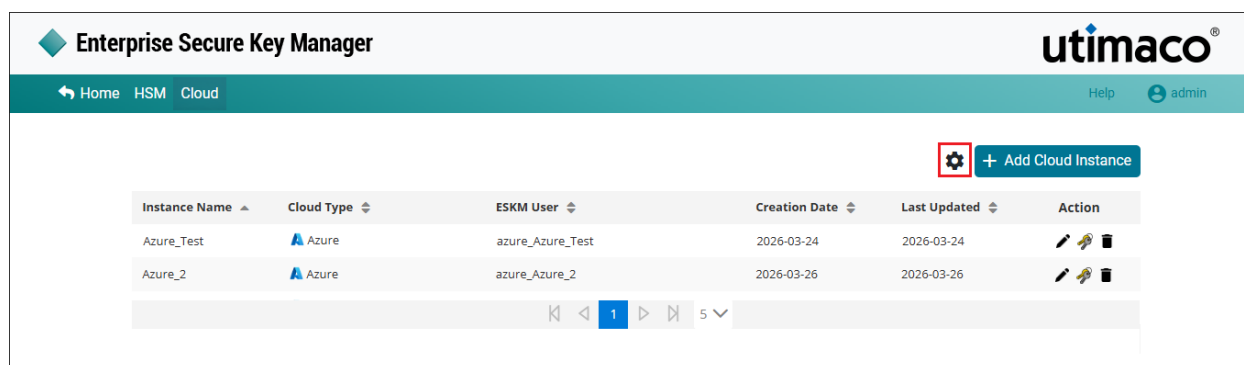


Figure 9 : Cloud settings

- The **Settings** pop-up window will appear.

Settings

REST Certificate CN (used for key URI)

eskm.cloud

Google KMS Service ☐ DISABLED

AWS XKS Service ☐ DISABLED

Microsoft DKE Service ☐ DISABLED

Proxy Server ☒ ENABLED

Address Port

10.222.51.120 8080

Update Cancel

Figure 10 : Update settings

- Enable the **Proxy Server**, enter the proxy **Address** and **Port**, and then click **Update**.

4.3 Setting Up Azure-BYOK

- Go to [Microsoft Azure](#).
- Sign in using your **Microsoft (Azure AD) administrator account**.
- In the Azure portal, search for **Key Vaults**.
- Click **Create**.

For more information on setting up Azure-BYOK, refer to [Create an Azure Key Vault with the Azure portal](#).

5 Integration Steps

5.1 Configuration on Azure-BYOK

The Microsoft Azure BYOK helps the user to use the ESKM to generate keys and import them into Microsoft Azure Key Vault. It allows the user to encrypt various kinds of keys, secrets and certificates. Before uploading a keys from Utimaco ESKM to the cloud, make sure that the key vault and its credentials are created in the Microsoft Azure portal. Following are the steps to be followed to create the Microsoft Azure Key Vault and authorize Utimaco ESKM to upload the keys to the Microsoft Azure Key Vault.

- [Create a Key Vault](#)
- [Register an Application](#)
- [Create a Secret Key](#)
- [Access Policy](#)

5.1.1 Create a Key Vault

Microsoft Azure Key Vault is a managed secret solution within the Microsoft Azure Cloud that offers authentication and authorization for ESKM keys in the Microsoft Azure Key Vault for BYOK protection. Follow the instructions below to create a Key Vault.

To create a key vault:

- Sign in to the Microsoft Azure portal at [Microsoft Azure](#).
- In the Microsoft Azure portal **Home** page, select **Create a resource** on the left.
- In the search box, enter **Key Vault** and select **Key Vault**.
- In the **Key Vault** section, choose **Create**.

[Home](#) > [Key vaults](#) >

Create a key vault

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription *

Resource group *

[Create new](#)

Instance details

Key vault name * ⓘ

Region *

Pricing tier * ⓘ

Recovery options

Soft delete protection will automatically be enabled on this key vault. This feature allows you to recover or permanently delete a key vault and secrets for the duration of the retention period. This protection applies to the key vault and the secrets stored within the key vault.

Key vault name * ⓘ

Region *

Pricing tier * ⓘ

Recovery options

Soft delete protection will automatically be enabled on this key vault. This feature allows you to recover or permanently delete a key vault and secrets for the duration of the retention period. This protection applies to the key vault and the secrets stored within the key vault.

To enforce a mandatory retention period and prevent the permanent deletion of key vaults or secrets prior to the retention period elapsing, you can turn on purge protection. When purge protection is enabled, secrets cannot be purged by users or by Microsoft.

Soft-delete ⓘ Enabled

Days to retain deleted vaults * ⓘ

Purge protection ⓘ

- ☒ Disable purge protection (allow key vault and objects to be purged during retention period)
- ☐ Enable purge protection (enforce a mandatory retention period for deleted vaults and vault objects)

[Previous](#)[Next](#)[Review + create](#)

Figure 11 : Go to create a Key Vault

- In the **Create a key vault** section, provide the necessary information and click **Review + Create**.

[Home](#) > [Key vaults](#) >

Create a key vault

[Basics](#) [Access policy](#) [Networking](#) [Tags](#) [Review + create](#)[View Automation Template](#)

Basics

Subscription	Azure subscription 1
Resource group	byok
Key vault name	ESKMBYOK
Region	East US
Pricing tier	Standard
Soft-delete	Enabled
Purge protection during retention period	Disabled
Days to retain deleted vaults	7 days

Access policy

Azure Virtual Machines for deployment	Disabled
Azure Resource Manager for template deployment	Disabled
Azure Disk Encryption for volumes	Disabled

[Previous](#)[Next](#)[Create](#)

Figure 12 : Review and Create

- Review the information provided and click **Create**.

[Home](#) > **ESKMBYOK | Overview** [Deployment](#)

[Delete](#) [Cancel](#) [Redeploy](#) [Download](#) [Refresh](#)

[Overview](#) [Inputs](#) [Outputs](#) [Template](#)

We'd love your feedback! →

✓ Your deployment is complete

 Deployment name: ESKMBYOK
Subscription: Azure subscription 1
Resource group: byok

Start time: 9/12/2022, 1:31:42 PM
Correlation ID: 74s99fab-4cee-4036-995b-b92c9b79e176 

Deployment details

Next steps

[Go to resource](#)

Figure 13 : Deployment is complete

5.1.2 Register an Application

After logging into the Microsoft Azure Portal, navigate to Microsoft Azure AD and **App registrations**. Click on **New Registration** to start the process of creating the application and you will be presented with a few options to be filled out based on how the application works.

Home > App registrations >

Register an application

* Name

The user-facing display name for this application (this can be changed later).

eskm_byok_app

Supported account types

Who can use this application or access this API?

- ☒ Accounts in this organizational directory only (Default Directory only - Single tenant)
- ☐ Accounts in any organizational directory (Any Azure AD directory - Multitenant)
- ☐ Accounts in any organizational directory (Any Azure AD directory - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)
- ☐ Personal Microsoft accounts only

[Help me choose...](#)

Redirect URI (optional)

We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios.

By proceeding, you agree to the [Microsoft Platform Policies](#)

Register

Figure 14 : Register an application

Click **Register**. Your application has been created successfully and you can see the details.

Home > App registrations >

eskm_byok_app

Search (Ctrl+/)

Overview Quickstart Integration assistant Manage Branding & properties Authentication

Delete Endpoints Preview features

Essentials

Display name	: eskm_byok_app	Client credentials	: 0 certificate, 1 secret
Application (client) ID	: [redacted]	Redirect URIs	: Add a Redirect URI
Object ID	: [redacted]	Application ID URI	: Add an Application ID URI
Directory (tenant) ID	: [redacted]	Managed application in L...	: eskm_byok_app
Supported account types	: My organization only		

Figure 15 : Application created

When the application is created, the Tenant ID(Directory ID) and Client ID(Application ID) are generated.



Once the application is registered, copy the Tenant ID and Client ID to configure the Utimaco ESKM with Microsoft Azure Key Vault.

5.1.3 Create a Secret Key

In the application page, go to **Certificate & secrets** as seen in the screenshot below.

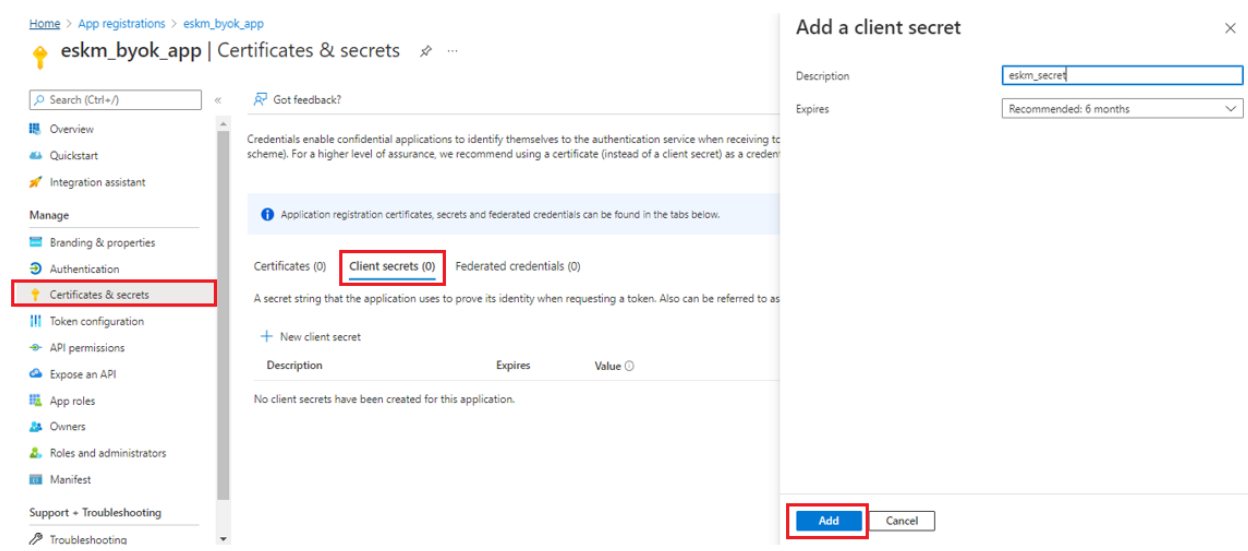


Figure 16 : Add a client secret

Enter the required information and click **Add**.

Home > App registrations > eskm_byok_app

eskm_byok_app | Certificates & secrets

Search (Ctrl+/) << Got feedback?

Overview
Quickstart
Integration assistant
Manage
Branding & properties
Authentication
Certificates & secrets
Token configuration
API permissions
Expose an API
App roles
Owners
Roles and administrators
Manifest

Got a second to give us some feedback? →

Credentials enable confidential applications to identify themselves to the authentication service when receiving tokens at a web addressable location (using an HTTPS scheme). For a higher level of assurance, we recommend using a certificate (instead of a client secret) as a credential.

Application registration certificates, secrets and federated credentials can be found in the tabs below.

Certificates (0) Client secrets (1) Federated credentials (0)

A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.

+ New client secret

Description	Expires	Value	Secret ID
eskm_secret	3/12/2023	3zL8Q~ujMqIOyWATZ3WQ8OYNorYX-1...	fedb738e-2095-4043-a4a1-dcee14e3036c

Figure 17 : Secret ID



Secret ID created successfully.



Before leaving the page, ensure that the Secret ID has been copied and saved. After leaving the page, the Secret ID is no longer accessible.

5.1.4 Access Policy

A Key Vault access policy allows a security principal, such as a user, application, or user group, to perform various operations on Key Vault secrets, keys, and certificates. User can assign access policies using Microsoft Azure portal.

- In the **Microsoft Azure Portal**, Navigate to the **Key Vault Resource**.
- Under **Settings**, select **Access Configuration > Access Policies > Create**.

[Home](#) > [Key vaults](#) > [ESKMBYOK | Access policies](#) >

Create an access policy ...

ESKMBYOK

1 Permissions 2 Principal 3 Application (optional) 4 Review + create

Configure from a template

Key, Secret, & Certificate Management ▾

Key permissions

Key Management Operations

☒ Select all☒ Get☒ List☒ Update☒ Create☒ Import☒ Delete☒ Recover☒ Backup

Secret permissions

Secret Management Operations

☒ Select all☒ Get☒ List☒ Set☒ Delete☒ Recover☒ Backup☒ Restore

Certificate permissions

Certificate Management Operations

☒ Select all☒ Get☒ List☒ Update☒ Create☒ Import☒ Delete☒ Recover☒ Backup[Previous](#)[Next](#)

Figure 18 : Create an access policy

Select the permissions you want under **Certificate permissions**, **Key permissions**, and **Secret permissions**. You can also select the template from the drop-down that contains common permissions. Click **Next**.

