How-To Library

Informatica

# Enable Customer Managed Keys for your Organization on Microsoft Azure

# Abstract

This article explains how to create your own native master encryption key for Informatica Intelligent Cloud Services on Microsoft Azure. The master encryption key is used to encrypt your organization-specific encryption keys. The key that you create is controlled and maintained by you. You can use it to control and restrict access to your organization's data.

# Supported Versions

- Informatica Intelligent Cloud Services February 2024

# Table of Contents

# Overview

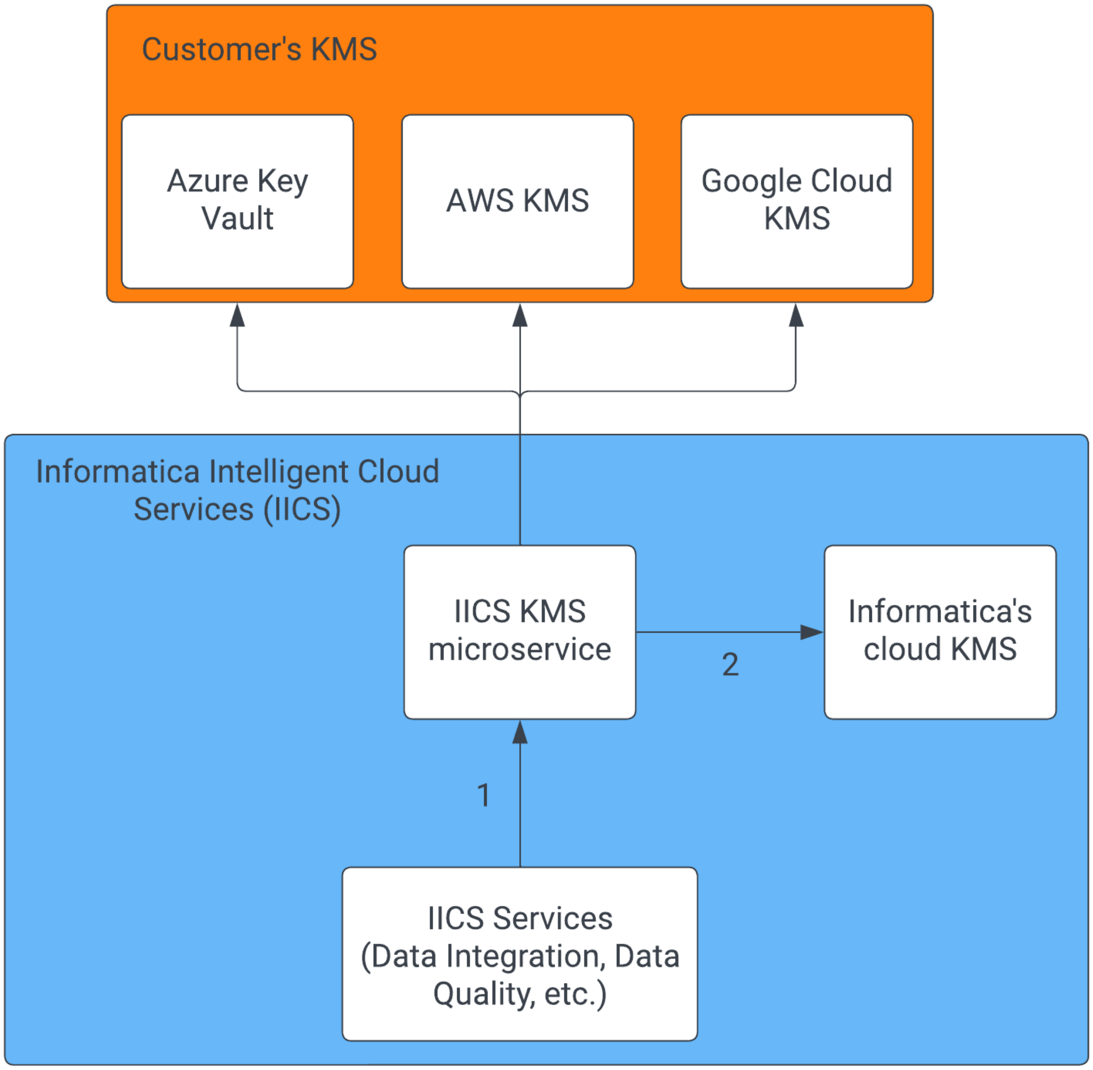
Informatica Intelligent Cloud Services protects your organization's sensitive data in the cloud using organization-specific encryption keys that are generated and stored in the Informatica Intelligent Cloud Services key management service (KMS). To prevent malicious access, the keys are encrypted using a master key that is stored in the cloud provider's KMS.