Under the **Principal** tab, search for the user from the Active Directory to provide access to the key vault as a Manager. Click **Next**.

[Home](#) > [Key vaults](#) > [ESKM BYOK | Access policies](#) >

Create an access policy ...

ESKM BYOK

✓ Permissions **2 Principal** ③ Application (optional) ④ Review + create

Only 1 principal can be assigned per access policy.

Use the new embedded experience to select a principal. The previous popup experience can be accessed here. [Select a principal](#)



eskm_byok_app

33b70e02-3e7b-4231-9272-e1827d987782

Selected item



eskm_byok_app

33b70e02-3e7b-4231-9272-e1827d987782

Figure 19 : Principal

Under **Application (optional)** tab, search for and select the name of the app to provide the access at the application level grants. With your application identity, you can let your application connect to the vault. Click **Next**.

You will be navigated to the **Review Summary** and click **Create**.

[Home](#) > [Key vaults](#) > [ESKMBYOK | Access policies](#) >

Create an access policy ...

ESKMBYOK

✓ Permissions ✓ Principal ✓ Application (optional) **4** Review + create

Key Permissions

Key Management Operations	All selected
Cryptographic Operations	None selected
Privileged Key Operations	None selected
Rotation Policy Operations	All selected

Secret Permissions

Secret Management Operations	All selected
Privileged Secret Operations	None selected

Certificate Permissions

Certificate Management Operations	All selected
Privileged Certificate Operations	None selected

Principal

[Previous](#)[Create](#)

Figure 20 : Review and create

5.2 Configuration on Utimaco ESKM

5.2.1 Adding a New Cloud Instance

This section describes the procedure of adding a new cloud instance.

To add a new cloud instance

- Log in to the Cloud Integration Web Console using any one of the methods described in the *Accessing the Cloud Integration Web Console* chapter of *ESKM_Installation and Replacement_Guide_8.54.0*.
- Click on the “+ Add Cloud Instance” button in the top right corner of the page.

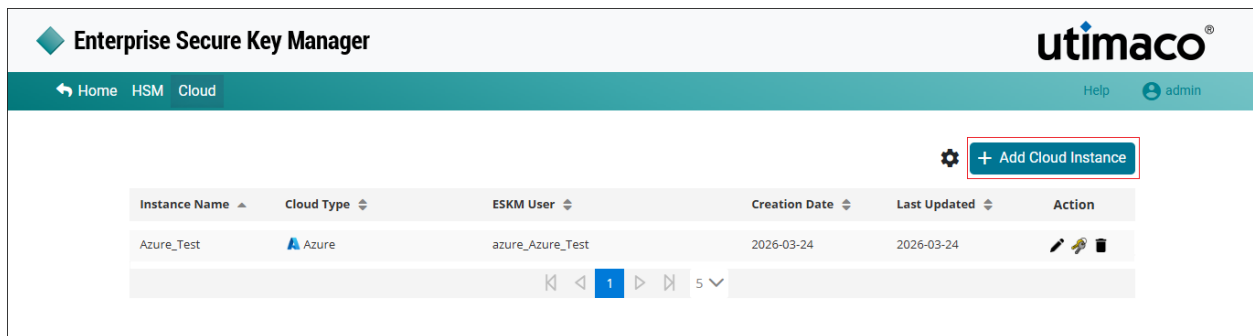


Figure 21 : Add new cloud instance

- The Add Cloud Instance pop-up window will appear.

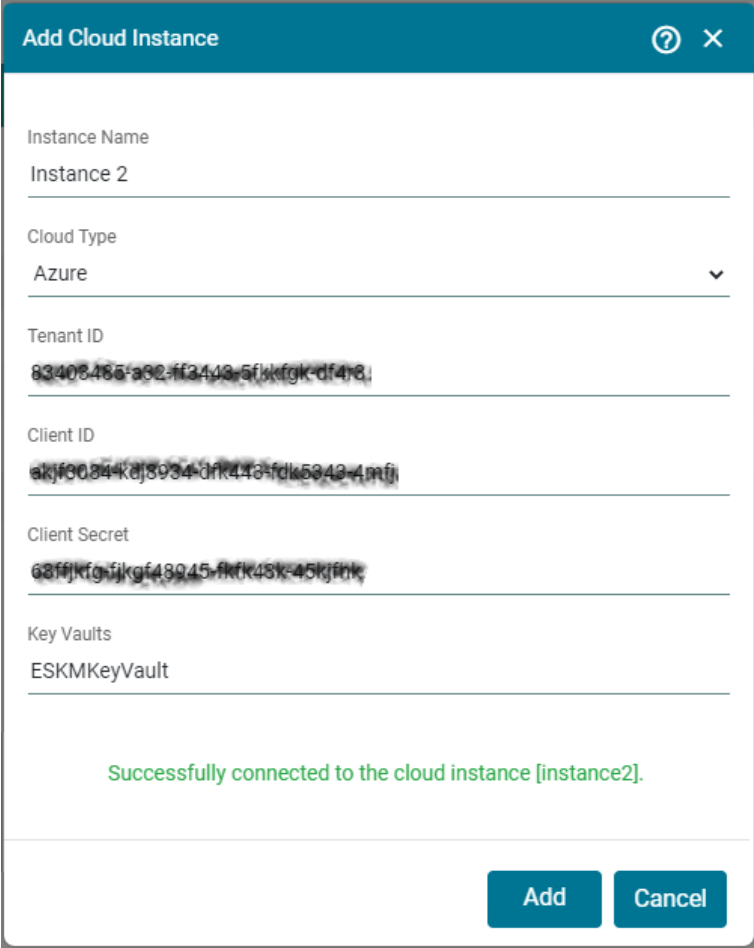
The 'Add Cloud Instance' pop-up window is shown. It has a title bar with a question mark and a close button. The form contains the following fields:

- Instance Name: Instance 2
- Cloud Type: Azure (dropdown menu)
- Tenant ID: 83405485-a02-ff3448-5f8f8f8f-df4e
- Client ID: a1f2e084-4039-84-d1e493-fek6943-4mfr
- Client Secret: 68fjkfg-fk-gf49045-RfK43k-45kfk
- Key Vaults: ESKMKeyVault

At the bottom right, there are two buttons: 'Verify' and 'Cancel'.

Figure 22 : Verify cloud instance

- Enter the **Instance Name** and select **Cloud Type**. On selection of cloud type, respective configuration fields will be loaded. In case of Microsoft Azure cloud type, enter values for **Tenant ID**, **Client ID**, **Client Secret** and **Key Vaults**. Click **Verify**.



The screenshot shows a dialog box titled "Add Cloud Instance" with a close button (X) and a help icon (?). The form contains the following fields:

- Instance Name:** Instance 2
- Cloud Type:** Azure (selected from a dropdown menu)
- Tenant ID:** 83408465-a32-ff3443-5f1x-f0k-df418
- Client ID:** a1f0034-kaj3934-drk413-fdl5342-4mfj
- Client Secret:** 63ffjkgfjkgf43945-fkfk48k-45kjk
- Key Vaults:** ESKMKeyVault

Below the fields, a green message states: "Successfully connected to the cloud instance [instance2]."

At the bottom right, there are two buttons: "Add" and "Cancel".

Figure 23 : Azure cloud instance



When an instance is verified without an internet connection, the error message "Invalid key vault name or failed to connect with the cloud instance" is displayed.

Components	Description
Instance Name	Instance Name is a Key Vault identifier created in Microsoft Azure Key Vault.

Components	Description
Cloud Type	The cloud provider with which ESKM is integrated. Here select the Cloud Type as Azure.
Tenant ID	Tenant ID is generated when Application is created in Microsoft Azure Key Vault. Copy the Tenant ID to configure the ESKM with Microsoft Azure Key Vault.
Client ID	Client ID is generated when Application is created in Microsoft Azure Key Vault. Copy the Client ID to configure the ESKM with Microsoft Azure Key Vault.
Client Secret	Secret value is generated when Client Secret is created in Microsoft Azure Key Vault. This key cannot be viewed once user exits from the page. Copy the secret value to configure the ESKM with Microsoft Azure Key Vault.
Key Vaults	Key Vault Name created in Microsoft Azure.

Table 4: Add Cloud Instance - parameters



Cloud Instance inst2 [Azure] created successfully.

5.2.2 Editing a Cloud Instance

- Under **Action** column, click the **Edit** icon to edit the existing cloud instances.

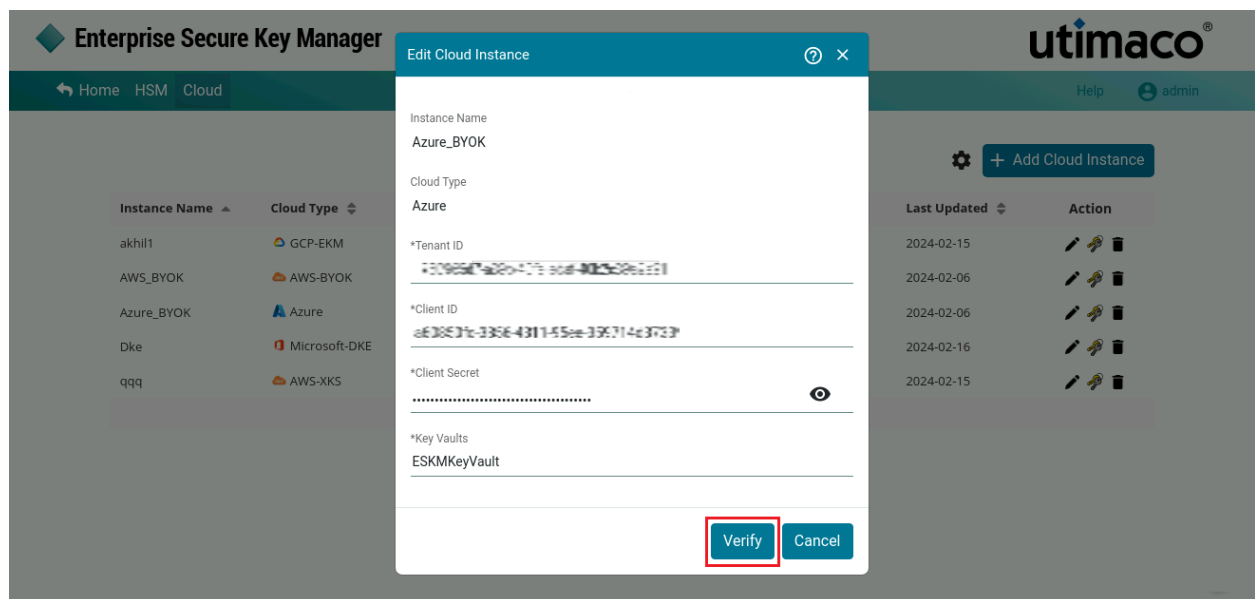


Figure 24 : Verify cloud instance

- The **Edit Cloud Instance** pop-up window will appear. Modify the existing cloud instance details if necessary and click **Verify**.

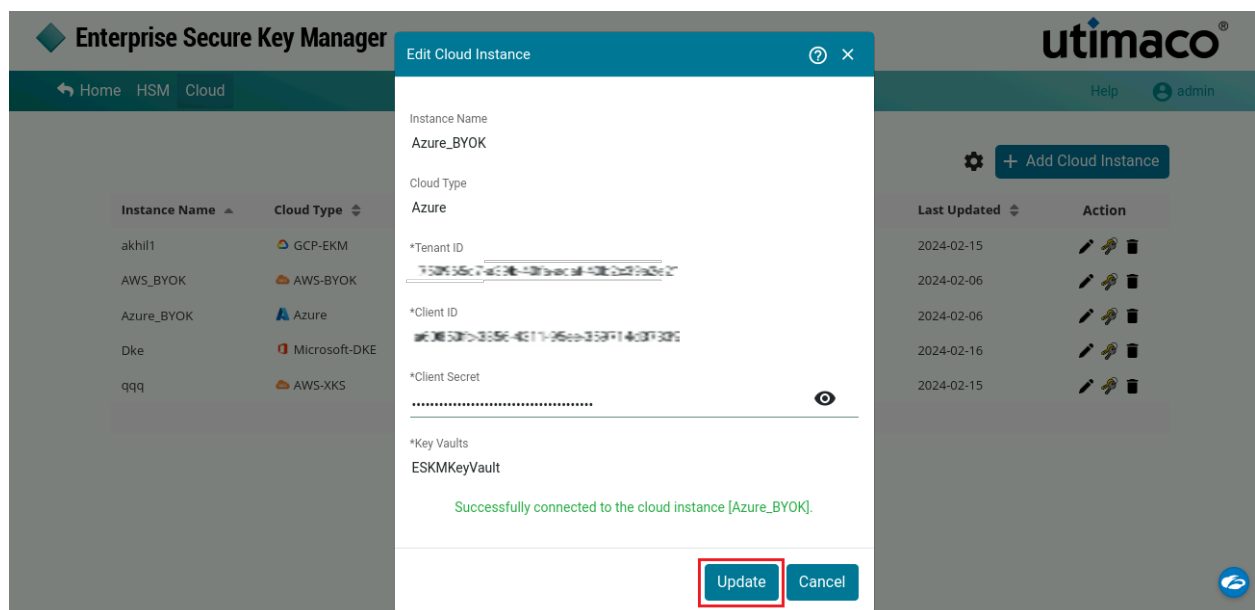


Figure 25 : Update cloud instance

- Click **Update**.