If you prefer, you can create a customer managed key (CMK). When you create a CMK, you control access to it. However, you'll need to grant Informatica Intelligent Cloud Services access to the CMK so that it can encrypt and decrypt your organization's sensitive data.

Creating a CMK offers the following benefits:

- You can restrict and control any access to your data.
- You can restrict the decryption of your data in the event of a data breach.
- You create and hold the key material in your KMS. The key is never exposed to your cloud service provider.
- You maintain full control of the key throughout its lifecycle. You can revoke access or delete the key at any time.

The following image shows how Informatica Intelligent Cloud Services interfaces with your CMK:



1. Informatica Intelligent Cloud Services interfaces with the Informatica Intelligent Cloud Services KMS agnostically.
2. Non-customer managed keys go to Informatica's cloud KMS.

**Note:** When you create a CMK, your KMS and Informatica Intelligent Cloud Services POD must use the same cloud provider. For example, if your Informatica Intelligent Cloud Services POD is a Microsoft Azure POD, then you must store your CMK in Azure Key Vault. You can't store it in AWS KMS or Google Cloud KMS.

After you create and enable a CMK, you can revoke it at any time by disabling customer managed keys in Informatica Intelligent Cloud Services Administrator. If you do this, you'll go back to using Informatica's master key.

## Steps for creating and enabling the key

To create and use a CMK, you provision the key in Azure Key Vault and enable cross-account access with Informatica Intelligent Cloud Services. Then you enable customer managed keys in Informatica Intelligent Cloud Services.

To create and enable a CMK, complete the following steps:

1. In Azure Key Vault, create a key vault.

2. In the key vault you created, generate the key to use as your CMK.
3. Authorize Informatica's enterprise Azure application to access the key.
4. Allow Informatica's enterprise application to use the Azure AD application credentials and tenant ID so that it can fetch an access token and make cryptographic calls to the key vault.

## *Step 1. Create a key vault*

In Azure Key Vault, create a key vault to store your CMK. Note the key vault URI because you will need it when you allow Informatica's application to use the key vault.

1. Log in to the Azure portal.
2. In the **Search** box, enter `Key Vault`.
3. From the results list, select **Key Vault**.
4. In the **Key Vault** section, select **Create**.
5. On the **Basics** tab, configure the key vault details and click **Next**.
6. On the **Access configuration** tab, select the **Azure role-based access control** permission model, review and update the other access policies as needed, and click **Next**.
7. On the **Networking** tab, review the networking details and click **Next**.
8. On the **Tags** tab, add tags to the key vault and click **Next**.
9. On the **Review + create** tab, review the key vault configuration and click **Create**.
10. After deployment completes, click **Go to Resource** to view the key vault you just created and note the vault URI.
11. Under **Objects**, select **Keys** and check your permissions.

    If you see the message "This operation is not allowed by RBAC," perform the following steps to configure your role assignment:

    a. Click **Access control (IAM)**.
    b. On the **Role assignments** tab, click **Add** > **Add role assignment**.
    c. On the **Add role assignment** page, open the **Role** tab, and select the Key Vault Administrator role.
    d. On the **Members** tab, assign the Key Vault Administrator role to yourself or the user that you want to be the key vault administrator.
    e. On the **Review + assign** tab, verify the role assignment settings.
    f. Click **Review + assign**.

    The key vault administrator should be able to create keys at this point.