Cloud Instance Instance 2[Azure] updated successfully.



While editing an Azure-BYOK cloud instance, the **Instance** and **Cloud Type** fields cannot be modified.

5.2.3 Deleting a Cloud Instance

1. Under **Action** column, click the **Delete** icon to delete the existing cloud instance.

The screenshot shows the 'Enterprise Secure Key Manager' interface with the 'Cloud' tab selected. A table lists cloud instances. The first instance is 'Azure_Test' with 'Azure' as the cloud type. The 'Action' column for this instance shows three icons: a pencil (edit), a share icon, and a trash can (delete). The trash can icon is highlighted with a red box. Above the table is a '+ Add Cloud Instance' button. Below the table is a pagination bar showing '1' of 5 items.

Instance Name	Cloud Type	ESKM User	Creation Date	Last Updated	Action
Azure_Test	Azure	azure_Azure_Test	2026-03-24	2026-03-24	[Edit] [Share] [Delete]

Figure 26 : Delete cloud instance

2. The **Delete Cloud Instance** pop-up window will be displayed with a message reading "Are you sure you want to delete instance <instance name>?". Click **Delete**.



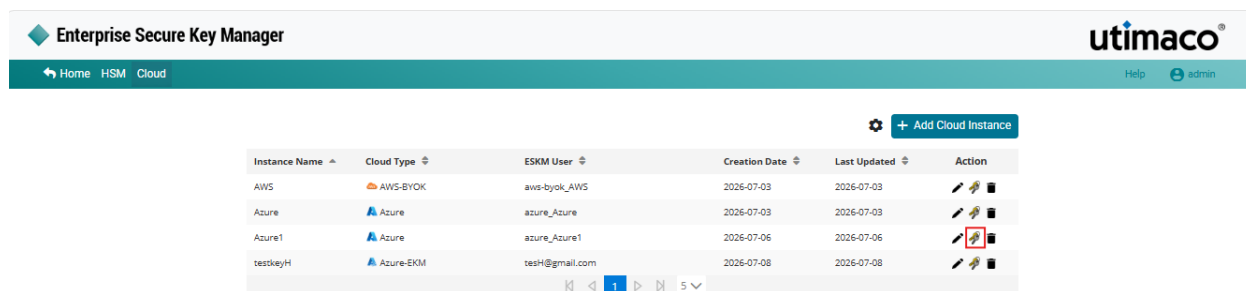
Cloud Instance instance name[Azure] deleted successfully.



Cannot delete Cloud Instance Azure_Test [Azure] as keys are already associated with it.

5.2.4 Key Dashboard

- Click the **Manage Keys** icon to view the keys list available in the cloud instance.

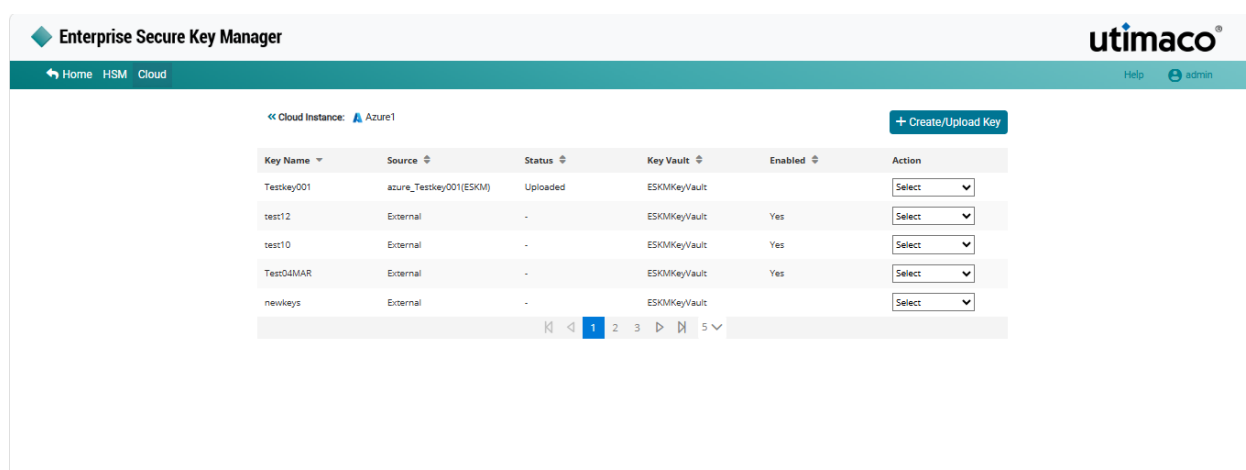


The screenshot shows the 'Enterprise Secure Key Manager' dashboard. The header includes the utimaco logo and navigation links for Home, HSM, and Cloud. A table lists cloud instances with columns for Instance Name, Cloud Type, ESKM User, Creation Date, Last Updated, and Action. A '+ Add Cloud Instance' button is visible in the top right.

Instance Name	Cloud Type	ESKM User	Creation Date	Last Updated	Action
AWS	AWS-BYOK	aws-byok_AWS	2026-07-03	2026-07-03	[Edit] [Delete]
Azure	Azure	azure_Azure	2026-07-03	2026-07-03	[Edit] [Delete]
Azure1	Azure	azure_Azure1	2026-07-06	2026-07-06	[Edit] [Delete]
testkeyH	Azure-EKM	testH@gmail.com	2026-07-08	2026-07-08	[Edit] [Delete]

Figure 27 : Manage keys

- Select the key from the keys list to view a key's detailed information.



The screenshot shows the 'Enterprise Secure Key Manager' dashboard with the 'Cloud Instance' set to 'Azure1'. A table lists keys with columns for Key Name, Source, Status, Key Vault, Enabled, and Action. A '+ Create/Upload Key' button is visible in the top right.

Key Name	Source	Status	Key Vault	Enabled	Action
Testkey001	azure_Testkey001(ESKM)	Uploaded	ESKMKeyVault		Select
test12	External	-	ESKMKeyVault	Yes	Select
test10	External	-	ESKMKeyVault	Yes	Select
Test04MAR	External	-	ESKMKeyVault	Yes	Select
newkeys	External	-	ESKMKeyVault		Select

Figure 28 : Key list in the ESKM key dashboard

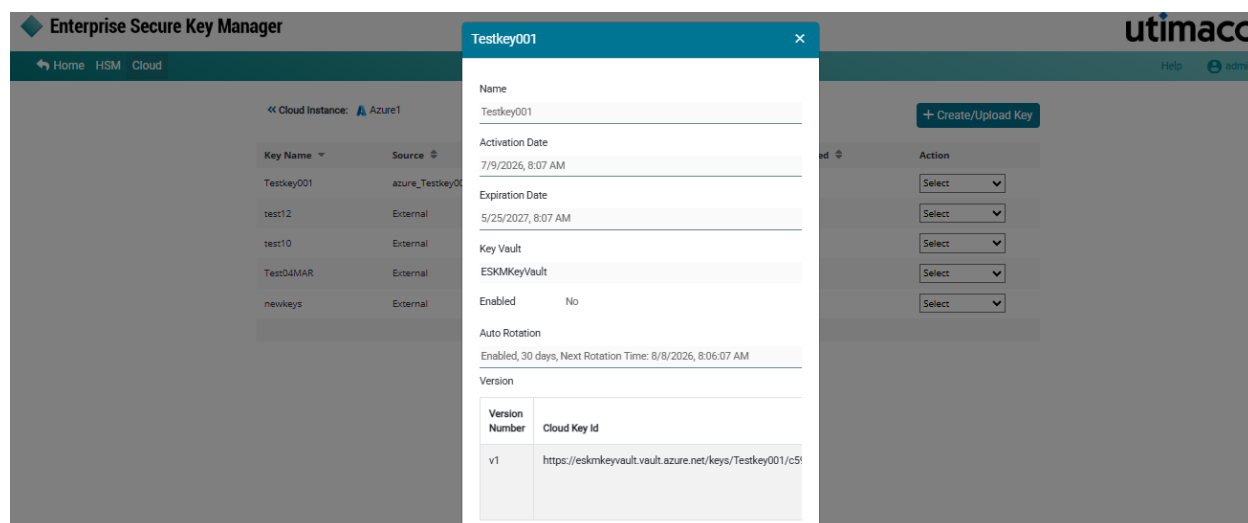


Figure 29 : Key details

Parameters	Description
Key Name	Name of the key.
Source	The key source indicates where key is generated. If the key was created in the ESKM, the format will be <i>Instance Name_Key Name(ESKM)</i> . If the key is created in the cloud, it will appear as external.
Status	Status of the key such as Uploaded or Not Uploaded.
Enabled	Displays either "Yes" if the key is enabled in Microsoft Azure Key Vault or "No" if the key is disabled.
Key Vault	Key Vault Name created in Microsoft Azure.
Action	It contains various key actions such as Edit, Delete and Upload.

Parameters	Description
Version	Displays the available key versions along with version details such as Version Number, Cloud Key Id, Rotation Type, Status, Creation Time and Uploaded Time. Versions created through Auto Rotation are displayed as AUTO, while manually created versions are displayed as MANUAL.

Table 5: Cloud instance - keys list parameters

5.2.5 Azure Cloud Integration

The Cloud Integration console provides you with two ways to integrate ESKM keys: Create a new key in ESKM and upload it to Microsoft Azure Key Vault, or upload an existing key from ESKM to Microsoft Azure Key Vault.

This section provides the information on the following topics:

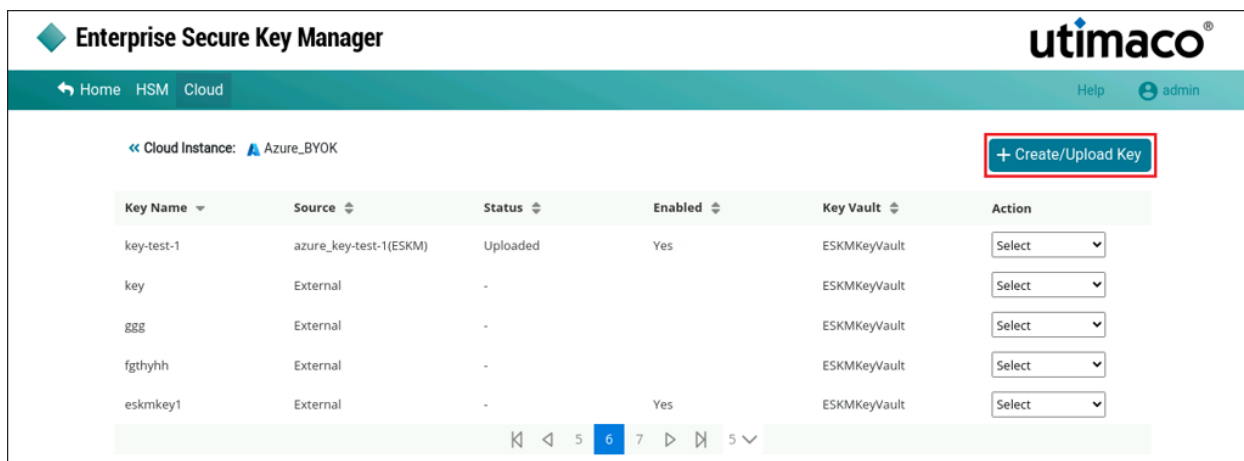
- [Creating a New Key](#)
- [Uploading an Existing Key](#)
- [Upload a Key from ESKM to Azure Cloud](#)
- [Deleting an ESKM Key](#)
- [Editing an ESKM Key](#)
- [Create a New Version](#)
- [Azure BYOK Key Rotation](#)

5.2.5.1 Creating a New Key

This section describes the procedure to create a new key to the ESKM Cloud.

To create a new key

- Click the **Manage Keys** icon to view the keys list available in the cloud instance.

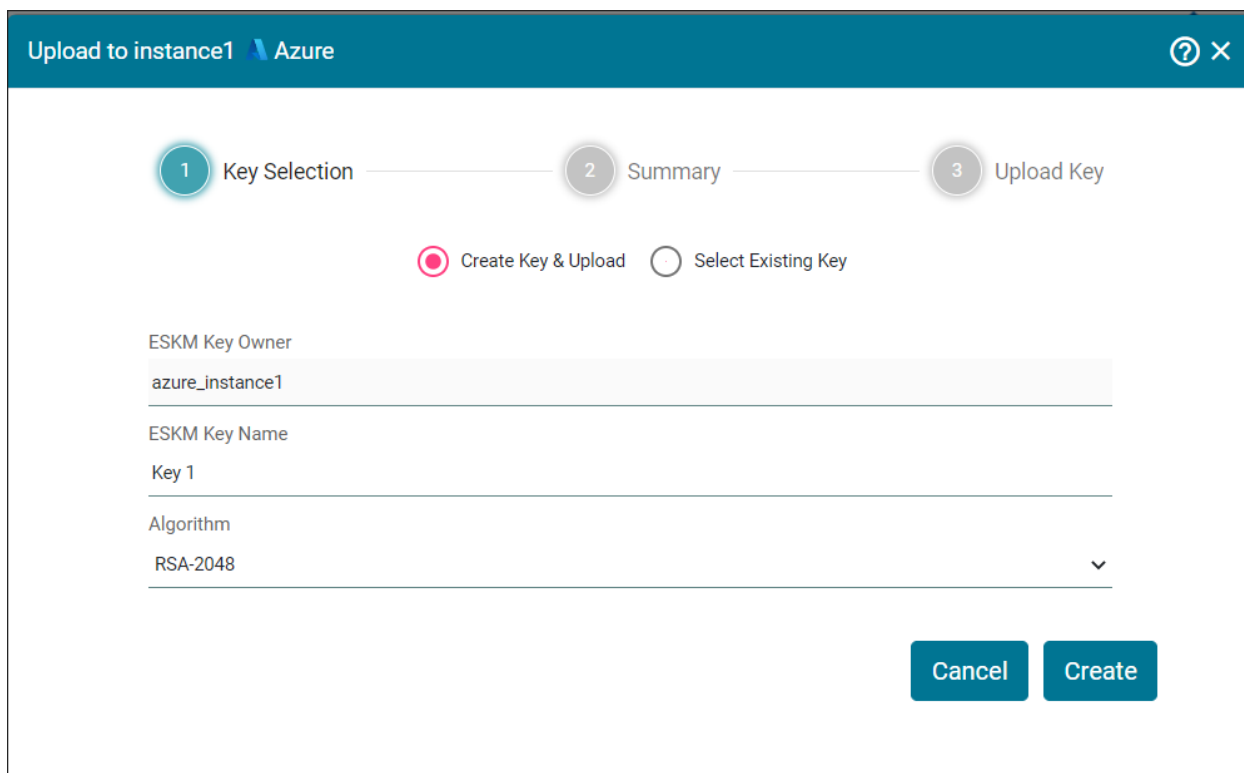


The screenshot shows the 'Enterprise Secure Key Manager' interface. At the top, there's a navigation bar with 'Home', 'HSM', and 'Cloud' tabs. The 'Cloud' tab is active, showing 'Cloud Instance: Azure_BYOK'. In the top right corner, there's a '+ Create/Upload Key' button highlighted with a red box. Below this is a table with columns: Key Name, Source, Status, Enabled, Key Vault, and Action. The table contains five rows of keys. The 'Action' column has a 'Select' dropdown for each row. At the bottom of the table, there's a pagination bar showing '5' and '6'.

Key Name	Source	Status	Enabled	Key Vault	Action
key-test-1	azure_key-test-1(ESKM)	Uploaded	Yes	ESKMKeyVault	Select
key	External	-		ESKMKeyVault	Select
ggg	External	-		ESKMKeyVault	Select
fgthyhh	External	-		ESKMKeyVault	Select
eskmkey1	External	-	Yes	ESKMKeyVault	Select

Figure 30 : Create/Upload Key

- Click the + Create/Upload Key button in the top right corner of the page.



The screenshot shows the 'Upload to instance1 Azure' dialog box. It has a progress bar with three steps: 1 Key Selection, 2 Summary, and 3 Upload Key. Below the progress bar, there are two radio buttons: 'Create Key & Upload' (selected) and 'Select Existing Key'. Below these are four input fields: 'ESKM Key Owner' (value: azure_instance1), 'ESKM Key Name' (value: Key 1), 'Algorithm' (value: RSA-2048), and a dropdown arrow. At the bottom right, there are 'Cancel' and 'Create' buttons.

Figure 31 : Key Selection



Provide a valid key name. Key names can only contain alphanumeric characters and dashes.

Parameters	Description
ESKM Key Owner	It is a key vault identifier created in Microsoft Azure key Vault.
ESKM Key Name	Name of the key.
Algorithm	Algorithm used to generate the key in ESKM.

Table 6: Key selection - parameters

- Select **Create New Key & Upload** option (selected by default) to create/upload a new key.
- Enter **ESKM Key Name** and select **Algorithm** from the drop down. Click **Create**.

Upload to instance1 Azure

Key Selection — 2 Summary — 3 Upload Key

◆ Key created successfully on ESKM

ESKM Key Name	azure_Key987654321
ESKM Key Owner	azure_instance1
Algorithm	RSA-2048

Close Next

Figure 32 : Review Summary

- Review the **Summary** and click **Next**. You will be navigated to the **Upload Key** section.

The screenshot shows the 'Upload Key' step of a three-step process. The form contains the following fields and values:

- ESKM Key Name:** azure_Key987654321
- *Cloud Key Name:** Key987654321
- Activation Date:** 06/10/2022 02:52 PM
- Activation Date Timezone:** Asia/Calcutta (+05:30)
- Expiration Date:** 10/20/2028 02:52 PM
- Expiration Date Timezone:** Asia/Calcutta (+05:30)
- *Key Vault:** ESKMKeyVault
- Enabled:** ☐
- Tags:** A table with columns 'Name' and 'Value', and a green '+' icon to add new tags.
- Auto Rotation:** ☒ Enable Auto Rotation
- Rotation Interval (Days):** 30

At the bottom right, there are two buttons: 'Upload' (highlighted in blue) and 'Cancel'.

Figure 33 : Upload Key

- Select the **Vault Key Name** (by default, its value is “select”) and fill the details such as **Key Vault**, **Enabled**, **Activation Date** and **Expiration Date**. Optionally, enable **Auto Rotation** and specify the **Rotation Interval (Days)**. Click **Upload**.

Parameters	Description
ESKM key Name	Name of the key. It combines cloud type with the ESKM key name.

Parameters	Description
Cloud Key Name	The name of the ESKM Key to be uploaded to the Microsoft Azure cloud.
Activation Date	Set the date on which the key must be activated.
Activation Date Timezone	The activation date timezone is activated based on the current time of the system.
Expiration Date	Set the expiration date by which the key must be expired.
Expiration Date Timezone	The expiration date timezone is activated based on the current time of the system.
Key Vault	Name of the Key Vault created in Microsoft Azure.
Enabled	Check this box to activate the ESKM key in the Microsoft Azure key vault.
Tags	Tag is to organize the keys in Microsoft Azure Key Vault. Multiple Tags can be assigned for a specific key.
Enable Auto Rotation	Enables automatic creation of new key versions.
Rotation Interval (Days)	Specifies the frequency at which a new key version is automatically generated. Supported values range from 30 to 365 days.

Table 7: Parameters



Key [key_name] has been successfully uploaded to Inst1 [Azure].

5.2.5.2 Uploading an Existing Key

This section describes the procedure to upload existing Keys from Utimaco ESKM to Microsoft Azure Cloud.

To upload an existing key

- Click the **Manage Keys** icon to view the keys list available in the cloud instance.

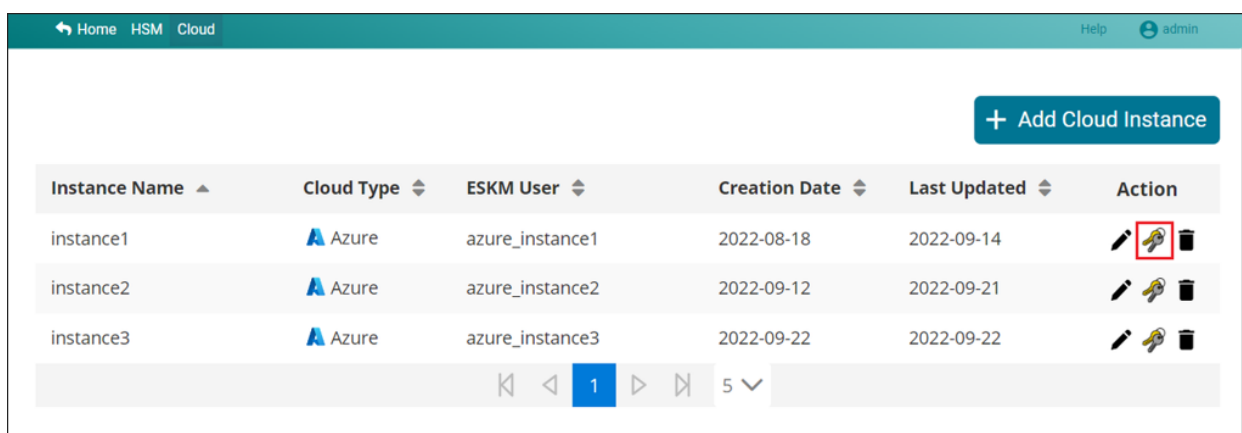


Figure 34 : Manage Keys

- Click the **+ Create/Upload Key** button in the top right corner of the page.

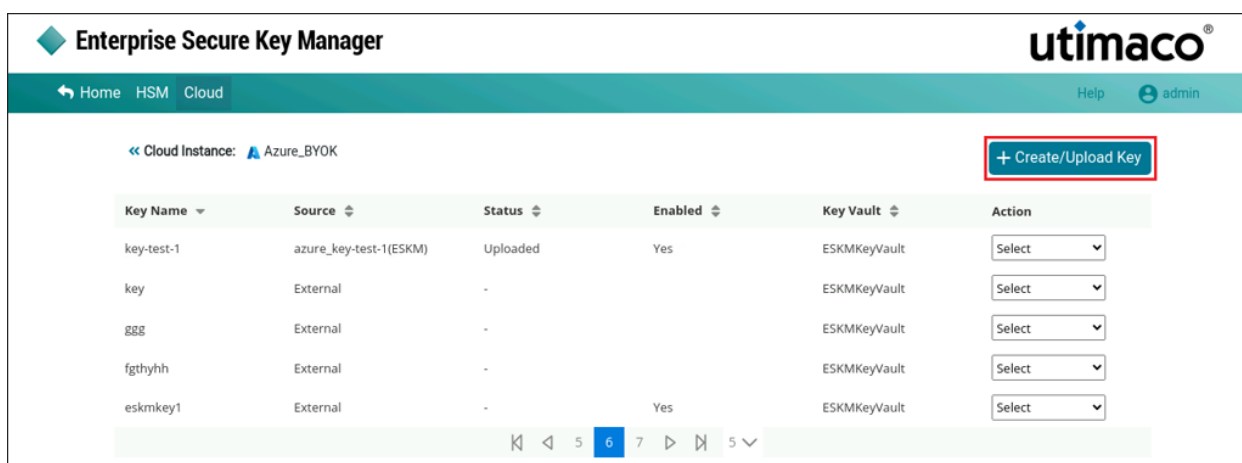
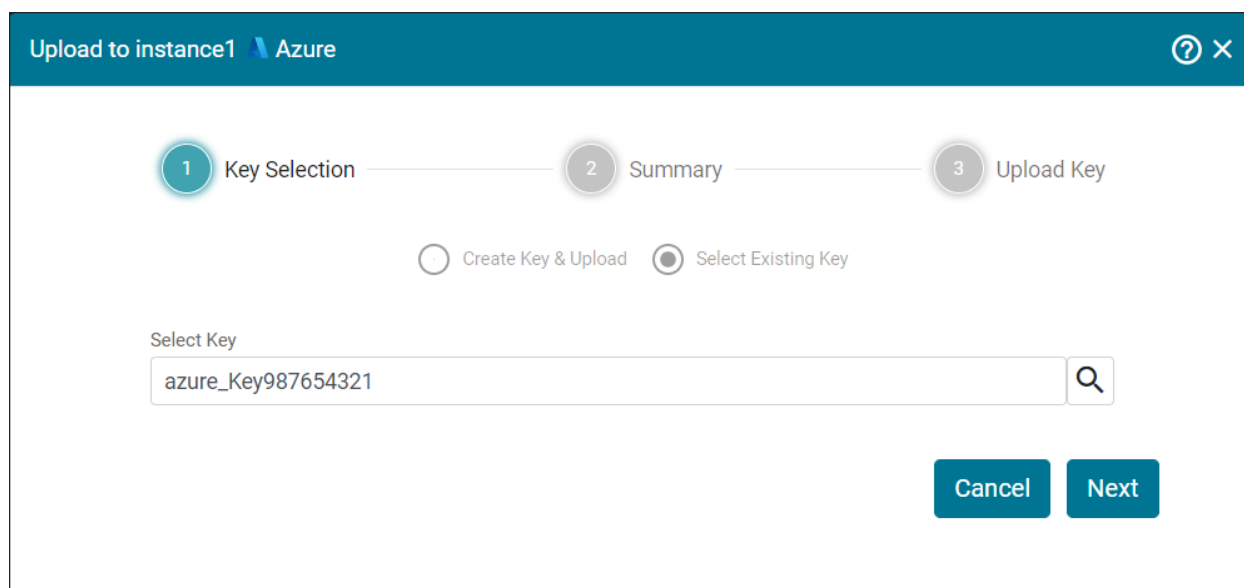


Figure 35 : Keys list

- Choose the **Select Existing Key** option to upload existing keys to the Cloud Instance.