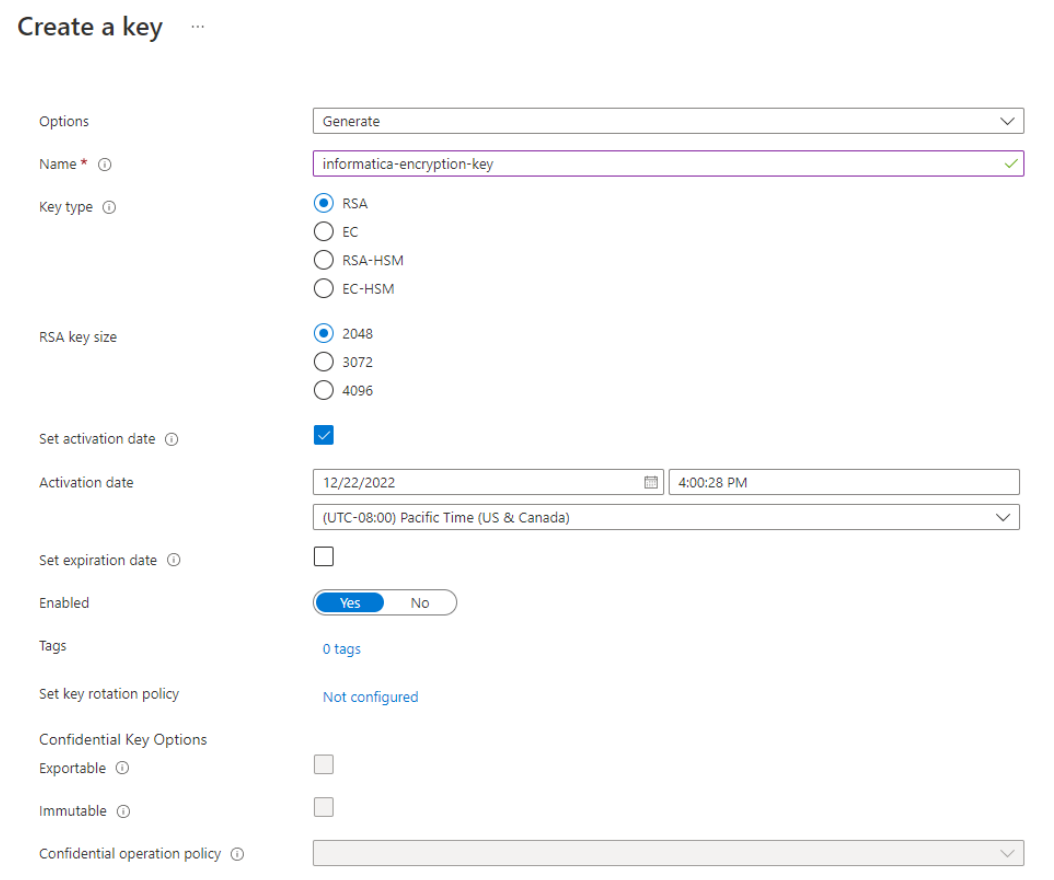
## *Step 2. Create the key*

In the key vault you created, create a symmetric key to use as your CMK. Note the key name and version because you will need them when you allow Informatica's application to use the key vault.

1. In the **Search** box, enter **Key Vault**.
2. From the results list, select the key vault you created in "Step 1. Create a key vault" on page 4.
3. In the left panel under **Objects**, select **Keys**.
4. Select **Generate/Import**.

5. Select **Generate** from the drop-down list, and configure the following options:

| Property | Value |
|---|---|
| Name | Key name, for example, `informatica-encryption-key` |
| Key type | RSA |
| RSA key size | 2048 |
| Set activation date | Enabled |
| Activation date | Today's date and time |
| Enabled | Yes |
| Set key rotation policy | Optionally, configure a key rotation policy. |



Create a key ···

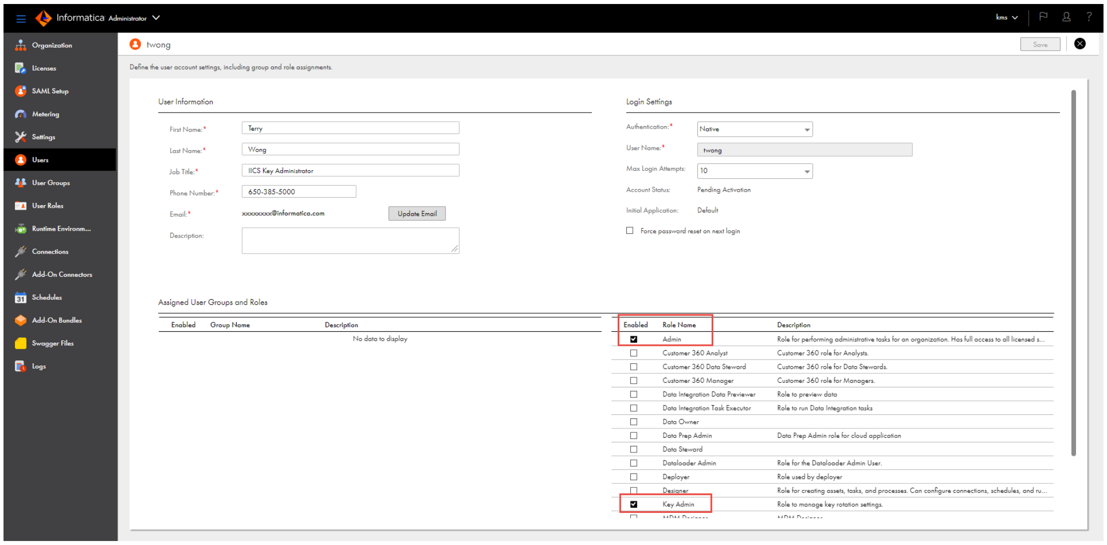
| | |
|---|---|
| Options | Generate |
| Name * | informatica-encryption-key |
| Key type | ● RSA<br>○ EC<br>○ RSA-HSM<br>○ EC-HSM |
| RSA key size | ● 2048<br>○ 3072<br>○ 4096 |
| Set activation date | ☑ |
| Activation date | 12/22/2022 4:00:28 PM<br>(UTC-08:00) Pacific Time (US & Canada) |
| Set expiration date | □ |
| Enabled | [✓ Yes] No |
| Tags | 0 tags |
| Set key rotation policy | Not configured |
| Confidential Key Options | |
| Exportable | □ |
| Immutable | □ |
| Confidential operation policy | |

6. Click **Create**.
7. Click the key and note the key name and version.

## Step 3. Authorize Informatica's enterprise Azure application to access the key

In Informatica Intelligent Cloud Services Administrator, open the **Settings** page and enable customer managed keys for your organization. Then grant the Informatica KMS Connect app permissions to access your CMK.

**Note:** Before you can complete this step, you need to assign at least one administrative user the **Admin** and **Key Admin** roles on the user details page in Administrator:



twong

Define the user account settings, including group and role assignments.

User Information

First Name:* Terry

Last Name:* Wong

Job Title:* IICS Key Administrator

Phone Number:* 650-385-5000

Email:* xxxxxxxx@informatica.com

Description:

Login Settings

Authentication:* Native

User Name:* twong

Max Login Attempts: 10

Account Status: Pending Activation

Initial Application: Default

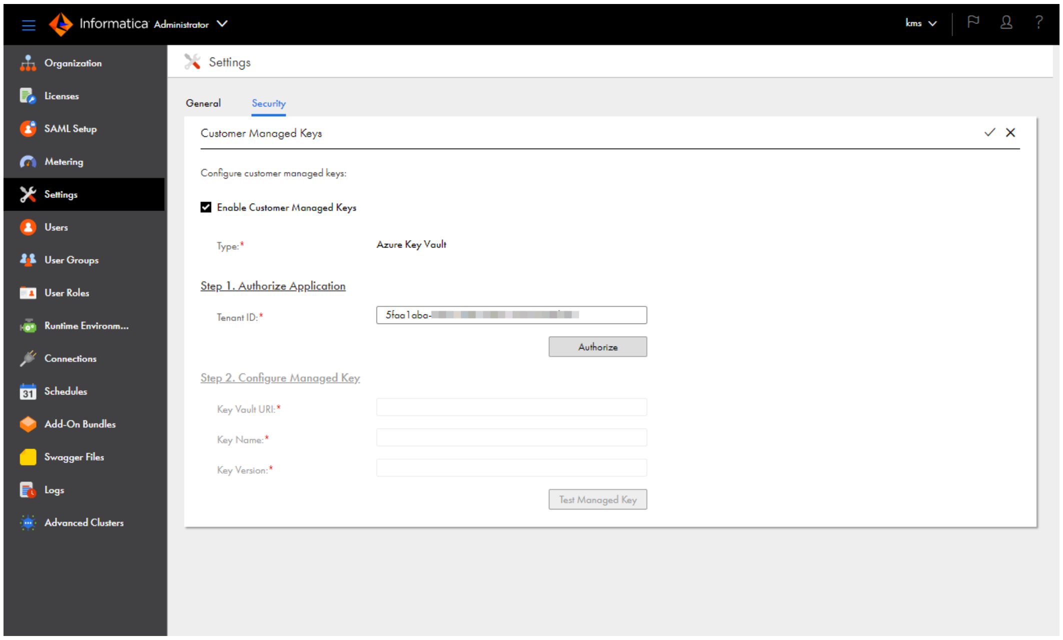
☐ Force password reset on next login

Assigned User Groups and Roles

| Enabled | Group Name | Description |
|---|---|---|
| No data to display | | |

| Enabled | Role Name | Description |
|---|---|---|
| ☑ | Admin | Role for performing administrative tasks for an organization. Has full access to all licensed s... |
| ☐ | Customer 360 Analyst | Customer 360 role for Analysts. |
| ☐ | Customer 360 Data Steward | Customer 360 role for Data Stewards. |
| ☐ | Customer 360 Manager | Customer 360 role for Managers. |
| ☐ | Data Integration Data Previewer | Role to preview data |
| ☐ | Data Integration Task Executor | Role to run Data Integration tasks |
| ☐ | Data Owner | |
| ☐ | Data Prep Admin | Data Prep Admin role for cloud application |
| ☐ | Data Steward | |
| ☐ | Dataloader Admin | Role for the Dataloader Admin User. |
| ☐ | Deployer | Role used by deployer |
| ☐ | Designer | Role for creating assets, tasks, and processes. Can configure connections, schedules, and ru... |
| ☑ | Key Admin | Role to manage key rotation settings. |

1. Log in to Informatica Intelligent Cloud Services Administrator with a user account that has both the Admin and Key Admin roles.
2. Open the **Settings** page and click the **Security** tab.
3. Click the edit (pencil) icon.
4. Enable the **Enable Customer Managed Keys** option.
5. In **Step 1. Authorize Application**, enter the **Tenant ID** of your Azure Subscription.



Settings

Customer Managed Keys

Configure customer managed keys:

☑ Enable Customer Managed Keys

Type:* Azure Key Vault

Step 1. Authorize Application

Tenant ID:* 5faa1aba-[redacted]

Step 2. Configure Managed Key

Key Vault URI:*

Key Name:*

Key Version:*

**Tip:** You can find the Tenant ID under **Properties** in Azure Active Directory.

6. Click **Authorize**.
7. When prompted, sign in to your Azure account.
8. In the **Permissions requested** dialog, click **Accept** to grant permissions to the Informatica KMS Connect app.

## *Step 4. Allow Informatica's application to use the key vault*

Allow the Informatica KMS Connect app to use the Azure AD application credentials and tenant ID. To do this, first create an access policy for the Informatica KMS Connect app in Azure Key Vault, and then enter the key information on the **Settings** page in Informatica Intelligent Cloud Services.

1. Log in to the Azure portal.
2. In the **Search** box, enter **Key Vault**.
3. From the results list, select **Key Vault**.
4. Select the key vault you created in "Step 1. Create a key vault" on page 4.
5. In the left panel, select **Access Policies**.
6. Click **Create** to create a new access policy for the Informatica KMS Connect app.
7. Grant the following permissions:

   Get

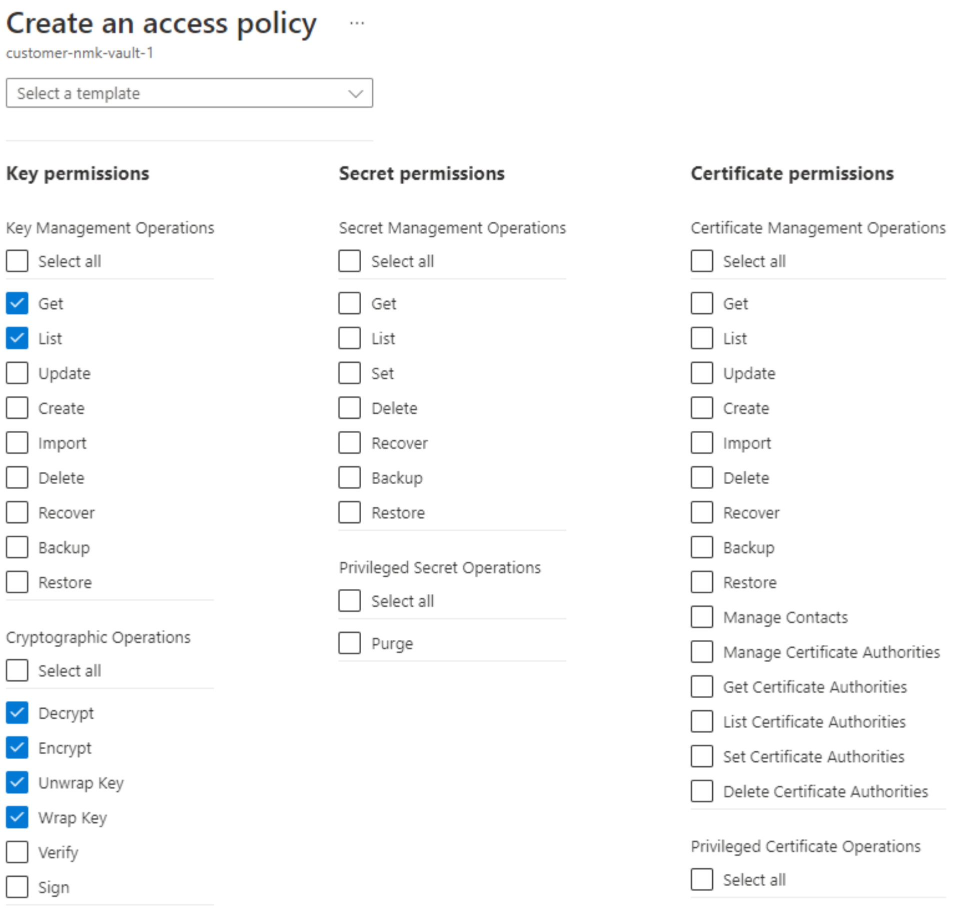
   List

   Decrypt

   Encrypt

   Unwrap Key

Wrap Key



Create an access policy ···

customer-nmk-vault-1

Select a template

**Key permissions**

Key Management Operations

☐ Select all

☑ Get

☑ List

☐ Update

☐ Create

☐ Import

☐ Delete

☐ Recover

☐ Backup

☐ Restore

Cryptographic Operations

☐ Select all

☑ Decrypt

☑ Encrypt

☑ Unwrap Key

☑ Wrap Key

☐ Verify

☐ Sign

**Secret permissions**

Secret Management Operations

☐ Select all

☐ Get

☐ List

☐ Set

☐ Delete

☐ Recover

☐ Backup

☐ Restore

Privileged Secret Operations

☐ Select all

☐ Purge

**Certificate permissions**

Certificate Management Operations

☐ Select all

☐ Get

☐ List

☐ Update

☐ Create

☐ Import

☐ Delete

☐ Recover

☐ Backup

☐ Restore

☐ Manage Contacts

☐ Manage Certificate Authorities

☐ Get Certificate Authorities

☐ List Certificate Authorities

☐ Set Certificate Authorities

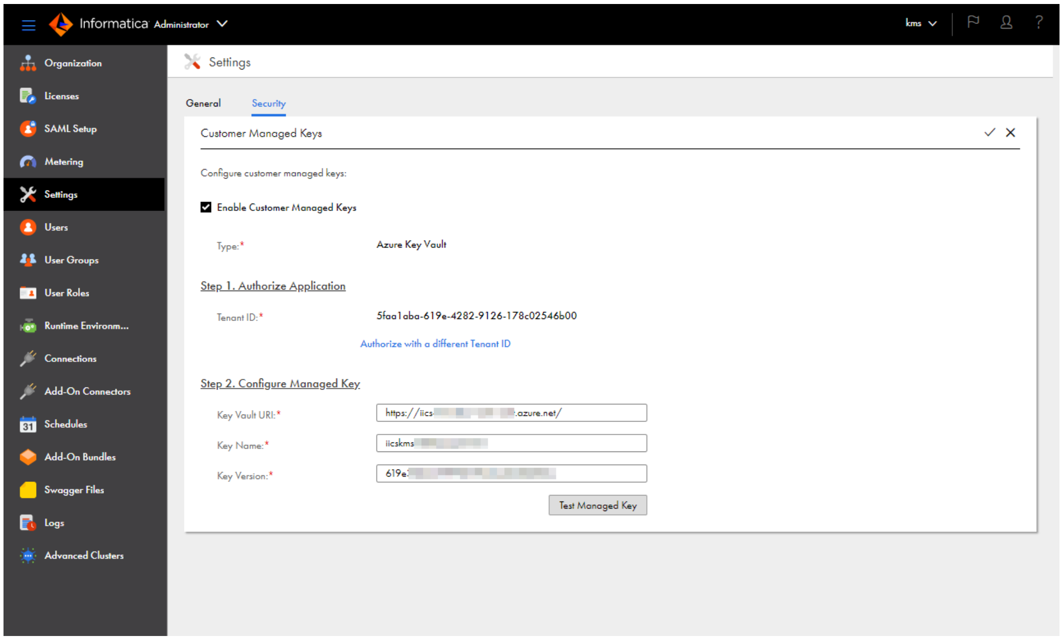
☐ Delete Certificate Authorities

Privileged Certificate Operations

☐ Select all

8. Under **Principal**, search for `Informatica KMS Connect` and select it.
9. Click **Next**.
10. Review and create the access policy.
11. Log in to Informatica Intelligent Cloud Services Administrator with a user account that has both the Admin and Key Admin roles.
12. Open the **Settings** page and click the **Security** tab.
13. Click the edit (pencil) icon.

14. In **Step 2. Configure Managed Key**, enter the **Key Vault URI**, **Key Name**, and **Key Version**:



Customer Managed Keys

Configure customer managed keys:

☑ Enable Customer Managed Keys

Type:* Azure Key Vault