Upload to instance1 Azure

1 Key Selection — 2 Summary — 3 Upload Key

☐ Create Key & Upload ☒ Select Existing Key

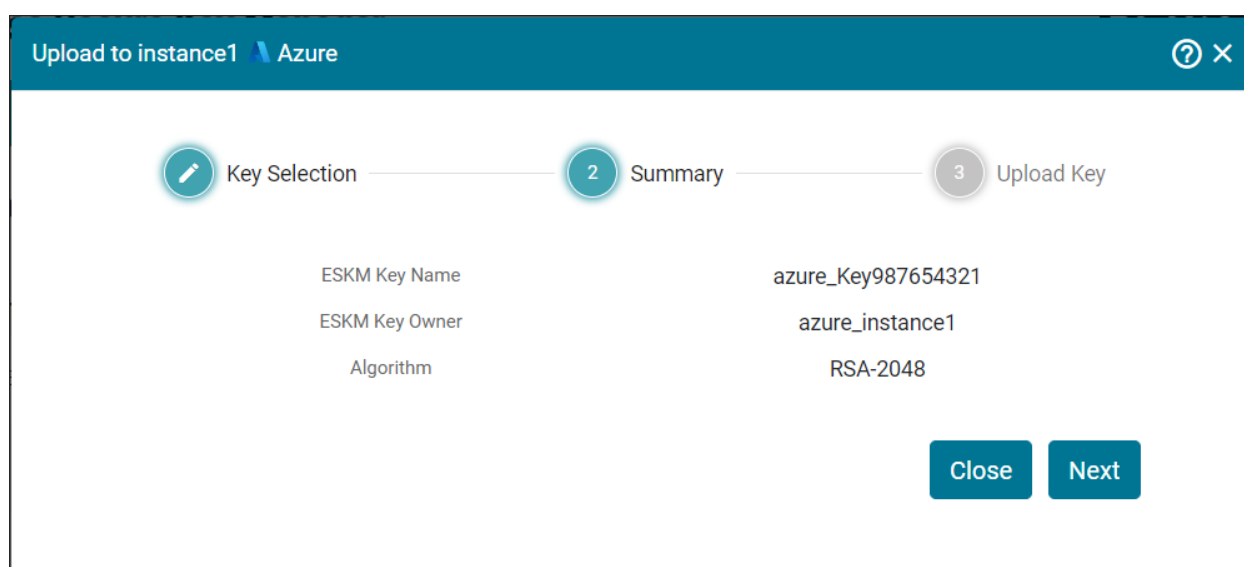
Select Key

azure_Key987654321

Cancel Next

Figure 36 : Select Key

- Search for and select the key that you want to upload. Click **Next**.



Upload to instance1 Azure

1 Key Selection — 2 Summary — 3 Upload Key

ESKM Key Name	azure_Key987654321
ESKM Key Owner	azure_instance1
Algorithm	RSA-2048

Close Next

Figure 37 : Review Summary

- Now, you will be navigated to the **Summary** section. Review the **Summary** and click **Next**.
- Enter the details such as **Key Vault Name**, **Key Vault**, **Enabled**, **Activation Date** and **Expiration Date**. Optionally, enable **Auto Rotation** and specify the **Rotation Interval (Days)**. Click **Upload**.

Figure 38 : Upload existing key



Key [Key987654321] has been successfully uploaded to instance1 [Azure].

5.2.5.3 Upload a Key from ESKM to Azure Cloud

- Click the **Manage keys** icon in the cloud instance to view the keys available in the cloud instance.

Instance Name	Cloud Type	ESKM User	Creation Date	Last Updated	Action
AWS	AWS-BYOK	aws-byok_AWS	2026-07-03	2026-07-03	[Edit] [Delete] [Manage keys]
Azure	Azure	azure_Azure	2026-07-03	2026-07-03	[Edit] [Delete] [Manage keys]
Azure1	Azure	azure_Azure1	2026-07-06	2026-07-06	[Edit] [Delete] [Manage keys]
testkeyH	Azure-EKM	testH@gmail.com	2026-07-08	2026-07-08	[Edit] [Delete] [Manage keys]

Figure 39 : Manage keys

- If the key is not uploaded from ESKM to cloud and you wish to upload it, select **Upload** from the drop-down.

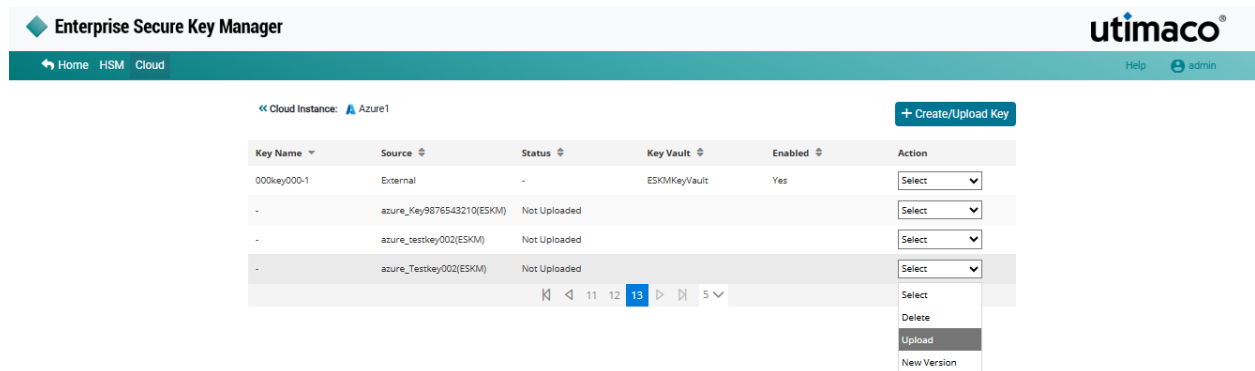


Figure 40 : Upload key from ESKM to cloud

- The **Upload key** pop-up window appears. Make the necessary changes and click **Upload**.

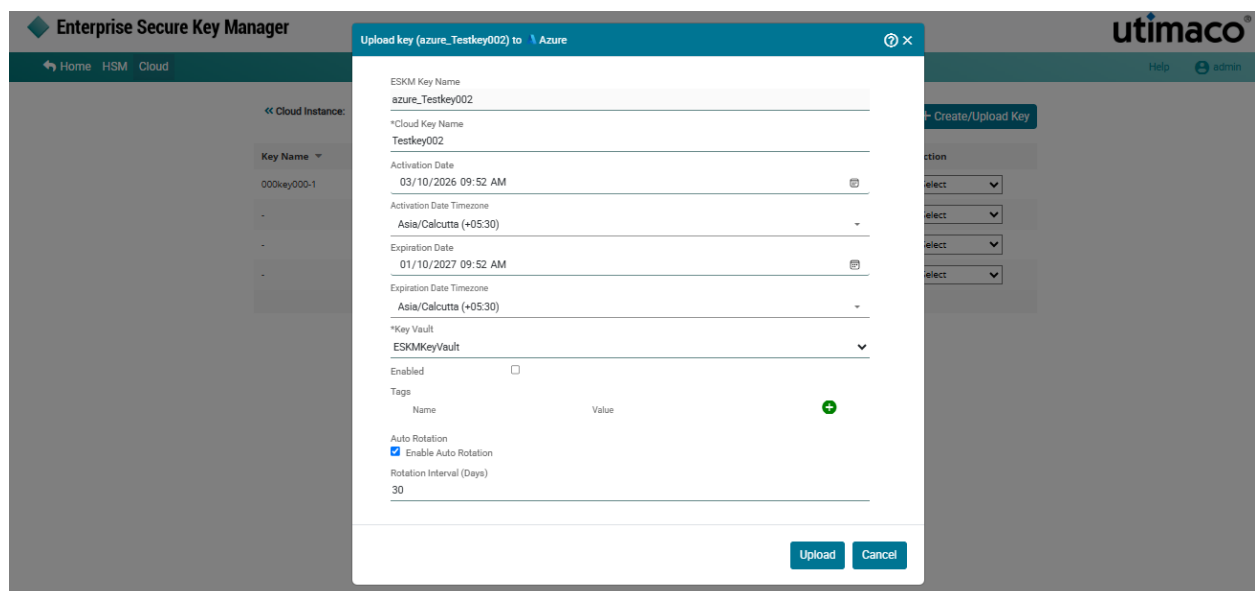


Figure 41 : Upload Azure key



Cannot upload the same key that has been deleted and purged from the cloud.



Key[key name] has been successfully uploaded to instance name[Azure].

5.2.5.4 Deleting an ESKM Key

- Click the **Manage keys** icon in the cloud instance and select **Delete** from the drop down.

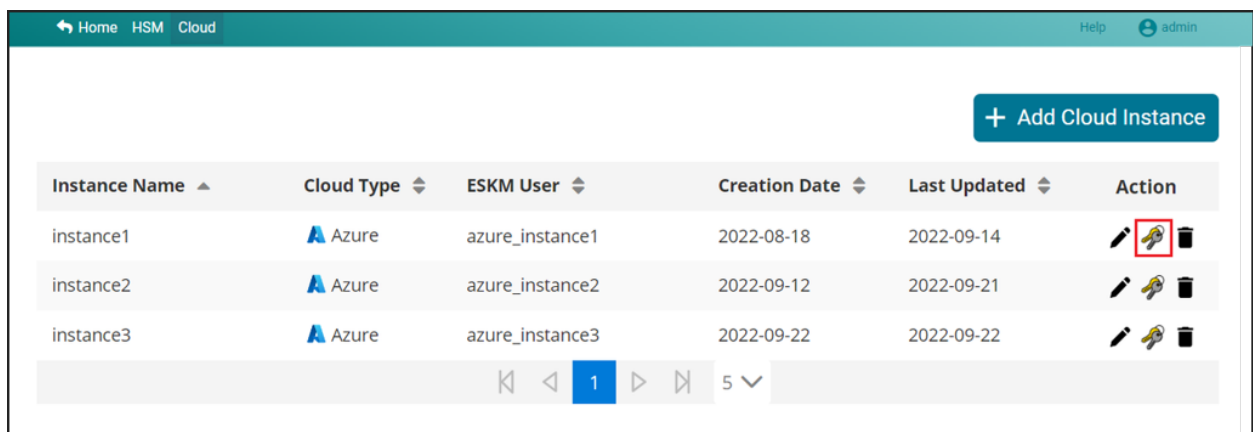


Figure 42 : Manage keys

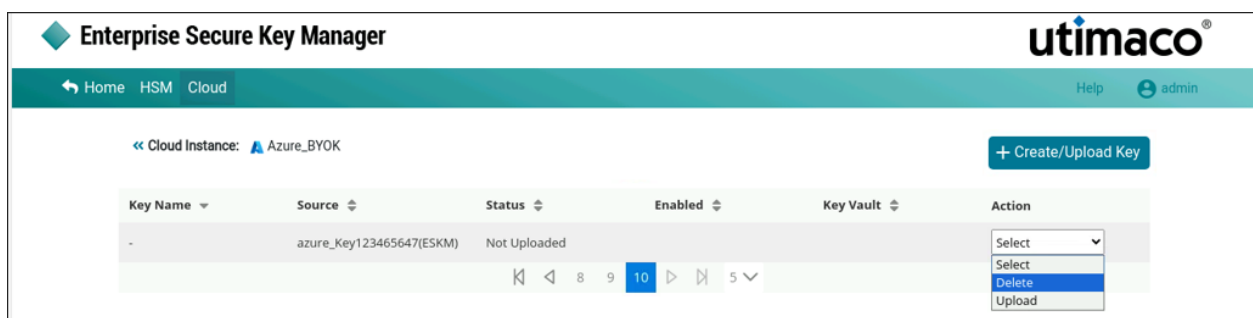


Figure 43 : Delete keys

- If the selected key is uploaded and is not associated with any other instance, a pop-up window will appear with a message **"Are you sure you want to delete key<keyname> from <Cloud Instance Name>(Azure)?"**.