Step 1. Authorize Application

Tenant ID:* 5faa1aba-619e-4282-9126-178c02546b00

Step 2. Configure Managed Key

Key Vault URI:* https://iics-[redacted].azure.net/

Key Name:* iicskms[redacted]

Key Version:* 619e[redacted]

15. Click **Test Managed Key** to test the key.

    A success message appears if the test was successful.

16. Click the save (checkmark) icon to save your changes.

    **Note:** It can take up to 24 hours for the key to become active.

# Frequently asked questions

## When I clicked **Test Managed Key** in Informatica Intelligent Cloud Services, the test failed. What should I do?

If you get an error when testing the key, perform the following checks:

- In Informatica Intelligent Cloud Services Administrator, verify that the key settings on the **Settings** page match the settings for the CMK in the Azure portal.
- In the Azure portal, verify that the status of the CMK is active.
- In the Azure portal, verify that the permissions on the CMK allow Informatica cryptographic access to the key.

If you continue to encounter errors, contact Informatica Global Customer Support.

## What happens if the CMK is rotated in Azure Key Vault?

You can rotate the CMK in Azure Key Vault manually or on a schedule. Rotating a key creates a new version of the key. The old version of the key remains in Azure Key Vault and is used for decryption only.

Informatica Intelligent Cloud Services automatically detects key rotation. When the CMK is rotated in Azure Key Vault, Informatica Intelligent Cloud Services decrypts your organization's keys using the old CMK and then encrypts them using the new CMK.

## What if I need to update the CMK in Azure Key Vault?

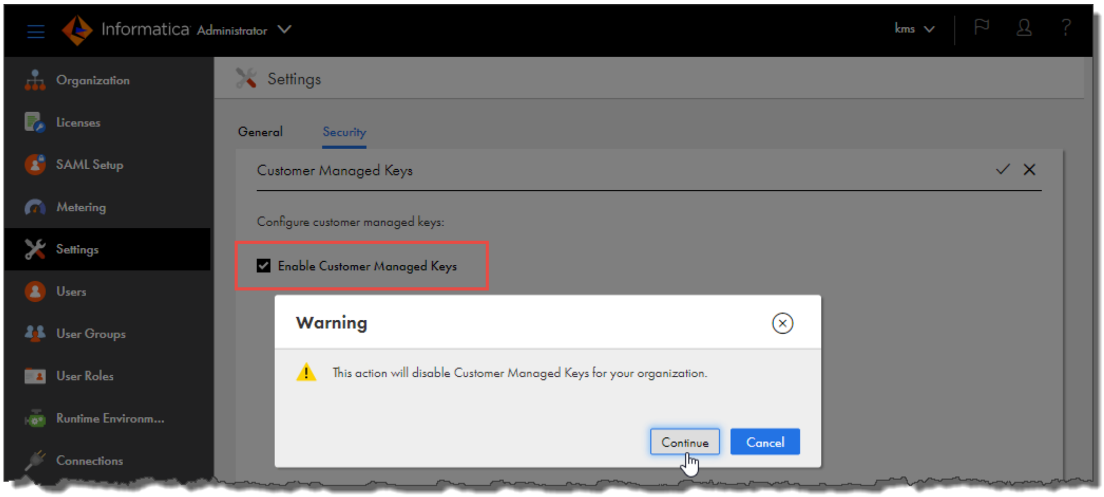
If you need to update the CMK, first provision a new CMK in Azure Key Vault. Then, update the key details on the **Settings** page in Informatica Intelligent Cloud Services Administrator.

**Note:** Be sure to keep the old version of the CMK in Azure Key Vault active until you update the key details in Informatica Intelligent Cloud Services.

You can delete the old version of the CMK in Azure Key Vault after you update the key details on the **Settings** page in Informatica Intelligent Cloud Services Administrator.

## What if I want Informatica to manage key encryption?

If you want Informatica to manage key encryption, you can disable the **Enable Customer Managed Keys** option on the **Settings** page in Informatica Intelligent Cloud Services Administrator:



Customer Managed Keys

Configure customer managed keys:

☑ Enable Customer Managed Keys

Warning

This action will disable Customer Managed Keys for your organization.

When you do this, be sure to keep the current version of the CMK in Azure Key Vault active. If the CMK is not active, disabling customer managed keys in Informatica Intelligent Cloud Services fails.

When you disable this option, your organization's encryption keys are once again encrypted using encryption keys that are managed by Informatica. It can take up to 10 minutes for the Informatica encryption keys to become active.

You can disable or delete the CMK in Azure Key Vault after you disable the **Enable Customer Managed Keys** option in Administrator.

## What if I want to temporarily revoke Informatica's access to the CMK?

If you want to temporarily revoke Informatica's access to the CMK, you can disable the key in Azure Key Vault.

When you disable the CMK, Informatica Intelligent Cloud Services can no longer unencrypt your organization's encrypted data, and any jobs that use the data will fail until you reactivate the CMK in Azure Key Vault.

## How do I replace the CMK if I suspect it has been compromised?

If you want to replace the CMK, you can delete the key in Azure Key Vault and create a new one.

**Warning:** Deleting the CMK in Azure Key Vault results in permanent loss to any encrypted data in Informatica Intelligent Cloud Services and causes the jobs that use the data to fail.

If you need to replace the CMK, perform the following steps so that you don't lose access to the encrypted data and jobs don't fail:

1. In Administrator, open the **Settings** page, click the **Security** tab, and disable the **Enable Customer Managed Keys** option.
2. In the Azure portal, delete the CMK.
3. In the Azure portal, create a new CMK.
4. On the **Settings** page in Informatica Intelligent Cloud Services Administrator, re-enable the **Enable Customer Managed Keys** option and enter the details for the new CMK.

### Can I delete the CMK if I don't want Informatica to access any of my encrypted data?

**Warning:** Deleting the CMK in Azure Key Vault results in permanent loss to any encrypted data in Informatica Intelligent Cloud Services and causes the jobs that use the data to fail.

If you're sure that you want Informatica to forgo all access to your encrypted data in Informatica Intelligent Cloud Services, you can delete the CMK in Azure Key Vault.

## Author

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