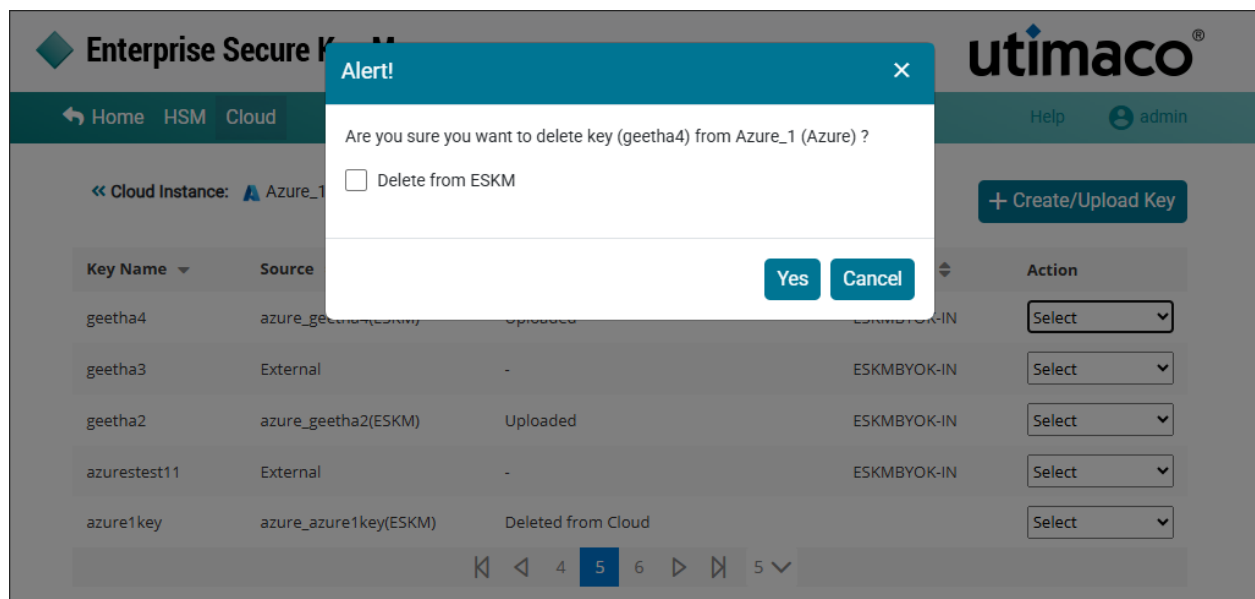


Figure 44 : Delete key alert

- Click **Yes** and the key will be deleted from the cloud.
- If the key is uploaded and associated with another instance (locally created from another instance), a pop-up window will appear with a message “Are you sure you want to delete key <keyname> from <Cloud Instance Name> (Azure)?”.

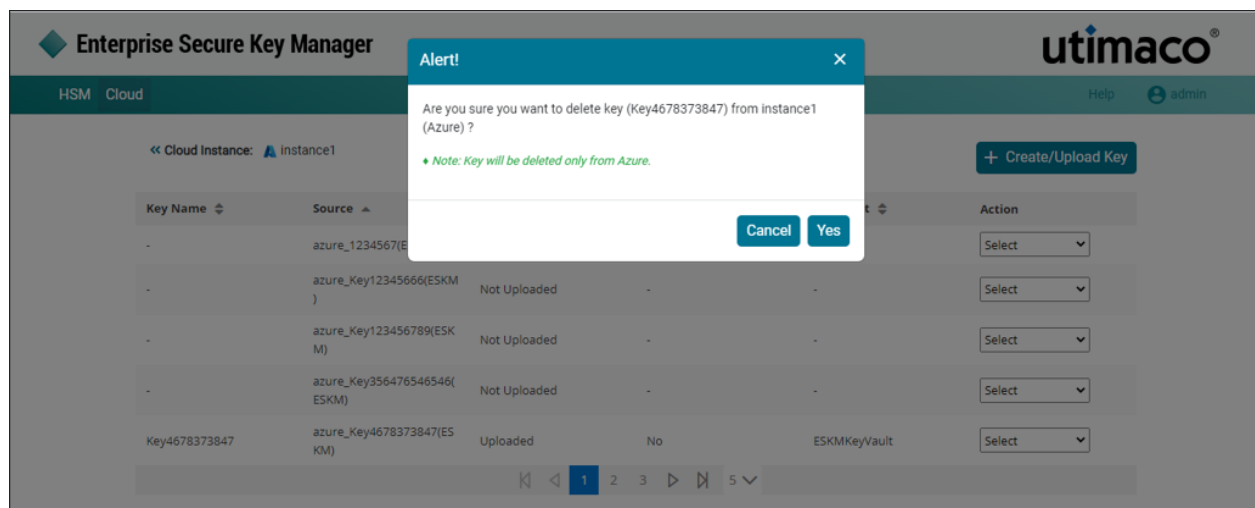


Figure 45 : Delete key from cloud

- Click **Yes** and the key will be deleted from Cloud.

- If the selected key is not uploaded and is not associated with any other instance (locally created in ESKM), a confirmation pop-up appears with the message: “Are you sure you want to delete key <keyname> from ESKM?”.

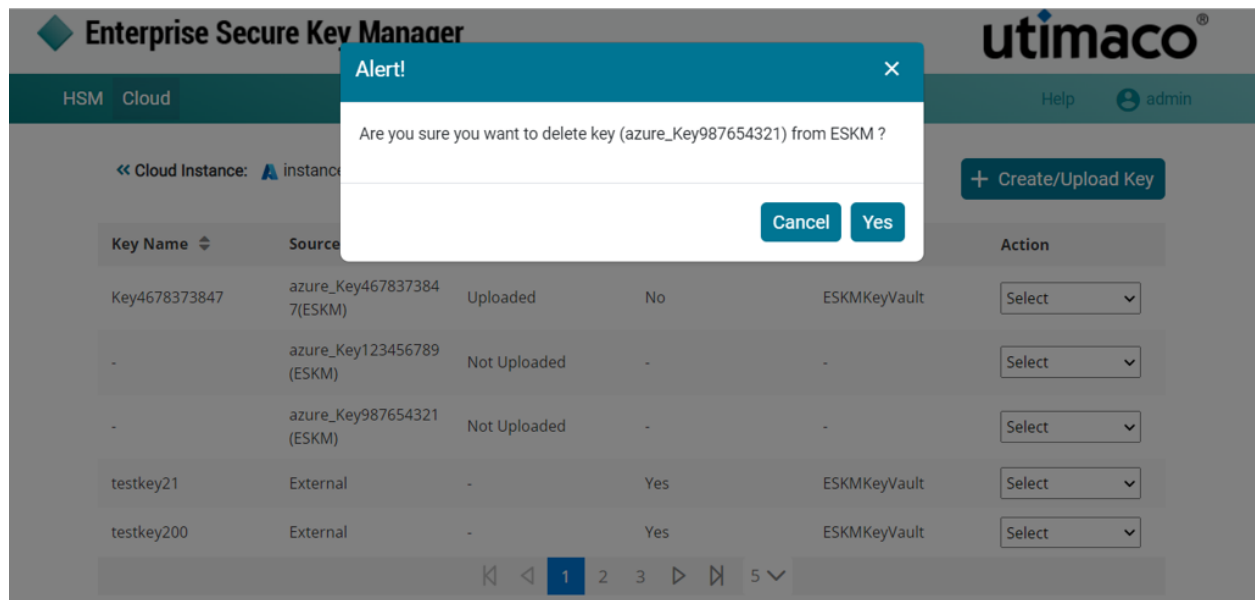


Figure 46 : Delete key from ESKM

- Click **Yes** and the key will be deleted from ESKM.
- When deleting an external key that is not created in ESKM, the system displays a confirmation pop-up with the message: “Are you sure you want to delete key<keyname> from <Cloud Instance Name>(Azure)?”.

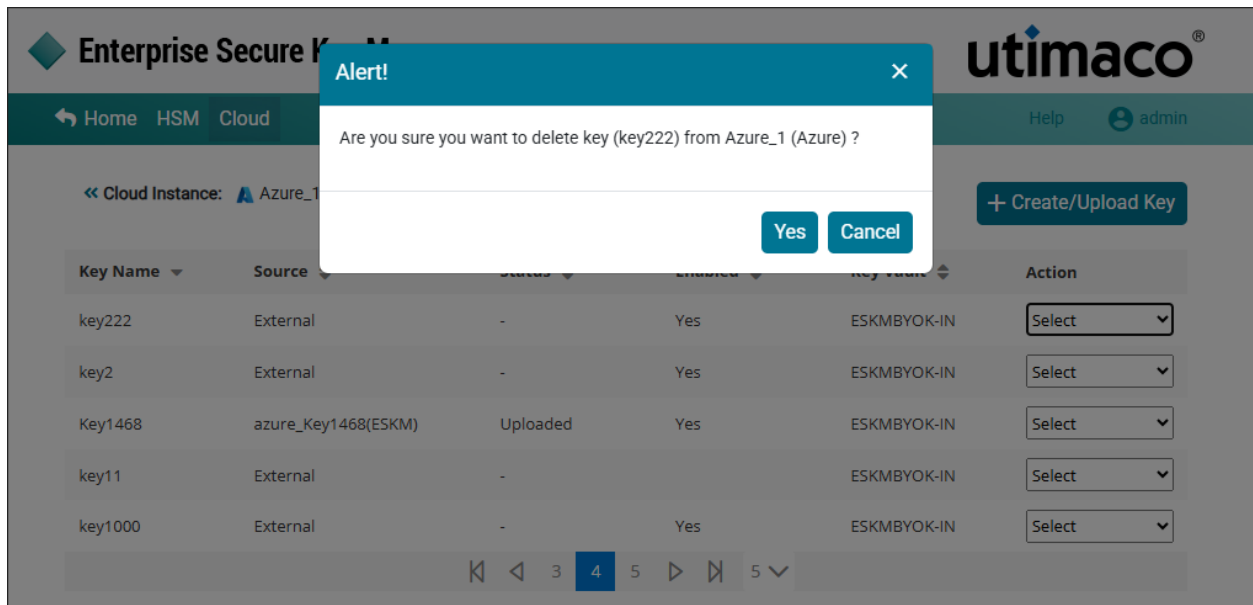


Figure 47 : Delete external key

- Click **Yes** and the key will be deleted from **Azure**.



Cloud Instance key [key222] removed successfully from Azure_1 [Azure].

5.2.5.5 Editing an ESKM Key

- Select **Edit** from the drop-down on the cloud instance page to modify the selected key information.

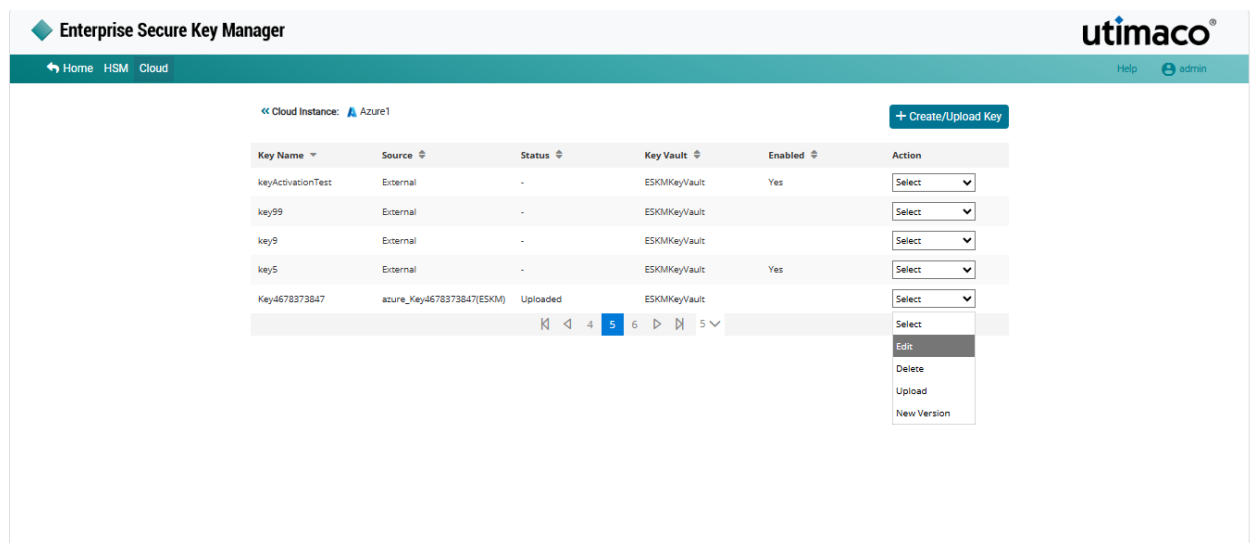


Figure 48 : Edit key

- Make the required modifications and enable or disable the selected key.

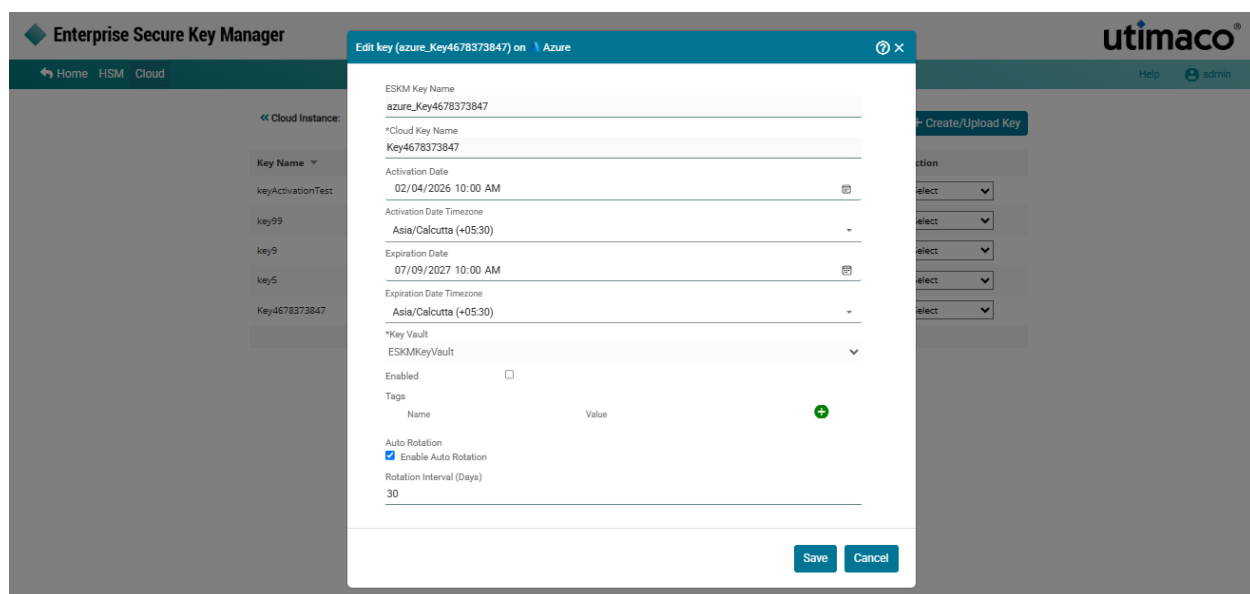


Figure 49 : Editing a key

- Click Save.



Cloud Instance key [azure_key4678373847] updated successfully.



While editing a key in ESKM, you cannot modify the **ESKM Key Name**, **Cloud Key Name** and **Key Vault**. Additionally, external keys created directly in the Azure console cannot be edited in ESKM. **Auto Rotation** settings can be configured or modified for existing keys as required.

5.2.5.6 Create a New Version

This section describes the procedure to create a new version of a key which has already been created.

To create a new version

- Under **Action** column, select **New Version** from the drop-down to create a new version of the key.

The screenshot shows the 'Enterprise Secure Key Manager' interface. At the top, there's a header with the 'utimaco' logo and navigation links for 'Home', 'HSM', and 'Cloud'. Below the header, there's a section for 'Cloud Instance: Azure1' with a '+ Create/Upload Key' button. The main area contains a table with columns: 'Key Name', 'Source', 'Status', 'Enabled', 'Key Vault', and 'Action'. The table lists five keys: 'key3', 'Key24', 'key222', 'key2', and 'key11'. The 'Action' column for 'key11' is expanded, showing options: 'Select', 'Edit', 'Delete', 'Upload', and 'New Version'. The 'New Version' option is highlighted with a red box. Below the table, there's a pagination bar showing '3', '4', '5' and navigation icons.

Key Name	Source	Status	Enabled	Key Vault	Action
key3	External	-	Yes	ESKMBYOK-IN	Select
Key24	azure_Key24(ESKM)	Uploaded	Yes	ESKMBYOK-IN	Select
key222	External	-	Yes	ESKMBYOK-IN	Select
key2	External	-	Yes	ESKMBYOK-IN	Edit
key11	External	-	-	ESKMBYOK-IN	Delete
					Upload
					New Version

Figure 50 : New version

- The **Alert** pop-up window appears.

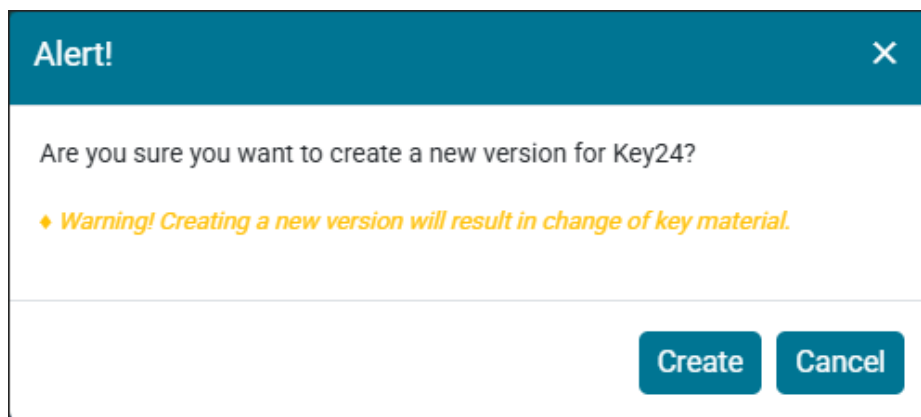


Figure 51 : Alert window

Click **Create**.



New version 3 for ESKM key [azure_Key24] added successfully.



After creating a new version, the key must be uploaded using the Upload option (refer to [Upload Key from ESKM to Azure Cloud](#)).



The default value for the Number of Active Versions Allowed for a key is 10. To modify this setting, refer to the *Active Versions (Section 6.4.12.1)* in the *ESKM User Guide-8.54.7*. If the maximum number of active key versions configured on the Key Options page is reached, creating a new key version will fail.

5.2.5.7 Azure BYOK Key Rotation

Key Rotation is the process of creating a new version of an encryption key while retaining older key versions for decrypting existing data.

When a new key version is created in ESKM, the previously created key versions are **retained** and continue to be used for decrypting existing data. The newly created key version becomes the **current (default) key** for encrypting new data.

This capability enables the creation of a new version of the key on-demand for the purposes of compliance or suspected compromise without changing the key ID or disrupting active cloud applications.

To rotate a key in Azure Cloud

- After creating a new version of the encryption key, go to the **Actions** column for the key.

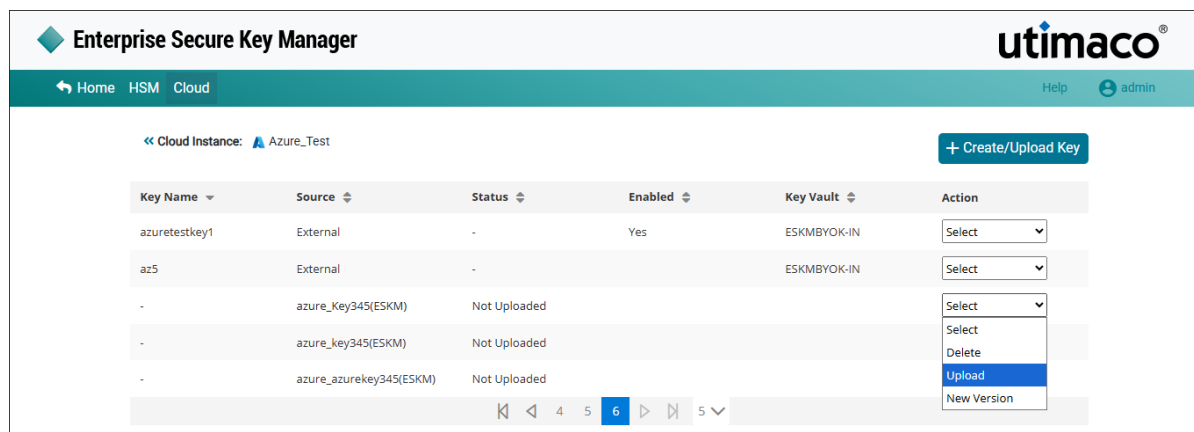


Figure 52 : Upload key

- Select **Upload** to upload the **new key version** to the Azure Cloud console.

For detailed steps, refer to [Upload Key from ESKM to Azure Cloud](#).

5.2.5.7.1 Auto-Key Rotation

Automatic Key Rotation enables scheduled creation of new key versions without manual intervention. Based on the configured rotation policy, ESKM automatically generates a new version of the selected key and uploads it to Azure Key Vault. Older key versions are retained and continue to be available for decrypting previously encrypted data.

The screenshot displays the 'Enterprise Secure Key Manager' interface. A modal window titled 'Upload to Azure1' is open, showing the 'Upload Key' tab. The form includes the following fields:

- ESKM Key Name: azure_TestKeyAutoRotate
- *Cloud Key Name: TestKeyAutoRotate
- Activation Date: 04/02/2026 10:08 AM
- Activation Date Timezone: Asia/Calcutta (+05:30)
- Expiration Date: 01/18/2027 10:08 AM
- Expiration Date Timezone: Asia/Calcutta (+05:30)
- *Key Vault: ESKMKeyVault
- Enabled: ☐
- Tags: A table with columns 'Name' and 'Value'. The 'Auto Rotation' checkbox is highlighted with a red box.

Buttons at the bottom of the modal are 'Upload' and 'Cancel'.

Figure 53 : Auto rotation

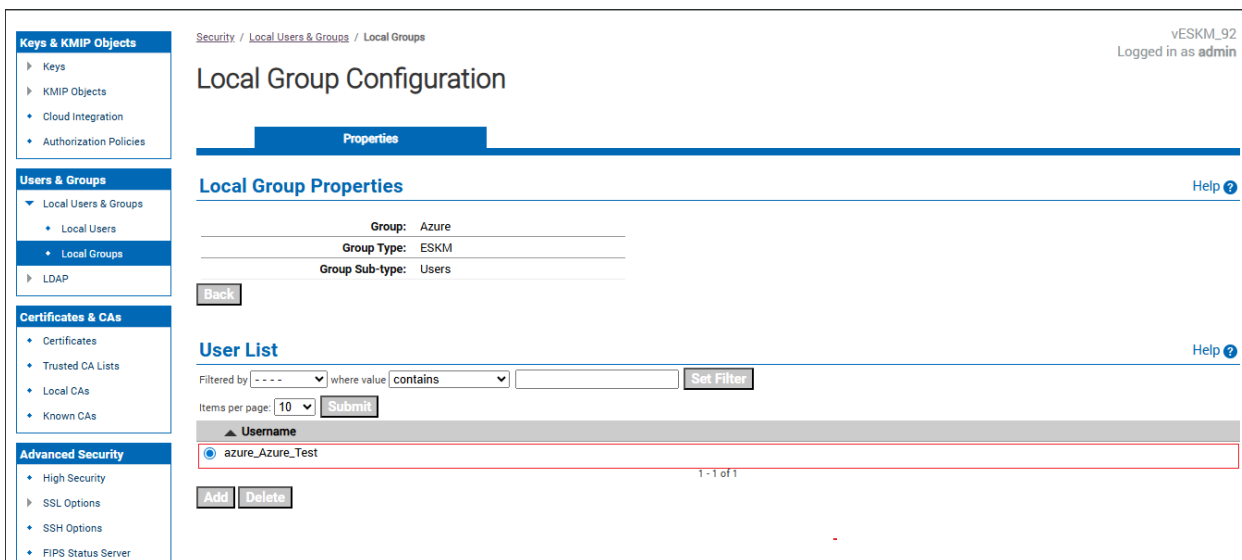


Note: Automatic Rotation can be configured during key creation or enabled later by editing an existing key. Administrators can modify the rotation settings by enabling/disabling **Auto Rotation** for the desired key.

6 Verification and Testing

6.1 Logs and Validation Steps

- In the ESKM Management Console > Security > Users & Groups > Local Groups. Confirm that Username is created.



Security / Local Users & Groups / Local Groups

vESKM_92
Logged in as admin

Local Group Configuration

Properties

Local Group Properties

Group: Azure
Group Type: ESKM
Group Sub-type: Users

[Back](#)

User List

Filtered by: --- where value contains [Set Filter](#)

Items per page: 10 [Submit](#)

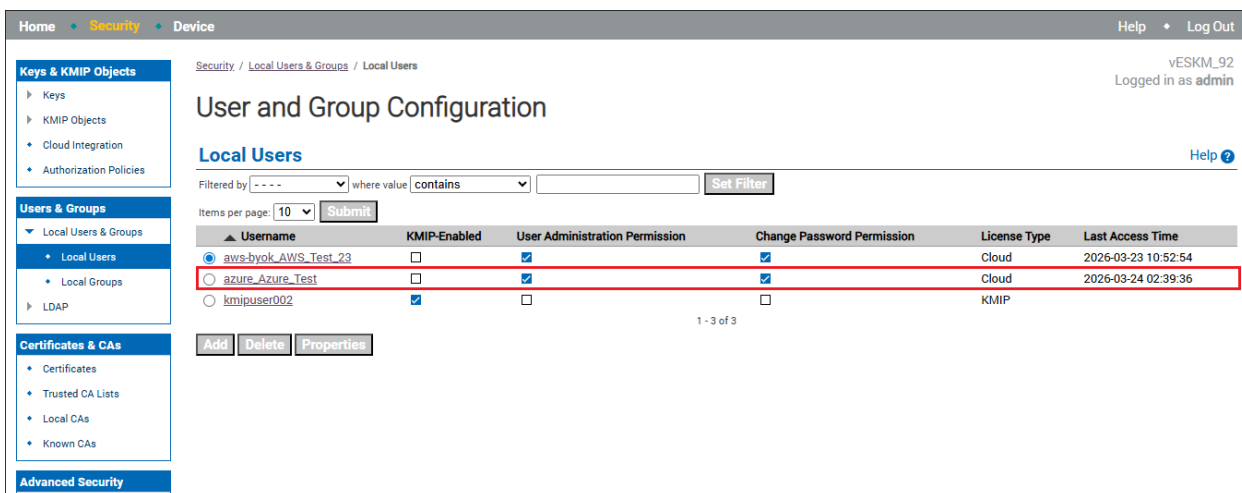
Username
azure_Azure_Test

1 - 1 of 1

[Add](#) [Delete](#)

Figure 54 : User list

- In the ESKM Management Console > Security > Users & Groups > Local Users. Confirm that Username is created.



Home • Security • Device

Security / Local Users & Groups / Local Users

vESKM_92
Logged in as admin

User and Group Configuration

Local Users

Filtered by: --- where value contains [Set Filter](#)

Items per page: 10 [Submit](#)

Username	KMIP-Enabled	User Administration Permission	Change Password Permission	License Type	Last Access Time
aws-byok_AWS_Test_23	☐	☒	☒	Cloud	2026-03-23 10:52:54
azure_Azure_Test	☐	☒	☒	Cloud	2026-03-24 02:39:36
kmipuser002	☒	☐	☐	KMIP	

1 - 3 of 3

[Add](#) [Delete](#) [Properties](#)

Figure 55 : Local users

- In the ESKM Management Console > Security > Keys. Confirm that the created keys are listed.

Keys Help ?						
Query: [All] Run Query						
Items per page: 10 Submit						
Type	Key Name	UUID	Owner	Algorithm	Creation Date	FIPS Security Level
☐ ESKM	aws-byok_Test_23_1	-	aws-byok_AWS_Test_23	AES-256	2026-03-23 07:42:09	1
☐ ESKM	aws-byok_Test_23_2	-	aws-byok_AWS_Test_23	AES-256	2026-03-23 07:50:07	1
☐ ESKM	azure-ekm_azkey1	-	HYOKUser	AES-256	2026-03-26 05:26:14	1
☒ ESKM	azure_azuretestkey1	-	azure_Azure_2	RSA-2048	2026-03-25 18:32:25	1

Figure 56 : Keys

- In the ESKM Management Console, go to Security > Keys, select the required key, and then open Key Versions to verify that key rotation has been created.

Keys & KMIP Objects

Keys

- Query Keys
- Create Keys
- Import Keys
- Key Options

KMIP Objects

- Cloud Integration
- Authorization Policies

Users & Groups

- Local Users & Groups
- LDAP

Certificates & CAs

- Certificates
- Trusted CA Lists
- Local CAs
- Known CAs

Advanced Security

Security / Keys / Key Versions

vESKM_92
Logged in as admin

Key and Policy Configuration

Properties

Permissions

Custom Attributes

Key Versions

Key Properties Help ?

Key Name: azure_Keytest456

Back

Key Versions and Available Usage Help ?

Items per page: 10 Submit

Version	Key State	Creation Date
☒ 3 [Default]	Active	2026-03-24 02:39:36
☐ 2	Active	2026-03-24 02:39:31
☐ 1	Active	2026-03-24 02:05:15

1 - 3 of 3

Create New Version Edit Usage

Figure 57 : ESKM key rotation

- In the Azure Portal, go to Key Vaults, select the required Key Vault, and select Keys from the left navigation pane. Verify that the key is created.

Home > Key vaults > ESKMBYOK-IN

ESKMBYOK-IN | Keys ☆ ...

Key vault

Search

+ Generate/Import Refresh Restore Backup Manage deleted keys

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Access policies

Resource visualizer

Events

Objects

Keys

Secrets

Certificates

Settings

Monitoring

Automation

key6	✓ Enabled	
key666	✓ Enabled	
key7	✓ Enabled	
key8	✓ Enabled	
KeyTest123	✓ Enabled	3/31/2026
Keytest456	⊘ Disabled	
test1	✓ Enabled	
test1234	⊘ Disabled	
test3	✓ Enabled	
testAZUpload	✓ Enabled	
testAZUpload1	✓ Enabled	
testAZUpload2	✓ Enabled	
testKey5	⊘ Disabled	
testKey7	✓ Enabled	
vESKMtest	✓ Enabled	

Figure 58 : Keys uploaded in Azure console

- Log in to the **Azure Portal**, navigate to **Key vaults** and select the required **Key Vault**. Select **Keys** and select the required **Key**. Verify that the key rotation is created after uploading in ESKM Console.

Home > Key vaults > ESKMBYOK-IN | Keys

vESKMtest ...

Versions

+ New Version Refresh Delete Download Backup Rotation policy

Version	Status	Activation date	Expiration date
CURRENT VERSION			
bfd6074df36f4876a756a71f37fc7401	✓ Enabled	3/31/2026	4/18/2026
OLDER VERSIONS			
5ab9b682c45849cb90d3afc1688f1db4	✓ Enabled	3/31/2026	5/9/2026
b1e1942a34434ff78c6fcb437fb5f46a	✓ Enabled		

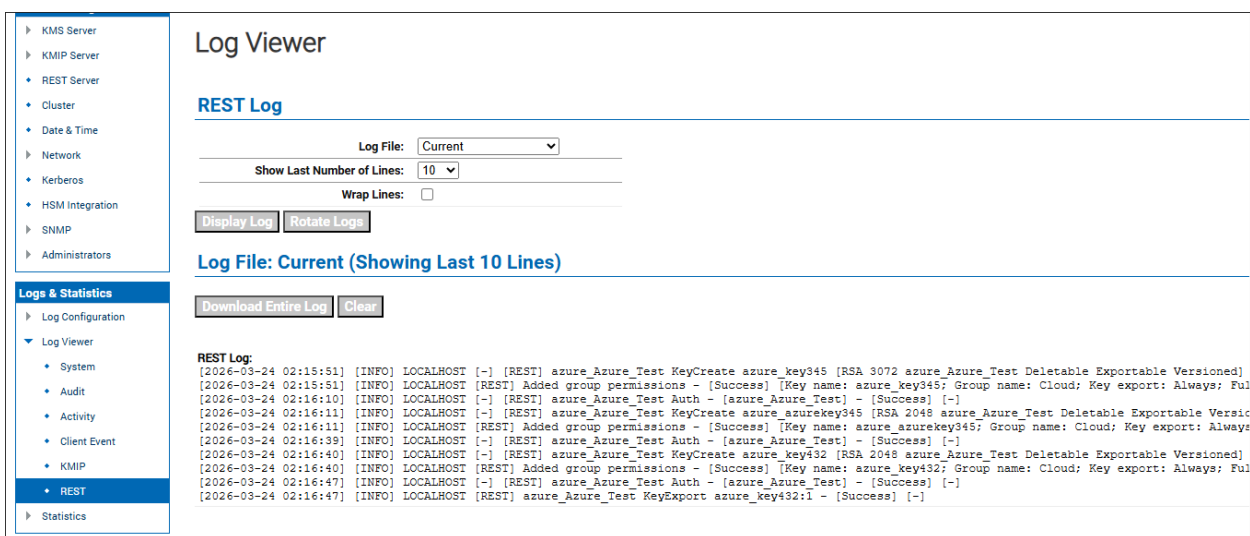
Figure 59 : Key rotation in Azure console

7 Troubleshooting

7.1 Log Locations and Interpretation

Verify the Utimaco ESKM logs by following the steps below:

- In the ESKM Management Console, click **Device > Logs & Statistics > Log Viewer > Rest**.
- Review logs related to key rotation performed on the ESKM.



The screenshot displays the 'Log Viewer' interface in the Utimaco ESKM Management Console. On the left, a navigation pane shows 'Logs & Statistics' with 'Log Viewer' selected, and 'REST' highlighted under the 'Log Viewer' section. The main area is titled 'Log Viewer' and 'REST Log'. It includes controls for 'Log File' (set to 'Current'), 'Show Last Number of Lines' (set to '10'), and 'Wrap Lines' (unchecked). There are buttons for 'Display Log' and 'Rotate Logs'. Below these, a section titled 'Log File: Current (Showing Last 10 Lines)' contains a 'Download Entire Log' button and a 'Clear' button. The log content shows a series of REST API calls and responses, including key creation and group permission additions, all marked as successful.

```

REST Log:
[2026-03-24 02:15:51] [INFO] LOCALHOST [-] [REST] azure_Azure_Test KeyCreate azure_key345 [RSA 3072 azure_Azure_Test Deletable Exportable Versioned]
[2026-03-24 02:15:51] [INFO] LOCALHOST [REST] Added group permissions - [Success] [Key name: azure_key345; Group name: Cloud; Key export: Always; Full control: Yes]
[2026-03-24 02:16:10] [INFO] LOCALHOST [-] [REST] azure_Azure_Test Auth - [azure_Azure_Test] - [Success] [-]
[2026-03-24 02:16:11] [INFO] LOCALHOST [-] [REST] azure_Azure_Test KeyCreate azure_key345 [RSA 2048 azure_Azure_Test Deletable Exportable Versioned]
[2026-03-24 02:16:11] [INFO] LOCALHOST [REST] Added group permissions - [Success] [Key name: azure_key345; Group name: Cloud; Key export: Always; Full control: Yes]
[2026-03-24 02:16:39] [INFO] LOCALHOST [-] [REST] azure_Azure_Test Auth - [azure_Azure_Test] - [Success] [-]
[2026-03-24 02:16:40] [INFO] LOCALHOST [-] [REST] azure_Azure_Test KeyCreate azure_key32 [RSA 2048 azure_Azure_Test Deletable Exportable Versioned]
[2026-03-24 02:16:40] [INFO] LOCALHOST [REST] Added group permissions - [Success] [Key name: azure_key32; Group name: Cloud; Key export: Always; Full control: Yes]
[2026-03-24 02:16:47] [INFO] LOCALHOST [-] [REST] azure_Azure_Test Auth - [azure_Azure_Test] - [Success] [-]
[2026-03-24 02:16:47] [INFO] LOCALHOST [REST] azure_Azure_Test KeyExport azure_key32:1 - [Success] [-]

```

Figure 60 : Rest log

8 Contact and Support Information

You can reach us from Monday to Friday, 09.00 a.m. to 05.00 p.m., Central European Time (CET).

Utimaco IS GmbH
Krefelder Straße 220
52070 Aachen
Germany

RMA Query

If you need to send the device back to Utimaco IS GmbH, please open a new RMA case (Return Merchandise Authorization). We request that you use the following web address. RMA cases cannot be opened by email or phone.

<https://support.hsm.utimaco.com/support/rma/new>

Other Support Queries

- Mail (preferred contact method)
support@utimaco.com
Attach the diagnostic information to your email.
- Web portal
<https://support.hsm.utimaco.com/support/cases/new/>
The diagnostic information will be requested in our response if necessary.
- By phone
AMERICAS +1-844-UTIMACO (+1 844-884-6226)
EMEA +49 800-627-3081
APAC +81 800-919-1301
The diagnostic information will be requested in our response if necessary.

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EMEA +49 800-627-3081
APAC +81 800-919-1301
The diagnostic information will be requested in our response if necessary.

9 Appendix A: References

Title	Description	Document/Link
Azure-BYOK	Create Key Vault, Secret ID and Client ID	https://learn.microsoft.com/en-us/azure/key-vault/general/quick-create-portal

Table 8: References

10 Appendix B: Glossary

Term	Description
Azure BYOK	Allows customers to use their own encryption keys in Azure.
ESKM	Utimaco system used to create and manage encryption keys outside Azure.
Customer-Managed Key (CMK)	An encryption key owned and controlled by the customer.
Azure Key Vault	Azure service that stores and manages encryption keys.
Key Import	Process of importing an external key into Azure Key Vault.
Key Rotation	Creating a new version of a key to replace an old one.

Table 9: Glossary